



## International Conference on Research for Development (ICRD 2012)

Research for Global Transformation

Pre-conference Proceedings  
University of Bern, Switzerland  
20-22 August 2012

(Light version without posters)

NCCR North-South Dialogue, no. 44  
2012

*dialogue*

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NCCR North-South, Management Centre,  
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Anne B. Zimmermann, NCCR North-South

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### Cover photo

Traditional farmhouses coexist with high-rise buildings constructed in the early 1970s on the outskirts of Bern, Switzerland. (Photo by Natalie Schäfer)

### Distribution

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# Contents

<b>1</b>	<b>Introduction</b>	<b>9</b>
<b>2</b>	<b>Abstracts of Keynotes and Parallel Sessions</b>	<b>11</b>
	<b>Theme 1: Tackling Global Change: Enhancing Positive and Minimising Negative Effects</b>	
<b>Keynote 1</b>	Transformation of Landscapes at the Interface of Global and Local Processes of Environmental Change <i>(Peter Verburg)</i>	12
<b>Keynote 2</b>	Climate Change: Disaster Risk Management and Adaptation for Enhancing Sustainability and Reducing Negative Impacts <i>(Allen Lavell)</i>	14
<b>Session 1</b>	Key Global Challenges in Water and Sanitation from the Perspective of the NCCR North–South Determining and Evaluating Behaviour Change Techniques in the Water, Sanitation, and Hygiene Sector	15 16
<b>Session 2</b>	Pathways to Sustainable Bioenergy	25
<b>Session 3</b>	Green Growth and Poverty Reduction	30
<b>Session 4</b>	Environmental Conflicts Revisited: Institutional Change, Natural Resource Use and Conflicts	35
<b>Session 5</b>	Adaptation to Climate Change: Actors, Resources, and Livelihoods	42
<b>Session 6</b>	Global Megatrends: Threats and Opportunities for Mountain Development	49
<b>Session 7</b>	Large-scale Land Acquisitions in the Global South: Towards a Research Agenda for the Coming Years	54
<b>Session 8</b>	Water and Land Management and Governance	61
<b>Session 9</b>	Landscape Transformation: Changing Services of Land in a Globalised World	67

## **Theme 2: Reducing Disparity: Narrowing Regional, Social, and Individual Inequalities**

<b>Keynote 1</b>	Development in a Changing World: Security Breeds Security <i>(Abid Qaiyum Suleri)</i>	72
<b>Keynote 2</b>	The Challenge of Multiple Inequalities and Transformative Social Change <i>(Shahra Razavi)</i>	73
<b>Session 10</b>	Beyond the MDGs: Rethinking State Involvement in Poverty Reduction and Development	74
<b>Session 11</b>	Highly Skilled Return Migrants: Enhancing Positive Effects	79
<b>Session 12</b>	Livelihood Futures in Resource-scarce Regions: How Will Food Entitlement Improve?	84
<b>Session 13</b>	The Sanitation-Health Nexus	89
<b>Session 14</b>	Effects of Global and National Policies on Rural Women's Livelihoods and Agency	96
<b>Session 15</b>	Social Equity and Resilience for Health: Towards Research as Development	101
<b>Session 16</b>	Going Beyond Basic Needs: New Opportunities to Reduce Inequalities in the Metropolises of the Global South	106
<b>Session 17</b>	Making the Labour Market Work for the Poor: Pathways Towards Inclusive Development?	111
<b>Session 18</b>	Statebuilding Versus Peacebuilding? The Construction of Political Legitimacy in Fragile and (Post-)Conflict Contexts	116

## **Theme 3: Enhancing Diversity: Fostering Cultural and Natural Heritage**

<b>Keynote 1</b>	Biodiversity, Self-organization, and Sustainability <i>(Peter Edwards)</i>	122
<b>Keynote 2</b>	Interdisciplinarity and Interculturality <i>(Luis Tapia)</i>	123
<b>Session 19</b>	Reconciling Cultural Diversity and Biodiversity: Assessing the Role of Communal Reserves, Community Conservation, and Other Models	124
<b>Session 20</b>	Governance of Bio-cultural Diversity: Challenges in Integrating Socio-cultural and Ecological Processes in Sustainable Development	132
<b>Session 21</b>	Legal Pluralism and Transformations of the Commons: Lessons for New Bottom-up Institutional Designs	140

<b>Theme 4: Enabling Research in Global Transformation: Learning from Current Experiences</b>	
<b>Keynote 1</b> Maximising the Impact of Research for Development: The Challenge and Possible Solutions <i>(John Young)</i>	145
<b>Keynote 2</b> [Abstract Missing] <i>(Hassan Mshinda)</i>	146
<b>Session 23</b> What Makes Development–Oriented Research Partnerships Effective? Looking Back to Move Forward	147
<b>Session 24</b> Advances and Constraints in North–South Technology Transfer and Delivery	152
<b>Session 25</b> Showcasing Research Products	157
<b>Session 26</b> Towards an Integrated Development Research Approach	162
<b>Session 27</b> When Does Knowledge Have an Impact? The Interaction of “Science” and “Policy” in Development and Peacebuilding	167
<b>Session 28</b> The Impact of Research on Policy: The Case of Stakeholder Dialogues in Development–Oriented Research	172
<b>Session 29</b> How to Get Transdisciplinary Work in a North–South Context Published: Learning From Experiences	180
<b>3 Posters (not available in this version of the reader)</b>	<b>185</b>
Session–Related Posters	186
NCCR North–South PhD Posters	216
<b>4 Conference Programme</b>	<b>276</b>
<b>Index of First Authors (Abstracts and Posters)</b>	<b>279</b>





# 1 Introduction

## **Background and scope of the ICRD 2012**

In order to make global transformation a reality, societies in the global North and South will need to agree to work towards sustainable development together. This requires mutual understanding of one another's values and norms, adequate political tools, more cooperation, mutual respect for cultural diversity, and sustainable use of natural resources. Among the tools that have proved adequate to achieve these goals are inter- and transdisciplinary approaches and North–South research partnerships.

The International Conference on Research for Development (ICRD 2012) is organised by the Swiss National Centre of Competence in Research (NCCR) North-South. The NCCR North-South involves over 350 individuals at more than 150 institutions in over 40 countries worldwide. These individuals and institutions are eager to learn from other programmes' experiences, to share their own insights, and to help shape research policy for the future.

The 3rd ICRD on Research for Global Transformation is the NCCR North-South's last major event, and, as such, will be a showcase for what the 12-year programme has achieved since it was launched in 2001.

The conference will bring together more than 300 researchers and representatives from development agencies, civil-society organisations, and the private sector to discuss experiences with research partnerships and with inter- and transdisciplinary approaches.

The ICRD 2012's main objectives are to:

- Share and discuss the most recent insights on development-oriented research conducted in North–South partnerships;
- Outline an agenda for research partnerships with developing and transition countries in support of more equitable and sustainable global transformation.

## **Conference themes**

The conference programme includes keynote speeches, plenary sessions, poster presentations, and parallel workshop sessions on specific topics, offering presenters and participants an opportunity for productive exchange. Contributions are grouped around four major themes:

### ***1. Tackling global change: enhancing positive and minimising negative effects***

Never in history has human development altered the Earth's bio-physical setting and social contexts more than at present. On the one hand, the resilience of natural resources is diminishing, and changes in climate, land use and land cover, water use, and biodiversity have been mostly negative. Given global trends for the coming 40 years, the resilience of the entire Earth's life support systems are at stake. On the other hand,

many processes of global change that relate to human development have been positive, despite persisting demographic growth and an absolute increase of the number of people affected by poverty. These processes are agents of change that can be used for furthering global transformation.

## ***2. Reducing disparity: narrowing regional, social, and individual inequalities***

Poverty and social disparity are major global problems that begin in local settings, and become more pronounced up-scale. Closing social gaps, supporting people in migration, working on gender imbalances, and developing multi-scale and multi-level approaches are important fields for research for global transformation.

## ***3. Enhancing diversity: fostering cultural and natural heritage***

Globalisation is often seen as a process where “global” rules and conventions override local cultural or religious norms and practices, and where natural resources are commodified and lose their intrinsic value and other functions. Maintaining cultural as well as natural diversity is of high significance for global sustainability; research partnerships are particularly suitable to address such values. An agenda for global transformation must take diversity into account.

## ***4. Enabling research in global transformation: learning from current experiences***

Since 2001 the National Centre of Competence in Research (NCCR) North-South has been conducting research in partnerships between Switzerland and developing and transition countries. Besides building individual capacity, the 12-year programme has been using disciplinary, interdisciplinary, and transdisciplinary approaches. These experiences can be compared with other programmes worldwide and pursued in the past, active at present, or planned for the future.

### **Pre-conference proceedings**

The present volume contains abstracts of all keynote speeches and papers to be presented at the conference. They follow the order of the conference’s four main themes and corresponding sessions, and can be found in section two. Section three contains session-related posters and the posters presented by current NCCR North-South PhD candidates. At the end of the volume, the conference programme and an author index are meant to help readers locate abstracts and posters that are of particular interest to them.

The conference organisers thank all authors for their abstracts and posters. We hope that this volume will contribute to strengthening the network of researchers engaged in research for development, and look forward to a fruitful exchange on global transformation issues both during the conference and beyond.

## 2 Abstracts of keynotes and parallel sessions

The papers in this section are ordered thematically, according to the four overall themes dealt with during the conference. For each theme, abstracts of the two keynote speeches are followed by the abstracts of the corresponding thematic parallel sessions in alphabetic order by authors.

### **Theme 1**

#### **Tackling global change: enhancing positive and minimising negative effects**

Keynotes: Allen Lavell and Peter Verburg  
Sessions: parallel sessions 1–9

### **Theme 2**

#### **Reducing disparity: narrowing regional, social, and individual inequalities**

Keynotes: Abid Suleri and Shahra Razavi  
Sessions: parallel sessions 10–18

### **Theme 3**

#### **Enhancing diversity: fostering cultural and natural heritage**

Keynotes: Peter Edwards and Luis Tapia  
Sessions: parallel sessions 19–21

### **Theme 4**

#### **Enabling research in global transformation: learning from current experiences**

Keynotes: John Young and Hassan Mshinda  
Sessions: parallel session 23–29

*Information:* On page 276 you will find a more detailed programme (including time and location). The full programme has been prepared as a separate booklet.

If you are looking for a specific presentation, please consult the index on pages 279–292, which lists the first authors of all abstracts alphabetically.

## Theme 1, Keynote 1 Transformation of Landscapes at the Interface of Global and Local Processes of Environmental Change

*Peter H. Verburg*<sup>1</sup>

<sup>1</sup>*Institute for Environmental Studies, VU University Amsterdam, The Netherlands  
(peter.verburg@vu.nl)*

Global environmental change is driven by changes in human–environment interactions resulting from demographic and socioeconomic changes. At the same time, development and societal change can be largely influenced by changes in the local and global environment. Strong spatial variation in the impacts of global change processes not only depends on the nature and strength of these impacts, but also on the spatial variation in vulnerability of places and people affected by these changes.

Land system change is key to global environmental change and a direct reflection of human–environment interactions across multiple spatial and temporal scales. Variations in land use history and cultural and environmental conditions have resulted in spatial and temporal differences in decision making and governance structures; this, in turn, has led to regional and spatial variability of impacts of global processes on local development and sustainability.

The driving factors of global change operate across different scales: localised changes in consumption patterns or the state of the environment have impacts at distant locations through the flow of water, the climate system, migrations of people, and trade of commodities. The concept of *teleconnection* in atmospheric science has been used to describe changes in one location that have an impact on the climate hundreds and even thousands of kilometres away.

Conversely, social scientists have long studied economic globalisation, which involves socioeconomic interactions between distant human systems. *Telecoupling* refers to both socioeconomic and environmental interactions between coupled human–environment systems across borders and distances, a notable example being large-scale international land acquisitions. Such global telecoupling affects human well-being through changes in the provisioning of ecosystem services.

New methods in land science aim to investigate the respective roles of global processes and the influence of local contexts as determinants of land system change, combining local case studies, multi-agent models, and global assessments.

This presentation will aim at introducing a number of these new research methods and discussing the role of variation in human–environment interactions, including adaptation to global change, in land system research. An important direction is the representation of land change by the changes in land systems. Land systems represent the composition, management, and ecosystem service provision of landscapes. Therefore, land systems go beyond the traditional focus on land cover change. Such integrated, multi-scale land change research will better help design alternative pathways of governing the Earth system and sustainable development.

## Theme 1, Keynote 2

### Climate Change: Disaster Risk Management and Adaptation for Enhancing Sustainability and Reducing Negative Impacts

*Allan Lavell<sup>1</sup>*

*<sup>1</sup>Latin American Social Science Faculty–FLACSO, San Jose, Costa Rica; and La Red de Estudios Sociales en Prevención de Desastres en América Latina–LA RED, Panama (allan\_lavell@yahoo.com)*

Climate change is real and is likely to alter the prevailing patterns of climate variability over time in different parts of the world. From a baseline of changing climate averages, both extreme events and other events lower on the intensity scale are likely to also change with regard to their intensity and recurrence, and some areas of the world not previously affected may be affected in the future. Along with increased hazardousness of some places and vulnerability of associated economies and societies, climate change will also bring benefits to certain areas. Although certainty as to the probability of future change is high, great uncertainty exists regarding the what, where, when, how much, and with what periods of return climate extremes and non-routine events will occur. This goes far beyond uncertainty regarding climate patterns under stationary climate and experienced historically.

Patterns of change in climate averages and climate extremes, anomalies, and non-routine events will demand new research formats and questions, planning, methodologies, and strategic approaches, and a different management of uncertainties in order to contribute to human and environmental sustainability, and thereby reduce the negative impacts of climate change, stabilising or increasing the overall resource base of society. Amongst the most salient and relevant planning formats those associated with disaster risk management (DRM) and climate change adaptation are likely to be of particular importance. The fact that both changing norms or averages and changing extremes or non-routine events will possibly now contribute to increased stress and risk in society signifies the need for a widening of the basis of disaster risk management in the future. In the present paper we hope to elucidate or polemicise the principle challenges to be faced in instrumenting adequate future DRM and adaptation to promote sustainability. These challenges are of a research-action and policy-instrumentalisation type, where definition of needs and opportunities can only be successful if they are supported by an adequate conceptual framework for considering change, stress, and risk. The principle aspects of such a framework will also be developed in this paper.

## Theme 1, Session 1 Key Global Challenges in Water and Sanitation from the Perspective of the NCCR North–South

**Guéladio Cissé<sup>1</sup>, Thammarat Koottatep<sup>2</sup>, Ibrahima Sy<sup>3</sup>, Christian Zurbrügg<sup>4</sup>,  
David Bradley<sup>5</sup>**

<sup>1</sup>Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland (gueladio.cisse@unibas.ch), <sup>2</sup>School of Environment, Resources and Management (SERM), Asian Institute of Technology, Klong Luang, Thailand (thamarat@ait.ac.th), <sup>3</sup>Institut National de Recherches en Santé Publique, Nouakchott, Mauritania (ibrahima.sy@unistra.fr), <sup>4</sup>Department for Water and Sanitation in Developing Countries, Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Dübendorf, Switzerland (christian.zurbruegg@eawag.ch), <sup>5</sup>Departments of Zoology and Geography, University of Oxford, United Kingdom (david.bradley@lshtm.ac.uk)

Lack of safe drinking water and sanitation facilities is among the root causes of hunger, disease, mortality and poverty throughout the developing world. For this reason, two of the targets set under the Millennium Development Goals to be achieved by 2015 are to reduce by half the proportion of people without sustainable access to safe drinking water and without basic sanitation.

The use of improved drinking water sources in developing countries does not guarantee that people have access to safe drinking water; from the different water sources to transportation means and household storage facilities, the water can be affected by various forms of contamination. The Joint Monitoring Programme (JMP) for water and sanitation of the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) is still seeking a feasible way to monitor the effective quality of water at all water points from source to use. Moreover, in developing countries wastewaters and excreta from different sources are rarely discharged into a functioning sewage system, nor do they reach an adequate treatment plant. Instead, they are often discharged directly into the natural environment, such as surface waters (e.g. rivers, lakes, lagoons, and the sea), forests, and open fields. In poor, densely populated urban slum areas, wastewater frequently remains on site and in close proximity to the inhabitants. Wastewater is increasingly re-used, particularly for agriculture and aquaculture at the urban–rural interface. Safe use of wastewater and the general needs of health protection pose many challenges to health and wellbeing.

This session will focus on two major global water challenges – drinking water quality monitoring and wastewater management – as well as their respective cumulative links with health. The session will consist of contributions from the NCCR North South, of which two will focus on drinking water issues and two on concerns related to wastewater. Following the presentations, two invited discussants will relate this NCCR North-South research to the process of setting the Joint Monitoring Programme's post-2015 agenda.

## Theme 1, Session 1 Determining and Evaluating Behaviour Change Techniques in the Water, Sanitation, and Hygiene Sector

*Hans-Joachim Mosler<sup>1</sup>*

*<sup>1</sup>Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Dübendorf, Switzerland (mosler@eawag.ch)*

Public health practitioners increasingly agree that it is not enough to provide people with water and sanitation hardware. It seems evident that an approach is needed to tackle the “software” – that is, to ensure the necessary behaviour change along with the hardware. Presentations in this session will demonstrate the useful application of a systematic methodology of behaviour change based on a psychological approach in different projects in the water, sanitation, and hygiene sector.

The first presentation (Mosler) will introduce the setup of the methodology and the RANAS (Risk, Attitudes, Norms, Abilities, and Self-regulation) model of behavioural change. The second presentation (Inauen and Mojahidul) will show the effectiveness of different evidence-based behaviour change techniques in augmenting arsenic-safe water consumption in Bangladesh. The third contribution (Kamara Tumwebaze) presents behaviour change interventions for toilet cleaning in slums of Kampala (Uganda) developed from the results of a survey which was based on the RANAS model. The fourth presentation (Contzen and Mosler) reveals the success of different health promotion activities in Haiti conducted after the catastrophic earthquake of 2010. The last contribution (Huber and Lemma) demonstrates the effectiveness of behaviour change techniques in increasing the consumption of fluoride-free water in rural Ethiopia.

All of these presentations validate the usefulness of the psychological approach in enhancing our knowledge about determinants of behaviour change – knowledge that is indispensable for improving public health campaigning.



## Groundwater Quality and Students' Health Status in Residential Areas of Bonamoussadi, Yaoundé (Cameroon)

*Ives Magloire Kengne<sup>1</sup>, Laure Ducreux<sup>2</sup>, Kouassi Dongo<sup>3</sup>, Amougou Akoa<sup>1</sup>*

*<sup>1</sup>University of Yaoundé I, Cameroon (ives\_kengne@yahoo.fr), <sup>2</sup>Département des Sciences de la Terre, de l'Eau et de l'Environnement de Montpellier (DESTEEM), University of Montpellier, France (laureducreux@gmail.com), <sup>3</sup>Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS), Abidjan, Côte d'Ivoire (kouassi.dongo@csrs.ci)*

In Yaoundé, the limited coverage of the piped-water network and frequent interruptions in the supply of tap water have led populations to rely on water from springs and wells for domestic chores and drinking. Within the framework of the Institutionalisation de l'Approche Ecosystème et Santé Humaine en Afrique de l'Ouest et du Centre (COPES-AOC) and the Swiss National Centre of Competence in Research (NCCR) North-South, a study was conducted between 2009 and 2011 in Bonamoussadi, Cameroon, to identify the prevalence of water-related diseases among students of the University of Yaoundé I that live in densely populated residential areas, as well as to find the sources, pathways, and factors contributing to water contamination in local wells and springs.

The study revealed that up to 73% of students suffered from water-related diseases within six months of the study. Stomach pains were the most frequent complaint attributed to consumption of poor-quality water (37%), followed by malaria (32%), typhoid fever (12.3%), and amoebiasis (10.3%). The study also revealed generally poor sanitation at groundwater supply facilities, with 87% of the water points analysed displaying "high contamination risk" or worse. Total sanitation risk was directly linked to the level of contamination. Frequency analyses of the data revealed a strong association between the degree of faecal contamination and the presence of uphill latrines and/or other sources of contamination such as solid waste. No strong association was found between the degree of contamination and the design of facilities or their default construction (localised pathways).

Contributing factors such as the use of contaminated buckets to extract water from wells and animals' use of springs were identified as major sources of risk. Participatory approaches to addressing these factors may contribute to improving the sanitary and health conditions in the area.

## Vulnerability and Capacity to Adapt Water Supply Facilities to Climate Change in Developing Countries

*Thammarat Koottatep<sup>1</sup>, Anjali M. Sherpa<sup>2</sup>, Christian Zurbrügg<sup>3</sup>, Guéladio Cissé<sup>4</sup>*

*<sup>1</sup>School of Environment, Resources and Management (SERD), Asian Institute of Technology, Klong Luang, Thailand (thamarat@ait.ac.th), <sup>2</sup>2500B Solutions Pvt. Ltd., Kathmandu, Nepal (anjali.sherpa@gmail.com), <sup>3</sup>Department for Water and Sanitation in Developing Countries, Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Dübendorf, Switzerland (christian.zurbruegg@eawag.ch), <sup>4</sup>Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland (gueladio.cisse@unibas.ch)*

Climate change has emerged as one of the major challenges in today's world, resulting in extreme weather events such as tropical cyclones, heavy precipitation events, drought, and extreme heat events. Most parts of the world have seen an increase in the frequency of heavy precipitation events causing floods and landslides. The world is not on track to achieving the Millennium Development Goal (MDG) target of halving the proportion of the population without sustainable access to safe drinking water and basic sanitation by 2015, given that about 1.1 and 2.5 billion people still lack access to safe drinking water and improved sanitation, respectively. In this context it is likely that there will be a setback in the progress towards preventing water supply facilities from being destroyed or damaged due to climate change events.

Despite significant improvements in providing access to water supply in the past decades, climate change could have tremendous effects on water supply facilities, especially in the case of poor sanitation infrastructure. Overflow of sanitation infrastructure such as sewer networks, or of onsite facilities such as pit latrines or cesspools in the context of flood events would cause a serious threat to human health due to vast distribution of water-borne diseases. Developing countries are the most vulnerable to these impacts since they have limited access to social, technological, and financial resources. Rapid urbanisation with inadequate and poorly managed water supply and sanitation infrastructure, in conjunction with expansion of informal settlements, further exacerbates risks.

This contribution presents a case study in Thailand, where the devastating floods in late 2011 not only damaged infrastructure but also had detrimental impacts on people's livelihoods due to a lack of safe drinking water for months. Even in a metropolitan city like Bangkok, the disruption of water supply facilities has triggered intense public concerns as to tap water being contaminated with various kinds of pollutants due to uncontrolled distribution of garbage and human excreta, including industrial wastes.

## Equitable Access to Water in Multi-water Supply Systems of Bouaké, Côte d'Ivoire

*Bétio Silué<sup>1</sup>, Issiaka Savane<sup>2</sup>, Brama Koné<sup>3,4</sup>, Christian Zurbrügg<sup>5</sup>, Guéladio Cissé<sup>6</sup>*

*<sup>1</sup>Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS), Abidjan, Côte d'Ivoire (betio.silue@csrs.ci), <sup>2</sup>Université d'Abobo-Adjamé, Abidjan, Côte d'Ivoire (isavane@hotmail.com), <sup>3</sup>Université de Bouaké, Côte d'Ivoire (bramakone@gmail.com), <sup>4</sup>Unité Régionale de l'Enseignement Supérieur (URES), Korhogo, Côte d'Ivoire, <sup>5</sup>Department of Water and Sanitation in Developing Countries, Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Dübendorf, Switzerland (christian.zurbruegg@eawag.ch), <sup>6</sup>Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland (gueladio.cisse@unibas.ch)*

Equity is a principle of fairness that varies according to the values of each society. While everyone may not possess equal shares of a given resource, they must all have acceptable access. Access to safe water and adequate sanitation facilities are prerequisites for human health. Unfortunately, around a billion people lack such access, mainly those living in poor urban areas of developing countries. Equitable access to safe water is a key Millennium Development Goal (MDG).

In Bouaké, the water supply is intermittent. To mitigate this irregularity, people use or combine several water supply systems. While this improves their access to water, it also creates further inequities. The objective of this study was to analyse equity indicators for these types of diversified systems. A one-time questionnaire was administered to 384 households: 200 in Sokoura and 184 in Oliénoù. Ten indicators were used to assess the equity of the different water supply systems.

Four water systems were used in Sokoura: individual public taps; associated public taps and buying water; a water distribution system with wells; and wells alone. Three water systems were used in Oliénoù: drinking fountains; drinking fountains and wells; and wells alone. Our results showed that only 49% of Sokoura residents have access to water via an individual connection to public water supplies; further, 22% of the area requires an extension of the water distribution network to enable access. In Oliénoù, drinking fountains cover only 12% of water consumption. The difference between the proportion of households that have acceptable access to water and those that do not was statistically significant for 8 of 10 indicators with regard to the water supply systems, showing that the diversity of water supply systems increased inequities. Our multi-criteria equity analysis revealed Oliénoù's predominant wells to be the most equitable water system in such contexts.

## Wastewater and Health in Urban–Rural Interfaces: Case Studies in West Africa and Southeast Asia

*Ibrahima Sy<sup>1</sup>, Jürg Utzinger<sup>2</sup>, Astrid Knoblauch<sup>2</sup>, Peter Odermatt<sup>2</sup>, Daniel Mäusezahl<sup>2</sup>, Thammarat Koottatep<sup>3</sup>, Christian Zurbrügg<sup>4</sup>, David Bradley<sup>5</sup>, Guéladio Cissé<sup>2</sup>*

*<sup>1</sup>Institut National de Recherches en Santé Publique, Nouakchott, Mauritania (ibrahima.sy@unistra.fr), <sup>2</sup>Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland (gueladio.cisse@unibas.ch), <sup>3</sup>Asian Institute of Technology, Klong Luang, Thailand (thamarat@ait.ac.th), <sup>4</sup>Department for Water and Sanitation in Developing Countries, Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Dübendorf, Switzerland (christian.zurbruegg@eawag.ch), <sup>5</sup>Departments of Zoology and Geography, University of Oxford, United Kingdom (david.bradley@lshtm.ac.uk)*

Poor hygiene, sanitation, and water quality are responsible for an estimated loss of between 1.7 and 2.4 million human lives annually and cause 54.2 million disability adjusted life years (DALY). Diarrhoea caused by unsafe water accounts for an estimated 19% of deaths among children under five. The majority of this health burden falls on poor people in developing countries. The situation is most critical in highly dynamic contexts of urban–rural interface: in poor and densely populated slum areas that are treated as “backyard” urban wastewater disposal and reuse areas, with severe consequences for human health and local ecosystems. In these contexts and others, wastewater may harm people through direct contact, ingestion, or inhalation; it may also harm them through indirect exposure pathways such as by consuming vegetables or fish/shellfish harvested in contaminated water.

This presentation summarises the results of a comprehensive review of the cumulative health effects of wastewater in contexts of urban–rural interface. It draws on research evidence and experience gained in West Africa and Southeast Asia in the framework of the Swiss National Centre of Competence in Research (NCCR) North-South. The results of microbiological analysis from the two regions revealed contamination of water bodies with faecal coliforms (FC), faecal streptococci (FS), and *Salmonella* spp due to wastewater reuse. In the majority of samples, the levels of bacteriological pollution in all types of water were above the acceptable thresholds of 1,000 FC per 100 ml as recommended by the World Health Organization in regards to irrigation of vegetables. Many samples displayed very high contamination levels of 9.4 E7 FC/100 ml.

The negative impact of wastewater on human health was confirmed by epidemiological investigations. In some contexts, direct contact with wastewater (e.g., on the part of farmers) was the principal risk factor explaining about 35% of cases of illness. Important seasonal and spatial differences were also found regarding wastewater pollution. More capacity building and policy action are urgently needed to assess the health impacts of wastewater disposal and reuse in contexts of urban–rural interface.

## Evidence-based Behaviour Change Interventions: Increasing Safe Water Consumption in Rural Ethiopia

*Alexandra C. Huber<sup>1</sup>, Feyissa Lemma<sup>2</sup>*

*<sup>1</sup>Swiss Federal Institute of Aquatic Science and Technology (Eawag), Dübendorf, Switzerland (alexandra.huber@eawag.ch), <sup>2</sup>Oromo Self Help Organization (OSHO), Mojo, Ethiopia (fayulem99@yahoo.com)*

Worldwide, around 200 million people rely on drinking water contaminated with an excess of fluoride. In Ethiopia 8.5 million people are at risk of developing dental and skeletal fluorosis resulting from excessive fluoride uptake through water. Since medical treatment of the disease is difficult and mostly ineffective, the prevention of fluoride intake becomes essential.

In the investigated area, a community fluoride removal filter was installed. In a baseline survey in September 2010, 173 face-to-face interviews were conducted to identify enhancing and hindering factors of filtered water consumption. Two behaviour change campaigns were applied after the baseline: one intervention was designed based on the results obtained from the baseline survey targeting people's perceived costs, the other was based on the common NGO approach targeting perceived vulnerability. The interventions were tailored to the households' requirements (high perceived costs or high vulnerability). The campaigns were evaluated using a survey and analysed as to their effectiveness in changing behaviour and the targeted psychological factors. For the analysis of change over time, non-parametric tests were performed. The intervention on perceived costs decreased price perception and increased the consumption of fluoride-free water. The vulnerability intervention showed no effects, neither influencing perceived vulnerability, nor increasing consumption behaviour.

The results show that evidence-based interventions are more effective in changing behaviour than interventions based on the common NGO approach. Finally, the study showed that if interventions are tailored to households' needs, they show stronger effects in changing behaviour than if they do not fit the target group. Our main conclusions drawn from this study are that (1) with behaviour change campaigns, behaviour can be changed without changing objective barriers, (2) intervention campaigns should be designed based on evidence, and (3) campaigns should be tailored to the target group.

## Behaviour Change Techniques to Enhance Arsenic-safe Water Consumption in Bangladesh

*Jennifer Inauen<sup>1</sup>, Mohammad Mojahidul Hossain<sup>1</sup>*

*<sup>1</sup>Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Dübendorf, Switzerland (jennifer.inauen@eawag.ch)*

Many arsenic-safe drinking water options have been installed in Bangladesh to mitigate arsenic contamination. However, despite awareness campaigns, not all of these options are being used by the population. Interventions based on health psychological theory are likely to increase effects of awareness or informational interventions targeted at safe water consumption. The aims of this study are to identify behavioural factors associated with consuming arsenic-safe water, and to develop effective theory-based interventions to target these factors.

Behavioural factors from health psychological theory related to consuming arsenic-safe water were determined with structured household surveys in rural Bangladesh. Study 1 (N=396) was conducted in Monoharganj, where deep tubewells provide arsenic-safe water. Study 2 (N=379) was conducted in Shivalaya, where the density of arsenic contamination is lower and allows for well-switching (i.e. using neighbouring arsenic-safe tubewells). Logistic regressions indicated that the following factors are associated with arsenic-safe water use: commitment, descriptive norm, self-efficacy, knowledge, and vulnerability. To target these factors, a set of interventions was developed: reminders, implementation intentions, and public commitment. The behaviour change effects of combinations of these interventions with risk information were then tested in two cluster-randomised controlled trials.

In Study 1, in line with our hypotheses, information alone led to smaller behaviour change than reminders and information (11.8% vs. 29.1% of households switched to arsenic-safe options). Implementation intentions with reminders and information, in turn, led to greater behaviour change than reminders alone (41.4% switched). The combinations of all interventions with public commitment were most effective (65.1% switched). These results were replicated in Study 2, except for the public commitment intervention; this did not lead to more well-switching than the information-only intervention (18.1% switched). The results of this study suggest that interventions based on health psychological theory can greatly enhance effects of informational interventions.

## A Systematic Approach to Behaviour Change

*Hans-Joachim Mosler<sup>1</sup>*

*<sup>1</sup>Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Dübendorf, Switzerland (mosler@eawag.ch)*

Behaviour change is the result of psychological processes within the individual. Consequently, in health promotion campaigns one has to take into account how the relevant factors can be tackled using behavioural change techniques.

This paper presents the RANAS (Risk, Attitudes, Norms, Abilities, and Self-regulation) model of behavioural change, which postulates that for the formation of new habitual behaviour, five blocks of factors must be positive with regard to the new behaviour: risk factors, attitudinal factors, normative factors, ability factors, and self-regulation factors. Standardised tools for measuring the factors in face-to-face interviews are presented, and behavioural interventions are provided for each factor block

A statistical analysis method is presented which allows determining the improvement potential of each factor. The corresponding behavioural interventions can be selected according to the model. The proposed eight-step protocol for conducting behaviour change campaigns depicts the most important steps required to induce behaviour change in the water and sanitation sector in a systematic way.

## Developing Behaviour Change Techniques Targeting Cleaning by Users of Shared Toilets in Kampala Slums

*Innocent K. Tumwebaze<sup>1</sup>, Hans-Joachim Mosler<sup>2</sup>*

*<sup>1</sup>Department of Psychology, University of Zurich, Switzerland (kamarainnocent.tumwebaze@uzh.ch, kamara.innocent@gmail.com), <sup>2</sup>Department of Systems Analysis, Integrated Assessment and Modelling, Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Dübendorf, Switzerland (Hans-Joachim.Mosler@eawag.ch)*

Access to improved sanitation is a key health indicator as it is a measure to prevent the outbreak of diseases such as diarrhoea. While physical sanitation facilities are the first step to ensuring proper human excreta disposal mechanisms, behavioural aspects in their use and maintenance are equally important. In situations where sanitation facilities exist but are shared among a number of families, maintaining cleanliness is often a challenge. Yet inadequate cleanliness is an important risk factor regarding infections and mortality from sanitation- and hygiene-related diseases. A cross-sectional study was thus conducted in the slums of Kampala to assess the cleanliness of shared toilets. The aim of the assessment was to develop behaviour change techniques targeting cleaning by users of shared toilets.

Household questionnaires were administered to 1500 respondents from 50 randomly selected slums. The assessment tool was developed based on selected components of the RANAS (Risks, Attitudes, Norms, Abilities, and Self-regulation) model of behavioural change. Regressions on habits and cleaning intentions by the users of shared toilets were analysed.

Out of the 1013 household respondents who reported using shared toilets, close to one half (46.1%) were using dirty toilets and slightly less than one quarter (21.9%) reported using neither clean nor dirty toilets. Some habits and intentional factors influencing cleaning behaviours included strength required for keeping the toilet used clean (intention), others' perceptions of one leaving a facility dirty (normative), perceived disgust of leaving a toilet dirty (cognitive), talking to other toilet users about the importance of keeping it clean (expressed cleaning demand), ease/difficulty in keeping a toilet clean (abilities), and perceived goodness/badness of using a dirty toilet (attitude).

Entry factors for development of cleaning behaviour change techniques included talking to other toilet users about the importance of keeping it clean, others' perceptions of one leaving a facility dirty, and ease/difficulty in keeping a toilet clean.



## Theme 1, Session 2 Pathways to Sustainable Bioenergy

*Albrecht Ehrensperger<sup>1</sup>, Brigitte Portner<sup>1</sup>, Rainer Zah<sup>2</sup>*

*<sup>1</sup>Centre for Development and Environment, University of Bern, Switzerland (albrecht.ehrensperger@cde.unibe.ch; brigitte.portner@cde.unibe.ch), <sup>2</sup>Swiss Federal Laboratories for Material Science and Research (EMPA), Dübendorf, Switzerland (rainer.zah@empa.ch)*

Global change calls for a fundamental transformation of the current fossil-fuel-based energy system to new forms of energy provision. Energy from biomass already covers more than 10% of global demand and more than 90% of demand in some developing countries, giving it a potentially important role in decarbonising today's energy system. There is, however, considerable controversy about the social and environmental risks that increased production and use of bioenergy might cause: bioenergy production augments pressure on labour and natural resources and competes with food production, thus reducing food security.

Production and use of bioenergy can only be sustainable if food and energy security, economic benefits and challenges, and possible impacts on natural resources are all taken into consideration. Adequate and up-to-date knowledge and information about realistic bioenergy value chains, as well as strong enabling policies and efficient technologies are needed to promote effective solutions capable of satisfying local to global needs.

This session aims to highlight achievements and limitations of current bioenergy systems and to point towards innovative and adapted solutions. Presentations will address ways in which bioenergy systems can contribute to tackling global change, with a particular focus on climate change mitigation and adaptation, energy security, food security, and rural development. They will highlight different bioenergy systems and explore possible energy pathways for rural and urban communities as well as national energy strategies of developing countries.

## National and Local Perspectives on the Impacts of Biofuels on Food Security in Kenya

*Albrecht Ehrensperger<sup>1</sup>, Olivia Grimm<sup>1</sup>, Brigitte Portner<sup>1</sup>, Boniface Kiteme<sup>2</sup>*

*<sup>1</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland (albrecht.ehrensperger@cde.unibe.ch), <sup>2</sup>Centre for Training and Integrated Research in Arid and Semi-arid Lands Development (CETRAD), Nanyuki, Kenya*

The global increase in biofuel production and demand raises concerns about possible negative impacts of this development on food security. Competition for arable land and the rise or fluctuation of food prices are seen as the two major risks threatening the food security of vulnerable communities. Reasons for food insecurity are multi-dimensional, however, and are not always linked to the volume of food production or the prices of food items. Understanding the various drivers of food insecurity as well as the challenges faced by communities in specific contexts is hence necessary to comprehend possible impacts of biofuel development on food security.

The research presented here has two objectives: (1) to provide an overview of food insecurity levels and drivers at the national scale in Kenya and to derive conclusions regarding the potential impact of biofuel development on food security in the country; and (2) to assess food security and land cover change in three case study areas in Kenya to gain context-specific knowledge about the current impacts of *Jatropha curcas* production on food security at the community level.

Preliminary results reveal that levels and drivers of food insecurity in Kenya vary from region to region, are multidimensional, and are linked to several economic, ecological, sociopolitical, sociocultural, and land-use-management-related factors. Findings also indicate that the potential impacts of biofuels on food security are likely to be very different from one area to another. Research in the case study areas revealed that *Jatropha curcas* currently has no negative impact on food security, as it is cultivated only by food-secure farmers, who consider it as a venture crop. We conclude that (1) sustainable biofuel policies at the national level must take account of the diversity of food insecurity drivers in order to identify adequate solutions; and (2) that *Jatropha* is currently not negatively affecting food security in the three case study areas, as it is only cultivated by food-secure farmers as a venture crop. Nevertheless, as a matter of precaution *Jatropha curcas* should not be planted on plots; instead, priority should be given to hedges or food crops in order to avoid negative impacts on food security.

## Jatropha: Green Gold? Life Cycle Assessment of Different Jatropha Bioenergy Systems in Eastern Africa

*Simon Gmünder<sup>1</sup>, Rainer Zah<sup>1</sup>*

*<sup>1</sup>Technology and Society Lab, Swiss Federal Laboratories for Materials Science and Technology (EMPA), Dübendorf, Switzerland (simon.gmuender@empa.ch, rainer.zah@empa.ch)*

The need to produce climate-friendly fuels, decrease fossil-fuel dependency, and create rural development opportunities has contributed to a significant increase in biofuel production. Current bioenergy feedstocks such as maize, sugar cane, and palm oil often have a significant negative impact on the environment and compete with food crops for agricultural land. In Eastern Africa, new hopes have been placed in *Jatropha curcas* L., which grows on marginal soils, tolerates droughts, and has seeds that contain high-quality non-edible oil. The oil can be used either to secure rural energy supply or as fuel for the national and international transport sectors. It is assumed that *J. curcas* can be cultivated in a more sustainable way than today's widespread energy crops mentioned above.

The objective of this study is to assess the greenhouse gas (GHG) emissions and the non-renewable energy demand linked to *J. curcas* cultivation, processing, and use in Eastern Africa. The calculation is based on the life cycle assessment (LCA) approach and data collected at case study sites in Kenya, Tanzania, and Ethiopia. The GHG results of *J. curcas* are benchmarked against fossil fuels and used to assess the potential of *J. curcas* for system optimisation. This information can serve as a scientific knowledge base for decision-makers.

The results indicate that the studied *J. curcas*-based energy system reduces GHG emissions by more than 40% as compared to fossil fuels. The GHG results are generally less dependent on where and how the fuel is used than on where and how *J. curcas* is cultivated. Especially the direct and indirect impacts of land use changes determine the GHG balance. The highest GHG reduction can be achieved if *J. curcas* is cultivated as fences, substituting deadwood fences. In addition to its favourable GHG balance, growing *J. curcas* as fences is also preferable over block plantations in terms of land opportunity costs and because it does not compete with food production.

## Gold Standard Biogas VER Project: Renewables for Improved Livelihoods and Conservation

*Ghana Shyam Gurung<sup>1</sup>, Ugan Manandhar<sup>1</sup>*

<sup>1</sup>*WWF Nepal, Kathmandu, Nepal (ghana.gurung@wwfnepal.org)*

Climate change brings about unprecedented challenges and impacts. Carbon financing comes as an opportunity to combat climate change for the benefit of people and nature. Carbon financing under the Clean Development Mechanism (CDM) was decided by all parties as one of the flexible mechanisms under the Kyoto Protocol in favour of developing countries. There are two CDM modalities: the first, under the compliance market, which is monitored by the UNFCCC, is issuing Certified Emission Reductions (CERs), and the second, under the voluntary market, which is not monitored by the UNFCCC, is issuing Voluntary (or Verified) Emission Reductions (VERs).

The WWF Nepal Gold Standard Biogas VER Project implemented in the Terai Arc Landscape (TAL) uses the voluntary market approach. Under this project, 7500 biogas plants are constructed across TAL, directly benefiting conservation and improving livelihoods of local people living in and around biodiversity hotspots. Initially, the resources for kick-starting the project and constructing the biogas plants were provided by the WWF network. This gold standard project is taken as an example by the WWF network and many conservation institutions as a way forward for long-term conservation through carbon financing.

The biogas project will offer credits for 21 consecutive years, starting from 2007, in three intermittent periods of seven years each. The project has been validated and the first verifications for 2007 and 2008 accounted for 12,125 tonnes of CO<sub>2</sub>-equivalent from 2685 plants. The second verification for 2009 accounted for 13,606 tonnes of CO<sub>2</sub>-equivalent from 3973 plants. MyClimate is the buyer of these credits and has offered 13.5 euros per ton of CO<sub>2</sub>-equivalent.

Alongside creating a sustainable financing mechanism, the biogas project brings multiple benefits. It helps conservation efforts as it reduces the pressure on forests, provides health and sanitation benefits, and has spill-over social benefits such as saving time resources formerly used for collecting firewood and now using them for economic and social activities. The biogas enhances homestead cleanliness. All these benefits uplift the social status of beneficiaries.

## Assessing the Drivers of *Jatropha* Adoption in Kenya and Its Contribution Towards Improving Rural Livelihoods

*Violet Mogaka*<sup>1</sup>, *Miyuki Iiyama*<sup>1</sup>, *Albrecht Ehrensperger*<sup>2</sup>, *Martin Birtel*<sup>3</sup>,  
*Simon Gmünder*<sup>3</sup>

<sup>1</sup>World Agroforestry Centre, Nairobi, Kenya (violademorries@gmail.com),

<sup>2</sup>Centre for Development and Environment, University of Bern, Switzerland

(albrecht.ehrensperger@cde.unibe.ch), <sup>3</sup>Swiss Federal Laboratories for Materials Science and Technology (EMPA), Dübendorf, Switzerland

Recent introduction of *Jatropha curcas* L. in Kenya was aimed at improving rural livelihoods by generating income and supplying sustainable, affordable, and locally produced energy. This study aims to examine and understand the drivers of *jatropha* adoption by smallholders in Kenya and to assess the impact of *jatropha* adoption on rural livelihoods. We hypothesise that capital assets play a major role in *jatropha* adoption, as they enable households to venture into new strategies.

Taking a sustainable livelihoods approach, we assessed who adopts *jatropha*, why and how adoption takes place, and what impact it has on rural livelihoods in three ecologically different study areas in Kenya (Kibwezi, Bondo, and Kwale). We also compared adopters and non-adopters in terms of asset endowment, and assessed the contribution of *jatropha* oil towards energy security of rural households.

Factors affecting adoption were found to be highly site-specific, with financial assets not having a significant influence as initially expected. We also conclude that *jatropha* production is currently not economically viable for smallholders except when planted as fences. However, *jatropha* oil has the potential to bridge energy supply gaps in rural areas. For this reason, we recommend the implementation of adequate policies and rural advisory systems on bioenergy to guide the development of *jatropha* production.

## Theme 1, Session 3 Green Growth and Poverty Reduction

*Karen Ellis<sup>1</sup>*

<sup>1</sup>*Overseas Development Institute (ODI), London, United Kingdom (k.ellis@odi.org.uk)*

Achieving “green growth” (new sources of employment and income which are environmentally sustainable, low carbon, and socially inclusive) is the new global imperative, and it is an urgent and challenging task. There is a huge demand for guidance and practical examples of successful policy interventions. While no single country can be said to have yet achieved green growth, many emerging economies – including China, India, Brazil – are implementing or experimenting with innovative policy approaches, and have succeeded in stimulating considerable amounts of investment and innovation by business as a result. So there is enormous scope to identify emerging lessons in real time, as policies are rolled out, so as to generate the policy and practical recommendations needed to promote green growth in other emerging and low-income countries.

ODI has started a collaborative four-year research and knowledge exchange programme together with the IPRCC and partners of GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit) in India to promote more informed policymaking by identifying and disseminating lessons for governments, donors, and the international policy community based on experience in emerging markets, in collaboration with research partners in China, India, and Brazil. The Programme aims to provide robust evidence on the existence of the (much vaunted, but as yet largely unsubstantiated) co-benefits or triple wins associated with green economy approaches and includes: (1) the identification of key policies and interventions promoting green growth in each country; (2) consultation with business, to understand the opportunities and constraints to investment, and the supporting policy requirements; (3) assessment of impact on income, poverty reduction, employment opportunities, poverty and the environment (including carbon emissions and natural resource use).

In this session I will present the concept of green growth, and provide some examples of the green growth opportunities that may arise in different sectors of the economy, including agriculture, forestry, energy generation, manufacturing, waste management, construction, and tourism. I will also discuss some of the policies that can be used to promote green growth. This session will therefore provide an introduction to the concept of green growth and associated policies, and the experience from China and India will then be discussed in subsequent presentations given by our partners from each of those countries.

## Use of the Capability Approach to Question the Potential of PES for Poverty Reduction

*Florence Bétrisey<sup>1</sup>*

*<sup>1</sup>Institute of Geography, University of Lausanne, Switzerland (florence.betrisey@unil.ch)*

Through which mechanisms can Payments for Ecosystem Services (PES) reduce poverty in marginal communities? This presentation investigates this question, focusing on market-like PES that are gaining emphasis due to the UN REDD+ programme as well as the Green Economy paradigm. Such PES are often promoted as an instrument for increasing the well-being of local service providers in developing countries, but are also contested regarding their effect on sovereignty and their potential for increasing inequalities between participants in PES schemes. While the question of PES's impact on poverty has been examined in the literature, the focus has often been on increases in income and other assets. Power dimensions have not been explicitly investigated. They have only been considered regarding access to PES schemes and negotiation processes.

Based on a different concept of poverty, this contribution takes another approach to assessing poverty reduction processes: Amartya Sen's Capability Approach (CA). This framework considers people's freedoms to be and do what they value as constitutive of well-being and places these freedoms at the centre of its analysis, rather than focusing solely on means or the presence of assets. This enables accounting for sociopolitical constraints and power relations as well as different values and concepts of well-being constituents. This new conceptualisation of poverty also highlights questions of agency and autonomy of action by distinguishing between opportunity and process freedoms. There is no direct, causal relationship between PES and poverty reduction. Rather, depending on the context, PES can contribute either to an increase or a reduction of opportunity and/or process freedoms that are constitutive of well-being and "development".

## Can Market Actors Help Solve Environmental Problems?

*Hatice Damla Ciftci<sup>1</sup>*

*<sup>1</sup>Department of International Relations, Faculty of Economics and Administrative Science, Kahramanmaraş Sütçü İmam University, Kahramanmaraş, Turkey  
(haticedamlaciftci@hotmail.com)*

Traditional natural resource economists generally conclude that markets do not manage natural resources well and that political processes do a better job. Free market environmentalists generally come to the opposite conclusion; they compare what perfect markets would do in theory with what imperfect governmental agencies, at their worst, have done in practice.

Free market environmentalism emphasises that incentives matter everywhere. According to its theories, the key to proper incentives is establishment of property rights that are well defined, enforced, and transferable. It also highlights the role of entrepreneurs in producing new property rights. However, it only considers economic values and ignores environmental values. It pays too little attention to the distribution of rights and ignores other important allocating institutions.

Properly designed and implemented, market-based instruments provide incentives for businesses and individuals to act in ways that further not only their own financial goals, but also environmental aims. Such instruments include pollution charge systems (e.g., the deposit-refund system), tradable permit systems, and market barrier reductions (e.g., market creation, liability rules, information programmes, eliminating government subsidies).

For example, market-based instruments have restored the sustainability of fisheries. All ocean fisheries are open access. Each fisherman receives the full benefit of aggressive fishing, and no one pays the full cost. Conventional regulatory approaches have not solved this problem. If the government limits the season, fishermen put out more boats. If the government limits net size, fishermen use more labour or buy more costly sonar systems. Sixteen countries have adopted tradable permits, called “Individual Transferable Quotas” (ITQs). It has been a great success, precluding overfishing and restoring stocks to sustainable levels.

Market actors can help solve environmental problems. Governments should try to correct market failures by restricting the discharge of pollutants, for example, or limiting access to open-access resources. Such government interventions can improve environmental welfare and lead to greater efficiency.



## Policies to Achieve Inclusive and Sustainable Growth in India

*Pragya Kothari<sup>1</sup>, Stefanie Bauer<sup>1</sup>*

*<sup>1</sup>Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Bonn, Germany  
(pragya.kothari@gizindia.org, stefanie.bauer@giz.de)*

Green growth refers to a sustainable development paradigm that is inclusive in nature. The “green” approach must have the potential to deliver “triple wins”: economic, social, and environmental. When analysing policies and initiatives that strengthen green and inclusive growth in India, one needs to look beyond the obvious. There is no single policy that aims at restructuring the current growth trajectory. Rather, there are a number of initiatives in India, some of which focus on environmental aspects while others emphasise either the need for increasing inclusivity or economic performance. Accordingly, there is a fair mix of statutory and non-statutory initiatives.

India’s policy processes have undergone a transformational change in the last decade, with the focus moving away from economic growth and poverty alleviation exclusively and towards green and inclusive growth. India’s 12<sup>th</sup> Five Year Plan by the Planning Commission is a key umbrella policy that outlines the country’s national priorities for the next five years. The policy document points towards an increased focus on sustainability. Together with the National Action Plan on Climate Change (NAPCC, 2008), the Five Year Plan creates a framework for sustainability-oriented policy measures. While implementation remains difficult in most cases, the Indian government’s intent to work towards sustainable development is evident in a series of legislative, policy, and institutional measures, in addition to its participation in multilateral agreements. India is committed to fulfilling its environmental agreements that integrate environmental, social, and development concerns.

A research partnership between the Overseas Development Institute (ODI) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in India aims to analyse the recent policies and initiatives and perform real-time impact assessment of selected measures. The research programme seeks to identify what works for India by analysing a wide range of case studies and focusing on different approaches’ potential to deliver triple wins. Within a broad framework, key questions to be examined include: (1) What are the drivers of and constraints on green and inclusive policies in India? (2) What existing policies facilitate green and inclusive growth in India? (3) What drives the private sector to adopt green business models? (4) What kind of collaborative mechanisms exist to design suitable incentives for green business models? Our presentation will give an overview our initial findings.

## Emerging Lessons From China on Policies to Promote Green and Inclusive Growth

*Zhang Xiaoying<sup>1</sup>, Wang Xiaolin<sup>1</sup>, Daniel Harris<sup>2</sup>, Alberto Lemma<sup>2</sup>*

*<sup>1</sup>International Poverty Reduction Center in China, Beijing, People's Republic of China (zhangxiaoying@iprcc.org.cn, wangxl@iprcc.org.cn), <sup>2</sup>Overseas Development Institute, London, United Kingdom (d.harris@odi.org.uk, a.lemma@odi.org.uk)*

This contribution presents findings from the initial scoping phase of a research programme that seeks to assess the form and effectiveness of policymaking for green growth in China. We begin by broadly tracing the evolution of ideas of economic growth, poverty reduction, and environmental protection in China since the beginning of the reform era in 1978. Early in this period, these three issues tended to be viewed in isolation or were assumed to have automatic linkages. More recently, there have been signs of increasing, though uneven, recognition of the complex interactions, tensions, and potential synergies between them. Moreover, policymakers are beginning to actively explore the potential for policy to shape these interactions and their outcomes. As the limits of the prevailing reform-era model of growth and poverty reduction become increasingly apparent, a new vision of more sustainable and balanced development has emerged in policy discourses. The challenge now is to understand the ways in which that discourse is being translated into reality and to identify the factors shaping that translation.

Efforts to improve our understanding and related policymaking must build on existing knowledge of how policy is actually made and implemented in China. We suggest that a review of the broad institutional foundations of the de facto policy environment in China contains important lessons about the incentives for both policymakers and economic actors to behave in particular ways. Although detailed, localised case study analysis is necessary to assess the strength of these mechanisms and to complement them with location-specific realities, a number of generalised and influential features of the prevailing political economy may already be identified. With respect to policymakers' incentives, key features include the structure of the Party-State and its implications for leadership and long-term planning; the presence of significant horizontal coordination challenges; and the necessity for mechanisms to ensure vertical coordination in a decentralised governance system. With respect to the behaviour of economic actors, we suggest that generalised profit motives might provide both positive impacts, for example, through reputational games with consumers and other actors in supply chains, and negative impacts, through well-known environmental externalities in a context in which regulation systems are only partly developed. Against this background of potential explanatory features, we then lay out a typology of selected key policies or policy areas where additional research may be useful in assessing the degree to which the "triple wins" of green growth are being achieved.

## Theme 1, Session 4

### Environmental Conflicts Revisited: Institutional Change, Natural Resource Use and Conflicts

**Gilbert Fokou<sup>1</sup>, Alemmaya Mulugeta<sup>2</sup>, Myra Posluschny-Treuner<sup>3</sup>, Laurent Goetschel<sup>3</sup>**

<sup>1</sup>Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS), Abidjan, Côte d'Ivoire ([gilbertfokou@yahoo.fr](mailto:gilbertfokou@yahoo.fr)), <sup>2</sup>Swiss National Centre of Competence in Research (NCCR) North-South, Horn of Africa Regional Office, Addis Abeba, Ethiopia ([allemmaya\\_mu2002@yahoo.com](mailto:allemmaya_mu2002@yahoo.com)), <sup>3</sup>Swiss Peace Foundation, Bern, Switzerland ([myra.posluschny@swisspeace.ch](mailto:myra.posluschny@swisspeace.ch), [laurent.goetschel@swisspeace.ch](mailto:laurent.goetschel@swisspeace.ch))

While evidence from research has challenged settled assumptions on the causal link between environmental processes and conflicts, activists and policymakers have made alarmist claims that environmental change in general and climate change in particular will have enormous impacts on humanity. The debate over environmental conflict has gained renewed currency as a result of the ongoing discourse on global climate change

Presentations in this session will focus on mechanisms by which smallholders adjust to effects of climate variability, and on how their strategies might or might not cause conflicts between user groups. The climate-change–security discourse suggests that climate change might lead to unplanned phenomena that can further advance conflict over resources. Contributions, however, will give special attention to wider socio-political processes and the dynamic role of local institutions in resource governance and conflict resolution. Political and institutional responses appear to be among the most important factors in violent conflicts. The session aims to answer the following questions: What factors or conditions influence resource and conflict management discourses and practices? What can be done to strengthen resource and conflict management institutions? What is the role of international markets and policies on interactions between various actors in resource use and conflict? And what connections and contradictions exist between international and national policies?

The presentations will underline that in analysing environmental conflicts, attention should be paid to wider processes of social and political change both at the local and global levels: (1) Alemmaya Mulugeta will analyse discursive environmental conflict patterns and the way they are working within different policymaking and implementing agencies in Ethiopia; (2) Myra Posluschny-Treuner will explore international large-scale land acquisitions in Ethiopia and will try to illustrate to what extent large-scale agricultural land investment serves as an essential strategy to reduce poverty; (3) Gilbert Fokou will show that besides climate variability, sociopolitical processes and the dynamic role of institutions in resource governance play a key role in exacerbating and regulating resource conflicts; (4) Franziska Bieri will compare and contrast the two initiatives governing the global diamond trade and assess their respective impacts on curbing diamond-fuelled conflicts; (5) Aida Gareeva will focus on new tools developed to increase the capacity of local pasture committees to manage conflicts over pasture resources in rural Kyrgyzstan; and (6) Thiam Djiby will outline a conceptual framework for strengthening the sustainable management of natural forest resources in Central Africa.

## Governing Diamonds: The Kimberley Process and the Diamond Development Initiative International

*Franziska Bieri<sup>1</sup>*

*<sup>1</sup>Department of Sociology, University of Maryland University College (UMUC)  
Europe, Heidelberg, Germany (fbieri1@faculty.ed.umuc.edu)*

This presentation draws on case study evidence from recent regulatory efforts in the diamond industry, in an attempt to identify effective structures and decision-making processes in the governance of resources.

Diamonds have been a curse rather than a blessing in many countries. So-called blood or conflict diamonds have fuelled warfare and violence in Angola, the Democratic Republic of Congo, Sierra Leone, Liberia, and most recently in Côte d'Ivoire and Zimbabwe. Moreover, artisanal diamond-mining is marked by poverty and dangerous labour conditions. The problems of poverty and conflict over diamonds are fundamentally linked: impoverishment, underdevelopment, and lack of regulation in alluvial diamond mines are the underlying causes for violence, posing important human security threats. Two governance bodies have emerged to address these problems.

The Diamond Development Initiative International (DDII) aims at transforming alluvial diamond-mining so that it contributes to economic growth and development in the local communities. The DDII has the support of key industry players, civil society groups, a few governments, and international organisations. The Kimberley Process (KP) seeks to curb the trade of conflict diamonds by certifying rough diamonds as conflict-free and tracking their origin. The KP consists of 76 member countries and formally involves civil society and the industry in the decision-making process. Stifled by its consensus rule and a narrow definition of conflict diamonds, the KP has come under sharp criticism for failing to act against massive human rights abuses in Zimbabwe's diamond mines. The future of the regulatory system is all but certain.

In our analysis, we compare and contrast the two initiatives governing the global diamond trade and assess their respective impacts on curbing diamond-fuelled conflicts. We conclude that the governance of diamonds requires diverse and parallel institutional efforts, multi-stakeholder involvement, and continued awareness-raising and monitoring activities by NGOs.

## Climate Variability, Institutional Dynamics, and Resource-use Conflicts in the Sahel–Coastal Context of West Africa

*Gilbert Fokou<sup>1</sup>, Marcelline Soro<sup>2</sup>, Francis Akindès<sup>2</sup>, Bassirou Bonfoh<sup>1</sup>*

*<sup>1</sup>Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS), Abidjan, Côte d'Ivoire (gilbertfokou@yahoo.fr; bassirou.bonfoh@csrs.ci), <sup>2</sup>University of Bouaké, Côte d'Ivoire (marcell\_soro@yahoo.fr; f\_akindes@yahoo.fr)*

The African Sahel region has been experiencing severe climate variability for decades, with deep impacts on livelihoods and interactions between groups of resource users. Ecology studies in West Africa have demonstrated great variations in grazing capacities in time and space, with fluctuations in rangeland productivity from year to year. Thus, transhumant pastoralists from the Sahel have shifted to coastal countries of the South, in search of better grazing conditions. In this process they have encroached on land provided for other uses, extending the “window of conflicts” to the South. Climate variability is likely to exacerbate tensions and conflicts in the contact zone of Sahel and coastal countries. However, recent research findings caution against assumptions concerning the link between resource use and violent conflicts, demonstrating that other factors are more important.

This presentation builds on the postulate that better climatic conditions will not automatically lead to a reduction of the number and intensity of conflicts in Africa. In fact, the human factor as reflected in individual actors and institutions appears to be one of the most important causes of violent conflicts. Based on the results of a social science study conducted in the Sahel–coastal contact zone of Côte d'Ivoire and Togo, we aim to show that besides climate variability, sociopolitical processes and the dynamic role of institutions in resource governance at various levels play a key role in exacerbating and regulating resource conflicts.

We will show that: (1) due to climate variability, various actors have changed their coping strategies, breaking existing arrangements for resource management; (2) formal and informal state authorities have contributed to crafting new rules that have fostered tensions between users; (3) discourses on identity and autochthony are often used to exclude some groups of users from natural resource pockets. It appears in the end that policy reforms that ensure social stability, economic performance, and ecological sustainability are most likely to reduce resource-use conflicts in the West African Sahel.

## Management of Conflicts over Pasture Resources in Kyrgyzstan

*Aida Gareeva<sup>1</sup>*

<sup>1</sup>*Public Foundation CAMP Alatoo, Bishkek, Kyrgyzstan (aida@camp.elcat.kg)*

Natural resource management in Kyrgyzstan is very important for the rural population, especially if people have no other source of income. For example, pasture management is economically important as it is critical for production in mountain regions; it is politically significant as it constitutes a source of power and leverage in local, regional, and national political arenas; and it is of considerable social consequence because it defines patterns of cooperation and conflict in mountain areas.

The Pasture Law adopted in Kyrgyzstan in 2009 gives a fairly sustainable legal basis for sustainable use of pastures; however it requires an effective mechanism for its introduction, like any new law. The situation concerning conflict management in Kyrgyzstan is not clear currently because of various types of pastures being available under different institutions at different levels. A striking example of this is conflicts over pastures in forest areas. Use of pastures here is regulated by the Forestry Code, which not always matches the Pasture Law, thus causing conflicts.

The goal of the CAMP Alatoo development project is to increase the capacity of local pasture committees to manage ongoing conflicts over pasture resources in the watersheds of the Jergetal and Onarcha rivers in Kyrgyzstan.

The tools for achieving this goal are different workshops at the village level, conflict analysis, development of conflict management plans, and introduction of these plans through small projects. Special attention within the project is paid to improving the political and legal basis of resource management, as this is a precondition for eliminating the causes of many conflicts. These activities are conducted at the national level, in cooperation with government structures.

Current results include the following: (1) Pasture users' awareness of managing conflicts over pasture resources has increased at the local level. (2) Pasture committees, as community-based management institutions, are able to eliminate the causes of conflicts over pasture resources. (3) Practical activities in the context of local pasture management plans have been implemented, including an assessment of the vulnerability of forest pastures and their fodder capacity, fencing of forest plantations, and others.

## Discursive Space on Environmental Conflicts in Ethiopia: Does It Exist?

*Alemmaya Mulugeta*<sup>1</sup>

*<sup>1</sup>Swiss National Centre of Competence in Research (NCCR) North-South, Horn of Africa Regional Office, Addis Abeba, Ethiopia (allemmaya\_mu2002@yahoo.com)*

In Ethiopia, the last ten years have been a period of fast reproduction of international climate change discourses and related activities. Nevertheless, conflict as a possible adverse effect of environmental change has been missing from almost all rhetoric within the country. This visible invisibility requires an explanation.

This presentation will attempt to answer the question why environmental conflict discourse did not become a dominant discourse in Ethiopia. It will try to track discursive environmental conflict patterns and how they were working within different policymaking and implementing agencies during the past decade. By reviewing relevant documents and tracing sequences of events and storylines, two major contributing factors will be explored: (1) limited “policy space” for environmental conflict discourse, and (2) the lack of actors/agencies within and outside the country that could provide precise data on the link between conflict and environmental change in order to advance the discourse.

Specifically, this contribution focuses on two major areas: firstly, it reviews the extent to which environment-related policies and networks in the past incorporated conflict as a relevant issue that requires investigation; secondly, it examines whether the environmental conflict discourse that swept the West has travelled as far as Ethiopia, and whether it has managed to create fields or new forms of agencies in reproducing environmental conflict discourses in Ethiopia.

## International Large-scale Land Acquisitions: Agricultural Modernisation and the Fight against Poverty in Ethiopia

*Myra Posluschny-Treuner<sup>1</sup>*

*<sup>1</sup>Swiss Peace Foundation (swisspeace), Bern, Switzerland  
(myra.posluschny@swisspeace.ch)*

Due to growing awareness of climate change and its consequences, as well as continuously rising food prices, both industrialised and economically fast developing countries aim to achieve more energy security, encouraging large-scale food-crop and biofuel production. This in turn promotes a rush for arable land on the part of foreign and domestic investors. Africa in general is perceived as an attractive destination for land investments, and Ethiopia seems to be particularly suitable due to its large areas of “unused” affordable land. However, Ethiopia suffers from food insecurity and depends on international aid. Its economy is mainly based on small-scale, rain-fed subsistence agriculture, accounting for almost 45% of the gross domestic product (GDP) and 85% of total employment. Thus, agriculture is a key source of employment, growth, and revenue, as well as a long-standing source of food security. Accordingly, the Ethiopian government has stated that poverty reduction is impossible without significant diversification and commercialisation of the agricultural sector and has developed several strategies and policies to achieve this aim.

First effects of large-scale land investments show adverse consequences for the environment and for local populations, such as agricultural intensification, forest degradation, displacement of local populations, expropriation of land, increasing local food insecurity, and increasing poverty. Notably, displacement of local populations might increase competition and tension with people in the receiving areas over access to land and resources, and it may provoke ethnic clashes.

Based on the recent trend towards foreign large-scale land acquisitions in Ethiopia, this presentation analyses drivers of investors and governments, intending to illustrate the extent to which large-scale farming and related agricultural land investment serve as an essential strategy to reduce poverty and to increase agricultural output, as well as to analyse socio-economic and environmental impacts. The presentation focuses on the Oromia region in Ethiopia.



## An Institutional Framework for Sustainable Management of Forest Resources in Developing Countries

*Djiby Racine Thiam<sup>1</sup>*

*<sup>1</sup>Africa Institute of South Africa, Pretoria, South Africa (DThiam@ai.org.za at)*

This presentation outlines a conceptual framework for strengthening the sustainable management of natural resources in Central Africa. Focusing on forest resources, we employ theories of natural resource management and new institutional economics to investigate how the existence of different stakeholders could impact the governance structure related to common resources across the African continent. Cameroon is selected as an example, since it is one of the most densely forested countries in Africa.

The results of our analysis point to cooperative measures, social capital, and institutional reliability as the three key potential contributors to proper management of Cameroon's forest sector. Cooperative measures support a decentralised management approach involving different stakeholders in planning phases. The involvement of different stakeholders reduces transaction costs and facilitates the implementation of policy measures, since the local population is represented in the decision process. Social capital can be used to link local norms, networks, and values to the top-down policy incentives designed by policymakers.

Finally, institutional reliability creates an atmosphere of confidence and ensures that strategic policy instruments are followed up on. Further, institutional reliability is especially crucial in the African context, where natural resource management processes typically involve diverse agents. Hence, to promote efficient activities and accountability among actors, the relevant institutions should be tailored to represent the common interest. The presentation will also seek to outline the theoretical foundations upon which strategies for effective management of natural resources in developing countries could be based.

## Theme 1, Session 5 Adaptation to Climate Change: Actors, Resources, and Livelihoods

*Chinwe Ifejika Speranza<sup>1</sup>, Brama Koné<sup>2</sup>*

*<sup>1</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland (chinwe.ifejika.speranza@cde.unibe.ch), <sup>2</sup>Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS), Abidjan, Côte d'Ivoire (brama.kone@csrs.ci)*

Climate change is one of the major factors shaping the dynamic social-ecological conditions of livelihoods and development. It manifests itself in different ways, depending on the exposure of local populations to specific climatic hazards, people's perceptions of changing conditions, their adaptive capacities, and the sensitivities of social-ecological systems to climate variability and change.

Papers in this session will present ways in which local populations perceive and frame climate change, as well as their adaptation strategies and how social-ecological structures and processes, including policies, shape their sensitivities to climate change. The session seeks to provide answers to the following questions: What challenges and opportunities in resource use and management do local actors associate with climate change? How are local actors adjusting their strategies to moderate the harm or to benefit from the opportunities locally associated with climate change? What roles do markets, policies, and government practices play in shaping local actors' capacity to take action on climate change?

The session will also provide insights on the nature of vulnerability (exposure, sensitivity, adaptive capacity) to climate change in the given research contexts, and will explore the implications for designing responses to climate change.

## Barriers and Opportunities in Promoting Sustainable Tourism as a Global Change Adaptation Strategy: A Case From Nepal

*Carolina Adler<sup>1</sup>, Darryn McEvoy<sup>2</sup>, Prem Chhetri<sup>3</sup>, Ester Kruk<sup>4</sup>*

*<sup>1</sup>Institute for Environmental Decisions, Swiss Federal Institute of Technology Zurich, Switzerland (carolina.adler@env.ethz.ch), <sup>2</sup>Climate Change Adaptation Program, Global Cities Research Institute, RMIT University, Melbourne, Australia (darryn.mcevoy@rmit.edu.au), <sup>3</sup>Sustainable Urban and Regional Futures, Global Cities Research Institute, RMIT University, Melbourne, Australia (prem.chhetri@rmit.edu.au), <sup>4</sup>International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal (ekruk@icimod.org)*

This study conducted in the Kailash Sacred Landscape (KSL) region in north-western Nepal explores opportunities for, and barriers to, sustainable tourism as an adaptation strategy, not only for reducing community vulnerability to climate change but also as an important poverty alleviation measure. A mix of conceptual analysis and stakeholder engagement were employed to identify the key linkages between tourism, climate change, and sustainable livelihoods.

Whilst the primary focus was on specific interactions between tourism and climate change, our participatory and problem-oriented approach revealed a highly complex socio-ecological system, with many social, economic, environmental, and institutional drivers involved. A range of climate-related hazards already impact these mountain communities, with hydrological extremes identified as a pressing issue. Of particular note are recent episodes and experiences with relatively dry conditions (droughts, lack of seasonal snow), as well as shifts in monsoon activity (rainfall intensity as well as late start and cessation of wet season). This was found to have direct implications for issues such as adequate food security and was seen by many as a critical challenge to be addressed. However, a changing climate needs to be understood in a context of multiple stressors, particularly given the weak socio-economic base and the policy drive towards poverty alleviation and sustainable development in the wider KSL region (China, India, Nepal).

Based on the preliminary findings from this research, we conclude with a series of recommendations which are intended to contribute to the development of an upgraded and more comprehensive strategy in support of community-based tourism as a sustainable livelihood option and adaptation strategy for local communities in KSL Nepal. The recommendations concern geographic up-scaling, improvements to the existing scientific evidence base, institutional arrangements, bringing together bottom-up and top-down approaches, demand management, and the importance of learning from experience.

## Climate Change and Adaptation in the Bolivian Highlands

*Elizabeth Jiménez Zamora<sup>1</sup>, Alejandro Romero<sup>1</sup>*

*<sup>1</sup>Postgrado en Ciencias del Desarrollo, Universidad Mayor de San Andrés (CIDES-UMSA), La Paz, Bolivia (ejimenez@cides.edu.bo)*

Climate change and climate variability have direct and far-reaching consequences for about one third of the Bolivian population who live in peasant communities and whose livelihoods and economic welfare depend on small-scale agricultural production. While possible long-term impacts on small-scale producers have been widely debated, little is known about the adaptation mechanisms currently used by these populations. In particular circumstances, climate change might also become an opportunity to change livelihood strategies, including shifting into more profitable crops. What factors determine whether climate change represents an opportunity or a major risk for households? How do climate shocks affect livelihood strategies and consumption patterns? What are the overall impacts of climate change on Altiplano communities such as the ones analysed in this study, and how does climate change affect their production practices?

To answer these questions, we modelled the decision-making process that leads to optimal production, consumption, and self-consumption as a function of climate vulnerability perceptions and other control variables. The resulting model was estimated using a panel data set based on a 350-household sample of peasant communities in the central and northern Altiplano region of La Paz, Bolivia. The panel data set comprised information for two points in time (2006, 2009) and thus allowed comparison over time to reveal changes.

The empirical findings show that communities anticipate climate shocks and adjust to them by means of self-consumption decisions, with self-consumption being their only safety net. Model estimates based on hypothetical scenarios (stress tests) suggest that households would not be able to overcome strong negative climate shock situations. Overall results are complemented with qualitative information collected through participant observation and focus groups.

## Climatic Variability, the Population's Epidemiological Profile, and Risk Factors in Korhogo, Northern Côte d'Ivoire

**Brama Koné<sup>1</sup>, Amany Serges Tanoh Nkrumah<sup>1</sup>, Etienne Kouakou<sup>1</sup>, Issaka Tiembre<sup>2</sup>, Guéladio Cissé<sup>3</sup>**

<sup>1</sup>Centre Suisse de Recherches Scientifiques (CSRS), Abidjan, Côte d'Ivoire (brama.kone@csrs.ci; nkrumahtanoh@yahoo.fr; kyaoetienne@yahoo.fr), <sup>2</sup>University of Cocody, Abidjan, Côte d'Ivoire (itiembre@yahoo.fr), <sup>3</sup>Swiss Tropical and Public Health Institute, Basel, Switzerland (gueladio.cisse@unibas.ch)

The city of Korhogo experienced a decrease in rainfall from 1971 to 2000, followed by a decade of high climatic variability causing droughts and floods between 2000 and 2010. Knowledge of the population's epidemiological profile and their perceptions of climatic phenomena is needed to understand their vulnerability and plan efficient action for adaptation.

Two transversal household surveys by questionnaire (n = 600), each coupled with a geographic survey, were made during the rainy and dry seasons of 2010. On this basis, we describe the population's morbidity, households' access to water, hygiene and sanitation, people's perceptions of the causes of diseases, and links with weather conditions. The town was divided into three study zones according to vulnerability to flooding and living standard.

General morbidity for the past-30-days recall period at the household level was found to be the same during the dry season (53,9%) as during the rainy season (53,5%). At least 65,5% of the cases of meningitis (IC95% = 45,7–82,1) and 68,2% of the cases of conjunctivitis (IC95%=61,1–74,7) occurred during the dry season, while at least 37,5% of the cases of urinary schistosomiasis (IC95% = 18,6–55,9) and 26,8% of malaria cases (IC95% = 23,2–30,7) occurred during the rainy season. More than 60% of the households used well water for drinking. At least 90% of the households had a latrine, with 77% of latrines being traditional, and 20% being located less than 10 metres away from drinking water wells. A statistically significant correlation was observed between classification in a given study zone, on the one hand, and general morbidity as well as the prevalence of diarrhoea, schistosomiasis, and meningitis, of well water use for drinking purposes, and of latrines, on the other hand. Solid waste and stagnant water covered 15,000 m<sup>2</sup> and 700 m<sup>2</sup> of soil surface, respectively, during the survey period.

In such a complex context in terms of health, sanitation, water access, and their links with the weather, how can resilience to extreme climatic events such as flooding be strengthened? A framework based on the ecohealth approach was tested and has yielded promising results.

## Overcoming Local Adaptation Barriers through International Agreements? Modes and Challenges under the UNFCCC

*Christoph Oberlack<sup>1</sup>, Klaus Eisenack<sup>2</sup>*

*<sup>1</sup>Department of Economics, University of Freiburg, Germany  
(christoph.oberlack@vwl.uni-freiburg.de), <sup>2</sup>Department of Economics and Statistics,  
University of Oldenburg, Germany*

A regime is emerging under the United Nations Framework Convention on Climate Change (UNFCCC) to enhance international cooperation on adaptation to climate change. One of the challenges is identifying the right design of institutional channels to facilitate adaptation to climate change at local, national, and regional governance levels. It remains largely unclear what types of structures and agreements will lead to successful adaptation. Persistent barriers at various governance levels may impede the process of adaptation or lead to highly inequitable outcomes. Although such barriers are frequently claimed to exist, their properties and ways of addressing them in adaptation governance are not fully understood.

Our presentation seeks to identify these barriers and ways of addressing them through international cooperation, by analysing how a UNFCCC adaptation regime might enhance action and develop adaptive capacity in low- and middle-income countries. We begin by developing empirically supported archetypal models of vulnerability and adaptation barriers in urban areas of low- and middle-income countries. This provides an understanding of the persistent obstacles to, as well as change factors of, climate adaptation in urban areas. We then take stock of modes of international agreements on climate change adaptation based on a UNFCCC document study to identify channels through which international regimes may influence local adaptation processes. We use these insights to analyse the determinants of international agreements' effectiveness in facilitating climate adaptation in urban areas.

## Conservation of Indigenous Animal Genetic Resources and Adaptation to Climate Change in the Hindu Kush Mountains

*Saleem Mohammad<sup>1</sup>, Momen Khan<sup>1</sup>, Inam-ur-Rahim<sup>2</sup>, Henri Rueff<sup>3</sup>, Daniel Maselli<sup>2</sup>, Urs Wiesmann<sup>3</sup>*

<sup>1</sup>*Foundation for Research and Socio-ecological Harmony, Islamabad, Pakistan (saleemtalash@yahoo.com, khankoper@yahoo.com),* <sup>2</sup>*University of Central Asia, Bishkek, Kyrgyzstan (irahim33@yahoo.com, daniel.maselli@ucentralasia.org),*

<sup>3</sup>*Centre for Development and Environment (CDE), University of Bern, Switzerland (henri.rueff@cde.unibe.ch, urs.wiesmann@cde.unibe.ch)*

In attempts to solve problems related to food security among the rural poor, development programmes have often introduced crossing of high-input/output livestock breeds with indigenous animal genetic resources (IAGRs). The high reproducibility, adaptation to local weather extremes, optimum utilisation of poor feed resources, and multi-purposefulness of IAGRs are often ignored and undocumented, leading to their dissolution through crossbreeding. Pastoral communities in the remote mountain valleys of the Hindu Kush in Northern Pakistan rear some of these undocumented IAGRs and can serve as a nucleus for their conservation and dissemination. These IAGRs are small in body size and optimally suited for grazing in the rugged mountain rangelands that cover three-fourths of the Hindu Kush.

Our research team has recently characterised and documented two livestock breeds belonging to these IAGRs: Achai cattle and Azikheli buffaloes. Findings show that their mean daily milk production is slightly lower than that of introduced or crossbred animals (4.5 l for Achai cows vs. 10.0 l for crossbred cows, and 8.2 l for Azikheli buffaloes vs. 9.8 l for Nili-Ravi buffaloes). Their milk production appears higher, however, when considering their body-weight-per-production ratio, and it is largely sufficient for home-stead consumption, especially in light of the fact that marketing in remote mountain areas has limited potential. The first service conception rates for IAGRs are much higher than for introduced animals (70% for Achai cows vs. 49% for crossbred cows, and 64% for Azikheli buffaloes vs. 53% for Nili-Ravi buffaloes). Furthermore, both breeds have lower body weights (187 kg for Achai cows vs. 324 kg for crossbred cows, and 459 kg for Azikheli buffaloes vs. 525 kg for Nili-Ravi buffaloes), which makes them fit for steep mountainous terrains.

These data indicate that IAGRs are likely to play a crucial role in the context of climate change as well as food security. We will discuss conservation efforts undertaken so far and propose further steps to help preserve and develop these unique animal genetic resources.

## Sustainable Land Management and Carbon Finance: A Case Study with Mobile Pastoralists in Pakistan's Himalayas

*Henri Rueff<sup>1,2</sup>, Syed-ur-Rehman<sup>3</sup>, Inam-ur-Rahim<sup>4</sup>, Daniel Maselli<sup>4</sup>, Urs Wiesmann<sup>2</sup>*

*<sup>1</sup>School of Geography and the Environment, University of Oxford, United Kingdom (henri.rueff@geog.ox.ac.uk), <sup>2</sup>Centre for Development and Environment, University of Bern, Switzerland (urs.wiesmann@cde.unibe.ch), <sup>3</sup>Department of Environmental Sciences, University of Swat, Pakistan (syed\_2010environment@yahoo.com), <sup>4</sup>University of Central Asia, Kyrgyzstan (inam.rahim@ucentralasia.org, daniel.maselli@ucentralasia.org)*

Landless mobile pastoralists in the Hindu Kush and Himalaya Mountains of Pakistan produce milk and meat, maintain biodiversity, and conserve soil. However, the provision of these goods and services is at risk as herders are being marginalised, among other things, by reduced mobility due to tree plantings that obstruct transhumance routes and cash crop cultivation that encroaches on alpine summer pastures. Tilling these steep slopes degrades soils and requires increasing fertilisation to sustain yields.

This study quantifies carbon (C) in cropping and pasturing land uses in the Upper Naran Valley, hypothesising that (1) cropping on pastures reduces C stores, and that (2) the avoidance of emissions by preventing the conversion of pastures into cropland may yield more C payment than conventional mitigation activities focusing on pasture improvement. With regard to hypothesis (1), a one-way analysis of variance on mean soil organic C shows that all variables taken separately have a significant effect ( $P < 0.01$ ) ( $n = 72$ ) [ $\text{g kg}^{-1}$ ]: (land use) crop/pasture 13.3/15.9, (aspect) North/South 16.1/13.2, (elevation) low/middle/high 10.9/16.2/16.8, (soil depth) shallow/deep 1.4/1.53. For biomass C, only land use has a significant effect ( $P < 0.01$ ) with more than twice the amount in pastures ( $n = 36$ ) [ $\text{g m}^{-2}$ ]: crop/pasture 127/318. Enteric methane release from livestock in the pasture scenario is largely matched by increasing greenhouse gas releases due to increasing fertiliser inputs required in the cropping scenario. Regarding hypothesis (2), preventing the conversion of pastures into cropland avoids an average loss of  $12.2 \text{ t C ha}^{-1}$  or  $44.8 \text{ t CO}_2\text{e ha}^{-1}$ .

The goal of this ongoing study is to quantify the potential mitigation effect that avoiding emission has by comparison with conventional improved pasture activities as recorded in various other alpine environments in the Himalayas. It remains to determine the minimum price of C, with a view to compensating herders for the losses they incur by renouncing cash crop cultivation in order to preserve pastures. If the minimum price of C turns out to be realistic, payment for ecosystem services could foster sustainable land management.



## Theme 1, Session 6 Global Megatrends: Threats and Opportunities for Mountain Development

*Thomas Kohler<sup>1</sup>, Raisa Gracheva<sup>2</sup>*

*<sup>1</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland (thomas.kohler@cde.unibe.ch), <sup>2</sup>Institute of Geography, Russian Academy of Sciences, Moscow, Russia (gracheva04@list.ru)*

Global megatrends – such as economic globalisation and the appearance of new nations on the global political and economic scene (BRIC countries); climate change; population growth; migration; the looming energy crisis; the scramble for natural resources including water, land, and mineral resources; resource degradation; changing global food production and consumption patterns narrowing down food security margins; and poverty – have manifold implications for mountain areas.

This session aims to:

- (1) Give an overview of the threats and opportunities these megatrends present for specific regional or local mountain environments;
- (2) Give an overview of the goods and services that mountains regions, and mountains at a global scale, provide for regional and global development, including highland–lowland systems;
- (3) Present envisaged or proven pathways for sustainable mountain development in the light of global megatrends.

The session chairs will take care to seek for a balanced regional and thematic representation of contributions; these may cover all of the above three points, or only two of them; however, coverage of point (3) above will be essential in selecting contributions.

## New Paradigm of Sustainable Mountain Development in Times of Global Uncertainty: The Russian Experience

*Yuri Badenkov<sup>1</sup>*

*<sup>1</sup>Institute of Geography, Russian Academy of Sciences, Moscow, Russia  
(yubaden@mail.ru)*

A decade after the International Year of Mountains and the Bishkek Mountain Summit, the mountain regions of Russia are still at the periphery of Russia's social and economic development. Mountains and highlands account for over 50% of the national territory and have outstanding resource potential, as well as ethnic, cultural, and landscape diversity. Most of the national territory is located in Northern Eurasia and has severe climatic conditions. Nearly the whole of the Asian part has permafrost. Therefore, it is only the southern mountain massifs (Northern Caucasus in the European part and the Altai-Sayan-Baikal Region in the centre of the Asian continent) that have permanent populations with a century-long history of traditional land use.

This presentation focuses on the Altai-Sayan region. This transboundary ecoregion (1,065,000 km<sup>2</sup>), a great intra-continental divide, has been facing multiple uncertainties in development, biodiversity conservation, adaptation to climate change, and regional economic and political integration. The four countries in the region have not agreed on a long-term regional concept in their national development strategies. As a result, there is no common vision for the region. Neither regional nor international programmes (UNDP-GEF, UNEP, etc.) were able to come up with an adequate development policy for this mountain area.

The following measures are needed to overcome this conservation deadlock: (1) a new paradigm of sustainable mountain development and biodiversity conservation is needed based on the connectivity of conservation, transdisciplinarity, and the new opportunities offered by information technologies; (2) an Altai-Sayan web atlas should be developed as an interactive/participatory toolbox for conservation management, regional development, monitoring, and decision support; (3) the establishment of an international Altai-Sayan-Baikal Centre (ASBC) for sustainable mountain development would help to provide a new vision and to formulate ideas for development adapted to global change within the regional context. Moreover, establishing an international Mountain Research Centres Network along the Great Asian Mountain Arc from the Himalaya (ICIMOD) to the Pamir (UCA) and to the Altai-Sayan-Baikal region could enhance cooperation on, and understanding of, mountain development issues in times of global change and uncertainty.

## Transformation of Human–Environment Systems in the Rural Mountain Regions of the Caucasus (Russia and Georgia)

*Raisa Gracheva<sup>1</sup>, Thomas Kohler<sup>2</sup>, Heino Meessen<sup>2</sup>*

*<sup>1</sup>Institute of Geography, Russian Academy of Sciences, Moscow, Russia (gracheva04@list.ru), <sup>2</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland (thomas.kohler@cde.unibe.ch; heino.meessen@cde.unibe.ch)*

Outflow of local populations, a reduction in agrarian activity, and intensive development of tourist business, starting at different times in the 20<sup>th</sup> Century, are becoming typical for many mountain regions in industrialised countries. In the Caucasus these processes were sharply accelerated by the collapse of the Soviet system and collective farming, resulting in changes in land management and land use, and generally in changes in human–environment relations. Traditional livestock regions in the North Caucasus (Russia) and regions of arable farming in the South Caucasus (Georgia, Adjara Autonomous Republic) were selected for study of newly formed human–environment systems.

In the North Caucasus, outmigration took place during the past century; in the last 20 years it has come to a critical point, with a decrease in mountain livestock numbers and a collapse of range management and spatial regularities of pasturing. These factors result in such contrary effects as convergence and fragmentation of mountain landscapes, and it is socio-economic change rather than climate change that is mainly responsible for current environmental processes.

Adjara had a rapidly growing population up to 1991, and climate-dependent specialisation from the foothill to the highlands, from perennial cultures to monocultural tobacco crops profitable enough to maintain anti-erosion measures. Loss of the USSR's and Russia's market resulted in destruction of tea and tobacco farming and in population outflow. Today, maize and potatoes predominate as the main food crops; the regime of spatial agricultural specialisation has been disrupted. Land degradation can be considered an integral response of the mountain environment to uncompensated farming.

In both mountain regions, private land ownership became the catalyst of ecosystem degradation, contrary to expectations. Development programmes in Russia and Georgia are oriented towards tourist activity rather than agriculture, which signifies changes in the population, new human–environment relations, and a new stage of mountain development in the Caucasus.

## Environmentally Friendly and Affordable Rural Transportation: An Important Basis for Sustainable Mountain Development – Examples From Nepal

*Werner Paul Meyer<sup>1</sup>, Guy Schneider<sup>1</sup>*

*<sup>1</sup>ViaStoria, Zentrum für Verkehrsgeschichte, Bern, Switzerland (wpmeyer@bluewin.ch)*

Securing access as a general infrastructure service has been a global megatrend over the last decades, but it has been particularly challenging in mountain regions owing to topography, harsh climate, and hazards. High upfront costs and cost recovery analyses have often limited access to infrastructure development in mountains.

A crucial challenge has thus been the selection, planning, construction, and maintenance of a technically feasible and economically affordable mountain transport system. In the Hindu Kush–Himalaya, development of such a system started in the early 1950s and is still in full swing in many areas. It encounters a series of problems including poorly engineered construction, large-size mechanisation destroying vegetation and destabilising slopes, thus creating erosion and landslides that threaten agricultural land. Mechanisation lays off manual labour and prevents local income generation, which is much needed in mountain areas.

This presentation will focus on three integrated sustainable approaches to rural transportation:

*1: Mountain road construction and development by the GRECO Green Road Concept:*

In Nepal, work began in the 1980s on developing a road building concept with the goal of conserving the delicate mountain ecology and protecting vegetation as a means to prevent soil erosion. Given Nepal's extreme poverty, the road building approach was based on labour-intensive methods in order to generate local employment, and it had to be low cost. The result was aptly called the Green Road Concept.

*2: Trans-Himalayan Heritage Routes (THHR) Conservation Programme:*

This initiative focuses on the conservation and re-establishment of historic trading routes and the religious and secular structures that accompany them, with a view to incorporating them into a coherent network – which in turn could be attractive for ecotourism development.

*3: Promotion of cycling mountain tracks as pre-road start-up infrastructure:*

This initiative follows a step-wise procedure to access by developing mountain tracks suitable for bikes and motorbikes, aligned along future motorable road alignments. The aim is to better balance costs against the initially often very small transport volume in sparsely populated mountain regions.

## Community-Based Tourism, Regional Development, and Preservation: The Case of Sagarmatha (Everest) National Park, Nepal

*Ang Rita Sherpa<sup>1</sup>*

<sup>1</sup>*The Mountain Institute (TMI), Kathmandu, Nepal (angrita@mountain.org)*

About 30,000 tourists, approximately ten times the local population, visit the Khumbu region of Sagarmatha (Everest) National Park each year as trekkers and mountaineers. They come to enjoy the spectacular mountain scenery, the diverse and unique flora and fauna, as well as the Sherpa culture in this remote area. Tourism is simultaneously an important economic opportunity for the region and a heavy burden on both its natural environment and its local culture.

Tourism has greatly benefited the Sherpas of Khumbu by providing them with a source of income and improving their general standard of living based on opportunities to act as guides and porters. Increasingly, Sherpas are working exclusively for mountain expeditions, a prestigious and excellently-paying occupation. In spite of widespread improvements in livelihood conditions, however, there is still great disparity in the distribution of tourism's benefits among various socio-economic groups of the region. The benefits of trekking tourism are not distributed equitably throughout the park, and many areas remain culturally and economically isolated.

To overcome such problems, The Mountain Institute (TMI) started implementing programmes to support tourism management in the area by introducing an innovative form of tourism known as Community-Based Tourism (CBT). TMI established a project called "Sacred Sites Trail to Khumbu" in the Khumbu region of Nepal, which encourages trekkers to pass through less-visited villages in Khumbu. This presentation will outline the growth of tourism in the Khumbu region and will highlight the economic opportunities which CBT aims to address while maintaining principles of cultural and environmental preservation.

## Theme 1, Session 7 Large-scale Land Acquisitions in the Global South: Towards a Research Agenda for the Coming Years

*Peter Messerli<sup>1</sup>, Manfred Kaufmann<sup>2</sup>, Markus Giger<sup>1</sup>*

*<sup>1</sup>Centre for Development and Environment, University of Bern, Switzerland  
(peter.messerli@cde.unibe.ch, markus.giger@cde.unibe.ch), <sup>2</sup>Swiss Agency for  
Development and Cooperation (SDC), Bern, Switzerland  
(manfred.kaufmann@deza.admin.ch)*

The extent and the nature of large-scale land acquisitions (LSLAs) in the global South have been difficult to assess up until recently. The lack of evidence has given rise to heated debates over the question of whether agricultural foreign direct investment (FDI) represents a long-awaited opportunity to overcome persistent yield gaps or whether it constitutes a fundamental threat to the livelihoods of poor and vulnerable users of allegedly underused land and to the natural environment.

Nevertheless, the body of evidence on LSLAs has grown in the past years, based on different attempts to assess LSLAs at national to global levels, and on various case studies. The emerging evidence reveals insights into the phenomenon in general as well as into its opportunities and risks. Consensus has grown that despite the urgent need for investments in agriculture in the global South, the risks and limitations of LSLAs outweigh their opportunities.

Agricultural FDI represents a global trend, however, which due to its inherent driving forces will persist in the future. Hence more attention will need to be paid to policy- and decision-making processes that will guide agricultural FDI and LSLAs in the future. This session explores current knowledge gaps and aims to determine what evidence is needed to support such policy- and decision-making processes. On this basis, we will attempt to outline a research agenda for the coming years.

## Is the (Incoherent) International Legal Framework Driving Large-scale Land Acquisitions?

*Elisabeth Buergi Bonanomi*<sup>1,2</sup>

<sup>1</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland (elisabeth.buergi@cde.unibe.ch), <sup>2</sup>World Trade Institute (WTI), University of Bern, Switzerland (elisabeth.buergi@wti.org)

Whether investments in agricultural land in the global South are sustainable or not, depends not least on the legal framework within which these investments take place. This is true for the domestic legal framework both of the country from which investments originate, and of the host country. But the international legal framework in which home and host states are embedded also has both positive and negative impacts.

On the one hand, a range of human-rights and environmental treaties assists in ensuring a careful treatment of land and land rights. On the other hand, particularly trade and investment treaties tend to unilaterally protect investors' rights, while less importance tends to be attached to investors' duties. Such legal incoherencies have been uncovered on a conceptual basis, but evidence of how far these factors indeed contribute positively or negatively to the phenomenon of large-scale land acquisitions is still lacking.

This presentation will introduce the most important legal entry points in the field in order to inform non-legal scientists and to make them familiar with the ongoing debate which is based on coherence theory. Following this overview, the presentation will uncover knowledge gaps and indicate in how far interdisciplinary case studies could contribute to closing them.

## The Uneven Geography of Property Formalisation in Southeast Asia: Some Lessons From Laos and Cambodia

*Michael B. Dwyer<sup>1</sup>*

*<sup>1</sup>Centre for Development and Environment, University of Bern, Switzerland  
(dwyerdwyer@gmail.com)*

The formalisation of property rights is related to actual tenure security in complex and uncertain ways. Many “land grabs” begin as government efforts to formalise and operationalise claims to so-called state land; meanwhile, land formalisation – frequently in the form of individual or communal titling – is often put forth as a solution to the “land grab” problem. Formalisation, in short, sits on both sides of the issue of LSLA-related tenure insecurity.

This presentation will focus on two case studies of property formalisation at two different scales; both cases concern the issue of unevenness. The first study examines the geography of formalisation at a national scale, based on the case of land titling in Cambodia. The second study focuses on the local scale, examining the way that histories of social and political conflict affect land use zoning in northwestern Laos.

I will use the cases to highlight two gaps in existing knowledge, and two related pieces of an emerging research agenda: (1) Both cases point to the need for more critical histories of property formalisation. This includes donor- and lender-driven property regimes (e.g. land titling projects funded by the World Bank, the British Department for International Development, and the United States Agency for International Development), as well as locally derived land administration efforts (e.g. Laos’s Land and Forest Allocation programme and Cambodia’s Commune Land Use Planning programme). While the literature on these and related interventions is by now well-developed, specifically geographical accounts, and accompanying explanations of why formalisation happens in some places but not in others, have only just begun to emerge. (2) The case of northwestern Laos also points to the need for further studies of how geopolitical and intrastate conflicts shape land entitlements in general, and property formalisation in particular. The uneven geography of agribusiness zoning – a key technology in the space where contract farming and concession-making blur together – highlights the importance of looking at citizen–state interactions (in particular, the governing of problematic sub-populations), as well as the internal politics of land administration (in particular, control over formal geographic information) as distinct, interlocking, and unpredictable processes.



## The State of Large-scale Land Acquisitions in the “Global South”

*Markus Giger<sup>1</sup>, Peter Messerli<sup>1</sup>*

*<sup>1</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland  
(markus.giger@cde.unibe.ch, peter.messerli@cde.unibe.ch)*

In a collaborative effort, CDE and the International Land Coalition (ILC), CIRAD, GIZ, and the Institute of Global and Area Studies (GIGA) collected data on over 1200 deals concerning land for agricultural purposes. Overall, it was possible to collect reports on deals covering more than 80 million hectares of land for the period of 2000–2011. This figure corresponds to 1.7% of the world’s agricultural area. So far, 400 deals have been reported as signed, and implementation of deals on the ground has started on 12 million hectares of land. Analysis showed that the interest in foreign land concentrates on a fairly limited number of countries, with a large share of them being in Africa. Many of these countries have high poverty and hunger rates and depend heavily on the agricultural sector. Preliminary analysis has also shown that deals often concern land which is already occupied by farming communities and supports considerable population densities.

Even after intense data-checking efforts by our partner networks, information on many deals remains incomplete. As a consequence, the partnership of organisations has now begun to search for information on land deals using crowd-sourcing techniques. Data on deals is being made accessible on an interactive website, where data can be cross-checked by all interested stakeholders. This process allows adding data on new or not previously reported deals, as well as correcting erroneous data. Information about land acquisition is expected to gain rapidly in quality and quantity. Furthermore, in a number of pilot countries, ILC and CDE have initiated a process of intensified crowd-source-based data collection and analysis. The research component of this project analyses the impacts of land acquisitions on sustainable development with respect to all three (the social, the economic, and the ecological) dimensions of sustainability. This will be done in particular by analysing the contextual patterns of land acquisitions more closely.

The future research agenda regarding land acquisition needs to address a number of questions, such as: What qualities of land are being sought? What are the determinants in targeting the deals? What rationale and what types of business model drive the process of land acquisition? Who are the investors and other stakeholders behind this trend? What kinds of impacts are actually observed? What are bad and good practices in planning and granting concessions, creating transparency, allowing and guaranteeing free, prior, and informed consent, defining and implementing fair compensation, and creating employment? What role can the Food and Agriculture Organization’s Voluntary Guidelines on Land Tenure play in this process? In what way can researchers contribute towards more inclusive and equitable processes?

## Can Foreign Direct Investment in Agriculture Save Us From High Food Prices?

*Rolf Kappel<sup>1</sup>, Ivan Pavletic<sup>2</sup>, Jan Schüpbach<sup>1</sup>*

*<sup>1</sup>Postgraduate Course on Developing Countries (NADEL), Swiss Federal Institute of Technology Zurich, Switzerland (kappel@nadel.ethz.ch, schuepbach@nadel.ethz.ch),*

*<sup>2</sup>State Secretariat for Economic Affairs (SECO), Bern, Switzerland (ivan.pavletic@seco.admin.ch)*

Agricultural foreign direct investments (FDI) in developing countries have increased tremendously as a reaction to the recent price hike on global food markets. With two simple simulation models we show that additional FDI in cereal production can have discernible price effects on global markets.

The first model makes use of the projection devised by the Organisation for Economic Co-operation and Development (OECD) and the United Nations Food and Agriculture Organization (FAO) for production and utilisation during the period of 2011–2020, and is augmented with an econometric price equation. The second model is based on econometric estimates of global cereal production, utilisation, stocks, and prices. From the “supply-of-storage” model we derive the hypothesis that the lower the stock–utilisation ratio, the higher the prices, and vice versa.

Our econometric estimates support this hypothesis. Simulations indicate that an additional expansion of harvested land through FDI by 5, 10, and 15 million hectares over the period of 2011–2020 would lead to price declines relative to a reference scenario of about 7%, 15%, and 22%, respectively. If FDI-induced production growth has repercussions on other producers, the rates of decline are about 5%, 10%, and 15%, respectively. As the majority of the poor are net food buyers, such price effects would certainly help to strengthen the food security of the poor.

## Land Acquisition Dynamics in Nepal: Actors, Process, and Effects

*Purna B. Nepali<sup>1</sup>, Bishnu Raj Upreti<sup>2</sup>*

*<sup>1</sup>Consortium for Land Research and Policy Dialogue (COLARP), Kathmandu, Nepal (kumar2034@yahoo.com, kumar2034@gmail.com), <sup>2</sup>Swiss National Centre of Competence in Research (NCCR) North-South, South Asia Regional Office, Kathmandu, Nepal (bishnu.upreti@gmail.com)*

Land acquisition is an emerging phenomenon in Nepal, influenced by global large-scale investment in land. It is also said to be linked with severe food insecurity as well as energy and economic crises in the world. In Nepal, the tendency to lease land is increasing from day to day. Land is leased for different purposes, such as production of herbal products, seed production, establishment of research farms, biofuel production, fruit farming, and others.

Land acquisition by multinational companies and private investors is also beginning in Nepal. In domestic “land grabbing”, real estate companies and business investors are involved in converting agricultural land into built-up areas for housing or other purposes. Domestic “land grabbing” is accelerated by close ties among members of the elite – for example, politicians, land brokers, bureaucrats, and businesspeople – allowing them to manipulate rules, regulations, and laws to their own benefit. Major actors in foreign land acquisition are multinational companies such as, for example, Dabur Nepal Private Limited, Rijal-Tasi Industries, and Pepsicola.

Domestic and foreign pressure on land has severe impacts on food and agriculture, social relations, and indigenous practices. It causes rapid changes in land use patterns, thereby altering local food production systems, with negative effects on local-level food security, local land use patterns, various types of social tension, and resource conflicts. Ultimately, by increasing rural inequality and fuelling resource conflicts, land use change, and social tensions, it has created livelihood insecurity at local levels. Addressing these negative effects of land pressure requires in-depth analysis of (1) the interests, networks, and concerns of the various actors involved; (2) the process of land acquisition; and (3) its effects. This research must involve multiple stakeholders (farmers, policymakers, civil-society leaders, businesspeople, politicians, etc.) and generate socially acceptable knowledge.

## Large-scale Land Acquisitions in Lao PDR: Beyond Anecdotal Evidence

*Oliver Schönweiger<sup>1</sup>, Andreas Heinemann<sup>1</sup>, Michael Epprecht<sup>1</sup>*

*<sup>1</sup>Centre for Development and Environment (CDE), University of Bern, Liaison Office in Vientiane, Lao PDR (Oliver.Schoenweiger@cde.unibe.ch; Andreas.Heinemann@cde.unibe.ch; Michael.Epprecht@cde.unibe.ch)*

In the last decade, Lao PDR has emerged as a supplier of raw agricultural commodities, tree crops, minerals, and hydropower for the large and dominant neighbouring economies of China, Thailand, and Vietnam. This has led to a drastic increase in the demand for land, largely in the form of foreign direct investments (FDI).

An increasing amount of case studies question the benefits of such investments in land and especially in large-scale monocultural agricultural and forestry plantations, given that the existence of vast areas of unused land in Laos is a myth. Concessions have led to the replacement of forests, thereby reducing natural habitat, traditional agroforestry practices, and crop production. Until now, concessions have failed in most cases to provide real and lasting benefits. Evidence also suggests that institutional capacities for identifying suitable land for investors, as well as for effectively monitoring and regulating the large number of investment projects granted and those in preparation, are currently too low.

Despite such anecdotal evidence, however, no systematic information on large-scale land investments in terms of numbers, size, investors involved, or context was available until recently. A new national land concession inventory now makes it possible for the first time to shed some light on these issues. Currently there are over 2200 projects of FDI in land throughout Laos. Mining, agriculture, and forestry are the sectors covering the largest areas by far, with over 75% of the concession area based on FDI. Most concessions were granted in areas that are fairly easily accessible and have relatively low poverty rates. Nonetheless, almost 30% of the villages in which a concession was granted have poverty rates higher than 50%. This and similar analyses are currently ongoing and offer an exceptional opportunity to gain insights into the larger patterns of land investments in the country, thereby providing transparency and evidence-based guidance to the related heated policy debates and development discourses.

## Theme 1, Session 8 Water and Land Management and Governance

*Isabelle Providoli<sup>1</sup>, Boniface Kiteme<sup>2</sup>*

<sup>1</sup>*Centre for Development and Environment (CDE), University of Bern, Switzerland (isabelle.providoli@cde.unibe.ch), <sup>2</sup>Centre for Training and Integrated Research in Arid and Semi-Arid Lands Development (CETRAD), Nanyuki, Kenya (b.kiteme@africaonline.co.ke)*

Ensuring sustainable use of natural resources is crucial to maintaining a basis for sustainable livelihoods. The ecological dimension of sustainability has been mainstreamed to a great extent in most current development initiatives and policies; however, many of the approaches used to achieve it have largely been ineffective. Environmental costs are often externalised, and environmental goods and services remain undervalued despite their crucial importance in poverty alleviation and equitable and sustainable development. This situation is further exacerbated by a growing distance and increasingly unequal relations between powerful stakeholders claiming selected ecosystem services at higher levels of jurisdiction, and weaker stakeholders providing environmental stewardship at the local level. As a consequence, unfavourable water and land use and land cover dynamics persist, leading to hard competition, heightened tensions and conflicts, and continued degradation of ecosystems and renewable natural resources.

Against this background, the following question calls for urgent and concerted attention: What strategies and options can enhance sustainable water and land management (SWLM) and governance at different scales and across landscapes, thereby achieving multiple benefits? Globally, a wealth of SWLM knowledge and information exists. Nevertheless, finding appropriate ways to tap this knowledge, use it in decision-making processes, and create an enabling environment to implement SWLM successfully beyond the life-span of projects poses a major challenge. Interaction patterns have become more complex and uncertain as policies and institutions at higher levels of jurisdiction have gained influence. Decision-making processes must, therefore, be understood as a complex and cross-scale institutional dynamic.

This session will address these challenges by bringing together the following concerns:

- (1) Available knowledge on sustainable water and land management: presentation of innovative technical solutions.
- (2) How can we support stakeholder negotiations and decision-making processes among different actors for scaling up and scaling out innovative solutions?
- (3) What should an enabling environment for successful implementation of SWLM look like?

## A Half-empty Bucket: Women's Role in the Governance of Water Resources in Zambia

*Claudia Casarotto<sup>1</sup>, Rolf Kappel<sup>1</sup>*

*<sup>1</sup>Postgraduate Course on Developing Countries (NADEL), Swiss Federal Institute of Technology Zurich, Switzerland (casarotto@nadel.ethz.ch)*

The water governance system in Zambia has undergone major reforms that have fostered far-reaching decentralisation, the devolution of powers to the lowest level of authorities, and a greater involvement of all stakeholders in the decision-making process.

A rural household survey was conducted in the Lower Kafue River Basin, with the objective to assess, among other things, gendered differences in people's awareness of water sector institutions, the actors' understanding of their roles and functions, and the degree of participation within such institutions. The research uses multiple regression analyses to assess the fundamental role of women in water use, particularly related to household consumption and hygiene.

Results show that women are key actors in water collection and use and that they can significantly influence water use decisions at the household level. In fact, a positive and significant relation between the number of women in a household and total household water consumption is found in all the regression models analysed.

Nonetheless, compared to men, women are less aware of existing water sector institutions and do not seem to have adequate knowledge of their exact functions. Women are also considerably less involved than men in the water governance participation mechanisms and generally have less trust in the influence that smallholders' participation can have on water-related decisions.

In order to implement an effective reform process that includes extensive decentralisation and follows the subsidiarity principle, it is of utmost necessity for the Government of Zambia to increase smallholders' and women's awareness and participation in the water sector. It is also fundamental to improve the capacity of women to act politically in the management of water resources from the grassroots to all higher levels of governance.

## Water Use Conflicts in the Mount Kenya Region: Understanding the Spatial and Thematic Dimensions for Effective Interventions

*Jeniffer Kinoti<sup>1</sup>, Boniface Kiteme<sup>1</sup>*

*<sup>1</sup>Centre for Training and Integrated Research in Arid and Semi-arid Lands  
Development (CETRAD), Nanyuki, Kenya (j.kinoti@cetrad.org, kinotijk@gmail.com,  
b.kiteme@africaonline.co.ke)*

The ecosystem of the Mount Kenya region is of critical importance, as it forms one of Kenya's water towers. Moreover, the region plays important roles in supplying water for agriculture and hydro-electric power generation, in timber production and tourism, and as a home for both flora and fauna. Over the years, however, the ecosystem has undergone tremendous degradation due to the growing human population, changing land uses, and failure of the institutions charged with the responsibility of managing the available natural resources. For example, over-abstraction of river water, especially in the upper reaches, has led to a decline in downstream flows. This has resulted in enormous socio-ecological imbalances in the lowlands, along with various water-use-related conflicts that sometimes become violent.

In order to document various water-use-related conflicts in the region, a study was conducted in 2005 whose main objective was to identify, map, and characterise different water-use-related conflict hotspots. The goal of the study was to understand their spatial distribution and intensity in order to target water-related interventions more effectively.

To achieve this goal, a field survey campaign was carried out and complemented with site-specific assessments using questionnaires administered randomly within the region. A GPS tool was used to map the geographical locations of all hotspots, allowing for spatial analysis and manipulations within a GIS environment. The results revealed 25 hotspot cluster zones and a typology of ten specific levels of water-related conflicts. The four main types of conflicts identified were (1) downstream versus upstream (30%), (2) agro-pastoralists versus agro-pastoralists (26%), (3) community versus authority (17%), and (4) agro-pastoralists versus wildlife (7%). The outputs of the project provided a sound basis for an innovative strategy of awareness creation towards more sustainable management of water resources and a conflict-free future in the greater Mount Kenya region.

## Desire for Greener Land: A Process for Effective Desertification Mitigation based on Sustainable Land Management

*Guðrun Schwilch<sup>1</sup>, Rudi Hessel<sup>2</sup>, Simone Verzandvoort<sup>2</sup>, Hanspeter Liniger<sup>1</sup>, Godert van Lynden<sup>3</sup>, Erik van den Elsen<sup>2</sup>, Coen Ritsema<sup>2</sup>*

*<sup>1</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland (guðrun.schwilch@cde.unibe.ch), <sup>2</sup>Alterra, Wageningen University and Research Centre, Wageningen, The Netherlands, <sup>3</sup>ISRIC – World Soil Information, Wageningen, The Netherlands*

Disturbances in fragile dryland ecosystems can easily result in widespread and severe land degradation and thus desertification. Traditionally, desertification research has focused on degradation assessments, whereas prevention and mitigation strategies have not sufficiently been emphasised, although the concept of sustainable land management (SLM) is increasingly being acknowledged. This presentation is based on research embedded in the EU FP6 research project DESIRE (Desertification Mitigation and Remediation of Land – a Global Approach for Local Solutions; 2007–2012). In close collaboration with local stakeholder groups, DESIRE aimed to establish promising land management strategies in 17 areas affected by desertification around the world. The study sites served as a global laboratory for developing and applying new methods of science–stakeholder collaboration and for trialling traditional and innovative approaches to combating desertification.

The methodological framework developed by DESIRE combines a collective learning and decision-making approach with use of evaluated global best practices. It proposes a concise process, starting out with the identification of land degradation and locally applied solutions through mapping and in a stakeholder workshop, followed by an assessment of local solutions using a standardised evaluation tool, and ending with the joint selection of promising strategies for implementation with the help of a decision support tool. The decision for a particular SLM technology was followed up with test implementation in the field, thorough monitoring, and upscaling via modelling of regional effects and dissemination of results.

SLM practices were mapped, documented, and evaluated by local researchers in collaboration with land users and using the internationally recognised and standardised WOCAT questionnaires. These in-depth assessments of 17 sites, 30 technologies, and 8 approaches were analysed and compared across all DESIRE study sites, highlighting key issues of SLM in drylands. Careful attention was paid to features which specifically characterise SLM in drylands and make SLM practices especially useful regarding the identified threats. Demonstrating a favourable local-scale cost–benefit relationship was found to be crucial to improving people’s livelihoods and preventing further outmigration. However, it was also found that more research is needed to support the case study authors’ assessments of SLM impacts. Long-term field experiments are needed to prove the benefits of SLM – especially with regard to expected bio-physical and socio-economic benefits in the longer term – as well as to provide a solid rationale for investments in SLM, thereby enabling greener drylands to become a reality, rather than remain a desire.



## Research on Sustainable Land Management in the Mountain Regions of Central Asia: A Review of Literature from the Last 20 Years

*Zhyldyz Shigaeva<sup>1</sup>, Chad Dear<sup>1</sup>, Bettina Wolfgramm<sup>2</sup>*

*<sup>1</sup>Mountain Societies Research Centre, University of Central Asia, Bishkek, Kyrgyzstan (zhyldyz.shigaeva@ucentralasia.org, chad.dear@ucentralasia.org),*

*<sup>2</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland (Bettina.Wolfgramm@cde.unibe.ch)*

Issues of land use and management are vital for the Central Asian mountain regions because they are interconnected with critical issues such as food security, poverty, conflicts over land and water resources, and climate change. Rapid changes in the sociopolitical and environmental situation in Central Asia require that researchers provide an up-to-date, scientifically approved basis for evidence-based decision-making towards sustainable development and particularly towards sustainable land management (SLM).

Although much information has been generated by different projects on land use and land management, information is often duplicated, publications usually do not offer fresh data, are isolated, and in many cases do not respond to land users' and decision-makers' needs. The Mountain Societies Research Centre of the University of Central Asia is developing a background paper on SLM with a view to improving this situation. The primary aims of the background paper are to:

1. Assess the state of knowledge regarding SLM in the mountain contexts of Kyrgyzstan and Tajikistan by categorising it based on the analytical structure of the Global Land Project (GLP 2005);
2. Identify emerging research themes in the literature.

Secondary aims are to:

3. Assess the spatial and temporal distribution of the foci of literature;
4. Assess the link between research and practice;
5. Identify the organisations, programmes, projects, and individuals that produce and are the focus of literature.

The analysis of literature includes selected syntheses from the late Soviet era but focuses primarily on the period from 1991 to the present. Both peer-reviewed and grey literature in Russian and English were analysed, as well as selected literature in Tajik and Kyrgyz. This presentation gives an overview of the results of a quantitative analysis of this literature.

## Transboundary Implications of Land Degradation and Management in the Ethiopian Highlands: An Overlooked Issue in the Age-old Nile Debate

*Gete Zeleke<sup>1</sup>, Hans Hurni<sup>2</sup>*

*<sup>1</sup>Water and Land Resource Centre (WLRC), Addis Abeba, Ethiopia (gete.zeleke@cde.unibe.ch), <sup>2</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland (hans.hurni@cde.unibe.ch)*

The Ethiopian Highlands contribute about 85% to the 84 billion cubic metres that make up the annual water flow of the main Nile at Asswan. Out of this, the Abay Basin (Blue Nile) contributes 57% and the Tekeze (Atbara) and Baro Akobo (Sobat) basins contribute 14% each. For millennia these three major rivers have carried nutrient-rich sediments with fertile soil material from the Ethiopian Highlands and have thus accumulated the extensive Nile Delta, which supported the development of one of the world's greatest civilisations in Egypt and former Nubia. However, the main sources of water and fertile silt have been increasingly affected by unabated land degradation and poverty. As a result, the rivers are no longer carrying only fine and fertile silt but increasingly also transport coarser sediments and gravel, which affects both the quantity and the quality of water downstream.

Both Sudan and Egypt have experienced the negative consequences of this change. The capacity of their dams and irrigation channels has been reduced by the silt, sand, and gravel coming from the Ethiopian Highlands. At the same time, the process of land degradation is negatively affecting millions of people living in the highlands. Paradoxically, this important issue has not so far been a major concern in the downstream riverine countries, who have been focusing on water shares instead. The sharing of the Nile's water has been a major source of tension particularly in the Eastern Nile Region.

In contrast to this negative development, scientific evidence shows that actions for sustainable land management in the highland ecosystems can result in positive on-site and off-site impacts. However, although the problem is severe and more interventions are urgently needed, these nevertheless have to be well-planned and require collaborative action by the riverine countries. Thus, land degradation and land and water management aspects in the Ethiopian Highlands deserve serious attention and should be treated as one of the core issues in the Nile debate.

## Theme 1, Session 9

# Landscape Transformation: Changing Services of Land in a Globalised World

***Gete Zeleke<sup>1</sup>, Andreas Heinemann<sup>2</sup>***

*<sup>1</sup>Water and Land Resource Centre (WLRC), Addis Abeba, Ethiopia (gete.zeleke@cde.unibe.ch), <sup>2</sup>Swiss National Centre of Competence in Research (NCCR) North-South, Centre for Development and Environment (CDE), University of Bern, Switzerland (andreas.heinmann@cde.unibe.ch)*

Expanding markets and enhanced rural accessibility are leading to an increasing spatial disconnection between the production and the consumption of goods, thereby furthering the rapid transformation of landscapes in developing countries. These processes are characterised by multiple and partly conflicting claims to land in developing countries, and have induced swift and massive shifts in both the socio-economic and the environmental services that land provides at the landscape level. The galloping speed at which increasingly remote entities' claims to land are expanding poses a serious problem for evidence-based decision- and policymaking in the countries affected. Based on four examples of such ongoing landscape transformations from various regions of the world, this session aims to (1) address their effects and (2) discuss approaches to detect and monitor these processes and possible outcomes. Each presentation will be followed by a brief discussion.

## Multiple Claims to Land Resources in the Lao PDR: Issues of Lacking Cross-sectoral Spatial Planning

*Andreas Heinimann<sup>1</sup>, Kaspar Hurni<sup>1</sup>, Cornelia Hett<sup>2</sup>, Michael Epprecht<sup>1</sup>,  
Oliver Schönweger<sup>2</sup>*

*<sup>1</sup>Swiss National Centre for Competence in Research (NCCR) North-South, Centre for Development and Environment (CDE), University of Bern, Switzerland (andreas.heinimann@cde.unibe.ch), <sup>2</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland*

The Lao People's Democratic Republic (Lao PDR) is situated in the heart of the economically highly dynamic region of mainland Southeast Asia. Based on the country's wealth in natural resources and a change in the ruling Communist Party's policy towards economic opening, the Lao PDR has become a supplier of raw agricultural commodities, tree crops, minerals, and hydropower mainly for the large and dominant neighbouring economies of China, Thailand, and Vietnam. This has led to a drastic increase in the demand for land in the Lao PDR. Until recently, there was no comprehensive spatial overview of these developments. But understanding the spatial distribution of the various land-based economic sectors is essential for informed decision-making with regard to potential related trade-offs.

Against this background, we compiled and analysed information from various sectors to gain an understanding of the dimensions, spatial patterns, respective contexts, possible overlaps, and the potential for triggering conflicts of different claims to land at the national level. Our analysis included the hydropower and mining sectors, as well as large-scale commercial agricultural land concessions and small-scale rotational subsistence-oriented upland agriculture. An analysis of a 2000–2009 time series of MODIS satellite imagery showed that despite the Lao government's policy of eradicating rotational agriculture over the last decade, these small-scale systems are still widespread in the uplands. Very recently, however, there has been a tremendous increase in the number of land concessions granted for mining and commercial agriculture. Our results indicate that over 2600 such deals have been issued to date, and over 75% of the area granted falls under the category of large-scale foreign direct investment (FDI). A considerable share of these concessions are being granted in regions where rotational agricultural systems are the dominant form of land use. The negotiation power of local population groups is especially weak when it comes to sharing benefits and securing access to land. From a natural resource management perspective, our analysis revealed inconsistencies in spatial planning between different sectors; for example, a considerable share of land concessions overlap with protected forests or even national protected areas.

By compiling and analysing the different sectors' claims to land, we hope to provide valuable evidence and insights into the related heated debates (e.g. over "land grabbing"). In addition, we hope that pinpointing examples of inconsistencies in spatial planning between sectors will raise awareness among policymakers and encourage them to take actions towards more coherent cross-sectoral planning.

## Socialising the Pixels: Demonstrating the Application of Geospatial Tools for Socioecological Research: The Case of Wayanad

*Nidhi Nagabhatla<sup>1</sup>, Martina Padmanabhan<sup>1</sup>*

*<sup>1</sup>BioDIVA-Institut für Umweltplanung (IUP), Gottfried Wilhelm Leibniz Universität, Hanover, Germany (nagabhatla@umwelt.uni-hannover.de)*

Natural resource systems are under stress, which at times can be extreme owing to the diverse impacts of environmental change, climatic variation, socio-economic pressure, and economic mayhem. This study illustrates multiple levels of interactions in an agro-ecosystem, using a landscape-level approach supported by a suite of geospatial tools. The stimulus for this synthesis is drawn from reviewing the multipurpose potential of Earth Observation (remote sensing) including Geographical Information Systems (GIS) to bridge the theory-to-practice interface in socioecological research. So far, only a handful of studies have addressed an epistemological approach that in practice can take research beyond disciplinary interests to knowledge integration. There still remains a lack of empirical evidence and an absence of a heuristic mindset that would enable more sustainable and communally beneficial relationships between indigenous practices and paradigmatic processes of (sustainable) development.

The evolving concept of socioecological research conforms to a transdisciplinary approach to understanding the entwining between science and society. In line with that understanding, this study demonstrates geospatial characterisation and assessment that integrates biophysical complexities measured in terms of land use/cover change (LUCC) with related socio-economics. Aligned to the transdisciplinary project BioDIVA ([www.biodiva.uni-hannover.de](http://www.biodiva.uni-hannover.de)), the analysis explicates landscape-level understanding for the Wayanad agro-ecosystem in Kerala, southern province of India. Traditionally a rice-dominated landscape, the region has witnessed major alterations in agricultural practices as the outcome of development trends, as well as natural and anthropogenic interferences. To illustrate these transformations, socioecological scenarios are expounded using a mixed set of indicators. The scenarios are related to wide-ranging interfaces between (a) landscape dynamics (or LUCC); (b) socio-economic diversity; and (c) local-level climatic variability.

Analysis of landscape dynamics in conjunction with socio-economics and climatology over a historical timeline (1970s to 2010) highlights natural and social processes that drive LUCC. It is noted that multi-temporal geospatial analysis is a fair approach to generate up-to-date information and assimilate multiple layers of scientific knowledge. The process demonstrates potential for integration of knowledge from different sectors in a manner that can be empathised by a range of stakeholders.

## Environmental and Socio-economic Trade-offs from Smallholder Oil Palm Expansion in Indonesia

*Janice Ser Huay Lee<sup>1</sup>, John Garcia-Uloa<sup>1</sup>, Krystof Obidzinski<sup>2</sup>, Jaboury Ghazoul<sup>1</sup>, Lian Pin Koh<sup>1</sup>*

*<sup>1</sup>Department of Environmental Systems Science, Swiss Federal Institute of Technology Zurich (ETHZ), Zurich, Switzerland (janice.lee@env.ethz.ch), <sup>2</sup>Center for International Forestry Research, Bogor Barat, Indonesia*

Development of oil palm plantations over the last 20 years in Indonesia has stirred up controversies due to its negative impacts on biodiversity, ecosystem services, and local communities. However, the significance of the oil palm industry to national and regional economies is substantial. The Food and Agricultural Policy Research Institute (FAPRI) *World Agricultural Outlook* predicts that 36.5 million tons of palm oil will be produced annually in Indonesia by 2025–2026. This is an additional 12 million tons of palm oil compared to the current 2011–2012 production figures of 24.7 million tons. There is an ongoing debate about how the oil palm industry in Indonesia should expand over the next twenty years to minimise the negative impacts and maximise the benefits accrued from oil palm production. At present, approximately 40% of Indonesia's total oil palm cultivation is done by smallholders, while the remaining 60% is in the hands of state and private companies.

Against the background of industry and global community interests in promoting smallholder development, we have explored different scenarios of oil palm expansion in Indonesia with various levels of government support for smallholder oil palm production. We have quantified the key environmental and socio-economic outcomes of four defined policy scenarios: (1) business as usual; (2) smallholder-supported development; (3) smallholder-supported development with improved yields; (4) and industry-supported development.

For each scenario, we have simulated the expansion of oil palm agriculture based on data from geographic information systems (GIS). We model environmental (e.g., forest cover loss, biodiversity loss, carbon footprint) and socio-economic impacts (e.g., infrastructure development, employment opportunities, regional development). We will present preliminary results from our model simulations and provide policy recommendations regarding future expansion strategies for palm oil production in Indonesia.

## The Changing Environment: Spatiotemporal Analysis of Landscape Transformation Along Major Development Axes in Ethiopia

***Gete Zeleke<sup>1</sup>, Tibebu Kassawmar<sup>1</sup>, Woldie Assfaw<sup>1</sup>, Andreas Heinemann<sup>2</sup>, Kaspar Hurni<sup>2</sup>, Hans Hurni<sup>2</sup>, Berhanu Debele<sup>3</sup>***

*<sup>1</sup>Water and Land Resource Centre (WLRC), Addis Abeba, Ethiopia (gete.zeleke@cde.unibe.ch), <sup>2</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland, <sup>3</sup>Swiss National Centre of Competence in Research (NCCR) North-South, Horn of Africa Regional Coordination Office, Addis Abeba, Ethiopia*

Ethiopia's economy has so far been predominantly agrarian, providing a livelihood for 84% of the total population of about 86 million in 2011. Urbanisation has remained low, at about 16%, which is lower than the sub-Saharan average of 30–40%. This has left the agrarian sector unconnected to urban centres, with minimal or no service provision. Landscape transformation during the past millennia has been unidirectional – converting the natural landscape into land for subsistence and rainfed primary production. Over the last two decades, however, other forms of change have begun to take shape mainly along major development axes. Urban centres have been expanding, and both secondary and tertiary sectors have emerged from a once totally agrarian environment. So far, the magnitudes of these changes in space and time, their implications for key ecosystem functions and services, as well as the driving forces behind these changes have not been explored.

To address this issue, a detailed study was conducted along five major development axes emanating from Addis Abeba. A spatiotemporal analysis of physical changes was conducted and supplemented by a detailed GPS transect and socio-economic survey. A comparative analysis between the different development axes was also conducted with a view to comparing changes over time and finding possible driving forces.

Preliminary results show that most of the existing larger urban centres have been expanding at a very high speed within the last decade; Addis Abeba, for instance, was expanding at a rate of 15 km<sup>2</sup> per year between 2000 and 2010. Quite often this process replaced or competed with one of the most important ecosystem functions, namely food production. Expansion of the secondary sector showed a similar trend, particularly within a 40-km radius around Addis Abeba. The study further identified hotspot areas where substantial conversion of natural environment to subsistence agriculture is still ongoing, particularly along the development axes from Addis Abeba to Hawassa, Addis Abeba to Jima, and Addis Abeba to Nekemet. However, there are also places where the reverse is observed, particularly along the Addis Abeba to Mekele development axis. Further analysis is currently underway to capture additional implications of landscape transformation processes for the environment and for people's livelihoods, and the key driving factors behind such processes.

## Theme 2, Keynote 1

### Development in a Changing World: Security Breeds Security

*Abid Qaiyum Suleri<sup>1</sup>*

<sup>1</sup>*Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan  
(suleri@sdpi.org; ed@sdpi.org),*

The world is changing fast. The black swan phenomenon – low frequency, high impact events – has turned the impacts of these global changes clearer, faster, and deeper. Increased unemployment and reduced predictions for growth in the global North warn of further chaos at the economic front. The “development model” in the global North, followed by many in the global South as a role model, is not sustainable enough. On the political front, one has been witnessing the Arab Spring, where a combination of internal and external actors and factors has proved lethal to the powerful rulers. One of the lessons learnt from the Arab Spring is that state security devoid of human security will never result in stable governments. On the energy front, the rise in fuel prices to a record high after 2008 and the Fukushima nuclear plant tragedy have reminded us yet again of the importance of energy efficiency and finding new solutions to the current energy crisis. Regarding the war on terrorism, the United States’ decision to enter in dialogue with the Taliban and the NATO’s back channel diplomacy for an honourable exit from Afghanistan may change the geo-political scene in South Asia. In the social sector development, missed commitments to development assistance by most developed countries and missed Millennium Development Goals by most developing countries are points of concern for the poor, marginalised, and socially excluded people.

Economic and security crises coupled with changing priorities in the developed world require that most developing nations redefine their paradigms of sustainable development in the face of ‘curtailed aid’ or ‘no aid’ scenarios. Indeed, the dependence of their development on the developed world would no longer be sustainable in the near future, meaning they would have to think beyond foreign aid and look beyond the West. This would also affect the traditional export destinations for most developing nations. On the other hand, the recent contribution of US\$ 75 billion by the BRICS countries (Brazil, Russia, India, China, South Africa) to the IMF for avoiding a European collapse not only reflects that such a collapse will affect everyone without exception, but it also shows that the future of poverty alleviation initiatives may be determined by emerging economies.

This keynote address will discuss the issues changing and shaping the world’s future, the sustainability of some of the solutions that have been proposed to tackle these issues, and the role that new development players may play in achieving human development.



## Theme 2, Keynote 2

### The Challenge of Multiple Inequalities and Transformative Social Change

*Shahra Razavi*<sup>1</sup>

<sup>1</sup>United Nations Research Institute for Social Development (UNRISD), Geneva, Switzerland (razavi@unrisd.org)

Recent studies point to the fact that over the past two to three decades income inequalities have worsened: a recent ILO<sup>1</sup> study found that between 1990 and 2000 more than two-thirds of the 85 countries for which data are available experienced an increase in income inequality as measured by the Gini index. Evidence analysed by WIDE paints an even more drastic picture when it comes to global wealth concentration. This broad pattern of growing income inequality, and even more staggering wealth inequality, under economic liberalisation is supported by data on other dimensions of inequality, for example, the functional distribution of income (i.e. the distribution of income between wages and profits analysed by both ILO and UNRISD), gender-based wage gaps, and social indicators such as enrolment in secondary and tertiary education, access to safe drinking water and sanitation, and maternal mortality (monitored by the UN MDG Report).

In recent decades the mainstream response to evidence of growing inequalities was to dismiss *equality of outcome* (as ‘politics of envy’) by focusing instead on *equality of opportunities* as the appropriate metric for measuring equity/equality. In policy terms this meant an emphasis on ‘human capital’ investment in order to give everyone an equal start in life and produce a more equitable future, along with targeted social provisions (for those who “messed up their chances”), limited to avoidance of absolute deprivation. This made no allowance for structural factors that might play a part in individual outcomes. It thus shied away from serious consideration of other powerful policy instruments that can produce greater equality of outcome (e.g. macroeconomic policy, social policy, land reform).

While the facts of inequality have been well-known for some time now, what seems to have changed over the past two years is the recognition, across a fairly wide spectrum of opinion, of inequality’s powerful and corrosive effects, and the urgency of doing something about it. There are thus opportunities for using the current conjuncture –marked by geo-political shifts (toward a multi-polar world), the sense of danger/urgency among some political elites, and widespread popular discontent – to initiate (or move further along) pathways of transformative change that are equality-enhancing.

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<sup>1</sup> Abbreviations: International Labour Organisation (ILO), Women in Development Europe (WIDE), United Nations Research Institute for Social Development (UNRISD), United Nations’ Millennium Development Goals (UN MDG)

## Theme 2, Session 10 Beyond the MDGs: Rethinking State Involvement in Poverty Reduction and Development

*Urs Geiser<sup>1</sup>, Didier Péclard<sup>2</sup>*

<sup>1</sup>*Department of Geography, University of Zurich, Switzerland (urs.geiser@geo.uzh.ch),*

<sup>2</sup>*Swiss Peace Foundation (swisspeace), Bern, Switzerland (didier.peclard@swisspeace.ch)*

The past two decades have seen an important paradigm shift in the role and place attributed to “the state” in support of “development”. Beginning in the 1980s, development discourse and practice were driven by the so-called Washington consensus, an agenda aimed at reducing the importance of the state, giving market forces more space and delegating much of poverty-related development work to the (donor-dependent) NGO sector. We argue that the current Millennium Development Goals (MDGs) are generally embedded within this “neo-liberal” worldview.

A new trend is emerging, however, according to which the state is again been assigned a major role in sustaining and fostering development. This paradigm shift is a result, among other things, of the neo-liberal agenda’s failure to reduce poverty, of increasing social and regional inequalities, and of critical discussions about the NGO and donor sector.

We argue that in debates on development after 2015 – the end date of the present MDGs – it is crucial to reflect upon the type of public institutions needed to overcome poverty and inequality. This, however, raises a number of questions. Research done in the context of Swiss National Centre of Competence in Research (NCCR) North-South shows that development planning often remained a process among donors and higher-level state representatives, detached from local citizen’s concerns. How, then, is a stronger ownership of the state in poverty eradication to be conceptualised? Does this mean that the developmental state model hailed as the basis for the Asian tigers’ success is “striking back”? Or are new forms of a 21<sup>st</sup>-century developmental state model emerging after two decades of economic and political deregulation in many developing countries? Is the new state-centred development agenda compatible with the promotion of democracy and “good governance”, or is “enlightened authoritarianism” the solution – always keeping in mind the focus on poverty and inequality? How should the political dimension of development be taken into account in debates about the post-MDG agenda? And how can the pitfall of donor-drivenness in the present MDGs be avoided? Is this apparent trend towards strong(er) states driven externally, or is it part of local actors’ endogenous strategies?

This session seeks to offer critical contributions on the various dimensions of state intervention in development and poverty reduction policies beyond the present MDGs. A number of presentations will be followed by a roundtable discussion with Michel Morasini (Assistant Director-General and Head of Department Global Cooperation, SDC), Cécile Molinier (Director, Geneva Representation Office, United Nations Development Programme), Peter Niggli (Director, Alliance Sud – Swiss Alliance of Development Organisations), Rupa Mukerji (Member of the Management Board and Co-Head of Advisory Services of Helvetas Swiss Intercooperation), and Abid Suleri (Executive Director, Sustainable Policy Institute, Islamabad, Pakistan).

## State-driven Poverty Reduction in a Context of Crisis: Côte d'Ivoire Navigating Between MDG Constraints and Debt Relief

*Francis Akindès<sup>1</sup>*

<sup>1</sup>*University of Bouaké, Côte d'Ivoire (f\_akindes@yahoo.com)*

The Ivorian government committed in 2000 to achieving the Millennium Development Goals (MDGs). But prior to engaging in this process, the government had already defined, in 1997, strategic areas of fight against poverty according to the approach and process adopted in preparing its poverty reduction strategy paper (PRSP). This was done from the perspective of the initiative in favour of the Heavily Indebted Poor Countries (HIPC). Already within the framework of the HIPC initiative, however, the possibility of partial debt relief hoped for by the state entailed a certain ownership of the budgetary constraints suggested by economic reforms. Another constraint, this time political but with economic and financial implications, was added in 2002 with the severe sociopolitical crisis that took place between 2002 and 2011. After about ten years of concomitant experience in poverty reduction and economic reforms referred to as “pro-poor”, the results achieved in the fight against poverty are not conclusive, according to successive reports established by the Ivorian government in partnership with the UN.

This presentation aims to show (1) how the armed conflict weakened the state's capacity to finance its commitments, but also (2) how the logic of the government's action in favour of poverty reduction was, to a great extent, inspired more by the prospect of eligibility for the HIPC initiative based on economic reforms than by its commitments. Finally it is shown (3) how the framing of economic reforms in view of the HIPC initiative reduces the power of the state to initiate truly endogenous poverty reduction strategies. Thus, the definition of development policy strategies in Côte d'Ivoire, as in many other countries in sub-Saharan Africa, remains the *chasse gardée* of the Bretton Woods institutions.

## Participation of Local Poor in the Implementation of the Honduran Poverty Reduction Strategy (Linked to MDGs)

*Sandra Contzen*<sup>1</sup>

<sup>1</sup>University of Zurich, Switzerland ([sandra.contzen@bfh.ch](mailto:sandra.contzen@bfh.ch))

Poverty Reduction Strategies (PRSs) have been designed to tackle poverty and foster economic growth in highly indebted poor countries and thus contribute to reaching the Millennium Development Goals (MDGs). Since 1999, over 100 Poverty Reduction Strategy Papers (PRSPs) have been developed worldwide, emphasising, among other things, the political participation of poor people. The Honduran PRS also highlights the role of poor people as new actors in political processes to reduce poverty. However, the poverty reduction impact of these strategies as well as the opening of political space for participation is controversially discussed, and the most recent publications on the topic found little evidence for improvement, neither in Honduras nor elsewhere. Poverty and social inequalities are persistent global problems, and the poorest tend to remain excluded from participation processes – and thus from achieving benefits linked to MDGs as well.

Despite the rather disappointing impact at the global scale, the PRSs must have had positive outcomes at the local scale. To reveal them, a closer look is needed at what happened on the ground. The aim of this presentation, therefore, is to give insights into the implementation processes of the Honduran PRS at the local level. It focuses on the population's possibilities of participating in the implementation of a special instrument of the Honduran PRS, the so-called *fondo descentralizado*. This fund explicitly foresees participation of poor and extremely poor people in defining, implementing, and evaluating local poverty reduction interventions. The analysis is based on data from an ethnography-oriented study carried out between 2008 and 2010 in two municipalities in western Honduras.

With this presentation, I seek to shed light on the impact of the Honduran PRS in promoting political participation for poverty reduction among the poorest and to contribute to the broader scientific debate on political participation beyond the PRS approach.

## From the Margins to the Centre: Transforming State–Society Relations in Bolivia and How This Impacts on MDGs

*Stephan Rist<sup>1</sup>*

*<sup>1</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland  
(stephan.rist@cde.unibe.ch)*

This presentation first provides some background by summarising the main features of the state–civil society interface before and after the radical and paradigmatic shift represented by the rise of Evo Morales as the new President of Bolivia in late 2005. Based on this case, it will then be shown that more integrated ways of poverty alleviation are not achieved just by calling for a stronger state within a given society–state relationship that is predominantly shaped by neoliberalism. Instead, the Bolivian case shows that overcoming basic neoliberal notions of society–state relations – by means of enduring and intense social mobilisation of indigenous and popular classes – and the resulting elaboration of a radically new political constitution was a fundamental precondition for defining new and more effective policies to alleviate poverty as part of a structural transformation.

On this basis, the following questions will be discussed:

- What was the understanding of the Millennium Development Goals (MDGs) before and after the “big change”?
- Which were the roles of the MDGs in domestic policymaking before and after the “big change”?
- Which are the main achievements, constraints, and challenges of the present policy shift regarding poverty alleviation?
- What are the lessons to be learnt for the global debate about the MDGs?

## Nepal's Development Beyond the MDGs: Who Is to Take the Lead?

*Sagar Raj Sharma<sup>1</sup>*

*<sup>1</sup>Department of Development Studies, Kathmandu University, Nepal (sagar@ku.edu.np)*

Although many of the core concerns of the Millennium Development Goals (MDGs) – above all poverty, but also issues such as nutrition, health, or education – are likely to remain unresolved after 2015, identifying new issues as well as potentially relevant institutions is essential if we want to debate and plan for beyond 2015. A significant political dialogue that includes all relevant stakeholders backed by in-depth research must be part and parcel of that momentum.

Regarding Nepal's progress on the MDGs, given the country's uncertain political climate and a fragile economic environment it looks certain that most of the current goals will not be met within the stipulated timeframe. In spite of heavy donor engagement and a state-controlled planned economy, Nepal's overall growth during the last six decades has not been very impressive. While the government's recent claim of having reduced poverty incidence to 25 per cent indicates a welcome development, it is contested, and the level of poverty, particularly in rural areas, remains high. Both donors and the state have been criticised for being ineffective and misplacing their priorities.

But despite these adverse conditions, understanding how poverty and other related indicators have moved in a positive direction demands more careful scrutiny. Moreover, this is happening notwithstanding the challenges of a perpetual transition, successive unstable governments, and general instability. This raises some interesting questions: How is it possible to reduce poverty and child mortality in spite of a weak government? What would be the desired roles of the state as well as the new institutions, including national non-state actors and international donors, in addressing the goals for beyond 2015? Also, what would be the linkage between and amongst these actors? This presentation aims to discuss these very issues in connection with Nepal's performance regarding the MDGs and possible strategies for beyond 2015.

## Theme 2, Session 11 Highly Skilled Return Migrants: Enhancing Positive Effects

*Anita Ghimire<sup>1</sup>, Susan Thieme<sup>2</sup>*

*<sup>1</sup>Swiss National Centre of Competence in Research (NCCR) North-South, South Asia Regional Office, Kathmandu, Nepal (bhattarainitu@gmail.com), <sup>2</sup>Human Geography Unit, Department of Geography, University of Zurich, Switzerland (susan.thieme@geo.uzh.ch)*

The debate over whether international migration contributes to development is now increasingly replaced by the notion of “migration management”. This terminology emphasises the understanding that with proper management, migration can be beneficial for both the receiving and the sending places. While economic remittances have largely determined the discourse on migration management and on the migration–development nexus, less is known about how migration management might enhance the use of highly skilled returnees’ knowledge and skills.

This session aims to discuss migrants’ experiences while working in their home countries after their return, as well as the experiences of migrants who have not (yet) returned home and their reasons for staying abroad.

We very much welcome contributions that critically analyse international migration of highly skilled persons, focusing on their experiences in the countries of origin as well as in the destination countries. We also welcome critical discussions of possible policy measures targeting the return of skilled migrants.

## The Influence of Educational Migration on the Development of Inter-state Relations between Kyrgyzstan and Turkey

*Jarkyn Samanchina<sup>1</sup>*

*<sup>1</sup>Political Science Department, Bishkek Humanities University, Bishkek, Kyrgyzstan  
(jarkyn\_sa@hotmail.com)*

Cultural and language propinquity, absence of visa requirements, and the state educational programme foster the flow of migrants from Kyrgyzstan to Turkey for education. Eventually, educational and labour migration have become closely intertwined. This has created a knowledge gap on the topic of migration from Kyrgyzstan to Turkey.

The research presented here deals with educational and labour migration from Kyrgyzstan to Turkey. The core research questions are what knowledge and skills migrants possess and/or acquire, and whether – and how – they influence socio-economic development in Kyrgyzstan and Turkey as well as the relations between the two countries.

The study focuses on social niches and professions where the knowledge and skills of Kyrgyzstan's migrants are used in Turkey (e.g. skilled vs. low-skilled); and vice versa, in what spheres migrants exert what types of influence, whether directly or indirectly, in the country of their origin, and how they apply their knowledge and skills: be it through networks, personal relations, business structures, educational institutions, or in some other way.

The study looks at:

- Factors related to culture and civilisation: religious commonalities, historical relations, as well as lack of various reservations/prejudices;
- Political and legal base: e.g. interstate agreements, migration legislation, and their influence on the increase/decrease or restriction of the migration flow;
- The extent of Kyrgyz–Turkish socio-economic relations; and
- Individual cases of people who are involved in Kyrgyz–Turkish relations, be it as migrants for education or labour or in business relations.

The research hypothesis is that these historical, cultural, economic, and political factors favour and promote rather than inhibit the migration process, and that migration to Turkey has a number of social, economic, and educational consequences for Kyrgyzstan.



## Highly Skilled Professionals, Diversity, and International Migration

*Magaly Sanchez R.<sup>1</sup>*

*<sup>1</sup>Office of Population Research, Princeton University, Princeton, USA  
(magalys@princeton.edu)*

Current processes of international migration enable talented, highly skilled, and educated persons to move and compete internationally. We argue that in a globalised world where information travels at a very high speed, international migration should be analysed through the lens of knowledge diversity and competitiveness, and no longer through the lens of the brain gain or brain loss explanations put forward by previous development and policy theories. We therefore consider immigrants as actors who actively take decisions towards improving their lives, with considerations about the quality of life and about professional knowledge being equally important in their decision to migrate.

In the context of a globalised world with expanding markets and intensive production technologies, international migration creates a mobile population of workers who actively search for new ways of achievement. Some may simply seek to cover their basic economic needs; highly skilled and educated migrants are likely to aim for the best opportunities in research and development.

This presentation explores international migration of highly skilled and educated professionals with a focus on how international competition promotes the diversity and multicultural richness of knowledge – a development that is coherent with the contemporary network society and with globalisation. It is assumed that multicultural and diverse migration of highly skilled and talented professionals is strongly supported by migration policies in the receiving countries.

## Patterns and Trends of Migration in the Andean Region From a Gender and a Public Policy Perspective: The Case of Bolivia

*Patricia Suarez<sup>1</sup>*

*<sup>1</sup>Swiss National Centre of Competence in Research (NCCR) North-South, South America Regional Office, Postgrado en Ciencias del Desarrollo (CIDES), Universidad Mayor de San Andres, La Paz, Bolivia (patriciasuarez27@gmail.com, psuarez2710@yahoo.com)*

Increasing flows of migrants from the Andean region to Europe (mainly Spain) and to other regions within South America (mainly Argentina and Brazil), as well as the growing importance of remittances as a major source of external financing in the region (including South–South remittance flows) put migration at the centre of attention when analysing economic and social impacts of global change in the Andean region.

This contribution presents research done within the NCCR North-South as part of an ongoing comparative study of mobility and migration in West Africa, South and Central Asia, South and Central America, and Switzerland (Special Research Project 5: Mobility and Migration). The work presented here focuses on migration in the Andean Region in general and in Bolivia as a case study. Based on a comparative analysis of the migration and mobility situation in Colombia, Ecuador, Peru, and Bolivia, commonalities and differences will be outlined for each country. In addition to the classic remittance-based analysis that considers economic remittances as an important contribution of migration to development, migration patterns and trends will be examined from a gender and a public policy perspective.

Migration and mobility will be explored against the background of ongoing public policy debates in Andean countries as well as of policymaking discussions in Andean organisations like the Andean Community of Nations (CAN). In the particular case of Bolivia, the aim is to evaluate not only international migration trends but also the related public policy developments in the context of the political, social, and economic processes that started after the change of government in 2006. The overall aim of the presentation is to contribute to the regional and global debates on migration and mobility.

## Transferring Skills upon Return: Matching Experiences and Aspirations in the Host Countries with Reality Back in India

*Gabriela Tejada<sup>1</sup>, Zakaria Siddiqui<sup>2</sup>, Metka Hercog<sup>1</sup>, Uttam Bhattacharya<sup>2</sup>*

*<sup>1</sup>Cooperation and Development Center (CODEV), École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland (gabriela.tejada@epfl.ch), <sup>2</sup>Institute of Development Studies, Kolkata, India (zakaria.jnu@gmail.com)*

The expansion of globalisation has accelerated international migration flows, especially those of highly skilled persons. There has been a corresponding increase in concern about how to meet the ensuing challenges and what strategies to implement in order to take advantage of potential gains. Skilled migrants can function as agents of development, for they indeed play a key role as a source of knowledge and skills circulating between countries. Their return to their home country could be viewed as a feedback effect of skilled migration, given that migrants' foreign exposure may bring improved levels of knowledge and technical skills. This could then help to generate employment, raise productivity, and build the necessary infrastructure for home country development. Return migration could be very beneficial, depending on the nature of the skills flowing in and the types of opportunity available. Studies suggest that thriving returnees successfully combine access to productive employment and an enabling environment with the possibility of influencing their home country.

Taking Indian skilled migration as an example and adopting a two-fold perspective – country of origin and countries of destination – the research presented here examines the incidence of the international exposure of Indian skilled migrants in their professional and social position upon their return to India, and the difficulties they face in the dynamics of transferring the skills they gained abroad. It also examines the aspirations of skilled Indians and their perceptions of the potential impact of their current activities in destination countries on the development of India, and whether these expectations materialise when they return. Some evidence on skilled Indian returnees shows their contributions through knowledge, skills, and ideas upon their return; however it lacks a comprehensive understanding of the real development impact.

This presentation thus aims to contribute to filling this gap with new empirical evidence. It is based on findings from an international research project carried out by the Cooperation and Development Center (CODEV) at the Ecole Polytechnique Fédérale de Lausanne (EPFL) in collaboration with the International Labour Office (ILO), the Institute of Development Studies, Kolkata (IDSK), and Jawaharlal Nehru University (JNU). It offers a quantitative and qualitative analysis of a dataset of more than 1300 skilled Indians which was collected through two primary complementary surveys addressing a) skilled Indians in European destination countries, and b) skilled Indian returnees. The overall objective of this project is to advance knowledge on skilled return migration and its impact on development, and to explore strategies to leverage the potential of scientific diasporas.

## Theme 2, Session 12 Livelihood Futures in Resource-scarce Regions: How Will Food Entitlement Improve?

*Babar Shahbaz<sup>1</sup>, Ulrike Müller-Böker<sup>2</sup>, Sagar Raj Sharma<sup>3</sup>*

*<sup>1</sup>University of Agriculture, Faisalabad, Pakistan (babar.shahbaz@gmail.com), <sup>2</sup>Development Studies Group, Department of Geography, University of Zurich, Switzerland (ulrike.mueller-boeker@geo.uzh.ch), <sup>3</sup>Human and Natural Resources Studies Centre (HNRSC), School of Arts, Kathmandu University, Nepal (sagar@ku.edu.np)*

Access to livelihood opportunities and activities that help poor people attain food security and livelihood goals is mediated through institutions. Pursuit of decent livelihoods, particularly in resource-scarce rural areas, takes place in an arena where alternative opportunities and choices for improving livelihoods are limited, and thus the institutional context becomes even more crucial. Although institutional and policy reforms – including provision of social security structures – in many developing countries are targeting food security and rural development, these processes are often linked to the emergence of new forms of exclusion and social conflicts.

This session seeks to understand what drives poor people's quest for access to alternative opportunities to secure their future livelihoods, and how processes of social exclusion or inclusion emerge. Within these overall guiding questions, we will examine some of the following questions:

- What is the state of food security and entitlement, and are there any disparities in the context of food security and entitlement in resource-scarce areas? How do formal and informal institutions at the macro, meso, and micro levels determine and affect the entitlement of different social groups?
- What type of alternative livelihood options (such as support structures, enabling institutions, and opportunities to secure food, etc.) exist in resource-scarce regions? Who is in a position to exploit such opportunities, and who is excluded?
- How are livelihood patterns changing in the context of resource scarcity, food insecurity, and the quest for access to alternative opportunities?

## Transnational Mobility and Improving Entitlements to Food in Marginal Areas of Nepal: A Research Perspective

*Jagannath Adhikari<sup>1</sup>*

*<sup>1</sup>Independent Researcher, Perth, Australia (jagannath.adhikari@gmail.com)*

This presentation looks into the possibility of improving food entitlements by making better use of the financial and social remittances from the increased flow of labourers across national borders. This increased transnational movement of labour has become an eminent economic, social, and political phenomenon all over the world, and gives rise to new challenges as well as opportunities to improve food entitlements. It especially has an ability to improve “exchange entitlements” because of remittances and to raise concern for “food safety” because of new knowledge. On the other hand, absence of adult male members due to transnational mobility has a potential to reduce political and social entitlements to food.

Nepal has faced a situation where production entitlements to food, i.e., through households’ own production, have been declining for most households because of fragmentation in land holdings and a general decline in production due to resource degradation. This, of course, differs from place to place and some of the regions of Nepal, especially the far west and mid-west mountain and hill regions, have severe livelihood problems. Resource scarcity and remoteness are some of the reasons for this. Mobility has also been important here, but this has not been able to significantly improve food entitlements.

Improvement in “exchange entitlements” could be one of the main ways to improve food entitlements in Nepal, especially in its marginal regions. Migration can help in this effort if it leads to more income and less risk. Proper information, skill improvement, and diversification both in destination and in occupation in destination countries can help in this venture. Moreover, greater access to infrastructures like roads and energy is also required to facilitate the entitlements to food through “market” (exchange entitlements) or through public distribution (political entitlements). This can also help in ploughing remittances into other income-generating activities to facilitate exchange entitlements. From Nepal’s marginal regions’ perspective, it could be non-timber forest product (NTFP) processing and high-value crop production.

## Rural Women and Food Security in India: Contribution and Constraints

*Haseena Hashia<sup>1</sup>*

*<sup>1</sup>Department of Geography, Jamia Millia Islamia, New Delhi, India  
(Prof\_haseena@yahoo.co.in)*

The concept of food security has undergone a lot of change during the past few decades. Availability and stability of food stocks in adequate measures do not necessarily ensure food security. Indeed, hunger, starvation, and undernutrition of a sizeable section of the population coexists with huge piles of food stocks. It is well documented that most poor families in the world spend 80% of their total income on food grains. Despite its good economic performance, India is home to the largest number of hungry people in the world, with over 200 million people who are food insecure. The Global Hunger Index 2009 ranks India 65<sup>th</sup> out of 84 countries, with a GHI of 29.90. In the Global Gender Gap Index, India is ranked 113<sup>th</sup> out of 130 countries. The sex ratio, including juvenile sex ratio, has shown an alarming reduction over the years, pointing to deep-rooted gender bias.

India is a predominantly agricultural country where about 70% of the total population lives in rural areas. Patriarchy and other factors force women to keep their hearths on, especially in poor families. Almost all agricultural operations are performed by women. According to the Food Security Atlas of India, there are a large number of food-insecure districts in India. While doing a pilot survey in one such district, the shocking situation was experienced that food insecurity leads to trafficking among women and young girls, which makes them vulnerable to HIV/AIDS and other sexually transmitted diseases. There is a positive linkage between agriculture and rural empowerment. It is beyond doubt that with the improvement of agricultural productivity, on- and off-farm employment increases.

This presentation will attempt to explore and highlight the food-insecure regions of India, the vulnerability of Indian rural women, their struggle for food security and nutrition security, and the constraints they come across, as well as future strategies for improvement. The presentation is based on primary data from various parts of rural India, represented by photographs and appropriate cartographic techniques.

## Food Insecurity and Coping Strategies in Resource-poor Semi-arid Lowlands in the Pangani River Basin, Same District, Tanzania

**Gimbage Ernest Mbeyale<sup>1</sup>, Franklin Bomani<sup>2</sup>, Babar Shahbaz<sup>3</sup>, Sagar Raj Sharma<sup>4</sup>, Numan Amanzi<sup>5</sup>**

<sup>1</sup>*Sokine University of Agriculture (SUA), Morogoro, Tanzania (mbeyale@suanet.ac.tz),*

<sup>2</sup>*Tanzania Forestry Research Institute (TAFORI), Lushoto, Tanzania*

*(frabo1980@gmail.com),* <sup>3</sup>*University of Agriculture, Faisalabad, Pakistan*

*(babar.shahbaz@gmail.com),* <sup>4</sup>*Kathmandu University, Kathmandu, Nepal*

*(sagarkun@yahoo.com),* <sup>5</sup>*Tanzania Forestry Research Institute (TAFORI), Tabora, Tanzania (numansaid@yahoo.com)*

This study was carried out to understand different configurations of poverty, power relations, and exclusion which lead to some households having poor or limited access to natural resources and consequently becoming food insecure through exclusion in resource-scarce areas of the Pangani River basin, Tanzania. The study also aimed at assessing the resultant coping strategies and the role of support structures by state and non-state actors.

The study was carried out in four villages – Njoro, Ishinde, Mabilioni, and Saweni – located in Same district in the Pangani River basin. Data were collected using Participatory Rural Appraisal techniques, discussion with key informants, structured questionnaires, market surveys, and participant observation. Qualitative data were analysed using content analysis, while descriptive and inferential statistical analyses were performed on quantitative data. Both chronic and seasonal food insecurity occur in the study area; chronic food insecurity was found to be the most common type occurring among households affected by different forms of exclusion. Three types of power relations were found to influence both access to critical resources and food insecurity: strategic, institutional, and structural power relations. Moreover, three levels of household chronic food insecurity were identified in the study area: severe food insecurity, moderate food insecurity, and mild food insecurity. The most common coping strategies, in the order of importance, were casual labour, petty business, remittances, temporary migration, and fishing.

The study concludes that livelihoods in resource-poor and marginal areas are complex, diverse, and highly dynamic. Understanding the changing patterns of livelihoods is an essential avenue for different actors to intervene with different, optimised livelihood options. The study recommends a differentiated approach including state and non-state actor interventions so as to address the problems and complexities of livelihoods in marginal areas with excluded social groups.

## Emerging Livelihood Trends in Resource-scarce Areas: Evidence From the Far-western Region of Nepal

*Sagar Raj Sharma<sup>1</sup>, Nirmal Kumar B.K.<sup>2</sup>*

*<sup>1</sup>Department of Development Studies, Kathmandu University, Nepal (sagar@ku.edu.np), <sup>2</sup>Human and Natural Resources Studies Centre, Kathmandu University, Nepal (nirmalkumarbk@gmail.com)*

Marginal communities in developing countries are often found to be food insecure and prone to facing hunger. But what exactly causes food insecurity? This critical question has received a lot of attention in the recent food security debates. Based on preliminary findings from a study of the far-western region of Nepal, it can be stated that socio-economic, political, and institutional factors play crucial roles in determining the levels of hunger or food security of these people.

This presentation focuses on these very factors and shows how the formal and informal socio-economic and political institutions determine the production and exchange entitlement of different social and economic groups. The findings suggest that socio-economic structures such as land tenure, property right rules, and natural resource management strategies play critical roles in determining the production entitlement of different groups of people. Also, pricing policies, physical and social structures, as well as rural politics are seen to determine the exchange entitlement of these people. As a result, economically and socially disadvantaged groups such as women-headed households, landless wage labourers, and Dalits face regular incidences of hunger, especially during food-scarce periods. However, these factors and forces are gradually changing due to the rising trend of outmigration, development of physical infrastructure and markets, and some government policies that have been introduced in recent years.

Based on evidence, we argue that social and economic interventions are crucial to improving the food entitlement of deprived communities. Findings show that interventions that improve factors such as social security, physical infrastructure, pricing mechanisms, and accessibility of credit facilities often make the process of converting resources into food entitlement easier and more efficient.



## Theme 2, Session 13 The Sanitation–Health Nexus

*Christian Zurbrügg<sup>1</sup>, Christoph Lüthi<sup>1</sup>, Hung Nguyen-Viet<sup>2,3</sup>*

*<sup>1</sup>Department of Water and Sanitation in Developing Countries, Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Dübendorf, Switzerland (christian.zurbruegg@eawag.ch), <sup>2</sup>Center for Public Health and Ecosystem Research, Hanoi School of Public Health (HSPH), Hanoi, Vietnam, <sup>3</sup>Department of Epidemiology and Public Health, Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland (hung.nguyen@unibas.ch)*

The Millennium Development Goal (MDG) target of halving the proportion of the population without sustainable access to basic sanitation by 2015 is still very far from being achieved. Much remains to be done particularly in Africa and Asia. Availability, accessibility, functionality, and correct and continued use and maintenance of sanitary facilities are key to sustainable improvements. Reasons for frequent failures of sanitation programmes are weak intersectoral collaboration, as well as inappropriate technical solutions that do not sufficiently consider aspects of local ownership and socio-economic, cultural, and political perspectives. Only improved practices and sustained use of improved facilities and services can lead to significant health and environmental outcomes. Integrative cross-sectoral planning of waste management is crucial in achieving a positive impact on both health and the environment. Recovery and reuse of resources from wastes while ensuring health safety, for example, can contribute to change and promote sustainable development. The links between health, waste, and the livelihood potential in waste are important elements in achieving equitable improvements that benefit the most vulnerable population segments.

Organised jointly by Swiss TPH, EAWAG, and HSPH, this session will present and debate a decade of interdisciplinary research on the linkages between health, economics, and environmental sanitation conducted within the Swiss National Centre of Competence (NCCR) North-South. The close collaboration between the two Swiss institutions throughout the NCCR North-South and their combined focus on health and sanitation has led to cutting-edge research results. Five contributions by a mix of senior researchers, post-doctoral researchers, and doctoral candidates from the global North and South will showcase past and present research in Africa and Asia. Within the overall topic of sanitation and health, their inputs will cover topics such as sector governance, health burden, gender issues, economics, and engineering perspectives.

The presentations will be followed by a panel discussion on “Reducing Disparities” with Christian Zurbrügg (Head of Department of Water and Sanitation in Developing Countries, EAWAG), Jakob Zinsstag (Deputy Head of Epidemiology and Public Health Department, Swiss TPH), Hung Nguyen-Viet (HSPH), Halidou Koanda (Director, WaterAid Burkina), and Sabin Bieri (Centre for Development and Environment, University of Bern). The panel will be moderated by Marcel Tanner (Director, Swiss TPH).

## Demand for Sanitation Among Urban Poor

*Isabel Günther<sup>1</sup>, Alexandra Horst<sup>1</sup>*

*<sup>1</sup>Postgraduate Course on Developing Countries (NADEL), Swiss Federal Institute of Technology Zurich, Switzerland (guenther@nadel.ethz.ch, ahorst@nadel.ethz.ch)*

This study analyses demand for sanitation and its determinants among urban poor, using a representative sample of 1500 slum households in Kampala, Uganda. We apply both stated and revealed preference analysis. Our results demonstrate the need to distinguish between the sanitation market for house owners and that for tenants, given the differences in their legal situations and, consequently, in investment opportunities and incentives.

At current market prices, we find that 39% of owners possess an improved sanitation facility, while only 5% of tenants have access to such a facility. Our results show that these differences are not only the result of differences in preferences and budget constraints, but are also due to rationed sanitation markets and missing property rights for tenants. The current market price of improved sanitation is higher for tenants – due to rent increases – than for house owners, who can directly make a real-estate investment decision. Moreover, 15% of tenants without access to improved sanitation would be willing to pay the current rental market price of improved sanitation.

This result calls for legal interventions to ensure access to improved sanitation for poor tenants who are dependent on landlords for sanitation investments. In proportion to household income, the willingness to pay turns out to be substantial at around 40% of per capita annual income for both tenants and owners. Sanitation investment decisions are mostly influenced by property rights, space availability, and moving plans as well as by current sanitation conditions. In contrast, education and income only play a minor role.

## Biosolids Recovery from Planted Faecal Sludge Drying Beds: Agronomic and Safety Considerations

*Ives M. Kengne<sup>1</sup>, E. Soh Kengne<sup>1</sup>, Amougou Akoa<sup>1</sup>, Linda Strande<sup>2</sup>*

<sup>1</sup>Laboratory of Environmental Biotechnology, Faculty of Science, University of Yaoundé I, Cameroon (*ives\_kengne@yahoo.fr; sohkengnee@yahoo.fr; aa2008@ymail.com*),

<sup>2</sup>Department of Water and Sanitation in Developing Countries, Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Dübendorf, Switzerland (*linda.strande@eawag.ch*)

Within the framework of the Swiss National Centre of Competence in Research (NCCR) North-South, pilot research was conducted in Cameroon on the biosolids that accumulate at the top of planted drying beds used for dewatering faecal sludge. Taking a sanitation value chain approach, we analysed the biosolids to assess their degree of stabilisation as well as their concentrations of nutrients and heavy metals and hygienic aspects. The quality of biosolids accumulated in the beds was monitored during six months following faecal sludge application and prior to the final harvest.

The analysis showed that the biosolids' C/N ratio (11.3), humification index (14%), humification rate (1.8%), and degree of polymerisation (3.7) were comparable to those of mature composts. Moreover, the biosolids had a high fertiliser value (N: 2%, P<sub>2</sub>O<sub>5</sub>: 2.3%, CaO: 1%, MgO: 0.14%, K<sub>2</sub>O: 0.03%, and Na<sub>2</sub>O: 0.09%) and low rates of heavy metal contamination (63, 14, 26, 2.4, 575, 703, 186, and 32 mg/kg for Pb, Ni, Cr, Cd, Cu, Zn, Mn, and Se, respectively). After one month of storage, Helminth (*Ascaris*) eggs dropped from an initial level of 79 eggs per gramme of total solids (viability 67%) to less than 4 viable eggs per gramme of total solids, a level which does not significantly increase health risks according to the World Health Organization's guidelines.

These promising results show that biosolids from planted faecal sludge drying beds, if properly managed, can serve as a valuable organic fertiliser and soil conditioner capable of meeting the needs of local farmers.

## Coupling Ecological Reuse Systems With Health Risks Determination: An Innovative Approach to Sanitation

*Atitaya Panuvatvanich<sup>1</sup>, Narong Surinkul<sup>1</sup>, Thammarat Koottatep<sup>1</sup>*

*<sup>1</sup>School of Environment, Resources, and Development (SERD), Asian Institute of Technology (AIT), Klong Luang, Thailand (atitaya\_p@ait.asia, surinkuln@ait.asia, thamarat@ait.asia)*

Wat Tou Thong School, a public school situated on the banks of the Chao Phraya River in Pathumthani province, Thailand, was selected as a demonstration site for testing an innovative ecological reuse system. A vertical-flow constructed wetland (VFCW) system for faecal sludge and grey-water treatment was constructed at the school to test its applicability for sustainable management of health and environmental sanitation in an urban community.

Taking a participatory planning approach, the researchers consulted with all key stakeholders – including schoolteachers, students, parents, and monks – when designing the VFCW unit. During the operation phase, students, teachers, and monks were also involved in maintenance of the system, including plant harvesting and control of the reused effluent. With regard to total solids, organic matter, and nitrogen, the system achieved a treatment performance of over 70%; regarding bacteria, it achieved a 2-log, or 90%, reduction in *E. coli* and salmonella, a performance level normally found in natural treatment systems. During project implementation, students in grades four to six – about 20 boys and girls – were trained in appropriate waste water management techniques and taught how to work in an effluent-fed agricultural field. Lessons on sanitation, ecological reuse, and user awareness of ecological reuse were incorporated into the students' course curriculum and teaching materials, building on basic scientific knowledge.

Focus group discussions indicated that students, teachers, and monks were able to understand the sanitation and ecological reuse system, and awareness was raised among parents, local people, and local authorities regarding water pollution control and associated health risks. One key outcome of the project was an award for achievements in the study of environmental pollution and management given to a sixth-grade student at the Wat Tou Thong School by Pathumthani Province on 9 January 2012.

## Health Risks Associated With the Use of Wastewater and Excreta in Agriculture in Northern Vietnam

**Phuc Pham-Duc<sup>1</sup>, Hung Nguyen-Viet<sup>1</sup>, Christian Zurbrügg<sup>2</sup>, Jakob Zinsstag<sup>3</sup>, Phung Dac Cam<sup>4</sup>, Jan Hattendorf<sup>5</sup>, Peter Odermatt<sup>3</sup>**

<sup>1</sup>Department of Environmental Health, Hanoi School of Public Health, Hanoi, Vietnam (phuc.pham-duc@unibas.ch; hung.nguyen@unibas.ch), <sup>2</sup>Department of Water and Sanitation in Developing Countries, Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Dübendorf, Switzerland (christian.zurbrugg@eawag.ch), <sup>3</sup>Department of Epidemiology and Public Health, Swiss Tropical and Public Health Institute, Basel, Switzerland (jakob.zinsstag@unibas.ch), <sup>4</sup>National Institute of Hygiene and Epidemiology, Hanoi, Vietnam (cam@fpt.vn)

We studied the health risks related to wastewater and excreta reuse in an agricultural community in northern Vietnam, with a focus on intestinal parasitic infections and diarrhoeal diseases. Several epidemiological studies were conducted to assess the relative importance of exposure to wastewater and excreta for parasitic infection and diarrhoeal episodes in Hanam province. Exposure data were obtained from household and individual interviews. Stool examinations were used to assess infection status. Quantitative microbial risk assessment (QMRA) of *Escherichia coli*, *Giardia lamblia*, and *Cryptosporidium parvum* infection due to exposure to wastewater and excreta was conducted to estimate diarrhoeal risks in the environmental sanitation and agricultural systems.

Helminth infections were prevalent (*Ascaris lumbricoides* 24%, *Trichuris trichiura* 40%, and any helminth infections 47%). Risk of helminth infection increased for people having direct contact with Nhue River water, as well as for people using human excreta as fertiliser. Tap water use in households proved to be a protective factor against *T. trichiura* infection. Diarrhoeal incidence in adults was 0.28 episodes per person per year (pppy). Direct contact with water from the Nhue River and local ponds, handling practices of human excreta, and use of animal excreta as fertilisers were important risk factors for diarrhoeal diseases. Inadequate use of protective measures, never or rarely washing one's hands with soap, and having eaten raw vegetables the day before were also associated with increased the risks of diarrhoea.

QMRA revealed that the most hazardous exposures included direct contact with the Nhue River, local pond and field water, household sewage, and composted excreta. The annual diarrhoeal risks were much greater than the WHO threshold values of  $10^{-3}$  pppy. Thus, important health impacts were documented in agricultural settings where wastewater and excreta are commonly used. Mitigation efforts must address personal hygiene practices and safe water and food consumption.

## Scaling Up Action Research Outcomes: The Household-Centred Environmental Sanitation (HCES) Approach in a Case Study From Nepal

*Mingma G. Sherpa<sup>1</sup>*

*<sup>1</sup>Asian Institute of Technology (AIT), Bangkok, Thailand  
(ming\_sherpa527@yahoo.co.uk)*

The Household-Centred Environmental Sanitation (HCES) planning approach was for the first time tested in Nepal, in a peri-urban setting from 2009 to 2011, to validate the novel planning approach, identify challenges, and improve the process. The participatory multi-stakeholder process in the Nala area involved household mapping and surveys, user needs identification and prioritisation, and a stakeholder assessment. Following an expert's assessment of potential sanitation options, community sensitisation campaigns including exposure visits, a sanitation bazaar, and focused community interactions were conducted. Among the three sanitation alternatives, users showed a strong preference for setting up a simplified sewerage system with decentralised wastewater treatment.

Although participatory planning consumes time, it is worth making this investment as it builds local ownership and assists in developing informed decision-making processes for affordable sanitation options. The final outcome of the planning process was an environmental sanitation improvement action plan which is currently being implemented. Thanks to additional funding from the Swiss National Centre of Competence in Research (NCCR) North-South for a Partnership Action, the project is now in its final state of completion. Based on the experience from the Nala HCES case, there are now ongoing efforts to scale up the approach within Nepal's water and sanitation sector. Sector programmes such as the Small Towns Water Supply and Sanitation Programme jointly funded by the Asian Development Bank and the Government of Nepal are willing to locally adapt and scale up the planning approach in its programme areas that cover 21 emerging towns in Nepal. Likewise, WaterAid Nepal is interested in adapting the approach within its programme areas to plan and implement sanitation services.

This contribution aims to share experiences in two areas. Firstly, based on the action research experience from Nala, it critically highlights the key challenges and outcomes faced while developing participatory plans. Secondly, it aims to share the insight that suitable institutional collaboration and advocacy can create opportunities to scale up action research outcomes and influence national policies and governance.

## Assessing Willingness to Pay for Constructing Septic Tanks in Rural Vietnam

*Hoang Van Minh<sup>1</sup>, Hung Nguyen-Viet<sup>2</sup>*

*<sup>1</sup>Health Economics Department, Institute for Preventive Medicine and Public Health, Hanoi Medical University, Hanoi, Vietnam (hoangvanminh@hmu.edu.vn), <sup>2</sup>Center for Public Health and Ecosystem, Hanoi School of Public Health, Hanoi, Vietnam (hung.nguyen@unibas.ch)*

The coverage of improved sanitation in Vietnam is still low, especially in rural areas. As a result, water-borne diseases remain key threats to public health. While the government has committed itself to increasing the proportion of people with access to improved sanitation, it cannot afford to subsidise sanitation for the entire population. Thus, improving rural sanitation continues to rely heavily on financial contributions from household-level private users, which depend on their willingness to pay (WTP) for such services. Knowing people's WTP is crucial when assessing the economic viability of projects, setting fees, evaluating policy alternatives, gauging financial sustainability, and designing socially equitable subsidies. However, such information on household-level demand is scarce to non-existent in Vietnam. We assessed the WTP for septic tanks among the rural population in Vietnam and identified the some factors that influence the level of WTP.

The study was conducted in Hanam province, in northern Vietnam. Researchers randomly selected and surveyed 600 households, conducting personal interviews with the main breadwinners or decision-makers in each. Contingent valuation was used to obtain relevant economic data. This method consists in asking individuals how much they would be willing to pay for a change to the quantity or quality (or both) of a particular commodity.

We found that 63% of the studied households were willing to pay for construction of a septic tank. The average WTP level was VND 16 million (US\$ 800), which amounts to about 15% of the households' annual disposable income. Economic hardship was found to be the major reason for not installing a sanitary latrine. Health, cleanliness, and prestige were found to be three major motivating factors for constructing septic tanks. Regression analysis showed that the odds for spending money on improved sanitation services were higher in households with better income, as well as in households whose head had better knowledge of sanitation.

## Theme 2, Session 14 Effects of Global and National Policies on Rural Women's Livelihoods and Agency

*Kristina Lanz<sup>1</sup>, Annemarie Sancar<sup>2</sup>*

*<sup>1</sup>Interdisciplinary Centre for Gender Studies (ICFG), University of Bern, Switzerland (kristina.lanz@izfg.unibe.ch), <sup>2</sup>Swiss Agency for Development and Cooperation (SDC), Bern, Switzerland (annemarie.sancar@deza.admin.ch)*

This session will explore how global phenomena, such as the increased drive for investment by national and international companies – be it to exploit natural resources, as in the case of Odisha, India, or to set up garment factories for export production, as in Bangladesh – impact on rural women's lives, their livelihood opportunities, and their agency. The role of migration and the effects it has on the women left behind will be explored in a case study from Nepal. Another presentation will explore the role of national policies, particularly land reform, and their impacts on rural women's lives in South Africa.

The presentations will be summed up and their relevance for international development cooperation discussed by Annemarie Sancar, gender expert at SDC, who will moderate this session.



## Everyone is Leaving – Who Will Sow Our Fields? The Effects of Migration From Khotang District to the Gulf and Malaysia

*Jagannath Adhikari<sup>1</sup>, Mary Hobley<sup>2</sup>*

*<sup>1</sup>Nepal Institute for Development Studies (NIDS), Kathmandu, Nepal (jagannath.adhikari@gmail.com), <sup>2</sup>Mary Hobley & Associates Ltd., Dorset, United Kingdom (mary@maryhobley.co.uk)*

Over the last 10 years, the massive outmigration for foreign employment, mostly to the Gulf Cooperation Council States and Malaysia, has changed the livelihoods and social structure of rural Nepal. In 2011, 450,000 Nepalis left the country to work abroad, earning 23% of the GDP. The remittance inflows into rural districts dwarf other flows of finance, and the absence of men from agriculture and other fields of labour has severe effects on agricultural production and gender relations. Hence, the Swiss Agency for Development and Cooperation (SDC) in Nepal commissioned this study to understand better how development interventions have to adjust to this changed context.

The study was conducted in villages of Khotang district, where between 50% and 70% of households had a member abroad. The study looked at the impact of migration on different wealth categories and found that although the very poor households were less able to use migration as a strategy to improve their well-being status, interestingly, Dalits were more successful than other social groups in improving their assets and social status through foreign employment. The severe lack of male workforce in a subsistence agriculture that is heavily labour-based has led to changed relations between landlords and tenants: with fewer people interested in hiring-in land, it is now the tenants who decide the terms. As migration is predominantly male, the women left behind – particularly in nuclear households with no additional adult male at home – had to manage a much higher workload and were often forced to sell big livestock and leave land fallow or underutilised, resulting in reduced agricultural productivity.

The decision-making power of women, however, did not increase in par with their additional responsibilities. Although women have become the farm managers, bigger decisions continue to be taken by men – via mobile phone. Stress levels are high among women who head households, and family break-ups have been more frequent in migrant households. Yet women have taken on a bigger role in the public space; collective action has become feminised. But at the same time, the high workload has led to decreased interest of women in participating in community groups. The trend towards individualisation among remittance-receiving households leads to the question whether the group-based development approach is a model of the past. SDC is presently working on a development strategy that takes this changed context into consideration.

## New Economic Policies and Social Transformation: Tribal Women in Rural Odisha, India

*Smita Mishra Panda<sup>1</sup>, Ragnhild Lund<sup>2</sup>*

*<sup>1</sup>Human Development Foundation – School of Management, Odisha, India (smitafem@gmail.com), <sup>2</sup>Norwegian University of Science and Technology, Trondheim, Norway (ragnhild.lund@svt.ntnu.no)*

New economic policies after the 1990s in India and in Odisha (an eastern state) have made a powerful impact on the welfare state. The egalitarian ethics that underlined planned development and the welfare state are changing fast. A pre-eminence of markets has now emerged. Odisha, which is home to 62 tribal/indigenous communities (23% of the total population), has experienced the impact of neoliberal policies in a variety of ways. The government has given the private sector access to resources (minerals, forests, land, and water). Ironically, minerals (bauxite, iron ore, and chromium) are concentrated in the tribal areas, which are located in remote rural hill regions. These areas have now become the favourite destination of large national corporations and multinational companies to invest in mineral extraction and mineral-based industrialisation. Most tribal communities depend on natural resources (land and forests) for their livelihoods, which are hence severely affected by mineral-based industrialisation.

Our previous research indicates that the nature of social transformation that is going on in Odisha is detrimental to tribal society in general, and women in particular, as they are deprived of their rights and their spaces have become restricted. New roles and identities are formed as a consequence of new sources of income in the informal sector, such as, for example, contractual farm work, construction work, domestic work in cities, or prostitution. These types of work are invariably exploitative in nature and alienate tribal women from their habitats. The tribal social system is disturbed and the identity of tribals is at times blurred, especially as a result of mobility to cities. Tribals may be uprooted and incorporated as “marginals” in the so-called larger mainstream society. It is a process of exclusion which makes them virtual slaves. There are some cases of retaliation and violence challenging the exclusionary process and violation of tribal citizenship rights, by tribal women. What is also interesting to observe is the twin process of hinduisation of tribals (strong influence of patriarchy) and simultaneous resistance by tribal women.

This contribution is based on field studies looking at mobility among tribal women and their role as activists against the ruling class and the current paradigm of development followed by the Indian State of Odisha.

## Women in Rural Development in South Africa: Facing the Realities of a Changing Socio-political Environment

*Agnes Musyoki<sup>1</sup>, Joan Fairhurst<sup>2</sup>*

*<sup>1</sup>University of Venda, Thohoyandou, South Africa (amusyoki@univen.ac.za), <sup>2</sup>University of South Africa, Pretoria, South Africa (joanfair@global.ac.za)*

The role of women in rural development in South Africa has undergone marked changes since the introduction of democracy in 1994 and the associated creation of a new socio-political environment. Various policies and programmes have emerged since then and women are continuously redefining and negotiating their roles, and their space, in order to be relevant, and to contribute to the development of rural areas.

In the light of these realities, this contribution draws attention to the opportunities and challenges presented by key policy frameworks, some specific initiatives that have impacted on women, and the associated adjustments and changed responses from rural women. Generally the role of women in rural areas has undergone considerable transformation although many are still heads of households and tillers of the earth. Moreover, there has been a significant shift in development thinking that encourages self-development and focuses on assets and confidence-building. Patriarchy, however, remains a factor with which women have to contend, particularly regarding property rights. Women have become key participants in the land reform process despite the general failure of this process to alleviate poverty and improve quality of life. They are using this process to ensure food security for themselves and their families. Despite their increasing visibility in public space, household decision-making still remains a dream for many of them.

This study recognises the references to women empowerment in many government policies, but closing the gap between policy and its implementation continues to be bogged down by governance problems, skills shortages, an ineffective land reform process, and patriarchy. There is indeed a need for effective implementation of policies that will improve the role of women in rural development.

## Engendering Analysis of the Global Value Chain in the Bangladeshi Garment Sector: Enhancing or Undermining Women's Agency?

*Md-Mamunur Rahman<sup>1</sup>*

*<sup>1</sup>Gender Consultant, United Nations Population Fund (UNFPA), Dhaka, Bangladesh  
(m.rahman@ids.ac.uk)*

What is the scope of increasing women's agency while they are serving as garment workers at the bottom of the Global Value Chain (GVC)? Analysing the GVC through a gender lens, it becomes clear that female garment workers – making up 90% of the workers in this sector – require prioritising in policy areas. What is most important is agency creation. Bangladeshi women, having “nimble fingers” and being victims of climate change, were targeted by profit-making factory owners.

This contribution tries to show why garment producers often prefer female workers. Are they being used as “instruments” or given any scope to emerge as “agents”? Moreover, the presentation looks into the question of whether female workers are being discriminated against by factory owners taking advantage of existing “gender relations” and women's “flexibility”. Being victims of natural calamities, many Bangladeshi rural women previously tried to sustain their livelihoods with microcredits but were unable to complete the cycle. They then migrated to cities to work at garment factories. Can these climate refugees, having become garment workers, have any hope to be entrepreneurs again?

The latest literature on this topic explains that the concept of GVC is useful to understand inter-firm relationships and connections between different actors in the chain across the globe. We argue that adopting a gender perspective is critical for getting the full picture of who actually contributes what along the chain. Recently, Bangladesh has drawn the world's attention because it has emerged as the second-largest exporter of ready-made garments, as a pioneer in microfinance, and as a victim of global climate change. Analysing the GVC, this contribution shows how these three factors are interrelated with the growing garment business. It also describes how, in spite of natural calamities, the country has moved up the GVC over the years, using its available and “flexible” female labour force as well as capitalising on the experiences of innovative micro-entrepreneurs.

## Theme 2, Session 15 Social Equity and Resilience for Health: Towards Research as Development

**Brigit Obrist<sup>1</sup>, Roger Jeffery<sup>2</sup>**

*<sup>1</sup>Swiss Tropical and Public Health Institute (Swiss TPH), University of Basel, Switzerland (brigit.obrist@unibas.ch), <sup>2</sup>School of Social and Political Science, University of Edinburgh, United Kingdom (R.Jeffery@ed.ac.uk)*

Reducing global and local health inequities has become a high-priority topic in science, policy, and development. In order to mitigate health inequities, it is critical to improve living conditions; tackle inequitable distribution of power, money, and resources; measure and understand the problems; and assess the impact of actions. Addressing the complexity of health inequities and its determinants requires new and innovative forms of research and action. An emphasis on social resilience may pave the way.

This session will explore empirical case research on health inequities done within North–South or South–South research partnerships. Participants are invited to reflect on the perspectives from which they have studied cases of health inequities, and to identify interlinkages of social and economic equity, health, and development.

Insights from these presentations are hoped to generate a discussion on the following questions: 1. Are existing methodologies and approaches helpful in identifying and examining health inequities, and if so, how? How is evidence generated, and how is it used in policy debates and decision-making? 2. What are the strengths and weaknesses of new experimental approaches to public health innovations? 3. What has worked well, and why? Where were goals not achieved, and why? 4. What additional insights can be gained by connecting different methodologies and underlying epistemologies in order to address the complexity of health inequities? 5. How can methodologies be improved in order to deepen and broaden our research, teaching, and interventions on health inequities by combining the perspectives of public health, social sciences and development? By addressing these questions, this session offers an opportunity to discuss and help develop conceptual and practical approaches to mitigating health inequities, and to jointly identify “best practices”. At the same time, it will contribute to a better understanding of inter- and transdisciplinary research and collaboration.

## Increasing Resilience of Adolescents in Ghana and Tanzania to Teenage Pregnancy: Factors to Consider

*Collins Ahorlu<sup>1</sup>, Constanze Pfeiffer<sup>2</sup>*

*<sup>1</sup>University of Ghana, Accra, Ghana (cahorlu@noguchi.mimcom.org), <sup>2</sup>Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland (constanze.pfeiffer@unibas.ch)*

Ghana's and Tanzania's teenage pregnancy rates are among the highest in the world. While many international and national organisations target young Africans with their interventions, surprisingly little is known about how African youth express their sexuality, particularly in rapidly changing urban contexts. In the past, research focused on the vulnerability and risks of youth. Currently, a growing body of literature uses a strength-based resilience approach focusing on the capacities of actors to deal with adversities.

Using the multi-layered social resilience framework developed by Obrist and colleagues of Swiss TPH, this contribution discusses how social actors as well as interventions on various levels in society can contribute to building adolescents' reactive and proactive capacities to overcome threats related to teenage pregnancy. It is based on data obtained through a quantitative cross-sectional survey in two urban and two rural sites in Ghana and Tanzania in which more than 2500 female adolescents aged 15 to 19 years were interviewed. Findings from this comparative study highlight the fact that teenage pregnancy rates have gone up from 12.8% to 15.6% in Accra and from 14.6% to 15.6% in Dar es Salaam in the past five years. Nevertheless, the study also pointed to influential actors and interventions:

(1) Parents are becoming more important in sexual and reproductive health education for adolescents due to changing family structures. They are, however, in need of positive parent-child communication skills.

(2) Youth magazines are widely used by youth in Tanzania and play an integral part in terms of sexual education. Scaling up of youth magazines is recommended in order to reach urban as well as rural youth, not only in Tanzania but also in other African countries.

## Society, Equity, and Health: At the Intersection of Public Health, Social Sciences, and Development

*Karin Gross<sup>1</sup>, Brigit Obrist<sup>1</sup>*

*<sup>1</sup>Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland  
(karin.gross@unibas.ch)*

Reducing global and national health inequities has become a topic of high priority in science, policy, and development. In order to mitigate health inequities, it is critical to (1) improve people's everyday living conditions, (2) tackle the inequitable distribution of power, money, and resources, (3) measure and understand the problems, and (4) assess the impact of actions. Addressing the complexity of health inequities and their determinants requires North–South partnerships and inter- and transdisciplinary collaborations across the natural, technical, and social sciences as well as the humanities.

This presentation puts first results of the Swiss National Centre of Competence in Research (NCCR) North-South Transversal Project Mandate (TPM) “Society, Equity, and Health: At the Intersection of Public Health, Social Sciences, and Development” up for discussion.

The NCCR North-South programme framework places this TPM in the unique position of being able to synthesise and capitalise on a wealth of case study material and methodologies produced in diverse contexts, and to draw on a worldwide network of researchers to examine health inequities from the intersecting perspectives of public health, technology, social sciences, and development. Focusing on concrete cases of health inequities collected in diverse contexts by the global network of NCCR North-South researchers since 2001, the TPM will analyse the perspectives from which these cases of health inequities were studied, identify interlinkages between social and economic equity, health, and development, and examine what additional insights (could) have been gained by connecting different methodologies and underlying epistemologies.

Insights gained from discussion with other researchers and participants at the International Conference on Research for Development will be used to further improve and develop conceptual and practical approaches to reducing health inequities and at the same time deepen the understanding of inter- and transdisciplinary and North–South research collaboration which is at the heart of this NCCR.

## Services Access, Health, and Well-being in an Urban Context: Addressing the Complexity of Social and Health Disparities in Nouakchott, Mauritania

**Ibrahima Sy<sup>1</sup>, Doulo Traoré<sup>2</sup>, Michael Epprecht<sup>3</sup>, Moussa Keita<sup>4</sup>, Baïdy Lô<sup>2</sup>, Urs Wiesmann<sup>5</sup>, Bassirou Bonfoh<sup>6</sup>, Guéladio Cissé<sup>1</sup>, Marcel Tanner<sup>1</sup>**

*<sup>1</sup>Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland (ibrahima.sy@unistra.fr), <sup>2</sup>Institut National de Recherches en Santé Publique (INRSP), Nouakchott, Mauritania (doulotraore@gmail.com), <sup>3</sup>Centre for Development and Environment (CDE), University of Bern, Liaison Office in Vientiane, Lao PDR (michael.epprecht@cde.unibe.ch), <sup>4</sup>Swiss National Centre of Competence in Research (NCCR) North-South programme in Mauritania (moussaks2004@yahoo.fr), <sup>5</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland, <sup>6</sup>Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS), Abidjan, Côte d'Ivoire (bassirou.bonfoh@csrs.ci)*

In developing cities such as Nouakchott, Mauritania, access to efficient and appropriate tools for policymaking appears to be a crucial step in planning public health development policies. Despite a large amount of data generated by different studies on social and health aspects in this city, useful information on urban areas for public health planning is typically lacking. Addressing health disparities and social inequalities in urban areas contributes to planning of public health development at different spatial scales. The database available for Nouakchott makes it possible to produce an atlas on social and health issues using national data surveys from 2000 and 2009 at commune level, completed or validated by households, along with geographic surveys at the district level.

The methodological approach is based on the visualisation of health indicators (morbidity of malaria, respiratory infections, tuberculosis, and diarrhoeal diseases, infant mortality, access to healthcare, etc.) and variables (population density, socio-economic conditions, poverty incidence, water and sanitation services, hygiene, etc.). Health disparities and the impacts of different related factors are spatially represented at a high resolution using modern cartographic methods. The analytical focus is on the meso scale.

The expected results are meant to contribute to a better understanding of health risk disparities. The aim is also to improve the performance of urban development planning by placing particular emphasis on development and building up capacities of local public health institutions. The increasing complexity of social and health problems is thus addressed at a high level of spatial information desegregation in order to provide sound evidence and enable appropriate and efficient decision-making regarding Nouakchott's public health services.



## Situating Evidence in Public Health Interventions: Experiences from India, Nepal, and Sri Lanka

***Tharindi Udalagama<sup>1</sup>, Rekha Khatri<sup>2</sup>, Deapica Ravindran<sup>3</sup>, Jeevan Raj Sharma<sup>4</sup>, Ian Harper<sup>4</sup>, Roger Jeffery<sup>4</sup>, Salla Sariola<sup>5</sup>***

*<sup>1</sup>University of Colombo, Sri Lanka (tharindi.udalagama@gmail.com), <sup>2</sup>Social Science Baha, Kathmandu, Nepal (rkhatr@soscbaha.org), <sup>3</sup>Centre for Studies in Ethics and Rights (CSER), Mumbai, India, <sup>4</sup>School of Social and Political Science, University of Edinburgh, United Kingdom (jeevan.sharma@ed.ac.uk, iharper@staffmail.ed.ac.uk, r.jeffery@ed.ac.uk), <sup>5</sup>Department of Anthropology, Durham University, Durham, United Kingdom (salla.sariola@durham.ac.uk)*

Over the past decade or so, there has been an increased interest in generating evidence-based public health policies in South Asia. As a part of the “Biomedical and Health Experimentation in South Asia” (BHESA) research project we investigated research studies in the public health sector that were concerned with generating “rigorous” experimental evidence to persuade governments and policymakers to adopt new policies and programmes.

Drawing on our fieldwork in three countries – India, Nepal, and Sri Lanka – this contribution interrogates the processes that intervene between public health science and politics, through a discussion of selected case studies of evidence generation in public health and health policies and programmes in these countries. In addition to unpacking what is meant by “rigour” in generating evidence in these studies, our research explores the views of a range of actors, institutions, and networks that put emphasis on evidence and influence the uptake of evidence in health policymaking in the three countries.

## Theme 2, Session 16 Going Beyond Basic Needs: New Opportunities to Reduce Inequalities in the Metropolises of the Global South

*Ning Liu<sup>1</sup>, Yves Pedrazzini<sup>1</sup>*

*<sup>1</sup>Urban Sociology Laboratory (LASUR), École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland (ning.liu@epfl.ch, yves.pedrazzini@epfl.ch)*

This session aims to bring actors from different disciplines into an advanced discussion about the development mechanisms and opportunities of cities in the global South.

Faced with the challenges of climate change, economic incentives, and demographic boom, the cities in the South are becoming much more complex than researchers in the North have come to think. Far beyond the basic needs, the cities of tomorrow require extensive governance knowledge and key assets that are compatible with their size and development dynamics. From this perspective, reducing inequalities within metropolitan areas can be considered as a key issue at the planetary level. The articulation of governance and participation must move beyond familiar top-down implementation processes and make room for new actors on the scene.

Presentations will be followed by a discussion, with the aim of developing an agenda for future research and cooperation.

## Learning from African Cities

**Jérôme Chenal<sup>1</sup>, Bassirou Bonfoh<sup>2</sup>**

<sup>1</sup>*Development Planning Unit, University College London, UK (j.chenal@ucl.ac.uk),*

<sup>2</sup>*Centre Suisse de Recherches Scientifiques, Abidjan, Côte d'Ivoire  
(bassirou.bonfoh@csrs.ci)*

The aim of this presentation is to highlight the main outcome of an international symposium entitled “Learning from the African City” held in Abidjan in the context of Swiss National Centre of Competence in Research (NCCR) North-South studies on urban planning and well-being. The symposium brought together scientists and planners from the global South and North around three distinct but highly interconnected topics: (1) the production of the city at its fringes, (2) public spaces, and thus the right to be part of the city, and (3) the mobility that connects these spaces. It was also a matter of understanding the phenomena of urban sprawl, mobility patterns, and the traditional core problem of negotiating or losing public space or land. The gaps in understanding such urban transformation pertained to the lack of networks and knowledge regarding urban dynamics as well as the failure to consider interdisciplinary topics.

The main findings are that the ongoing dynamic process of privatisation of transportation and public spaces is leading to growing exclusion of the poorest. Income from land property rights and the need for in-house security with “shelters” reinforce the development of ever more distant suburbs. People’s impoverishment keeps them in the city centre or in distant suburbs, where they face sanitation problems and high transportation costs, respectively.

The links between transportation systems, habitats, and sites of sociability are not addressed by public policy or urban projects. This is the main outcome of the symposium, indicating a need for reflection on the scale of African cities’ governance. It was the first time that researchers tried to show how the mechanisms of producing urban spaces should take into account the complexity of the city.

## Design Tools for Sustainable Social Housing Development in Fast-growing Southern Mediterranean Cities

*Guillaume de Morsier<sup>1</sup>, Valentin Kunik<sup>1</sup>, Till Vallée<sup>1</sup>*

*<sup>1</sup>College of Engineering and Architecture of Fribourg, Switzerland  
(guillaume.demorsier@hefr.ch)*

Many Mediterranean cities are currently seeing a rapid growth of their population. As a result, the need for affordable social housing is increasing. However, new housing developments are unable to meet this demand. Furthermore, because of poor quality construction, irrational usage of energy, and non-contextual planning, these new developments have a strong negative impact on the environment, the urban climate, and interior comfort.

The present research examines ancient construction techniques in search of simple, elementary techniques, structural elements, and architectural principles that can be implemented in the agglomeration of Algiers, Algeria. From an extensive study of building heritage, we propose an architecture that is adapted not only to the socio-economic context, but also to local physical and climatological constraints, and that fits in with local customs, habits, and tradition.

This working process links traditional construction techniques with the latest technologies in order to develop low-tech and affordable solutions which can be implemented in large-scale real estate developments, in the context of rapid population growth and economic hardship.

The outcome of this research is a range of design tools covering a broad array of scales, from urban systems to construction details and construction materials. At a larger scale, urban climate, public spaces, and the energy needs of buildings are improved by optimising the built volumes, especially in terms of orientation to the sun and major wind directions. Within building blocks, typologies are rooted within the local housing history and merged with strong principles of natural ventilation, cooling, and humidity control. In terms of construction, integrative solutions using excavation earth combined with different natural aggregates strongly improve thermal properties of buildings and dramatically reduce carbon emissions.

This research offers a set of low-tech adaptive design tools that allow building cheaper and more comfortable social housing, while reducing the environmental impact and maintaining tradition and history.

## Articulating Urban Mobility, Public Equipment, and User Expectations in a Developing Metropolis

*Ning Liu<sup>1</sup>, Yves Pedrazzini<sup>1</sup>, Luca Pattaroni<sup>1</sup>*

*<sup>1</sup>Urban Sociology Laboratory (LASUR), École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland (ning.liu@epfl.ch)*

This presentation addresses the challenge of reducing disparities between central and peripheral urban areas under rapid expansion in densely populated regional capitals in Africa and Asia. Recent data published by the United Nations Development Programme (UNDP) and UN Habitat (2010) have demonstrated that in many least developed and developing locations, demographic growth and urban sprawl are no longer correlated to actual economic growth. In recent years, while unemployment, inequality, poverty, and a general lack of infrastructure have remained the key reasons for urban insecurity and social conflicts, market-driven development efforts have often concentrated only on identified commercial and upper-class areas. At the planetary level, despite huge disparities in economic dynamics between the least developed areas and some emerging economic powers such as China, India, and Chile, there are certain similar elements, and common lessons can be learned.

Based on recent research activities conducted by the Urban Sociology Laboratory at EPFL and its institutional partners, this presentation aims to bridge the knowledge networks of different disciplines including architecture, urbanism, socio-economic studies, and policymaking, and to link experiences of developing locations with the anticipated needs of least developed locations. The presentation tackles the challenge of linking top-down development policymaking and bottom-up participatory processes with new strategic approaches. The main topics are urban mobility, public equipment, and user expectations.

The presentation and discussion session will use examples from regional capitals in West Africa, South America, and the Asia/Pacific region to identify key factors that could potentially improve the articulation between central and peripheral urban areas and between social groups. Recent case studies and planning projects from a development context will be analysed methodically put up for interdisciplinary discussion.

## Second-wave Urbanisation: Mobilising African Discourses

*Gordon Pirie*<sup>1</sup>

*<sup>1</sup>African Centre for Cities, University of Cape Town, South Africa  
(gordon.pirie@uct.ac.za)*

Discrepancies in the mobility of urban citizens are far more noticeable in Africa than in the global North. Outsiders use the differences as icons, using them in (photo) “stories” and as ways of “reading” the African city. The differential accessibilities that individuals and households have are less visible and less often spoken about.

The intellectual, planning, and policy paradigms and discourses that guide surveys and interventions in urban transport have not kept up with – let alone resolved – urban accessibility and mobility inequalities in African cities. The effectiveness of conventional science, technology, and managerial practice is compounded by concern over its appropriateness to the conditions and challenges of second-wave urbanisation in Africa.

This contribution urges alignment of urban transport research with new urban imaginaries, and formulation of new ideas about urban transport and travel in Africa with African partner institutions and civic interest groups.

## Theme 2, Session 17 Making the Labour Market Work for the Poor: Pathways Towards Inclusive Development?

*Christian Berndt<sup>1</sup>, Sabin Bieri<sup>2</sup>*

*<sup>1</sup>Department of Geography, University of Zurich, Switzerland  
(christian.berndt@geo.uzh.ch), <sup>2</sup>Centre for Development and Environment (CDE),  
University of Bern, Switzerland (sabin.bieri@cde.unibe.ch)*

The ongoing drive towards better integrating the poor into global commodity circuits and production networks has had a profound, if diverse, impact on many regions in the global South. Framed programmatically with labels such as “markets for the poor”, “value chain integration”, or “financial inclusion”, development hopes rest on the economic effects of these projects in terms of improved livelihoods and poverty reduction. Although the international development community has arguably been successful in promoting economic growth and alleviating poverty, there is a lively debate in the academic and policy-oriented literature concerning the distribution of the benefits and costs of market-making and market-expansion projects. Against the background of the ongoing financial and economic crisis, this session engages with processes of social exclusion and marginalisation in labour markets and possible pathways towards more inclusive policies.

In this context, the aim of the session is to discuss constraints and opportunities for different labour market participants in their respective regional and national regulatory settings. More specifically, the presentations address exclusion and perpetuated poverty among youth, gendered access to particular professional segments, resilience to economic shocks, and the question of upgrading in export-oriented agricultural value chains. The case studies cover four world regions (South America, Central America, West Africa, and South Asia) and address the question of labour market access with reference to multiple dimensions of difference (gender, age, ethnicity, and class).

Aspects to be addressed include:

- The existence of different labour markets and the relation/permeability between formal and informal labour markets
- State and markets, and the role and adequacy of different regulatory policies: labour market, financial, social, and fiscal policies
- Equality of opportunities versus equality of outcomes: The effect of labour market and other policy/development interventions on different social groups
- Use and assessment of such policies by different target groups
- Effects of financial and economic crises on particular segments of the labour market and respective groups
- Assessment of different measures of economic empowerment (such as value chain integration or M4P initiatives)
- Economic growth and development objectives: increased income, human well-being, and expanding capabilities

## Employment Policies for Poor Youth: The Need for Multidimensional Interventions

*Ada Freytes Frey<sup>1</sup>*

*<sup>1</sup>Universidad Nacional de Avellaneda, Avellaneda, Argentina  
(adafreytes@fibertel.com.ar)*

The situation of young people in poverty, who have difficulty in achieving qualifying positions in the labour market, is especially worrying in Latin America. While precarious employment is widespread among all young people, for those in poverty the succession of unstable, low-skill jobs with poor conditions and the extension of these uncertain labour trajectories over time often results in a long-term reproduction of poverty. This scenario not only affects individual rights and development potential, but is also linked to increasing youth violence experienced in the region.

In this context, youth employment policies become highly important. Nevertheless, in Argentina the strategies of intervention seem quite limited: they consist almost exclusively of training courses and, in the last few years, of support for productive micro-projects led by young people. The problem is that these interventions generally do not reach the most vulnerable groups, since they are not adapted to their needs, interests, and conditions of life.

This contribution explores the labour experiences of young people in poverty in Greater Buenos Aires and the relationships they established with different “youth-oriented” employment policies. It analyses how these policies influenced youth entrance to the labour market, as well as which youth needs were ignored by the interventions. It also explores the differences between men’s and women’s needs for training and support. The presentation concludes with a discussion of the convenience of developing comprehensive, gender-sensitive employment policies oriented to poor youth in order to address different aspects related to their employability: social capital, basic education, social skills, and vocational training.



## Discourses of Gender Identities and Gender Roles in Pakistan: Women and Non-domestic Work in Political Representations

*Julia Grünenfelder<sup>1</sup>*

*<sup>1</sup>Department of Geography, University of Zurich, Switzerland  
(julia.gruenenfelder@geo.uzh.ch)*

This contribution aims to explore the manifold and changing links that have been constructed between women and work by Pakistani state discourses between the 1940s and the early 2010s. The main focus of the analysis is on discursive spaces that have been created for women who engage in non-domestic work.

Based on a critical review of existing academic literature, it is argued that Pakistani women's non-domestic work has been conceptualised in three major ways: as a contribution to national development, as a danger to the nation, and as non-existent.

The study concludes that, even though some conceptualisations of work have been more powerful than others and have become part of concrete state policies at specific historical junctures, alternative conceptualisations have always coexisted. Disclosing the state's implication in the discursive construction of working women's subjectivities might contribute to the destabilisation of hegemonic concepts of gendered divisions of labour in Pakistan.

## Economic Crisis, Resilience, and the Informal Sector: An Analysis of Barriers to the Creation of Decent Jobs

*Jean Louis Lognon<sup>1</sup>, Droh Rusticot<sup>1</sup>, Cléopâtre Kablan<sup>1</sup>, Brigit Obrist<sup>2</sup>*

*<sup>1</sup>University of Cocody, Abidjan, Côte d'Ivoire (lognon\_jeanlouis@yahoo.fr, droh\_d@yahoo.fr, cleopatrek@yahoo.fr), <sup>2</sup>Institute of Social Anthropology, University of Basel, Switzerland (brigit.obrist@unibas.ch)*

Like in most sub-Saharan African countries, the labour market in Côte d'Ivoire is dominated by the informal sector. In fact, facing the consequences of economic crisis such as increased poverty and unemployment, participation in the informal economy through the creation of micro-enterprises is one of the main resilience strategies followed by various social groups (youth, women, immigrants, graduate students, officials, and others).

However, employment in the informal economy is highly precarious, as informal jobs are characterised by low incomes and lack of social protection. To make things worse, business conditions are far from enabling, starting from a lack of access to key public services (water, electricity, telecommunication, etc.), non-existent or insufficient legal or official norms, and no working time regulation. In other words, the issue of decent working conditions is particularly acute in the informal sector.

With reference to the livelihoods approach, this presentation analyses determinants of the difficulty of creating decent jobs in the informal sector. First, it describes the types of capital needed to create decent jobs in this sector. Second, it shows how, in the case of the activities studied, the mechanisms of access to these capitals constrain the creation of decent jobs.

## Labour Arrangements and Financial Inclusion of Agricultural Workers in a Dynamic Agricultural Region in Mexico

*Solène Morvant-Roux<sup>1</sup>, Emmanuelle Bouquet<sup>2</sup>, Gerardo Rodriguez-Solis<sup>3</sup>*

*<sup>1</sup>Department of Economics, University of Fribourg, Switzerland (solene.morvant-roux@unifr.ch), <sup>2</sup>Centre de coopération internationale en recherche agronomique pour le développement (CIRAD), Montpellier, France (emmanuelle.bouquet@cirad.fr), <sup>3</sup>Colegio de Michoacán (COLMICH), Zamora, Mexico (gerardo.sociologia@gmail.com)*

In this presentation, we focus on the contractual labour relationships of agricultural wage workers in a productive agricultural region of Mexico. We describe the array of their financial practices (formal and informal, including tied labour–credit arrangements), and we try to assess whether, and to what degree, their status as agricultural workers translates into some form of exclusion/rationing with regard to their financial practices.

From a theoretical standpoint, this research builds on an institutional economics framework, particularly in terms of the concept of market failures, the embeddedness of markets into social relationships and networks, and the exploration of interlinkages between labour markets and financial markets, at a micro level. From a methodological standpoint, the study draws on insights from a combined quantitative and qualitative analysis of first-hand socio-economic data.

The data was obtained by means of a regionally representative quantitative household survey applied to 400 rural households (out of which 170 turned out to earn some share of their income through agricultural wage) and 40 in-depth interviews conducted with a sub-sample of households involved in agricultural wage. This Q-square approach enabled us to uncover the heterogeneity of rationales and processes at work behind the statistical relationships.

## Theme 2, Session 18 Statebuilding Versus Peacebuilding? The Construction of Political Legitimacy in Fragile and (Post-)Conflict Contexts

*Didier Péclard<sup>1</sup>, Francis Akindès<sup>2</sup>*

*<sup>1</sup>Swiss Peace Foundation (swisspeace), Bern, Switzerland  
(didier.peclard@swisspeace.ch), <sup>2</sup>University of Bouaké, Côte d'Ivoire  
(f\_akindes@yahoo.com)*

Helping to build strong, accountable, and stable political institutions is increasingly considered as a cornerstone of peacebuilding policy and practice. Peacebuilding has thus moved from its initial focus on how to achieve peace between belligerents to a comprehensive approach which centres on state-building as both an objective and an instrument towards the establishment of peaceful societies and polities. In parallel, debates about state-building are moving away from a technicist approach – which rests on the belief that building states is about finding the right set of tools that can be applied in any context – to a more political approach. It is now generally admitted (1) that state-building is first and foremost a political process, (2) that states are not separated from society, but that, on the contrary, they need to be understood in their relations with society, and (3) that state-building is primarily an endogenous process, that is, a process led by social, economic, and political forces within a particular society. Reconciling the agendas of peacebuilding and state-building, however, leads to risks and tensions. Outside interventions in the name of peacebuilding can impact negatively on historical processes of state-building, just as elements of a state-building agenda can have disruptive effects and endanger peace.

Against this background, understanding local power dynamics is crucial. Stable and sustainable states are states where the exercise of power and authority is based on a – generally tacit and implicit – social contract. In this contract, citizens relinquish part of their power to specific social and political institutions. State authority is granted through social acceptance and recognition rather than (the threat of) physical force. Legitimacy is key to the emergence of stable states. Far from a culturally or socially given quality, legitimacy is a historical construct that results from protracted social struggles and trade-offs between groups and actors. Understanding how it is constructed is key to any effort at accompanying processes of state formation, especially since outside interventions are always integrated in local politics, and since they can have both legitimising and delegitimising effects.

This session explores some of these dynamics, looking at how state and other political institutions are shaped by and through conflict. With case studies looking at different moments of the war-to-peace continuum, it sheds light on the complex interplay between state-building and peacebuilding.

## Bridging the Perspective Gap: How Perceptions Influence Cooperation Between Local and International Peacebuilding

*Sara Hellmüller<sup>1,2,3</sup>*

*<sup>1</sup>swisspeace, Bern, Switzerland (sara.hellmueller@swisspeace.ch) <sup>2</sup>University of Basel, Switzerland, <sup>3</sup>University of Bunia, Ituri, Democratic Republic of the Congo*

Peacebuilding is usually associated with international actors intervening in a post-conflict context. Accordingly, the positive impact of local contributions is often overlooked. In this presentation it will be argued that both international and local approaches to peacebuilding should be considered and that cooperation between the different actors engaged in peacebuilding influences the effectiveness of their programmes. Cooperation is, however, often hampered by diverging perceptions of peace and conflict as well as by dichotomist portrayals of each other.

Taking the Democratic Republic of Congo as a case study, the presentation draws on empirical data gathered in spring 2011 and 2012 in the eastern district of Ituri. It analyses how differences in local and international actors' perceptions have shaped the interaction between them and the legitimacy of their programmes. The first part of the presentation will focus on the images that local and international actors have and promote of themselves and each other. These images have formed in historical processes and frequently serve to justify and legitimise the relevant actors' engagements.

As will be shown in the second part of the presentation, this has led to dichotomist perceptions that create an "us" and a "them", thereby hampering constructive cooperation between the different actors. Cooperation is defined by the author as partnerships which do not deny inherent power asymmetries, but in which differences between the various actors are seen as a potential source of success, rather than an obstacle to cooperation.

Therefore, in the third part of the presentation it will be argued that both the international community and local actors have had their distinct comparative advantages in efforts to calm the district of Ituri since the major outbreak of violence in 1999. However, if these advantages are not harnessed, the entanglement in rivalries risks overshadowing the goal that both sets of actors proclaim to pursue: peace.

## Mobilisation for Political Violence: Who Joins Pro-governmental Militias and Why?

*Gnangadjomon Koné<sup>1,2</sup>*

<sup>1</sup>*Department of Sociology, University of Bouaké, Côte d'Ivoire (konedelokolo@yahoo.fr), <sup>2</sup>Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS), Abidjan, Côte d'Ivoire*

With the end of the Cold War, in the framework of what has been referred to as “new wars”, it has been argued that population pressure in the form of large youth cohorts – so-called “youth bulges” – increases a country’s likelihood to experience armed conflict, in particular when these youth groups are excluded from political and economic participation. Indeed, the role of youth in violent conflicts has risen sharply since the early 1990s, either as part of insurgent/rebel movements or as part of counterinsurgent/pro-governmental armed groups and militias.

The literature addresses these two groups, i.e. rebellion movements and pro-governmental armed militias, differently, as if there was no similitude between their respective members. This is one of the two gaps that this presentation aims to address. My conviction or thesis is that there is no fundamental difference between insurgent and counterinsurgent combatants in terms of profiles and fighting motivations. Both are motivated by the quest for better political, economic, and social participation. Compared to the extensive research on rebel recruitment, the process of counterinsurgent mobilisation remains unexplored. This is the second gap to be addressed in this contribution. To defend the above thesis, I will draw on a case study of armed militias that emerged from 2002 to 2011 in Côte d'Ivoire. During the recent conflict in Côte d'Ivoire (2002–2011), youth armed militias indeed played a crucial role in supporting former President Laurent Gbagbo. The so-called “Young Patriots”, a wide network of associations, went through different phases during this period, ranging from great successes to ultimate defeat. Côte d'Ivoire thus provides a very pertinent case. The study will address the following questions: Who joins such counterinsurgent groups and why? How do these groups succeed in recruiting poor peasants in defence of a status quo that typically appears staked against their own interests? In what ways do rebel and counter-rebel organisations differ? What are the implications of counterinsurgent mobilisation for our understanding of the dynamics of civil wars? Does the construction of legitimacy play the same role in the political sustainability of counterinsurgent movements as it does in that of rebel groups?

The main purpose of this research project is to (1) explore the conditions under which irregular armed groups that are linked to government authorities are recruited and formed, and (2) investigate how these armed groups develop the political discourse upon which their social legitimacy rests. One of the crucial aspects of this research is the analysis of the perspectives of pro-governmental combatants in the process of peacebuilding. How do they negotiate their social and economic integration?

## The Water War in the CNO Zone of Côte d'Ivoire: When a Public Good Becomes a Weapon of War

*Yao Séverin Kouamé<sup>1,2</sup>*

*<sup>1</sup>Université de Bouaké, Côte d'Ivoire (kouame@gmail.com), <sup>2</sup>Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS), Abidjan, Côte d'Ivoire*

In Bouaké, after the outbreak of the rebellion in September 2002, all public services were highly disturbed due to neglect or looting of infrastructure and the desertion of office of all or part of the staff. Concerning the water supply service, this situation resulted in extensive damage to the supply network (accidental or deliberate breakage of pipes) and the near impossibility of maintaining treatment plants in working order (no chlorine, absence of technicians). Combined with poor water conditions (drying up of rivers due to lack of rain), these constraints led to problems in supplying water to the population, with lower pressure sometimes leading to suspension of the service for shorter or longer periods of time.

In the context of sociopolitical conflict, this apparently merely technical problem became, at least in the imagination of a large segment of the population, a true act of war. From the perspective of these people, water ceased to be a public good, and the fact that water supply had stopped came to be seen as a “weapon of mass destruction” used to punish people for their real or perceived support of the rebellion.

This presentation aims to explain how water, a public good, became a weapon of war during the Ivorian crisis, at least in the imagination of people. How was this perception of water as a weapon constructed and imposed? To what extent was the government responsible for the situation? What was the role played by the “Forces Nouvelles” in the construction and dissemination of this perception?

## Security Sector Reform as a Development Instrument: Bridging State-building and Peacebuilding Objectives

*Albrecht Schnabel<sup>1</sup>*

*<sup>1</sup>Geneva Centre for the Democratic Control of Armed Forces (DCAF), Geneva, Switzerland (a.schnabel@dcaf.ch)*

Although security sector reform (SSR) activities may help to build and strengthen the state even if they are poorly designed and implemented, this happens at the expense of broader peacebuilding objectives. This presentation argues, however, that SSR is able and meant to serve as an important instrument for achieving a wide spectrum of peacebuilding goals – including political stability and legitimacy, as well as development and human security.

Indeed, SSR has the potential to support both state-building and peacebuilding. SSR represents a range of activities that improve political stability and human security, as well as human development and public security. This is done through technical exercises and by facilitating behavioural change, and the activities are carried out by local owners with – requested – international assistance. However, SSR can meet these objectives only if it is designed and implemented in line with its main principles; if it is directed at creating and supporting the conditions for legitimate and “good” security sector governance; and if it is not implemented in the guise of “quasi-SSR” activities that actually have little to do with SSR.

The presentation highlights mistakes that have been made in applied SSR, as well as key lessons that have been learned and which, in turn, must inform future SSR activities. The paper draws on the author’s recent work on the concept and application of SSR, particularly in reflection of its origins as an articulation of the security–development nexus.



## Cultural Politics of Governance: Democratic Practices and State-building in Post-conflict Rural Nepal

*Tulasi Sharan Sigdel<sup>1,2</sup>, Bishnu Raj Upreti<sup>2</sup>*

<sup>1</sup>*Kathmandu University, Kathmandu, Nepal (tsigdel@gmail.com)*, <sup>2</sup>*NCCR North-South, South Asia Coordination Office, Kathmandu, Nepal (bupreti@nccr.wlink.com.np)*

Nepal is at the crossroads of political change and governance reform as it comes out of a decade-long armed insurgency and a century-long unitary form of governance to draft a new constitution for a federated republic of Nepal. November 2005 marked a dramatic turn in Nepalese politics when the parliamentary parties and the Maoists, their erstwhile adversary, joined hands through a twelve-point agreement for ousting the monarchy. Political power is shared among political parties including the Maoists, the former rebel group which won a majority in the 2008 election to the Constituent Assembly. However, these political forces have deep-rooted disputes that were aggravated during the insurgency and are still alive. In this political context, Nepal provides a captivating political and governance conjuncture endowed with a great deal of interest among the national and international academia, planners, and policymakers, particularly as to the question of how the political and governance processes in a war-torn society may simultaneously move towards “peace and democracy” (Jarstad and Sisk 2008) and “rebuilding governance” (Brinkerhoff 2007).

Focusing on new political ensembles such as the All Party Mechanism and the Integrated Project Selection Committee in post-conflict governance and development projects in the rural society of Khotang district, one of the eastern hill districts of Nepal, we explore sociopolitical power relations, governance practices, and state-building at the grassroots level. Taking an Integrated Project Selection Committee meeting in rural society as a methodological entry point, we examine how decisions are made and negotiated in the realm of a “liberal and radical” political coalition in a pluralistic society.

We argue that power-sharing and development projects are characterised by particularly elite-driven negotiations which are accentuated by local political impulses, and that local state authority employs legitimacy. This might give rise to subversion of the local state and governance system and produce new political subjectivities in local politics and governance.

## Theme 3, Keynote 1 Biodiversity, Self-organisation, and Sustainability

*Peter Edwards<sup>1</sup>*

*<sup>1</sup>Head of Department of Environmental Systems Science, Swiss Federal Institute of Technology (ETH) Zurich, Switzerland (peter.edwards@env.ethz.ch)*

Although the concept of biodiversity is now well anchored in public policies and international agreements, there is limited understanding of what biodiversity actually is, why it exists, and why it is important. In this lecture, in which I focus especially on agro-ecosystems, I will argue that new ideas about complex adaptive systems offer a valuable basis for understanding biodiversity. I will show how natural ecological systems emerge through processes of self-organisation that operate over a wide range of temporal and spatial scales, and lead to system-level properties such as diversity, stability, nutrient conservation, and population regulation. Many of these properties are important for human well-being, and they are increasingly recognised as ‘ecosystem services’, to which an economic value may be assigned. But despite this recognition, modern agriculture promotes practices that maintain agro-ecosystems in the early stages of the adaptive cycle, characterised by open nutrient cycles and boom-and-bust dynamics.

In conclusion, I suggest that the emerging theory of adaptive systems offers important insights for managing ecosystems more sustainably. These include: (i) the importance of adaptation, both ecological and genetic; (ii) the importance of emergent properties that arise from (self-organised) biodiversity within and among habitats; and (iii) the importance of continuity of management for self-organisation to occur. Some of these aspects can be illustrated by examining ancient agricultural systems that have remained productive over thousands of years.

## Theme 3, Keynote 2 Interdisciplinarity and Interculturality

*Luis Tapia<sup>1</sup>*

<sup>1</sup>*Postgrado en Ciencias del Desarrollo, Universidad Mayor de San Andrés (CIDES-UMSA), La Paz, Bolivia (luistapiam@yahoo.com)*

The formation of the social sciences has been characterised by growing specialisation, with the creation of different disciplinary fields that have constituted themselves and claimed theoretical autonomy from other fields. “The social” – or social reality – is no longer the only reference point that organises the research field: many objects and groups of objects have been transformed into disciplines and professions. The division of labour in research that created this diversification of sciences and the corresponding specialisation has made it possible to increase knowledge on and understanding of specific aspects of social life; however, after having passed through the resulting phase of analytical separation, which was necessary for penetrating the object of study, it is also necessary to reassemble the complexity of social reality. In this sense we require that interdisciplinarity allows linking of two, three, or more dimensions of reality.

This paper will begin by exploring two movements in the process of knowledge creation: following the theoretical framework of Leszek Nowak, the first can be called *idealisation*. It implies the pathway of increasing abstraction from an object of study. This can be used for defining the field of a discipline or as a nucleus for explaining one specific aspect of reality. Following the same theoretical framework, the inverse movement can be called *concretisation*, that is, the reflection on how the isolated object of study relates with a growing number of other dimensions of reality. In each discipline of the human and social sciences, however, there is not just one theory. Each discipline is built on a diversity of theories that either conflict or collaborate in different ways. This paper will propose some ideas about how to conceptualise interdisciplinarity and the inter-theoretical dimension, which are not the same.

The paper will then also connect interdisciplinarity (a scientific concern belonging to the dominant modern world) with forms of knowledge that belong to other kinds of scientific culture. Indeed, in countries like Bolivia, which has a strong cultural diversity, we need not only interdisciplinary and inter-theoretical work, but also an intercultural dialogue. This dialogue embraces forms of knowledge claimed to be scientific and other forms of knowledge that organise the representation of the world and reality according to cultural foundations beyond those of the dominant sciences. Therefore, after focusing on the translation between theories within the boundaries of the modern sciences, we will analyse processes of translation of cognitive elements belonging to sciences and other cultures. This will lead us to explore the fundamentals of *dialogical-intercultural hermeneutics*, concluding in considerations of *trans-criticism*; the latter refers to dialogue and knowledge production that goes through, or builds upon, reciprocal and cross-critical dialogue of different forms of knowledge.

## Theme 3, Session 19 Reconciling Cultural Diversity and Biodiversity: Assessing the Role of Communal Reserves, Community Conservation, and Other Models

*Peter Bille Larsen<sup>1</sup>, Jamil Alca Castillo<sup>2</sup>*

*<sup>1</sup>Oxford Department of International Development (ODID), University of Oxford, United Kingdom (peter.larsen@graduateinstitute.ch), <sup>2</sup>National Service of Natural Areas Protected by the State, Lima, Peru (jamilalca@yahoo.com)*

This workshop aims to take stock of conservation models seeking to reconcile the conservation of biological and cultural diversity. Loss of both types of diversity represent a major challenge in the 21st century, and integrative models have increasingly formed part of new approaches employed to promote sustainable development after Rio. The workshop will bring together both Northern and Southern-based research practitioners with hands-on and fieldwork experience garnered in such domains. Organized jointly by the Graduate Institute of International and Development Studies (IHEID) and Regional Coordination Office in South America (JACS SAM), particular emphasis will be placed on models designed and put into practice in the global South, with a strong emphasis on Latin American models such as communal reserves, indigenous territories, and similar models. Efforts will also be made to invite researchers and practitioners from other regions. The main questions we will focus on are:

- What can we learn from the first generation of such approaches?
- What advances are being made and what challenges experienced?
- What are policy lessons are emerging from the NCCR North-South research network and others?

## Timbering Practices, Indigenous Communities, and Protected Areas: The Dilemmas of Inclusion and Participation

*Jamil Alca Castillo<sup>1</sup>*

*<sup>1</sup>National Service of Natural Areas Protected by the State, Lima, Peru  
(jamilalca@yahoo.com)*

This presentation analyses timber extraction practices and the choices people from indigenous communities make to extract timber resources in a protected area in the Peruvian Amazon. The analysis focuses on the implications these practices and decisions have for community structure and for protected area management, and how they are expressed in economic, social, and cultural “stakes” in the competition for access to and use of forest resources at the interface of indigenous communities, the state, and the market.

Evidence shows that indigenous people are exposed to pressures and changes in their forest resource use practices. Development processes among indigenous and non-indigenous communities in the Peruvian Amazon, and in particular the Harakmbut communities of the Madre de Dios region, are characterised by weaknesses in the social control system within their own communities. These weaknesses allow for increased illegal timber extraction and limit the implementation of conservation strategies that promote participation.

Forest users, whether indigenous or not, develop strategies and resort to different institutional arrangements that allow them to access forest resources. These institutional arrangements range from local or communal institutions based on traditional arrangements to state laws, informal rules, and even illegal agreements – although these are legitimate to a certain degree in these Amazonian areas. Against this background, the present analysis challenges the notion of homogeneous and cohesive communities, and shows how communities function to reproduce “otherness” – a function that emerges especially when these communities are the product of a process of reinvention.

Understanding these issues is of fundamental importance, as logging practices are being institutionalised in the Peruvian Amazon which undermine conservation efforts and affect biodiversity and people’s livelihoods. Recognising the vulnerability of forests and people at the micro level can help to establish potential strategies for improved resource use and for developing sustainable practices and institutions suited to these particular realities.

## Coastal Development and Marine Conservation in Harmony with the People: A Case Study from Costa Rica

*Felipe Alpízar R.<sup>1,2</sup>*

<sup>1</sup>*Complutense University of Madrid, Spain (felipealpizar@gmail.com), <sup>2</sup>School of Political Science, University of Costa Rica*

Most coastal communities in Costa Rica have been experiencing the negative effects of social and political exclusion, including environmental degradation and overexploitation of marine resources. Artisanal fisheries are particularly affected, posing serious threats to communities whose livelihoods depend on coastal resources.

The efforts of a local cooperative in the community of Tárcoles (Puntarenas, Costa Rica), CoopeTárcoles R.L., with the support of a service cooperative named CoopeSolidar R.L., have produced an interesting policy initiative known as Marine Areas for Responsible Fishery. These areas are intended to protect coastal resources by establishing responsible fishing regulations in agreement with the main stakeholders.

This presentation explains the process and challenges of establishing these areas and recommends further actions towards environmentally sensitive and socially inclusive policies, sharing useful lessons for fishery communities under similar challenges, government policymakers, and scholars.

## Are We Really Interested in Preserving Bio-resources? Observations From an “Eco-development Project” in a National Park of India

***Bidhan Kanti Das<sup>1</sup>***

*<sup>1</sup>Institute of Development Studies Kolkata, India (bidhand@gmail.com,  
bidhan@idsk.org)*

This presentation is intended to show how a global approach of “conservation and development” actually leads to “further” impoverishment of local people. Drawing from field-level experiences on a “conservation and development” project in a national park of sub-Himalayan West Bengal, India, I argue that ineffective implementation – rather than the conceptual background of the “conservation and development” approach, which is often criticised by conservationists – is the major cause for continuing impoverishment.

The root cause behind such ineffective implementation lies in conservationists’ and forest managers’ colonialist (mis)perception of nature and human–nature interaction, particularly in the context of developing countries like India. I argue that an integrated “conservation and development” approach involving local people’s functional (instead of cosmetic) participation in conservation, is the better alternative compared to the globally dominant “fortress conservation” approach. Forest authorities need to change their attitudes towards local communities and develop skills in working with communities based on mutual trust and respect to achieve effective implementation and enhance the livelihoods of forest-dependent people.

## Reserva Comunal Yanasha: Lessons About Cultural and Biological Diversity in the Peruvian Amazon

*Peter Larsen*<sup>1</sup>

<sup>1</sup>*Oxford Department of International Development (ODID), University of Oxford, United Kingdom (peter.larsen@graduateinstitute.ch)*

This contribution will present a case study of “community conservation” from the *Reserva Comunal Yanasha*, the first communal reserve established for indigenous peoples in the central jungle area of Peru. Community conservation areas are increasingly promoted globally as integrative solutions to address biological and cultural diversity and increase social equity. While community conservation areas are generally promoted as an alternative to previous forms of conservation, this case study provides evidence that a number of fundamental dynamics are often overlooked. The recent nature of some of these dynamics only provides a short time frame to assess their specific impacts. Nonetheless, based on ethnographic field and policy analysis, this contribution will explore the 25-year history of the *Reserva* in order to argue for a critical anthropology of community conservation.



## Participatory Conservation in Practice: Power Dynamics in a Mexican Indigenous Community Conservation Area

*Constanza Monterrubio-Solis<sup>1</sup>*

*<sup>1</sup>Durrell Institute of Conservation and Ecology, School of Anthropology and Conservation, University of Kent, United Kingdom (constanza.monterrubio@gmail.com)*

One of the main features of Indigenous Community Conserved Areas (ICCAs) is that communities are the main drivers in decision-making regarding the areas and in their management. Approaches like community-based conservation and ICCAs – in which power devolution is implicit or explicit – bear great potential to protect key ecosystems, environmental services, cultural practices, and, ultimately, facilitate environmental justice. Nevertheless, in practice, power devolution can take several forms and have different meanings.

This case study analyses power interactions in the implementation of the ICCA El Cordon del Reten, San Miguel Chimalapa, Oaxaca, and investigates the implications of power devolution in participatory conservation in Mexico. From July 2010 to May 2011, researchers used participant and direct observation, semi-structured interviews, and surveys to explore power dynamics in the decision-making process surrounding implementation of the ICCA. The existing power relationships indicate a diversity of local strategies deployed to claim and maintain power while external actors (e.g. government agencies, NGOs) seek to find new ways of persuading people in a context where use of coercive power only sows resistance. Local communities make consistent demands to maintain power over decision-making regarding management of natural resources. Nevertheless, there is a need to further develop local institutional capacities that uphold accountability, transparency, and sustainability.

This case study emphasises the need for approaches that carefully avoid reproducing old top-down approaches to conservation using new legal terms and discourses, as well as the importance of developing local institutions capable of accepting power and responsibility. Suitable approaches and institutions will provide a basis for effective coexistence of different conservation models that protect biocultural diversity.

## The Role of the Human Dimension in African Conservation

*Mordecai Ovidi Ogada<sup>1</sup>*

*<sup>1</sup>Laikipia Wildlife Forum, Nanyuki, Kenya (executivedirector@laikipia.org)*

Different forms of human–wildlife conflict have posed a great challenge to human security and conservation in Africa, particularly in shared landscapes. Attempts to address these challenges, however, have been overly biased towards ecology or wildlife security.

Solutions on this basis have largely ignored the human dimension, which is arguably the most important factor. One of the reasons for this oversight is that wildlife research in Africa is largely designed, implemented, and funded by external agents, who for various reasons are reluctant to involve locals in their research.

This presentation examines some failures and successes and suggests a paradigm shift in African conservation thinking. The examples covered in this presentation are:

1. Human–elephant conflict and attempted mitigation measures in Laikipia, Kenya.
2. Livestock depredation and the use of monetary compensation in Amboseli, Kenya.
3. The capture and trafficking of wild carnivores to the Middle East from East Africa and efforts to curb this trade.

## The PACS Study: What Kinds of Incentives Can Encourage Agrobiodiversity Conservation?

*Adam Drucker<sup>1</sup>, Yuan Zhou<sup>2</sup>*

*<sup>1</sup>Bioversity International, Rome, Italy (a.drucker@cgiar.org), <sup>2</sup>Syngenta Foundation for Sustainable Agriculture, Basel, Switzerland (yuan.zhou@syngenta.com)*

The majority of the planet's food comes from a very small number of crops: about 30 species account for more than 85% of global crop production. Out of approximately 380,000 known plant species, fewer than 20% are eaten and only about 150 are domesticated for farming. Further, crops' genetic diversity within species is very narrow and existing agrobiodiversity is being lost at a rapid rate. However, a recent pilot scheme to reward farmers for conserving traditional crop varieties indicates a promising way for stemming the loss.

To support the creation of conservation incentives while improving smallholder livelihoods, Bioversity International and collaborating partners have been assessing the potential of Payment for Agrobiodiversity Conservation Services (PACS) in three countries. The teams have worked on selected sites in Peru and Bolivia with quinoa as well as on minor millet in India. PACS is a form of Payment for Ecosystems Services (PES), which provides farmers with rewards for the ecosystem services they provide or protect. However, most PES schemes are largely focused on forests, carbon sequestration, and wild biodiversity. Such schemes overwhelmingly ignore issues of domesticated biodiversity conservation and associated ecosystem services related to the maintenance of gene flow and evolutionary processes.

In Bolivia and Peru, 38 community-based organisations were invited to tender for competitive contracts to conserve one or more threatened landraces of quinoa – a priority crop in the region. The aim of the competitive tender was to identify the most cost-effective way to maintain not only the genetic resources per se but also traditional knowledge, and other key sociocultural factors (e.g. seed systems) required to sustain them. It was also important to consider potential trade-offs between cost-efficiency and equity/pro-poor concerns.

The pilot study revealed important differences in the costs of participation. Minimum in-kind rewards (such as farm inputs and machinery, construction, and school materials) demanded by communities to secure one hectare of a priority landrace ranged from the equivalent of USD 143 in Bolivia to USD 2,400 in Peru. The considerable differences between communities in the value of the rewards demanded point to opportunities to minimise intervention costs. In-kind community-level rewards, rather than cash to individuals, were shown to provide sufficient incentives to encourage farmer groups to participate in conservation activities. Thus, it appears that some PACS schemes could be funded via existing government agricultural and educational development programmes.

Many related research and development issues are currently being explored. These include exploration of the potential for integration of PACS approaches with niche product market/value chain development interventions in order to support the financial and environmental sustainability of these types of interventions.

## Theme 3, Session 20 Governance of Biocultural Diversity: Challenges in Integrating Sociocultural and Ecological Processes in Sustainable Development

*Stephan Rist<sup>1</sup>, Bishnu Upreti<sup>2</sup>, Freddy Delgado<sup>3</sup>, Peter Gerritsen<sup>4</sup>*

*<sup>1</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland (stephan.rist@cde.unibe.ch), <sup>2</sup>NCCR North-South, South Asia Coordination Office, Kathmandu, Nepal (bupreti@nccr.wlink.com.np), <sup>3</sup>Agroecología Universidad Cochabamba (AGRUCO), Universidad Mayor de San Simón, Cochabamba, Bolivia, <sup>4</sup>Departamento de Ecología y Recursos Naturales, Centro Universitario de la Costa Sur, University of Guadalajara, Mexico (prw.gerritsen@gmail.com)*

A growing number of research and policy debates point to the intrinsic relationships between biological and cultural diversity, suggesting that conservation of these diversities should be addressed in an integrated fashion. This means integrating two potentially highly synergetic fields of research, policy, and development action. Scientific evidence supporting this view, as well as its practical relevance have been summarised elsewhere (Maffi and Woodley 2010). Policy relevance arises from a recent initiative of the United Nations Educational, Scientific and Cultural Organization (UNESCO), which proposes to establish a new “joint programme of work on biological and cultural diversity led by the secretariat of the Convention on Biological Diversity and UNESCO” ([http://www.unesco.org/mab/doc/iyb/icbcd\\_working\\_doc.pdf](http://www.unesco.org/mab/doc/iyb/icbcd_working_doc.pdf)). However, the question of how governance – or institutional dynamics – can be shaped in such a way that they produce positive trade-offs and outcomes for fostering and conserving both biological and cultural diversity in land and natural resources, is not yet well developed.

In order to explore the main factors driving institutional or governance dynamics shaping biocultural diversity and the implications this has for dealing with spatial and temporal scales, this session focuses on economic, social, political, and cultural organisations. Presentations of case studies from various countries around the world will allow comparing the ways in which different development projects related to land and natural resource governance are affecting biocultural diversity. On this basis, we will discuss the main challenges and options for addressing biocultural diversity conservation by means of interdisciplinary research, transdisciplinary co-production of knowledge, policy dialogues, and by redefining development interventions.

## Governance of Biocultural Diversity: Theoretical Aspects, Framework, and Empirical Perspectives

*Patrick Bottazzi<sup>1</sup>*

*<sup>1</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland  
(patrick.bottazzi@cde.unibe.ch)*

Over the past two decades, biocultural diversity (BCD) has emerged as a field of transdisciplinary research focused on investigating cultural and biological diversity manifestations. The concept is not restricted to distinct and quantifiable amounts of natural and social “units” but rather investigates the way multiple stakeholders perceive the complexity and the challenges of relations between human and non-human diversity. For this reason, BCD is also a social and political construction based on philosophical, ethical, and anthropological considerations, giving theoretical insights and helping to understand collective action.

The growing interest in this field of studies is based on the plausible hypothesis that diversity loss endangers fundamental rights, and on basic interests and values such as ecosystem sustainability, cultural self-determination, minority rights to expression, as well as multiple other world manifestations of life richness. Relevant scientific research has already demonstrated that biological and cultural diversity are intrinsically related.

In this sense, the governance of biocultural diversity refers to ways in which multiple stakeholders take decisions or influence each other during the process of creating, implementing, and updating norms defending or weakening BCD. Such governance processes concern, for example, the defence of indigenous intellectual property rights; sociopolitical resistance against the homogenising effects of genetically modified organisms promoted by transnational firms; or the development of an international regime for dealing with biodiversity based on the United Nations Convention on Biological Diversity.

Using a theoretical background derived from philosophical and anthropological work, this presentation aims to stimulate a debate on revising basic concepts of biocultural diversity governance.

## Constructing Sustainable Development from the Locality: The Experience of the Network for Sustainable Agricultural Alternatives in Western Mexico

*Peter R.W. Gerritsen<sup>1</sup>*

*<sup>1</sup>Departamento de Ecología y Recursos Naturales, Centro Universitario de la Costa Sur, University of Guadalajara, Mexico (prw.gerritsen@gmail.com)*

This presentation describes the experience of the Network for Sustainable Agricultural Alternatives (RASA) in western Mexico, which can be considered an initiative of civil society constituted by different social actors to construct new strategies for sustainable rural development. Its work focuses on farmer training and fair trade practices in the field of organic agriculture.

Presented here are different aspects of RASA, including insights gained and the challenges that lie ahead for consolidating sustainable rural development. RASA is a social organisation with features of a new social movement, and seeks to play a more important role in civil society, as well as in political decision-making regarding rural development in Mexico. It received Partnership Action (PAMS) funding from the Swiss National Centre of Competence in Research (NCCR) North-South on two occasions.

## Integrating Political, Economic, Educational and Sociocultural Processes in an Ecosystemic Model of Culture

*Alessandra Giuliani<sup>1</sup>*

*<sup>1</sup>Bern University of Applied Sciences, School of Agricultural, Forest, and Food Sciences (HAFL), Zollikofen, Switzerland (alessandra.giuliani@bfh.ch)*

There is evidence that agrobiodiversity has a great potential for contributing to improved incomes, food security, and nutrition, in particular in marginal areas. Agrobiodiversity products hold a vast heritage of indigenous knowledge associated with their management and use, and are linked to traditional resources and territories, local economies, as well as cultural values.

The question raised by this study concerns the importance of defining a global approach to providing evidence of the role of agrobiodiversity products for livelihood security and identifying which interventions are needed to support rural livelihoods through a sustainable market of agrobiodiversity products based on biocultural heritage. A portfolio of case studies is used to conceptualise a draft framework for looking at how the market of agrobiodiversity products can sustain biodiversity and livelihoods, based on a combination and adaptation of approaches derived from market chain analysis and the livelihoods framework, integrating perspectives from multidisciplinary and transdisciplinary research approaches.

At the heart of this framework are the people's livelihoods and their links with agrobiodiversity. The framework focuses on marginal environments, where agrobiodiversity is adapted to difficult conditions and represents an easily accessible resource for poor rural communities. The specificities of the geographical, social, and cultural environments characterise both livelihoods and the use of agrobiodiversity. All these aspects are fundamental for market development. The concept focuses on improving livelihoods through market development of agrobiodiversity products, while providing farmers with an incentive for sustainable use of agrobiodiversity and the maintenance of both biological and cultural diversity. The concept looks at how to establish and improve access to markets through market interventions, capacity development, collective action, and sustainable resource exploitation. The whole process is nevertheless threatened by trade-offs, such as market globalisation, market specialisation, overexploitation of natural resources, or disappearance of traditional knowledge.

Examples from case studies will be the basis for an open discussion to reflect on the need for a global approach to providing a verifiable body of evidence to address future development interventions.

## Biocultural Diversity in Kathmandu Valley: Interrelations Between Governance and Development of World Heritage Sites

*Kiran Maharjan<sup>1</sup>, Bishnu Raj Upreti<sup>1</sup>*

*<sup>1</sup>NCCR North-South, South Asia Coordination Office, Kathmandu, Nepal  
([naturalkiran@gmail.com](mailto:naturalkiran@gmail.com), [bupreti@nccr.wlink.com.np](mailto:bupreti@nccr.wlink.com.np))*

Kathmandu Valley in Nepal is endowed with seven groups of world-famous historic and artistic monuments and buildings which have been included in the United Nations Educational, Scientific and Cultural Organization's list of World Cultural Heritage Sites: the Durbar Squares of Hanuman Dhoka (Kathmandu), Patan, and Bhaktapur, the Buddhist stupas of Swayambhu and Bauddhanath, and the Hindu temples of Pashupati and Changu Narayan. All these heritage sites contribute to biocultural diversity and are major tourist attractions in the valley. Different cultural groups residing in the valley have been protecting various flora and fauna, such as rhesus monkeys, pigeons, various other birds, and trees in these sites.

However, the valley's population has rapidly grown in recent decades, due to the decades-long Maoist Conflict, pull factors such as facilities and services, and natural growth, to reach almost 4 million. Multicultural people from different sections and subsections of caste and class reside here. Various development activities have provided support in maintaining the biocultural diversity of Kathmandu Valley. Further, inclusion of the sites on the world heritage list has played a crucial role in their preservation and rejuvenation. In turn, local people have benefitted from a boost in the economy. On the other hand, from pollution of the sacred river Bagmati to disappearance of the heritage sites due to skyrocketing buildings, a number of factors have challenged the beauty and the majesty of Kathmandu Valley.

This presentation aims to explore the impact of development on the biocultural legacy of the heritage sites based on empirical data and a literature review. At the same time, a policy analysis and an investigation of the mutual relationship between the sites and the local people provide insights into the role of governance in developing the heritage sites as well as maintaining biocultural diversity. Based on the findings, the presentation concludes that the complexity of maintaining biocultural diversity at the sites calls for transformation knowledge produced through extensive involvement of multiple stakeholders such as politicians, bureaucrats, development workers, environmentalists, biologists, and local people in comprehensive policy dialogues.



## Dialogue between Local and Global Knowledge Systems: A Means of Facing Two Conceptual Risks of Biocultural Diversity

*Sarah-Lan Mathez-Stiefel<sup>1</sup>*

*<sup>1</sup>Centre for Development and Environment, University of Bern, Switzerland  
(sarah-lan.stiefel@cde.unibe.ch)*

Biocultural diversity has emerged as a new paradigm in academia and policymaking, as a response to the growing concern over the loss of both biological and cultural diversity. This presentation aims to highlight options for dealing in a productive way with two risks associated with applying the concept of biocultural diversity. The first risk is that “conserving” biocultural diversity can easily lead to the essentialisation and freezing in time and space of such diversity by outsiders, stripping it of its natural and cultural dynamics. The second risk can arise when promoting cultural diversity by overemphasising certain specific types of that diversity (e.g. “indigenous” or “traditional” knowledge) compared to others (e.g. “Western” or “global” knowledge).

Own recent research on the transformation of Andean ethnobiological knowledge has shown that biocultural diversity is highly dynamic and that it is both vulnerable and resilient. Furthermore, contact with global knowledge systems such as formal health care and agricultural technical innovations does not automatically lead to displacement or loss of biocultural diversity, which can thus be shown to be associated also with cultural resistance and renewal.

These insights suggest that biocultural diversity might best be enhanced by favouring the capacity for internal renewal exhibited by local knowledge systems. This can be achieved through inter-epistemic dialogue that reveals the potentials and limitations of both local-indigenous and dominant (global) knowledge systems. Inter-epistemic dialogue has proven capable of opening a space for the co-evolution of all knowledge systems involved when promoted by the scientific community through a transdisciplinary research approach.

## Living Well (“Vivir Bien”): An Alternative to Development

*Patricia Roncal<sup>1</sup>*

*<sup>1</sup>Centro de Postgrado en Ecología y Conservación, Instituto de Ecología, Universidad Mayor de San Andrés, Colombia (patriciaroncal@ie-umsa.com)*

The currently dominant economic model has shaken the whole underlying principle of life and changed the natural conditions. It has revealed serious contradictions, such as ecological destruction, environmental degradation, social inequality, and discrimination. Specifically, it has deployed a concept of development considered “universally valid and desirable” for all peoples of the world. This vision of development puts its faith in progress, an image-driven, prioritised development based on quantitative aspects. This development relies on economic growth as the main indicator of well-being.

The rationale underlying the project of modernity, under an ideology of economic progress, has been dominant for many years now, commercialising and perverting the nature of production processes. This model has ignored ecological conditions and the limits they impose on production, surpassing the thresholds of carrying capacity, recycling, and self-regeneration and thereby undermining the ecological sustainability of production. This means that the model puts its material bases first and destroys the potential of life itself. In doing so, it has excluded peoples’ collective knowledge and identities from cultural diversity. It has invaded and imposed a hegemonic and homogenous culture that subordinates human values to economic and instrumental interests, thus degrading the conditions and meanings of existence.

Given this context, indigenous peoples have come to express in their struggles the right to visualise other ways of life and happiness. These struggles are for the redefinition of their living spaces and for an identity based on cultural difference. They concern the reappropriation of their natural history, for control and decision-making regarding the conditions of production, consumption patterns, and their ways of life.

These ideas are embodied in the concept of “Living Well” (“*Vivir Bien*”). This critical line of thinking highlights the crisis of modern civilisation and enunciates possible future states which are constructed from other conceptions of life, from an indigenous world view that is radically different and opposed to Western cultural contents. “Living Well” is not an alternative development model, but an alternative to development itself.

## Governance of Biocultural Diversity: Local People's Involvement in Resource Governance in Nepal

*Tulasi Sharan Sigdel<sup>1,2</sup>, Bishnu Raj Upreti<sup>2</sup>*

*<sup>1</sup>Kathmandu University, Kathmandu, Nepal (tsigdel@gmail.com), <sup>2</sup>NCCR North-South, South Asia Coordination Office, Kathmandu, Nepal (bupreti@nccr.wlink.com.np)*

Human beings are an intrinsic part of the environment, and human societies are inextricably linked with it. Nepal is very rich in terms of both sociocultural and biological diversity. There are more than a hundred caste/ethnic groups with unique cultural milieus, and a large number of IUCN-recorded species. Nepal's biodiversity profile (IUCN 1996) lists 844 species of birds, 100 species of reptiles, 43 species of amphibians, 185 species of freshwater fish, 635 species of butterflies, 5160 species of flowering plants, and 1120 species of non-flowering plants. Cultural values, knowledge systems, and institutions in Nepal have been manifested in socio-environmental relations. Recently, there has been extensive debate and discussions among academia, planners, and policymakers about what systems are needed to maintain biocultural diversity and improve resource management, with a view to improving local people's livelihoods and ensuring their rights to these resources. A number of scholars (Wade 1988; Ostrom 1990; Herring 1990; Uphoff 1992) have focused on the importance of institutional development for collective action for resource management at the local level.

Focusing on the governance of traditional forest resources by local communities in Tanahau District of western Nepal as a case study, we empirically examine how the governance of biocultural diversity is produced and reproduced in the local cultural environment, and analyse the socio-environmental relations with changing livelihood patterns of local people. At the same time, we examine the role of institutional development and policy reforms in linking conservation of biodiversity and sociocultural diversity at the local level.

Based on this case study, we argue that governance of biocultural diversity emerges as a key site of contestation over sociocultural, economic, political, and environmental aspects, as it is persistently related with the everyday life of people. Because of the complex interconnection between the different aspects of human life, the governance of biocultural diversity requires a multi-stakeholder approach in order to generate transformational knowledge and informed policy dialogues to address upcoming challenges in governance of biocultural diversity at the local and global levels.

## Theme 3, Session 21 Legal Pluralism and Transformations of the Commons: Lessons for New Bottom-up Institutional Designs

*Tobias Haller<sup>1</sup>*

*<sup>1</sup>Department of Social Anthropology, University of Bern, Switzerland  
(tobias.haller@anthro.unibe.ch)*

This session deals with the question of how legal pluralism affects the management of common-pool resources (pastures, wildlife, fisheries, water, land) as complex human-transformed cultural landscape ecosystems. These can be drylands or wetlands in which the ecological specificities, human use, and rules and regulations (institutions) governing this use have undergone fundamental changes. The session is aimed at discussing three basic issues related to the main conference topic of resource use and development, with a special focus on Africa.

The presentations will outline moments of key changes that transformed cultural landscape ecosystems into separate resources subject to different legal management regimes in the context of a nation state. They will also address the question of the basic discourses used by state actors to legitimise these institutional changes in governance. Moreover, they will explore how these changes were perceived by local actors, whose livelihoods depend on these landscapes and who are now confronted with the claims of multiple and frequently more powerful users. These claims will be analysed in the context of widely used concepts of decentralisation, democratisation, citizenship, and participation, which – from a political-ecology viewpoint – have been considered as Trojan Horses used by the more powerful actors to control natural resources and as strategies of de-facto centralisation (Blaikie 2006, Poteete and Ribot 2010).

Further, we will discuss various concrete strategies developed by local or immigrated users to deal with problems of legal pluralism and power relations related to common-pool resources, ranging from indirect resistance by means of what Scott (1985) labelled “weapons of the weak” (poaching and sabotage of state-owned resources) to attempts to profit from opportunities for new forms of bottom-up institution-building, making use of different constellations of legal pluralism. Finally, the panel will seek to outline possible conditions for bottom-up institution-building in a context of global change and especially in dynamic ecosystems such as wetlands or drylands subject to strong seasonal changes in Africa.

## Negotiating Forestry Management: The Role of Local Conventions in Domination and Resistance Strategies in Senegal

*Papa Faye*<sup>1</sup>

<sup>1</sup>*Institute of Social Anthropology, University of Bern, Switzerland (papafay@gmail.com)*

In Senegal, natural resource management (NRM) policies evolved from being authoritarian in nature during the post-colonial period of the 1960s to favouring political decentralisation and power transfers from central to local authorities in the 1990s. The state attempted to satisfy international agreements and donors' conditions on NRM. These included promotion of participatory policies and democratic decentralisation. As a result, diverse forms of NRM tools and governance emerged. These tools take many forms, such as management plans for different resources (e.g., forest management plans), international codes of conduct, local codes, agreed protocols, and others. Many are ostensibly established following negotiations and represent "local conventions". They have at least three focuses in common: (1) an economic focus, with the intent of generating revenue; (2) a sociopolitical focus, with ethnic groups articulating notions of belonging to a given ecosystem – such as a forest, a natural pool, a reserve, or any other territorialised natural resource – and specific powers and/or privileges being distributed between different groups of actors who organise their relationships vis-à-vis NRM issues; and (3) an environmental and ecological focus, the stated aim often being to regulate extraction practices and steer use of natural resources in the direction of sustainability.

Due to the high stakes involved and the possible redistribution of valuable access to resources and revenue sources, however, the establishment of local conventions in Senegal has mostly occurred via asymmetrical negotiations that favour elites, in which the stakeholders include technical experts, state authorities, development actors, local people, and elected authorities. While local groups such as the Fulbe and Manding are supposed to benefit from local conventions and externalities due to their dependence on forest resources, they remain excluded from discretionary decisions and market opportunities.

While decentralisation policies outwardly promote the transfer of forest management power to rural communities, actual decision-making power still rests largely with state- or market-based actors who exercise "strategies of domination". In an effort to legitimise their domination, these actors use various strategies, including promotion of discourses on sustainable use of natural resources; emphasising the need to conform to the Sahel's ecological constraints; manipulation of forestry decentralisation law; introduction of market regulations; and more. Local people and their representatives respond by developing "strategies of resistance" intended to subvert the domination of these stronger actors. Local conventions thus present a dynamic arena of domination and resistance between actor groups vying for control of resources and profits.

## Strategies of Local Resource Users and the Paradox of State Control and Democratisation in North Cameroon

*Gilbert Fokou*<sup>1</sup>

<sup>1</sup>*Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS), Abidjan, Côte d'Ivoire (gilbertfokou@yahoo.fr)*

The Waza-Logone floodplain in northern Cameroon, one of the most productive pockets of natural resources in the African Sahel, is increasingly under pressure. This area has been used for centuries by various categories of resource users (e.g., farmers, fishermen, sedentary and mobile pastoralists) for their livelihood activities. But nowadays, changing climatic conditions combined with human-induced hazards have contributed to a drastic reduction in the availability of resources. Changes in management rules have also introduced an institutional pluralism characterised by the coexistence of several types of legal systems: statutory and customary systems – and combinations of the two – coexist in the same territory, resulting in overlapping rights, contradictory rules, and competing authorities. Where local rules were dismantled, the new bureaucratic institutions that replaced them have often failed to establish mechanisms of management, monitoring, and penalties, resulting in a lack of a clear authority. In these contexts, most resources are now either subject to open access or have been privatised. Meanwhile, local resource users have developed new strategies such as creating of “trap fields” on pastureland, digging fishing channels on transhumance corridors, buying free access to pastoral resources, and excluding others. These strategies lead to escalation of conflicts between individual actors or groups of actors ranging from verbal insults to armed oppositions ending in bloodshed. In a context of reinforced statehood, democratisation, and decentralisation, these individual, local strategies appear to be paradoxical outcomes of state strategies that were intended to foster sustainable management of natural resources.

This presentation aims to analyse the strategies of local resource users who exploit overlapping institutional contexts to craft new rules for natural resource management. Based on a discourse of statehood and democratisation, it will be shown that in certain contexts of legal pluralism where the state is superimposed as the main manager of natural resources, several resource use trends may be observed: first, boundaries are no longer clearly defined and foreigners may easily cross borders to use pockets of resources; second, local populations often use violence to claim exclusive rights to resources; third, less powerful actors lose out and are forced to use natural resources even more intensively. Finally, legal pluralism can either contribute to a decline in the social, economic, and ecological conditions of local development, or, conversely, constitute a unique opportunity for institutional innovation.

## Pulling Down Fences, Crafting New Rules: Resource Governance, Resistance, and Opportunities in Zambia's Kafue Flats

*Tobias Haller*<sup>1</sup>

<sup>1</sup>*Institute of Social Anthropology, University of Bern, Switzerland  
(haller@anthro.unibe.ch)*

Common-pool resources such as wildlife and fisheries are under massive pressure in Zambia's Kafue Flats floodplain in the wake of a major institutional change from common property to state property 50 years ago. A historical and New Institutional analysis (Haller and Merten 2010) indicates that overuse of fisheries and the mismanagement of wildlife go back to the erosion of traditional institutions that were crafted in pre-colonial times by local Ila, Balundwe, and Batwa groups. These institutions were undermined by the state's claiming ownership of resources. Indeed, the state set up its own institutions to manage what was previously common property. The current economic crisis faced by the government, however, has rendered the frequently costly state institutions ineffective, leading to a situation of de-facto open access to common-pool resources. Compounding matters and creating more confusion, various state agencies claim management responsibility over the same area, leading to a fragmentation of resource management regulations and problematic legal pluralism.

There have been several attempts to mitigate these problems via participatory strategies, but the results have been mixed. We will present new findings from three such attempts, two of which emphasise wildlife management: the World Wide Fund for Nature's Wetland Project and the Administrative Management Design (ADMADE) initiative, focusing on a protected area and a game management area, respectively. Both attempts yielded poor results due to misconceptions of local communities' forms of traditional representation and misinterpretation of local economic and political incentives for participation. Both projects faced major local resistance.

The third case presented is a participatory co-management process for fisheries that was launched in 2004 based on an initiative of local staff of Zambia's Department of Fisheries, local interest groups, and researchers. It included a broad local debate on how to manage the fisheries sustainably, which gave rise to locally crafted by-laws for joint management of fisheries in the Kafue Flats. Despite many difficulties, case three is a good example of local collective action that is being scaled up to govern common-pool resources. It also demonstrates a process I call "constitutionality", which refers to the emic sense of ownership of an institution-building process.

## Multiple Users, Legal Pluralism, and Global Interests: “Land Grabbing” Processes and Local Strategies in Kenya’s Tana River Delta

*Leah Temper<sup>1</sup>*

*<sup>1</sup>Institute for Environmental Science and Technology (ICTA), EJOLT Project, Autonomous University of Barcelona, Spain (leah.temper@uab.cat)*

This presentation will examine the impacts of “land grabbing” processes in Kenya’s Tana River Delta, and the resistance strategies of local communities and conservation organisations opposite large-scale land appropriation by national and international corporations. The Tana Delta comprises riverine forests, wetlands, and rangelands and is home to various indigenous pastoralists (e.g., Orma, Wardei), farmers (Pokomo), and fishing communities (Luo). Their traditional multi-user livelihood strategies have helped preserve exceptional local biodiversity. Recently, eight development projects have been planned in the delta, six of them related to plantation crops, primarily fuel crops such as *jatropha*, oil seeds, and sugar cane, in addition to titanium mining projects and gas and oil exploration.

As in many places throughout Africa, property rights in the delta are often complex and overlapping, with concurrent systems of private, public, and common land and different rights of access, usufruct, leasehold, and freehold. County Councils hold much of the land in the delta in trust on behalf of residents. Moreover, traditionally, the Pokomo and Orma had specific customary institutions embedded in rituals that enabled herders to gain access to water points and pasture on the banks of the Tana River during the dry season. Customary institutions defining these rights emerged over years, indicating a long interactive and integrative history of the two communities. These local institutions were violated by the state through its land tenure reforms, which denied nomads access to water and pastures during the dry season. This is said to have caused conflicts between different user groups, leading to a flare-up of intertribal violence in the Delta between 2000 and 2001.

However, tenure issues changed again very recently: in the past, the Trust Land Act permitted the Council and the Ministry of Lands to make decisions, but the New Constitution of 2010 has altered these arrangements, converting lands held in trust into community-owned lands over which local land boards have a say. It remains to be seen how this will work in practice.

So far, legal actions and campaigns have succeeded in halting some of the “land grabbing” projects planned in the Delta. The final part of this presentation reviews people’s resistance strategies and the move towards management plans in the Delta created in partnership with local communities.



## Theme 4, Keynote 1

### Maximising the Impact of Research for Development: The Challenge and Possible Solutions

*John Young<sup>1</sup>*

<sup>1</sup>*Overseas Development Institute, London, UK (j.young@odi.org.uk)*

There is no hot line between research and better development policy, practice, and outcomes. Huge sums have been spent on unproductive development research, and huge sums have been invested in unproductive development interventions. We live in an increasingly interconnected world where solutions to poverty lie as much in changed behaviour in the developed and middle-income countries as in developing countries, where policy processes are increasingly complex, multifactorial, and non-linear, and practical interventions involve a continuously expanding network of actors with multiple, often divergent incentives. But recognising this, and learning from recent research into complexity, networks, political incentives, innovation systems, and new communication technology, new forms of global knowledge networks are emerging that have the power to transform the world. In this presentation John Young, Director of ODI's Research and Policy in Development Programme will present some of the challenges, some cutting edge research, and some innovative new approaches.

## Theme 4, Keynote 2

*Hassan Mshinda*<sup>1</sup>

<sup>1</sup>*Tanzania Commission for Science and Technology (hshinda@costech.or.tz,  
dg@costech.or.tz)*

Abstract missing

## Theme 4, Session 23

### What Makes Development-oriented Research Partnerships Effective? Looking Back to Move Forward

*Jon-Andri Lys<sup>1</sup>, Bishnu Upreti<sup>2</sup>, Elizabeth Jiménez Zamora<sup>3</sup>, Anne Zimmermann<sup>4</sup>*

<sup>1</sup>Swiss Commission for Research Partnerships with Developing Countries (KFPE), Bern, Switzerland ([kfpe@scnat.ch](mailto:kfpe@scnat.ch)), <sup>2</sup>NCCR North-South, South Asia Coordination Office, Kathmandu, Nepal ([bishnu.upreti@gmail.com](mailto:bishnu.upreti@gmail.com), [bupreti@nccr.wlink.com.np](mailto:bupreti@nccr.wlink.com.np)),

<sup>3</sup>Postgrado en Ciencias del Desarrollo, Universidad Mayor de San Andrés (CIDES-UMSA), La Paz, Bolivia ([ejimenez@cides.edu.bo](mailto:ejimenez@cides.edu.bo)) ([ejimenezamora@gmail.com](mailto:ejimenezamora@gmail.com)),

<sup>4</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland ([anne.zimmermann@cde.unibe.ch](mailto:anne.zimmermann@cde.unibe.ch))

Research partnerships are meaningful when partners can expect significant added value from their collaboration. Successful partnerships are based on mutual interests and a shared vision. Partners are confronted with various challenges such as defining the agenda and responsibilities together, dealing with different expectations and goals, communicating across a variety of epistemological borders, strengthening capacity, finding adequate funding, to list the most important ones mentioned in the literature.

This session will focus on experience with North–South and South–South research partnerships, and envision ways ahead to strengthen such partnerships. The presenters will address the following questions:

- How was the added value of research partnership defined in your case? What approach was chosen, what processes were defined, and what methods or tools used to implement them?
- What worked (enabling factors)?
- What did not work (hindering factors) and why?

In addition, suggestions for responding to some of the following challenges should be made:

- Funding (sources and conditions)
- Asymmetries
- Conflicting expectations and goals
- Internal communication and mutual learning
- Capacity building (sustainability)
- .....

The session will focus on experience garnered in different regions of the world, using different approaches. Presenters will highlight lessons learned, pointing to factors of success and to main stumbling blocks, with suggestions about how to overcome these stumbling blocks based on their understanding of the added value of research partnerships. They will conclude by discussing challenges ahead.

## Stakeholder Partnerships to Enhance the Effectiveness of Health Research Capacity Strengthening: ESSENCE on Health Research

*Garry Aslanyan<sup>1</sup>*

*<sup>1</sup>Special Programme for Research and Training in Tropical Diseases (TDR) and ESSENCE Secretariat, World Health Organization, Geneva, Switzerland (aslanyang@who.int)*

The ESSENCE on Health Research initiative is a collaborative framework between funding agencies investing in research in low- and middle-income countries to scale up coordination and harmonisation. It aims to improve the impact of investments in institutions and people and to provide enabling environments to address the needs. Over the last few years, ESSENCE has identified strategic areas, including monitoring and evaluation of research capacity and costing of research, which resulted in the development of an ESSENCE Good Practice document series.

Throughout the process of development of these documents, collaboration between diverse groups from the global North, South, and in between occurred. This allowed ESSENCE to garner experience in playing the role of a neutral platform for development of consensus in what at first seemed to be difficult issues to tackle. In addition to ESSENCE member funding agencies harmonising their policies, the agencies also recognised that supporting successful research capacity in low- and middle-income countries requires various specific competencies. Additional programmes in areas such as governance and management, strategic planning, evidence assessment, ethics, and translation of evidence into policy are now either being implemented or under development.

This presentation will likely generate interest from a diverse audience attending the forum, such as funders, research leaders, individual researchers, and policymakers. It is expected that questions and comments received from the audience will help to generate a list of future activities to be explored by ESSENCE member funding agencies.

## New Trends in Partnership Research in Africa

***Bassirou Bonfoh<sup>1</sup>, Jakob Zinsstag<sup>2</sup>, Sayoki Godfrey Mfinanga<sup>3</sup>, Marcel Tanner<sup>2</sup>***

*<sup>1</sup>Centre Suisse de Recherches Scientifiques en Côte d'Ivoire, Abidjan, Côte d'Ivoire (bassirou.bonfoh@csrs.ci), <sup>2</sup>Swiss Tropical & Public Health Institute, Basel, Switzerland (jakob.zinsstag@unibas.ch, marcel.tanner@unibas.ch), <sup>3</sup>Muhimbili Medical Research Centre, National Institute for Medical Research, Dar Es Salam, Tanzania (gsmfinanga@yahoo.com)*

African academic and research institutions are gradually engaging with international research norms and academic integrity; meanwhile, however, funding schemes are fragmented and still not adapted to local needs. To maintain and increase academic standards, scientists have to negotiate capacity building and external funding in relation to the type of research suitable for reducing disparities and asymmetries.

Multidimensional partnership principles are central in pooling and sharing resources and communicating knowledge. In addition, the historical links between partners play a fundamental role, constituting a solid and trustworthy context within which individuals with strong mentorship can become key agents of change in their research environment.

The African Institution Initiative, launched in 2009 and fully funded by the Wellcome Trust Foundation, builds on the foundation of the NCCR North-South and allows African-led consortia to focus on development of individual and institutional capacity for more competitiveness and independence. Training programmes for PhDs and Postdoctoral fellows are nurturing a global partnership. But this would not be possible without also developing capacity in management and administration among researchers and non-scientific staff beyond the science domain. Moreover, national and regional research governance bodies are being approached and sensitized to adapting their research funding framework for Africa (e.g. the Ivorian National Science Foundation will be replacing their Strategic Programme for Supporting Science).

Such a global research partnership is an intercultural involvement that enables learning for positive change in African academic and research institutions. The main challenges faced are that partners need to support their institution's core component and to comply with commonly agreed-upon principles. In that vein, governments must also buy into new initiatives for research funding and consider research as a key for development and a true base of independence and sovereignty.

## 20 Years of Influencing Disaster Risk Research and Management: LA RED in Latin America

*Allan Lavell<sup>1</sup>*

*<sup>1</sup>Latin American Faculty of Social Sciences (FLACSO), San José, Costa Rica  
(allan\_lavell@yahoo.com)*

LA RED, the Latin American Network for the Social Study of Disaster Prevention, was established in 1992 by 14 persons from 8 countries, with backgrounds in academia, NGOs, and government. All were united by the conviction that disaster and disaster risk are social processes. All wished to influence research and promote policy from a social perspective as the UN International Decade for Natural Disaster Reduction started out very much oriented towards physical science and technocratic terms.

20 years on, and following a conceptual and methodological roadmap that promoted comparative research on disaster risk reduction issues considered from a development angle, publications, methodological advances in analysis and information collection, discussion, and policy influence, LA RED has amalgamated hundreds if not thousands of disaster risk researchers and practitioners in the Latin American region under similar and complementary conceptual and action frameworks. Besides the publication of more than 20 books and special journal issues and a very significant, if not decisive, contribution to conceptual development and practice in the region, LA RED has developed the DESINVENTAR disaster database now used extensively worldwide; developed the first local-level risk management training programmes in the region; advised and participated in numerous committees and consultancies; and has had a notable influence on the content and design of multiple new laws and norms on risk management in the region. Three of its founding members have received the UN Sasakawa award given for the most outstanding contributions to disaster risk reduction worldwide every year.

The success of LA RED may be explained by a combination of factors associated, amongst other things, with its interdisciplinary, cross-professional basis; the mix of academia and practitioners; a fundamental common belief amongst its members and collaborators that disaster risk is a social construction and based in particular on skewed development processes.

## Opportunities and Challenges of North–South Research Partnerships

*Bishnu Raj Upreti<sup>1</sup>, Anne Zimmermann<sup>2</sup>, Berhanu Debele<sup>3</sup>, Guéladio Cissé<sup>4</sup>*

*<sup>1</sup>NCCR North-South Regional Coordination Office for South Asia, Kathmandu, Nepal (bupreti@nccr.wlink.com.np), <sup>2</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland (anne.zimmermann@cde.unibe.ch), <sup>3</sup>NCCR North-South Regional Coordination Office for the Horn of Africa, Addis Abeba, Ethiopia, <sup>4</sup>Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland (Gueladio.Cisse@unibas.ch)*

This presentation is based on the research conducted by the Regional Coordinators' Forum to assess partnerships implemented in 21 countries in Asia, Africa, and Latin America within the NCCR North-South research programme. The focus of the research was to examine the dynamics, effectiveness, challenges, and opportunities of the partnerships. The research employed a combination of qualitative and quantitative methods and respondents were collaborators of the NCCR North-South as well as some boundary partners.

The results showed that the key added value of research partnerships was the network of committed researchers working together with a transdisciplinary approach, using process-oriented procedures (reflective learning and adaptation), and based on partners' involvement in decision making.

Among the important factors enabling effective partnerships revealed from the research were: a judicious choice of partners, partners' willingness to deal with power issues, defining the agenda and responsibilities together, priority and resources for capacity building, commitment of research partners to engage with society, a sound transdisciplinary approach, the creation of stable regional bodies, and common guidelines and procedures.

Some of the major factors found to hinder partnership research were lack of a strong broader national policy and regulatory and institutional framework in the South, a mismatch between the expectations of partners in the North and delivery from Southern partners because of policy needs, a continued need to invest in capacity development, the need to utilise locally available resources and ensure diversification of the resource base, the difficulty of fulfilling diverging expectations, the difficulty of linking research, policy, and practice, and the difficulty of dealing with power asymmetries.

The paper concludes that success of research partnerships between the North and the South depends upon a common vision, mutual trust, and collective benefits (materials or immaterial).

## Theme 4, Session 24 Advances and Constraints in North–South Technology Transfer and Delivery

*Hervé Vanderschuren<sup>1</sup>, Zerihun Tadele<sup>2</sup>*

*<sup>1</sup>Plant Biotechnology Lab, Biology Department, Swiss Federal Institute of Technology Zurich (ETHZ), Zurich, Switzerland (hvanderschuren@ethz.ch), <sup>2</sup>Institute of Plant Sciences, University of Bern, Switzerland (zerihun.tadele@ips.unibe.ch)*

Access to technology empowers research institutions in the South, as it gives them tools to develop locally adapted solutions. In addition, the availability of techniques and technologies in Southern research institutions contributes to building a scientific environment that is attractive to local scientists who have been trained abroad.

This workshop intends to evaluate strategies for efficient technology transfer from advanced research laboratories and organisations to their partner institutions in the developing world. Other aspects of technology transfer to be discussed during the selected presentations in the session include: (1) sustainable establishment of technology in sub-optimal conditions, (2) contribution of capacity-building to scientific innovation, (3) impact of technology transfer, (4) priorities in technology transfer, and (5) impact of funding strategies on Swiss–South partnerships and sustainable technology transfer.

Both the Cassava Research Group at ETHZ and the Tef Research Group at the University of Bern are actively involved in transferring crop plant technologies to Africa. Examples from both Swiss universities will be given to illustrate advances and constraints in North–South technology transfer and delivery.



## Technology Transfer in East Africa: Promoting the Uptake of Quality Seeds of New Varieties by Smallholder Farmers

*Ian Barker<sup>1</sup>*

*<sup>1</sup>Syngenta Foundation for Sustainable Agriculture (SFSA), Basel, Switzerland  
(ian.barker@syngenta.com)*

The SFSA creates value for small farmers in developing countries through innovation in sustainable agriculture and the activation of value chains. SFSA focuses on productivity and markets, helping “pre-commercial” smallholders to become more professional growers. This adds value for rural communities and sustainably improves food security.

Availability of quality seeds of new varieties remains a severe constraint in the improvement of agriculture for smallholder farmers in East Africa; typically less than 10–20% of seeds planted are quality seeds (far less for clonal crops such as potato), whereas the overall share of quality hybrid maize seeds in Kenya is 78%.

This presentation will describe efforts to promote access to quality seeds of improved varieties in Kenya through engagement of the private sector in public–private partnerships along with innovative market and credit-led extension schemes.

## The New Extensionist: Going Beyond Technology Transfer

*Kristin Davis<sup>1</sup>*

*<sup>1</sup>Global Forum for Rural Advisory Services, Lindau, Switzerland  
([kristin.davis@g-fras.org](mailto:kristin.davis@g-fras.org))*

The “New Extensionist”, also known as “Extension-Plus”, goes beyond providing solely technological skills and services to farmers and other actors in rural areas. Many non-technical skills and services are needed in order to adequately improve the lives of small-holder farmers. Accordingly, the New Extensionist has a much broader function than simply transferring technologies: he or she acts as broker and facilitator of rural development processes. The New Extensionist recognises that technologies and other innovations are developed by farmers, too, and not just by researchers. Extension and advisory services connect science to users in a healthy relationship that not only provides reliable, straightforward, and timely information to farmers, processors, marketers, and community members, but also channels solid feedback to scientists and researchers about users’ own innovations, insights, problems encountered, and opportunities discovered. Without this link there is no assurance that innovations, traditional knowledge, or unbiased information will be used to serve sustainable food security.

Extension thus plays a critical connecting role in agricultural innovation systems. Extension also helps smallholders to respond to risks such as climate change, environmental degradation, and market volatility. The role of extension must thus go beyond technical and production functions to include the entire social and cultural milieu. Obviously, this requires a long list of hard and soft capacities that cannot be found in one person; thus most advisors should be well-qualified generalists with a diverse combination of soft skills and a multidisciplinary agricultural background so that they can broker access to other forms of technical support. There is a need to identify the key skills and most appropriate methods for developing the New Extensionist who can operate capably in a complex system. These new competencies should be integrated into extension training curricula.

## Building Public–Private Partnerships in Developing Countries to Develop Sustainable Solutions to Reduce Malnutrition

*Clémence Maurin<sup>1</sup>, Philippe Guinot<sup>1</sup>*

*<sup>1</sup>Global Alliance for Improved Nutrition (GAIN), Geneva, Switzerland  
(cmaurin@gainhealth.org, pguinot@gainhealth.org)*

GAIN was established in 2002 to build partnerships between the public and private sectors to reduce malnutrition. GAIN's major strategy is to bring together key stakeholders to increase efforts and investments in addressing malnutrition, an issue which had received limited international attention for the previous twenty years. The first programme launched by GAIN in 2003 focused on food fortification in developing countries, accelerating the reduction of vitamin and mineral deficiencies through a variety of interventions from large-scale, country-wide nutrition programmes to more targeted interventions to address the needs of specific target groups (e.g. infants to 24 months, pregnant and lactating women).

As a public–private partnership, GAIN engages with private-sector actors at both the global and the local level to support each of its initiatives. A key element of GAIN support consists in providing technical assistance to local food and beverage industry players to improve the nutritional value of their products. This technical assistance includes value chain analysis, business planning, transfer of best practices from Western countries in industrial design, product formulation, and quality assurance/quality control processes, as well as creating demand through social marketing.

Currently, GAIN's programmes contribute to improving the nutritional status of over 530 million people in the world.

## A Model of Public–Private Partnership for Developing Water–efficient Maize for Africa

*Sylvester O. Oikeh<sup>1</sup>, Jacob Mignouna<sup>1</sup>, Stephen Mugo<sup>2</sup>, Kingstone Mashingaidze<sup>3</sup>, Elizabeth Vancil<sup>4</sup>, Denis Kyetere<sup>1</sup>*

*<sup>1</sup>African Agricultural Technology Foundation (AATF), Nairobi, Kenya (s.oikeh@aatf-africa.org), <sup>2</sup>International Maize and Wheat Improvement Center (CIMMYT), Nairobi, Kenya, <sup>3</sup>Agricultural Research Council (ARC), Potchefstroom, South Africa, <sup>4</sup>Monsanto Company, St. Louis, Missouri, USA*

Frequent droughts are a major element of climate change and pose a persistent challenge to African agriculture, making farming risky for millions of smallholder farmers who rely on rainfed crop production. Droughts have contributed to reducing crop yields, particularly of maize, the most important African staple food crop, thus threatening food security. Identifying ways to mitigate drought risk, stabilise yields, and encourage smallholder farmers to adopt best agronomic practices is fundamental to enhancing food security and improving livelihoods in Africa.

The Water Efficient Maize for Africa (WEMA) public–private partnership was formed to bring together the expertise and technologies of public and private-sector organisations for the benefit of smallholder African farmers. The African Agricultural Technology Foundation (AATF) leads this partnership, which includes CIMMYT, Monsanto, and the national agricultural research systems of Kenya, Mozambique, South Africa, Tanzania, and Uganda. The partnership uses conventional breeding, molecular markers-assisted breeding, and transgenic technologies to develop drought-tolerant maize adapted to the maize-growing agroecosystems in Africa that are expected to experience more drought episodes with the projected climate change.

Partnership activities are implemented by project teams, including the product development, product deployment, regulatory, communication, and intellectual property management teams. They work with a broad range of stakeholders, including farmers and the local private seed sector, to deliver improvements in maize seed to farmers royalty-free, alongside best agronomic practices. This presentation discusses the partnership, the strategies being used, and the progress achieved to date by the project partners and teams.

## Theme 4, Session 25 Showcasing Research Products

*Constanze Pfeiffer<sup>1</sup>, Christoph Lüthi<sup>2</sup>*

*<sup>1</sup>Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland (constanze.pfeiffer@unibas.ch), <sup>2</sup>Department of Water and Sanitation in Developing Countries, Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Dübendorf, Switzerland (christoph.luethi@eawag.ch)*

Development research is only effective if it is used as a basis for decision-making, influencing, referencing, and – most importantly – to bring about sustainable change. Increasing attention is being paid to the question of how researchers can communicate results in a meaningful and interesting way to policymakers, practitioners, and society at large and, in doing so, fulfil the potential of research to improve policy and practice. Innovative approaches to communicating research results are needed in order to bridge existing gaps between academia, policy, and practice. This session aims to showcase ways of visualising research results that reach society, practitioners, and policymakers, with a focus on transdisciplinarity.

This interactive session will present selected “multimedia products” from different sectors and research projects within and outside the Swiss National Centre of Competence in Research (NCCR) North-South. The products that will be featured include videos, guidelines, planning toolboxes, and others. We expect a lively session with different formats and products that reflect the wide variety of outputs and lessons learnt within and outside NCCR North-South.

## Tools to Assist Key Stakeholders of Faecal Sludge Management in Burkina Faso

*Magalie Bassan<sup>1</sup>*

*<sup>1</sup>Department of Water and Sanitation in Developing Countries, Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Dübendorf, Switzerland  
(magalie.bassan@eawag.ch)*

In West Africa, as in most of the developing countries, urban dwellers rely on on-site sanitation systems such as latrines and septic tanks. These systems produce high quantities of faecal sludge (FS) that needs to be collected, transported out of the residential areas, and treated to ensure a safe and healthy environment. Frequently, this does not happen. FS that is left untreated in the cities constitutes a source of water-borne diseases. The companies that collect and transport FS are commonly informal and unrecognised by both the population and the authorities.

The National Office of Water and Sanitation in Burkina Faso (ONEA) and EAWAG are collaborating in a project to develop sustainable wastewater and FS management solutions by strengthening the capacities of key stakeholders. This presentation describes the tools and activities implemented in Burkina Faso to identify the key stakeholders of FS management and to evaluate and meet their capacity-strengthening needs.

An institutional analysis revealed that the small companies that collect FS mechanically face the most severe constraints and suffer a considerable lack of both skills and means. For this reason, efforts were focused on them and on ONEA's operating staff in charge of wastewater and FS treatment plants. Several meetings were organised with ONEA and the emptying companies to inform them about the environmental and health risks resulting from current FS management practices. Additional studies were conducted to understand the activities and financial flows of FS emptying companies, and a handbook was designed to promote good practices in terms of hygiene, security, and financial management. A training plan and guidelines for safe operation and maintenance of infrastructures were developed for ONEA staff.

Discussions with the emptying companies proved to be essential for their collaboration in the project. Even though some of them were reluctant to implement changes, the trade association was reorganised, and several directors showed a strong willingness to improve their company management. Out of the three training sessions for ONEA operating staff, the most successful one was that organised with another utility that has strong practical experience. Combined with additional capacity strengthening, information to other stakeholders, and mechanisms to assist the small emptying companies (e.g. subsidies), these measures have the potential to greatly improve the financial sustainability of emptying companies, the quality of the services they deliver, and their integration in the city development plans. The measures are transferable to other countries, where they can be adapted and appropriated.

## Microbial Risk Assessment in Vietnam: Translating Research and Training Into Policy

*Hung Nguyen-Viet<sup>1</sup>, Tran Thi Tuyet Hanh<sup>1</sup>, Phuc Pham-Duc<sup>1</sup>, Nguyen Ngoc Bich<sup>1</sup>, Bui Thi Mai Huong<sup>2</sup>, Nguyen Hong Nhung<sup>1</sup>, Thammarat Kottatep<sup>3</sup>*

*<sup>1</sup>Hanoi School of Public Health, Hanoi, Vietnam (hung.nguyen@unibas.ch), <sup>2</sup>National Institute of Nutrition, Hanoi, Vietnam, <sup>3</sup>School of Environment, Resources and Management (SERD), Asian Institute of Technology, Klong Luang, Thailand*

Until recently, the availability of training in risk assessment in general was very limited in Vietnam, and training in microbial risk assessment (MRA) was not available at all. To fill this gap we developed a training course in MRA by compiling existing MRA trainings, contextualising them, and adapting them to the local context. The resulting course teaches participants the concept of risk analysis, the steps of an MRA and how to implement these steps, as well as risk communication and management. A first one-week training course was successfully held.

MRA was also used for assessing health risks related to wastewater reuse in agriculture and food safety in Vietnam. Diverse scenarios of exposure to wastewater when working with wastewater for agriculture, as well as consumption of pork meat were studied to quantify health risk. The results showed that water and vegetables were heavily contaminated with pathogens; risk in the scenarios tested was high and largely exceeded the acceptable level stipulated by WHO. The results also revealed the most critical issues in terms of risk, thereby pointing to topics on which interventions should focus. The findings can serve to improve policies on and practices of waste reuse.

MRA has been recognised by health staff, lecturers, researchers, and policymakers at the Ministry of Health (MOH) as a useful tool that provides scientific evidence for decision-making and risk management. A book on MRA was published in Vietnamese with support from the Ministry of Health and the World Health Organization (WHO) in Vietnam. It serves as a guideline on MRA, which is a component in Vietnam's Food Safety Law. The university has adapted the health risk assessment course for undergraduate and graduate public health students. Further initiatives to intensify research on MRA are ongoing, and researchers of the team have been selected to become part of the MOH's national task force on risk assessment.

## Voices of Youth on Teenage Pregnancy

*Richard Sambaiga<sup>1</sup>, Alice Mbelwa<sup>2</sup>, Constanze Pfeiffer<sup>3</sup>*

*<sup>1</sup>Institute of Social Anthropology, University of Basel, Switzerland (richard.sambaiga@unibas.ch), <sup>2</sup>Demographic Unit, University of Dar es Salaam, Tanzania (agmbelwa@gmail.com), <sup>3</sup>Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland (constanze.pfeiffer@unibas.ch)*

Tanzania has one of the highest teenage pregnancy rates in the world. While many international and national organisations target young Africans with their interventions, surprisingly little is known about how African youth express their sexuality. This contribution presents a project that aimed to fill this gap by providing insights into sexual and reproductive health realities of female and male students aged 15–18, with a specific focus on teenage pregnancy. The project took a visual action research approach, which (1) helps to empower and therefore build resilience in youth, (2) informs policy and decision-makers, practitioners, and researchers, and (3) stimulates discussions on the appropriate and effective design of future interventions. Main activities included the participatory development of videos by male and female adolescents aged 15–18 from two secondary schools in Dar es Salaam and Mtwara Town, Tanzania.

During a workshop, the selected youth ranked (1) key reasons for teenage pregnancy as well as (2) key actors and sources of information which provide them with knowledge and skills to overcome risks related to teenage pregnancy. Building on the outcome of these ranking activities, the youth developed videos with a camera team that reflect the key findings of their rankings. Beginning in May 2011, the youth presented their videos to policymakers and practitioners from the Tanzanian government, donors, and international/national NGOs active in the field of teenage pregnancy. The social learning process initiated during the workshop was filmed and, together with the youth videos, included in a final video, which has been made available to local TV stations as well as international and national organisations.

The project not only provided important insights into teenage-pregnancy-related realities but also documented that videos can be a transdisciplinary tool for research and practice. This is reflected in the strong interest of practitioners as well as donors, who would like to continue working with the involved youth and use the videos for follow-up interventions.



## “Action”: Publishing Research Results in Films

*Susan Thieme*<sup>1</sup>

*<sup>1</sup>Human Geography Unit, Department of Geography, University of Zurich, Switzerland  
(susan.thieme@geo.uzh.ch)*

Researchers commonly disseminate their research findings in academic papers or books that have a selected and limited target audience. A potential method for disseminating information in a different way is by means of film, but this means tailoring the material to this medium and, in many cases, collaborating with people who have the necessary skills. The aim of this presentation is to reflect on the experience of making a film from the researcher’s perspective.

I will shed light in particular on how the film-making team worked together, and I will provide examples of the preceding research, as well as the shooting and editing of the film material. The long period of research leading up to the film was a major factor in its success. In addition, all of the people involved have to be willing to share their experiences, recognise each other’s expertise, and be able to compromise.

The film was much more than just an extension of the ongoing multi-site qualitative research. The shooting not only provided new insights into people’s lives but also forced me to think much harder about my research and “the fieldwork”. The additional costs and efforts related to the film can be justified by a transdisciplinary understanding of research that requires the results to be disseminated beyond academic circles, attract attention from policymakers and activists, and also allow the subjects of the research (who generally do not read English academic articles) to become an active audience.

## Theme 4, Session 26 Towards an Integrated Development Research Approach

**Jakob Zinsstag<sup>1</sup>, Constanze Pfeiffer<sup>1</sup>, Collins Ahorlu<sup>2</sup>, Hung Nguyen Viet<sup>1,3</sup>, Brigit Obrist<sup>4</sup>**

<sup>1</sup>Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland (jakob.zinsstag@unibas.ch, constanze.pfeiffer@unibas.ch), <sup>2</sup>Noguchi Memorial Institute for Medical Research, University of Ghana, Accra, Ghana (cahorlu@noguchi.mimcom.org, collins.ahorlu@gmail.com), <sup>3</sup>Center of Public Health and Ecosystem, Hanoi School of Public Health, Hanoi, Vietnam (hung.nguyen@unibas.ch), <sup>4</sup>Institute of Social Anthropology, University of Basel, Switzerland (Brigit.Obrist@unibas.ch)

In the past decade, development research within the Swiss National Centre of Competence in Research (NCCR) North-South gradually converged from disciplinary towards inter- and transdisciplinary approaches. Multiple examples from research on health, sanitation, and resilience highlight the benefits of closer cooperation, but also reveal the difficulties of connecting different epistemologies. Moreover, North–South research is faced with intercultural debates on its philosophical and ethical foundations. The ongoing globalisation of trade, transport, and communication does not allow for restriction to isolated local preferences but calls for exchange. Exchange, in turn, proves to be increasingly important in solving ever increasing problems of global change.

Concepts developed within the NCCR North-South on social and reproductive resilience, integrated material flow, quantitative microbial risk and social science analyses, and health in social-ecological systems point towards integrated development research approaches. Such approaches have the power to bridge epistemological gaps between natural sciences and the humanities, connecting outcomes of research on natural resource management, health, sanitation, livelihoods, and governance. It is evident that the complexity of social development cannot be tackled using one single method. However, past experience with studies from different disciplinary perspectives in similar contexts points to the potential of mutual learning and understanding. The benchmark is less the theoretical foundation than empirical experience from within and outside the NCCR North-South, from which we can induce commonalities and methodological connections between scientific disciplines as well as between cultural paradigms.

The aim of this session is to present different integrated development research approaches and to discuss them with the audience with a view to identifying gaps in mutual understanding, debating the validity of epistemological connections, and possibly moving towards integrated methods for development research.

## Interdisciplinary Research on Environmental Sanitation and Health: Conceptual Framework Development and Field Test

**Hung Nguyen-Viet<sup>1</sup>, Phuc Pham-Duc<sup>1</sup>, Vu Van Tu<sup>1</sup>, Do Thu Nga<sup>2</sup>, Nguyen Cong Khuong<sup>3</sup>, Chris Zurbrugg<sup>4</sup>, Jakob Zinsstag<sup>5</sup>, Marcel Tanner<sup>5</sup>**

*<sup>1</sup>Center of Public Health and Ecosystem, Hanoi School of Public Health, Hanoi, Vietnam (hung.nguyen@unibas.ch), <sup>2</sup>School of Environment, Resources and Management (SERM), Asian Institute of Technology, Thailand, <sup>3</sup>Hanam Center for Preventive Medicine, Hanam, Vietnam, <sup>4</sup>Swiss Federal Institute of Aquatic Science and Technology, Department of Water and Sanitation in Developing Countries, Dübendorf, Switzerland, <sup>5</sup>Department of Epidemiology and Public Health, Swiss Tropical and Public Health Institute, Basel, Switzerland*

We developed a conceptual framework for improving health and environmental sanitation using an approach that combines health, ecological, and socio-economic assessments. The framework has three main components: health status, physical environment, and socio-economic environment. Information on each of these three components can be obtained using standard disciplinary methods and an innovative combination of these methods. Analyses based on this framework lead to extended characterisation of health, ecological, and social risks, while enabling comprehensive identification of critical control points.

Interventions based on comprehensive analysis take account of biomedical, engineering, and social-science perspectives or a combination of them. Moreover, such interventions encompass not only technical solutions but also behavioural and social changes which are derived from the resilience patterns identified during the analysis. The framework was conceptualised and validated for the context of urban and peri-urban settings in developing countries, focusing on different types of waste such as excreta, wastewater, and solid waste, as well as their influence on food quality and their related pathogens, nutrients, and chemical pollutants.

We tested the framework in a case study in northern Vietnam, where we conducted a combined assessment of the impacts of human excreta and wastewater reuse in agriculture on health, the environment, and society. The aim was to propose sustainable and adapted interventions for improving health and environmental sanitation. Impact on health was assessed based on epidemiological and microbial risk analyses. Environmental impact was assessed for both sanitation and agriculture systems, with a focus on nutrient flows. Perceptions and behaviour regarding health risks were evaluated, along with people's ability to prevent health risks. Our contribution will present results from this case study and insights regarding interventions proposed.

## Production of Innovations within Farmer–Researcher Associations Applying Transdisciplinary Research Principles

*Gian Linard Nicolay<sup>1</sup>, Andreas Fliessbach<sup>1</sup>*

*<sup>1</sup>Research Institute of Organic Agriculture (FiBL), Frick, Switzerland  
(gian.nicolay@fibl.org, andreas.fliessbach@fibl.org)*

Small-scale farmers in sub-Saharan West Africa depend heavily on local resources and local knowledge. Science-based knowledge is likely to aid decision-making in complex situations. In this presentation, we highlight a FiBL-coordinated research partnership between three national producer organisations and national agriculture research bodies in Mali, Burkina Faso, and Benin. The partnership seeks to compare conventional, GMO-based, and organic cotton systems as regards food security and climate change. The three-year process began in 2009 in the context of “Syprobio”, a collaborative research and development project funded by EuropeAid. In addition to difficulties encountered, we will present key determinants of successful research and development (R&D) integration.

Researchers and organic farmers from the three West African countries and Switzerland identified promising innovations in management techniques that are mainly implemented locally. In the West African cotton belt, only wealthy and risk-prone households opt for capital-intensive production. The majority of poor farmers opt instead for the organic agriculture value chain. The development of technologies at farmer level constitutes an alternative to externally developed technologies that are often capital-intensive and require external inputs and subsidies (e.g. mineral fertiliser or pesticides). Ten farmer groups in the countries included identified 164 innovations in five key areas: soil fertility, plant health, seeds, crop management, and socio-economics. Most are based on farmer ideas and experiences and can be adopted fairly easily by other pioneering farmers. Twenty-nine technologies were selected in April 2012 by the researchers and advisors involved and will be subsequently tested on farms. We describe the dual role of sociology, in both development and research, and highlight the importance of applying a transdisciplinary approach in order to integrate farmer knowledge with interdisciplinary research at the conceptual level.

We will also present the main determinants of success when implementing a transdisciplinary approach, ranging from subjective challenges to organisational, methodological, and practical issues. Ensuring good communication that drives and nurtures community involvement, based on key events at various levels, is viewed as a central challenge by most stakeholders. Another challenge is minimising the costs of farmer-driven innovation and technology development in order to convince donors and policymakers to continue investing in such processes. The EuropeAid-funded research for development project will end in 2015.

## Land-tenure and Conservation Initiatives: A Critical View of Sectoral Approaches in Northern Pakistan

*Rahim Inam<sup>1</sup>, Henri Rueff<sup>2</sup>, Daniel Maselli<sup>1</sup>, Urs Wiesmann<sup>2</sup>*

*<sup>1</sup>University of Central Asia, Bishkek, Kyrgyzstan (irahim33@yahoo.com, daniel.maselli@ucentralasia.org), <sup>2</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland (henri.rueff@cde.unibe.ch, urs.wiesmann@cde.unibe.ch)*

This contribution presents two case studies reflecting on how sectoral approaches to natural resource management led to unintended negative impacts in Northern Pakistan. The first case is from lower Swat, where land-tenure conflicts between hillside landowners and landless herders led to rapid resource overuse and severe deforestation in the 1970s. In order to rehabilitate these hillsides, afforestation programmes were initiated with the consent of landowners. Afforestation turned out to be an efficient means for landowners to evict landless users: according to the data collected in 6 villages in 1998, 63% of the hillsides were fenced for afforestation and access to them was denied to landless herders, who had to reduce their herd sizes by 60% and were forced to seek daily wage labour elsewhere. Local media reported that members of this disadvantaged social group became primary recruits in the Taliban movement between 2006 and 2009.

The second case is from upper Swat and Naran, where off-season vegetables were promoted in the early 1980s with the aim of alleviating poverty by generating alternative income. Off-season vegetables earned local farmers ten times higher returns than their previous farming activities, leading them to convert ever more forest and pasture land into farm plots for growing vegetables. Data show that, over the past 30 years, cultivation has extended to 5% of the total area of the Naran uplands, with an approximate annual gross income of 2500 US dollars per hectare. Due to the above-mentioned tenure ambiguities, locals were reluctant to invest in proper terracing even though they cultivated steep slopes with gradients of up to 44°. Instead, they sought to earn short-term income from “tilling-and-abandoning” practices leading to severe erosion.

Our reading of these two case studies suggests that insufficient understanding of complex socioecological systems may foster harmful consequences for both people and the environment. We argue, further, that it is a combination of local holistic understanding, demand-driven approaches, and flexible agencies’ development agendas that are adapted to needs which may ensure sustainable achievements.

## Towards Implementation of Integrated Development Research in Elaborating Copacabana Local Diagnosis

*Manigeh Roosta<sup>1</sup>*

*<sup>1</sup>Postgrado en Ciencias del Desarrollo, Universidad Mayor de San Andrés (CIDES-UMSA), La Paz, Bolivia (cidesmanigeh27@yahoo.com)*

This contribution concerns a group research project carried out as part of a larger research module on “Human Settlements, Urbanisation and Territory”. Copacabana is one of the main towns on the Bolivian shore of Lake Titicaca. It hosts a large 16<sup>th</sup>-century shrine, the Basilica of Our Lady of Copacabana. It is also a tourist destination. Copacabana is experiencing an accelerated process of urbanisation, which has implications for urban services such as sanitation and sewerage, water, and solid waste collection. To elaborate a diagnosis of the local situation, which presented a series of overlapping interconnected problems, students from around ten different disciplines (Master’s Programme on Population and Development) interviewed not only elected members of local authorities, but also local stakeholders, businessmen, merchants, and even tourists. Examination of these local voices and in-situ observation led researchers to engage in an inter- and transdisciplinary discussion in order to develop the diagnosis. The disciplinary approach common in academic settings, based on fragmented perspectives of reality and without local stakeholders’ participation and inputs, would not have allowed the real dimensions of this polycrisis to be comprehended.

Several learning objectives were met during this group research project. Students had to learn to work in interdisciplinary teams; develop a common language in order to communicate among different disciplines; establish an active dialogue with local stakeholders by way of overcoming the language barrier (official vs native); be sensitive to their colloquial mode of communication in order to identify challenges and concerns; and, above all, develop empathy with non-academic stakeholders.

Participating in this dialogue between science and society calls for individual and collective reflection. Researchers need to reflect on their personal behaviour and communication skills as individuals when interacting with common citizens, strengthening their ability to see the world through the latter’s lens. Students and faculty members are called upon to reflect on the role of university as an integrator, with the goal of joint problem-solving in their communities and in society in general.

The process of participation demands new approaches. Ideally, local citizens and authorities should participate from the early stages of a project, allowing for a joint decision-making process, joint problem definition, joint responsibility for decisions, and joint ownership of ideas as a result of this process of problem-solving.

Reflection on this group research project will help to deepen our understanding of the complexity of applying integrated development research.

## Theme 4, Session 27

### When Does Knowledge Have an Impact? The Interaction of “Science” and “Policy” in Development and Peacebuilding

*Laurent Goetschel*<sup>1,2</sup>

<sup>1</sup>Swiss Peace Foundation (*swisspeace*), Bern, Switzerland (*laurent.goetschel@swisspeace.ch*), <sup>2</sup>Europa-Institute, University of Basel, Switzerland (*laurent.goetschel@unibas.ch*)

One of the core objectives of the Swiss National Centre of Competence in Research (NCCR) North-South has been the generation of scientific knowledge and its interaction with policy practice. This workshop session aims to (1) provide a conceptual input on the conditions that affect this type of interaction, (2) capitalise on relevant experiences from within and outside the NCCR North-South, (3) provide consolidated and case-based lessons learned as recommendations for designing future research for sustainable development.

The session is expected to produce comparative knowledge and to “scale up” insights produced in the NCCR North-South. It will explore decision-making among state and international actors in the policy arenas of sustainable development and of peacebuilding, and will focus more precisely on the conditions and the effects of interaction between scientific knowledge and policy. In particular, contributions are expected to offer empirical insights that can help to answer the following questions: What type of knowledge was exchanged between which actors at what levels? To what extent were different types of knowledge included into policy decisions? How has this inclusion become visible? What kinds of impact were observed? These questions are based on the assumption that the impact of scientific knowledge on policy varies according to the context (i.e. political culture, institutions, policy level) and the policy contents (i.e. type of knowledge, degree of technicality, degree of politicisation).

## Peacebuilding Evaluation: Can More “Scientific” Methods Enhance the Legitimacy of Peacebuilding?

*Stefan Bächtold<sup>1</sup>*

*<sup>1</sup>University of Basel, Switzerland, Swiss Peace Foundation (swisspeace), Bern, Switzerland (stefan.baechtold@swisspeace.ch)*

Great expectations were raised when the peacebuilding field became increasingly professionalised. The application of project design methodologies, monitoring systems, and evaluation drawing on the scientific state of the art appeared promising with regard to making impacts more visible, learning from success and failures, and improving the effectiveness of peacebuilding interventions. A decade later, expectations seem more humble. While the focus on results, value for money, and impact assessments has created a growing buzz in the discourse of donor organisations and implementing NGOs, most of these concepts remain empty words to practitioners.

In this contribution I argue that many of the mainstream approaches to design, monitoring, and evaluation (DM&E) draw on a managerial logic, and therefore rely on levels of certainty and plannability that are not normally achieved in an inherently political and complex endeavour such as peacebuilding. But although many practitioners have become aware of these shortcomings, increased pressure to deliver results in return for funds granted, as well as the larger discourse on effectiveness and accountability have led organisations to focus overly narrowly on mainstream DM&E approaches.



## The Transfer of Knowledge Into Policy: Challenges in the Field of Peacebuilding

*Laurent Goetschel*<sup>1,2</sup>

<sup>1</sup>*swisspeace, Bern, Switzerland*, <sup>2</sup>*Center for European and International Studies, University of Basel, Switzerland (laurent.goetschel@unibas.ch)*

Peacebuilding is a relatively new policy field. It emerged after the end of the Cold War, apparently as an extension of development policy. Therefore, it was first conceived of as a rather technocratic policy both in its handling and in its analysis. Following its semantics, “peace” was to be “built”. Knowledge about “governance”, “democracy”, and “statehood” was to be packed into programmes and instruments and implemented in recipient countries as one would contribute to the building of roads and houses. Mainstreaming concepts such as “conflict prevention” and “conflict sensitivity” was expected to be sufficient for taking into account the policies’ political dimensions and effects.

Difficulties encountered in many places triggered a re-appraisal of peacebuilding’s technocratic nature. Conceptual criticism of peacebuilding’s *mission civilisatrice* opened up the road to a more critical assessment of the so-called “liberal peace” approach. This had an impact on the analysis of the role of knowledge and ideas in peacebuilding. A categorisation of different types of ideas helps to differentiate and understand variations in policy processes and successes within peacebuilding.

## Public Development Interventions in Lao PDR: Based on Contextual Evidence or Serving Globalised Agendas?

*Peter Messerli<sup>1</sup>*

*<sup>1</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland  
(peter.messerli@cde.unibe.ch)*

Like any other form of goal-oriented development, sustainable development depends on knowledge as an essential precondition for deliberating and pursuing future development pathways. However, knowledge production and knowledge sharing face a critical challenge. On the one hand, development contexts seem to be increasingly difficult to compare as their specific social, environmental, and economic characteristics are shaped by increasingly globalised driving forces. This calls for context-specific knowledge to support decision- and policymaking. On the other hand, decisions and policies are increasingly framed beyond the local level, thus requiring generalised evidence. As a consequence, a growing cross-scale knowledge gap is undermining evidence-based negotiations, decisions, and policies.

Drawing on an actor perspective, we analyse 341 public-sector development actors in Lao PDR in terms of their specific development interventions, the underlying knowledge and agency, as well as their social networks. In a first step we present spatial patterns of key development indicators describing different development contexts, and analyse how these features correspond to the issues addressed by ongoing development interventions. Revealing major inconsistencies, we assess the factors that have shaped the respective development activities and show that knowledge about the specific contexts of interventions plays a marginal role. Against this background, a social network analysis of interactions between the relevant development actors allows discussing options for enhancing the role of knowledge in decision-making processes.

## Science Meets Practice: Getting Ready for Fruitful Knowledge Sharing Between Researchers and Stakeholders

*Claudia Zingerli<sup>1</sup>*

*<sup>1</sup>Swiss Federal Institute of Technology Zurich (ETHZ), Zurich, Switzerland  
(claudia.zingerli@sl.ethz.ch)*

How can the gap between science and policy in sustainable development be bridged? What can be done to improve knowledge sharing? And what conditions enable fruitful encounters between science and practice? These are just a few questions that research for sustainable development is required to address time and again.

Based on research conducted in a Transversal Package Project on “Knowledge, Power, Politics” (2006–2010) within the Swiss National Centre of Competence in Research (NCCR) North-South and subsequent project work at the Centre of Competence Environment and Sustainability (CCES) of the ETH Domain, this contribution begins by outlining selected key concepts of knowledge and then delves into empirical and practical evidence of knowledge sharing between science and practice, as experienced by researchers, professional intermediaries and communicators, and stakeholders.

Insights from the above projects suggest that there are a number of key factors which are essential for fruitful knowledge sharing, such as mutual respect and awareness of the diversity of thought collectives. This contribution focuses on the innovation potential that lies in creatively managed knowledge interfaces between science, policy, and/or practice. It observes “impact” in the processes taking place at these interfaces, and shows that these processes can be subversive as well as empowering as actors interact and join efforts towards making a change.

## Theme 4, Session 28 The Impact of Research on Policy: The Case of Stakeholder Dialogues in Development-oriented Research

*Claudia Michel<sup>1</sup>, Eva Heim<sup>1</sup>, Christoph Lüthi<sup>2</sup>, Bishnu Raj Upreti<sup>3</sup>, Guéladio Cissé<sup>4</sup>, Constanze Pfeiffer<sup>4</sup>*

*<sup>1</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland (claudia.michel@cde.unibe.ch), <sup>2</sup>Department of Water and Sanitation in Developing Countries, Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Dübendorf, Switzerland (christoph.luethi@eawag.ch), <sup>3</sup>NCCR North-South, South Asia Coordination Office, Kathmandu, Nepal (bishnu.upreti@gmail.com), <sup>4</sup>Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland (gueladio.cisse@unibas.ch, constanze.pfeiffer@unibas.ch)*

Interest is growing in the impact of development research on policy and practice. How do relevant research results find their way into development? For a long time, the buzzword was knowledge transfer: At the end of a research project, relevant results are communicated to potential users, who are expected to apply these insights in their daily work. Today, the concept of knowledge transfer is considered behind the times, because it disregards the non-linearity, complexity, and uncertainty of research, policy, and practice.

The RAPID Outcome Mapping Approach (ROMA) is a new approach to analysing and effecting research impact. It allows planning impact from the outset of a research project and supports continuous impact monitoring during all stages of research. Key steps are a careful mapping of the policy context, identification of the most important non-academic stakeholders, a clear definition of desired development changes, and the establishment of a learning and monitoring framework. Yet, careful planning and monitoring is not enough to achieve impact in development-oriented research.

Research projects also have to respond to the particular complexities governing international development. This is why this session focuses on stakeholder dialogues, or achieving impact by bringing the right people together. Development-related research is rarely restricted to one particular policy- or development sector. Topics related to health, sanitation, nutrition, or land use usually involve stakeholders from different policy and development sectors, such as planning, finances, and education. Moreover, different levels of impact have to be considered: International donors, national governments, town mayors, and end-users of development interventions often pursue divergent and conflicting interests. Bringing these stakeholders together is vital to achieving impact.

Using ROMA, the presentations in this session will reflect on how development changes were achieved through stakeholder dialogues involving multiple levels and multiple sectors. Based on these experiences, new and more adequate approaches to managing research impact will be discussed.

## Negotiating Intersectoral Services in Remote Rural Zones of Sahelian West Africa

**Mahamat Béchir<sup>1</sup>, Mathurin Koffi<sup>2</sup>, Moussa Keita<sup>3</sup>, Daugla Doumagoum Moto<sup>1</sup>, Jakob Zinsstag<sup>4</sup>, Bassirou Bonfoh<sup>3</sup>, Esther Schelling<sup>4</sup>**

<sup>1</sup>*Centre de Support en Santé Internationale (CSSI), N'Djamena, Chad (mahamatbechir@yahoo.fr),* <sup>2</sup>*Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS), Abidjan, Côte d'Ivoire (mathurin.koffi@csrs.ci),* <sup>3</sup>*NCCR North-South programme in Mauritania (moussaks2004@yahoo.fr, bassirou.bonfoh@csrs.ci),* <sup>4</sup>*Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland (jakob.zinsstag@unibas.ch, esther.schelling@unibas.ch)*

In remote rural zones of the Sahel in Africa in general, and in West Africa specifically, health is modified by the hardship of work in harsh environments and difficult (time-ly) access to health services. Maternal and child mortality rates are among the highest worldwide, particularly in West Africa. Most families keep animals to diversify their nutrition and income. Livestock is the most important source of income for pastoralists and sometimes for national economies. Mobile pastoralists face multiple challenges in maintaining their health and the health of their animals. And there are other mobile people facing similar challenges to access social services: rural–urban migrants, seasonal migrants, and internally displaced people. Our research is based on One Health, a concept that seeks to add value to existing public health, veterinary, and environmental services through increased cooperation, for example in the context of vaccination outreach services, control of diseases transmitted from animals to people, food safety, and food security. This seems promising for resource-poor remote areas, where money and personnel for health care are in short supply.

The main goals of our North–South research partnerships in Chad, Mauritania, Togo, Mali, and Côte d'Ivoire are to better understand health problems and to identify and test adapted health interventions. Health and ill-health are looked at from different perspectives with interdisciplinary teams. Improving the understanding of ill-health and daily use of health and veterinary services in complex remote rural zones is only possible in long-term projects, with the commitment of all partners, and following an iterative process of participatory research and sharing during local and national workshops to decide on interventions to test. More flexible research protocols are needed to allow for this process. A project should facilitate interaction between researchers, authorities, and the communities.

We mainly engage with technical staff of the national ministries and international organisations, communities and their representatives, local authorities, and research institutes – as well as with donors and NGOs. We inform ministers regularly – but it is difficult to build on their commitment given the frequent changes. Health is rarely the only priority. The programme partnered with veterinary services and education in Chad and with nutritional services in Mauritania and may be as important for TB patients as the health services. This programme is necessary to tap synergies in remote zones. Silo approaches are too costly and are less trusted. To go from good outputs to a national policy requires long-term perseverance. In Chad, for instance, a first document on intersectoral services for mobile pastoralists was available 6 years ago – and is now again being circulated between ministries.

## Strengthening Trust among Stakeholders Through Mediated Dialogues for Effective Forest Governance in Northwest Pakistan

*Talimand Khan<sup>1</sup>, Babar Shahbaz<sup>2</sup>, Urs Geiser<sup>3</sup>*

*<sup>1</sup>Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan (talimand@sdpi.org), <sup>2</sup>University of Agriculture, Faisalabad, Pakistan (bsuaf@yahoo.com), <sup>3</sup>Development Studies Group, Department of Geography, University of Zurich, Switzerland (urs.geiser@geo.uzh.ch)*

This presentation offers insights and lessons learned from a dialogue process initiated with the intention of improving coordination and trust and reducing conflicts between stakeholders for sustainable forest governance in Northwest Pakistan. Another key objective of the dialogue process was to engage stakeholders and practitioners (especially those responsible for policymaking at the provincial and federal levels) in research-informed dialogues and to influence policymakers with a view to improving existing practices of forest management in Pakistan. The project was carried out under the Partnership Action for Mitigating Syndromes (PAMS) programme of the Swiss National Centre for Competence in Research (NCCR) North-South. Stakeholders at different levels were involved in the process, for instance:

- Forest owners and users, community-based and civil society organisations, local forest administration at the village or local level;
- Forest Department officials, local NGOs, and political leaders at the district level;
- Provincial political leaders and members of parliament, and provincial forestry officials at the provincial level;
- NGOs, federal officials of the Ministry of Environment, and media at the national level.

Capitalising on the intensive research conducted by NCCR North-South researchers on multiple forest-related issues in Pakistan, the dialogue process was commenced at the local level and then taken to the higher levels, including the national level; we succeeded in engaging heterogeneous groups of stakeholders in the process. Through “research-informed dialogues” and other related activities, we tried to influence policymakers and bring local stakeholders’ concerns to attention at the national level. It remained a challenge, however, to maintain a balance in the dialogue process when different groups of stakeholders lacked trust in each other.

## Are Multi-stakeholder Processes in Poor Urban Communities Effective? Some Evidence From the Field

*Christoph Lüthi<sup>1</sup>*

*<sup>1</sup>Department of Water and Sanitation in Developing Countries (SANDEC), Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Dübendorf, Switzerland (christoph.luethi@eawag.ch)*

Within the framework of the Swiss National Centre of Competence in Research (NCCR) North-South, EAWAG-SANDEC analysed stakeholder perceptions regarding the Household-centred Environmental Sanitation (HCES) approach, a participatory planning approach recently validated in several countries. In two of these – Laos and Nepal – post-intervention surveys were conducted with experts and key informants to assess satisfaction regarding the degree of participation, the effectiveness of planning outcomes, and process efficacy. The surveys specifically investigated the variability in people's perceptions regarding the costs and benefits of community participation. Empirical findings show that experts and participants show high satisfaction rates regarding involvement in decision-making. The earlier and more extensively residents were involved in the process, the higher the satisfaction rate turned out to be. Our comparative field research further shows that:

- (1) Community-based planning comes at a cost and must involve a well-structured participatory process, which takes time. This includes a thorough assessment of the enabling environment and the institutional arrangements, but also the ability to combine expert knowledge and advice with the community's wishes and priorities.
- (2) Participants must be given the capacity to effectively shape environmental decisions and ensure long-term operation and management of the system and services. When decisions are highly complex – involving technical, economic, and institutional responsibilities – it is essential to develop the necessary knowledge and confidence to meaningfully engage community residents in the process.
- (3) Implementation and project delivery at the neighbourhood level should be done incrementally and phased in batches. It should start with easily implementable “quick-start” solutions before tackling more complex off-site solutions (e.g. decentralised treatment systems).
- (4) Our study revealed that well-designed participatory planning is highly correlated with the skills of the process facilitator but also with the tools, methods, and communication channels utilised. Coordinating effective community participation requires a special set of skills which include participatory project management, negotiation, and problem-solving. Special attention must be given to inclusive community participation that prevents “elite capture”.

## “We Have a Lot to Tell You!” Bridging the Gap Between Youth and Decision-makers

*Constanze Pfeiffer<sup>1</sup>, Richard Sambaiga<sup>2</sup>, Eva Heim<sup>3</sup>, Boniface Kiteme<sup>4</sup>*

*<sup>1</sup>Swiss Tropical and Public Health Institute (Swiss TPH), Basel Switzerland (constanze.pfeiffer@unibas.ch), <sup>2</sup>Institute of Social Anthropology, University of Basel, Switzerland (richard.sambaiga@unibas.ch), <sup>3</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland (eva.heim@cde.unibe.ch), <sup>4</sup>Centre for Training and Integrated Research in Arid and Semi-arid Land Development, Nanyuki, Kenya (b.kiteme@africaonline.co.ke)*

Teenage pregnancy is a major health concern, especially in developing countries, due to the high risk of complications, even death, for both mother and child. Tanzania has spearheaded many efforts to better understand and improve the sexual and reproductive health of young people. However, to create interventions that will effectively steer young people towards responsible parenthood, more knowledge is needed about their capacities as well as their social environment. To gain more vivid insights into young people's realities, a Partnership Action (PAMS) project was implemented in which adolescents in two secondary schools – in Dar es Salaam and Mtwara Town – were invited to create short fictional videos on: (1) what they see as key reasons for teenage pregnancy; (2) their main sources of information on how to avoid teenage pregnancy.

To ensure the videos reached key audiences, a workshop was organised that brought together youth and relevant stakeholders, such as government representatives, national and international NGOs, and international donors. The young video-makers were invited to present their clips and speak directly to policymakers. It was the first event of its kind to facilitate direct communication and interaction between actors from different levels: affected youth from the local level, NGO representatives from the meso level, and policymakers from the macro level.

Through their videos, the youth themselves became the protagonists of a campaign to improve their lives. Various international and national NGOs and donors expressed great interest in the videos. Several Tanzanian TV stations aired them. The Swiss Agency for Development and Cooperation (SDC) agreed to finance screenings of the videos during outreach activities in four districts in Tanzania, inviting the young video-makers to participate as agents of change.

The project highlighted how multi-stakeholder engagement within and across different levels in society can fill knowledge gaps and initiate social learning processes.



## Disaster, Gender, and Inequality in the City of La Paz, Bolivia

*Luis Alberto Salamanca<sup>1</sup>, Jimena Freitas Ocampo<sup>2</sup>*

<sup>1</sup>*Universidad Católica Boliviana, La Paz, Bolivia (luisalberto441985@yahoo.com),*

<sup>2</sup>*Universidad Mayor de San Andres, La Paz, Bolivia (jimena.freitas@gmail.com)*

From the moment of its foundation, the city of La Paz has faced problems of soil instability due to its geological, geotechnical, and topographic situation on high slopes. Ongoing rural–urban migration processes, urban sprawl, and development models based on exclusion further increase the incidence of natural disasters such as floods and landslides. National laws on risk management are in place, but fail to achieve the expected impacts among both the municipal authorities and the population. This is due to their top-down nature. The different communities respond to risk management when prevention processes are established.

This presentation showcases three studies conducted in La Paz. The first one, funded by the Swiss National Centre of Competence in Research (NCCR) North-South, took place from 2004 to 2009 and investigated women’s and men’s perception of disasters, risks, threats, and vulnerability, with a view to strengthening resilience to natural disasters. The second study, conducted in 2011 and funded by Oxfam, looked into different actions by which the government authorities at the different levels can respond to disasters. The third one, a pilot study, identified gender-specific behaviour during disaster response and recovery.

Findings provide insights in the interactions between different players. At the local level there are poor and excluded families – an urban population with a feminine face – that suffer the risks of informal labour conditions and instability. They are represented by neighbourhood councils. In the event of a disaster, the entire population including the neighbourhood leaders lose their houses, working tools, and livelihoods. The neighbourhood councils negotiate with the municipal government and participate in planning; the municipal government develops laws and policies and invests moneys to stabilise the different neighbourhoods. Although the laws foresee coordination with the departmental and national governments, this does not always happen. The national government designs and funds national policies for risk management (Law 2140) and carries out actions when disasters strike. Humanitarian agencies and donors provide resources for disaster and/or emergency assistance, and international and national NGOs support these initiatives.

As a result of these studies, (1) the La Paz Foundation (an NGO) launched activities to promote risk management; (2) Oxfam invests in projects in La Paz; and (3) the affected population is provided with evidence and information to support the elaboration of requests addressed to the municipal government.

## Who Needs Research? Challenges of Linking Research With Policy in Unstable States

*Sagar Raj Sharma<sup>1</sup>*

*<sup>1</sup>Department of Development Studies, Kathmandu University, Nepal  
(sagar@ku.edu.np)*

The role of research in influencing policy formulation and responding to socio-economic challenges in South Asia, particularly in its unstable states, has been intensely scrutinised in the recent years. Despite the attention this topic has garnered, however, there is very little evidence so far to suggest any definitive formula for making the link between research and policy effective. The gap between research and policy formulation remains a common feature in the region, where the countries, despite facing similar socio-economic, political, and environmental problems, have fostered a sense of mutual mistrust and even hostility towards each other. This in turn has hindered new initiatives based on collaborative research in developing a collective response to such problems.

Given this background, this presentation focuses on the effectiveness and challenges of research–policy linkage in post-conflict Nepal. While giving examples of some success stories of research–policy linkage, such as the efforts made by the Consortium for Land Research and Policy Dialogue (COLARP) in disseminating and discussing the knowledge generated through research with government ministries, constituent assembly committees, and community-based organisations, it also analyses the multifarious difficulties in meaningfully linking research with policy, as the existing research does not always synchronise with the pressure and priorities under which the policymakers operate. The researchers, too, are often seen to be indifferent towards whether their voices have been heard by policymakers, as long as they have their papers published in “peer-reviewed” journals. The people at large, on the other hand, often complain of having become overwhelmed by research projects without any visible results.

What is the best way to bridge this gap? This presentation argues that the role of global partnerships (e.g. the collaboration between the Swiss National Centre of Competence in Research North-South and Kathmandu University) can become pivotal not only in bringing researchers and policymakers together, but also in creating a space for all the stakeholders involved to play constructive roles in strengthening this vital linkage.

## The Role of Stakeholder Involvement in Policy-relevant Research Contributions to Sustainable Development

*Gabriela Wuelser<sup>1</sup>*

*<sup>1</sup>Institute for Environmental Decisions, Swiss Federal Institute of Technology Zurich (ETHZ), Zurich, Switzerland (gabriela.wuelser@env.ethz.ch)*

Research for sustainable development, being directed at triggering or supporting sustainability-oriented societal change processes, can be designed in many ways. Conceptions of research projects correspondingly vary considerably in terms of their policy relevance. This is due to differing ways in which researchers approach and frame sustainability problems and respective societal dynamics, that is, how they deal with complex realities. This presentation will be based on a meta-study of sustainability research, combining theoretical conceptions from fields such as policy sciences and transdisciplinary research with my own empirical analyses.

In the first part of the presentation, I will elaborate on some basic conditions under which stakeholder dialogues generally have the potential to increase the relevance of research contributions to societal change processes. In doing so, I will suggest a definition of the term “relevance” and introduce a distinction between problem orientation and take-up conception of research projects. In this context, I will also make a suggestion on the meaning of the word “right” in the expression “bringing the right people together”, among other things.

In the second part of the presentation, I will distinguish different types of relevant research contributions to societal change, using the example of several recent development-oriented projects at the Centre for Development and Environment (CDE) and ETHZ on land use issues. These projects varied considerably in their use of stakeholder involvement as well as in the importance they attached to this instrument.

I will conclude by discussing success factors and constraints as reported by the researchers and as resulting from my project analysis.

## Theme 4, Session 29 How to Get Transdisciplinary Work in a North–South Context Published: Learning From Experiences

*Anne Zimmermann<sup>1</sup>, Susanne Wymann von Dach<sup>1</sup>, Christian Erik Pohl<sup>2,3</sup>*

*<sup>1</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland (anne.zimmermann@cde.unibe.ch, susanne.wymann@cde.unibe.ch), <sup>2</sup>Institute for Environmental Decisions, Swiss Federal Institute of Technology Zurich (ETHZ), Zurich, Switzerland (christian.pohl@env.ethz.ch), <sup>3</sup>td-net, Swiss Academies of Arts and Sciences, Bern, Switzerland*

Science is increasingly confronted with the demand that it contribute to innovation and societal development and thus to reaching a public beyond the science community (ICSU and ISSC 2010). Scientific publishing is considered an essential means of validating and communicating research results and is the system upon which new research is based and academic careers are built. Its rules are still based on fairly closed disciplinary debates and on knowledge exchange within the academic community.

Transdisciplinary (TD) research – that is, research that deals with complex life-world problems by integrating knowledge of non-academic stakeholders and different disciplines – explicitly addresses societal development and the challenge of communicating beyond the science community (Pohl et al 2007). At the same time, it is bound to fulfilling the essentially disciplinary rules of scientific publishing, which often exclude work of this kind. This places TD researchers in a double bind. Moreover, in a North–South context, an additional difficulty arises: scientific publishing rules have been defined in the North, making it difficult for many authors from the South to access this means of validating their work (Canagarajah 2010). Here, we can speak of a possible triple bind that challenges authors and reviewers of transdisciplinary research in a North–South context, as well as editors of scientific journals who try to develop an enhanced “publication culture” in transdisciplinary research (Kueffer et al 2007).

This working session will bring together authors, reviewers, and journal editors. The discussion will be triggered by three presentations and the results of a survey inquiring about the concerns faced by ICRD participants when publishing their development-oriented research insights, and will focus on the following aspects:

- Authors’ and journal editors’ experiences with writing and submitting TD work, and dealing with reviewing processes and policies,
- Ideas about how to overcome stumbling blocks when publishing TD work in peer-reviewed journals, and
- Enhanced review criteria for transdisciplinary work.

The overall aim is to build understanding of the challenges of publishing TD work and come up with recommendations for the “Research Agenda” to be developed within the framework of the ICRD.

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## Exploring Experience With Promoting and Publishing Transdisciplinary Work: A Case Study from the NCCR North–South

*Kouassi Dongo<sup>1</sup>*

*<sup>1</sup>JACS WAF, Université de Cocody-Abidjan, and CSRS, Côte d’Ivoire  
(kouassi.dongo@csrs.ci)*

Academics using a transdisciplinary research approach face many challenges, including integrating the languages and cultures of different disciplines and learning how to navigate within and between disciplines. For them getting transdisciplinary work accepted as a step in the academic ladder – which mostly depends on disciplinary curricula – can be a slower, rougher, and much less linear process than if they follow a single disciplinary approach. Moreover, when publishing transdisciplinary research in scientific journals they meet difficulties, as they are asked to follow the essentially disciplinary rules of scientific publishing, which often exclude work of this kind.

In the present paper I will highlight and share among peers some experiences with pursuing transdisciplinary research within the framework of the NCCR North-South programme, seen from the academic career perspective as well as from the perspective of publishing an article in a peer-reviewed journal.

The first challenge I faced was getting acceptance for transdisciplinary research from the department hosting my PhD research at the University, as this was the first time that such research was undertaken in the department. More difficulties emerged when I sent my PhD thesis for review before going for the defence. The two reviewers pointed out that disciplines overlapped in the document and that they did not know whether they had to review human science work or environmental engineering science outcomes. In addition, they were very surprised that I took into account non-academic statements in my analysis. So a meeting was initiated in the department; my supervisor and I were asked to provide some clarifications about the study before the reviewers accepted to go through the document and give their comments.

The second problem was related to article publication. The journal I targeted for an article publishes environmental science research. The first reply I received after sending my article to the identified journal was from the Editor and not from the reviewers. He emphasised that although the research was interesting I should send the article to another journal because his journal did not publish such research. He strongly advised me to carefully read the aims and scope of the journal. But at the time I did not know of a journal that published transdisciplinary work. I decided to send the article to another journal. Four months later I received the reviewers’ comments asking me to explain the transdisciplinary approach in detail and to reformulate the methodology section. This was a really time-consuming process. Fortunately, in the end the work was accepted by the journal.

## The Very Slow Publication Process of a Paper on Transdisciplinary Research

*Christian Pohl<sup>1,2</sup>, Anne Zimmermann<sup>3</sup>*

*<sup>1</sup>Institute for Environmental Decisions, Swiss Federal Institute of Technology Zurich (ETHZ), Zurich, Switzerland, <sup>2</sup>Network for Transdisciplinary Research (td-net), Swiss Academies of Arts and Sciences, Bern, Switzerland (christian.pohl@scnat.ch), <sup>3</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland (anne.zimmermann@cde.unibe.ch)*

In 2005 a group of researchers involved in the NCCR North-South programme met for a two-day workshop to outline a paper on the programme's approach to, and experiences with, transdisciplinary research. The group consisted of PhD candidates who had conducted development-oriented research in a number of countries, and several senior researchers interested in reflecting on the transdisciplinary approach in a systematic way. The aim of the workshop was to collectively develop the questions the paper should address, define the paper's structure, and think about a possible journal for the paper. Additional meetings and periods of email exchange led to the formulation of a manuscript with which all authors felt comfortable.

In February 2007 the paper was submitted for the first time; it was rejected a few weeks later with the suggestion that the manuscript would be better off targeting another journal. The paper was submitted to this new journal in March 2007 and rejected after review. The reviewers said that the paper did not add new insights and that it did "not succeed in illustrating and advocating the role of the researcher in TRSD [Transdisciplinary Research for Sustainable Development], and that the new concepts introduced, such as 'thought collectives' add[ed] very little to our understanding of the topic". Taking up the reviewers' comments and suggestions, the paper was rewritten and the analytical part was extended. The paper was then submitted to a third journal, which rejected it because it did not fit with its profile; finally, it was submitted again to a fourth journal in March 2008. The fourth journal's review required a round of major revisions, followed by an additional round of minor revisions, before the paper was accepted in January 2010. During this additional fundamental revision the theoretical part was extended, a methods section was added, and the analysis and discussion was extended again.

This presentation will analyse the process of reviewing and rewriting the paper. We will emphasise how the content and structure of the paper changed: what parts were added, what parts were removed or shortened, and what parts were relocated within the paper. We will argue that the collective learning process ended up being a distinct research project. The presentation will conclude with lessons learned and suggestions for the review-and-rewrite process of papers reflecting on transdisciplinary research.

## MRD's Editorial Policy for Publishing Transdisciplinary Work

*Susanne Wymann von Dach<sup>1</sup>, Anne Zimmermann<sup>1</sup>, Hans Hurni<sup>1</sup>*

*<sup>1</sup>Centre for Development and Environment (CDE), University of Bern, Switzerland  
(susanne.wymann@cde.unibe.ch, anne.zimmermann@cde.unibe.ch,  
hans.hurni@cde.unibe.ch)*

Publishing transdisciplinary research poses specific challenges, in particular with regard to peer-review processes. Indeed, transdisciplinary research addresses different knowledge communities – academic and non-academic – based on different value systems. No well-established set of rules exists as yet for reviewing and promoting transdisciplinary work in the science system. Based on a rich experience as journal editors, we will discuss how we have dealt with these issues in the case of Mountain Research and Development (MRD).

The mission of MRD – an international, indexed, and open-access journal – is to foster sustainable development in mountains. It aims to publish research that addresses life-world problems, enhances the dialogue between science and society, and fosters the co-production of knowledge. In addition to publishing disciplinary and interdisciplinary development-oriented work on mountains and mountain people, MRD therefore also supports the publication of transdisciplinary work.

As a journal embedded within the traditional academic publication system, MRD acknowledges that peer review is an adequate means to assess the soundness and salience of research. However, for transdisciplinary work, the peer-review process needs to take into account the value systems and rules of both science and development communities. MRD has thus formulated a set of innovative review criteria that reflect the particularities of transdisciplinary work, for example the validation of development experience and research results through stakeholders. The journal has also adapted the review process for papers that bridge the gap between science and society and offer sound “transformation knowledge”. In this presentation, we will explain and illustrate MRD's special review process and criteria for transdisciplinary work. Moreover, we will discuss some of the main challenges of communicating with reviewers and authors about the specific requirements of transdisciplinary articles. We will point out what lessons could be learned as editors, authors, and reviewers of transdisciplinary work.



### 3 Posters (not available in this light version of the reader!)

All posters presented during the ICRD 2012 are reproduced in this chapter (**NOTE: available only in the full version of the reader!**). The first section contains posters that thematically correspond to one of the ICRD 2012 parallel sessions; the second section contains posters prepared by NCCR North-South PhD students.

#### **Session-related posters**

Posters are grouped in alphabetical order of first author.

#### **NCCR North-South PhD posters**

Posters are grouped according to the three thematic nodes and 15 research projects carried out within the NCCR North-South.

Please note that some of the NCCR North-South PhD posters also correspond to one of the parallel sessions, whereas others are grouped as general research posters.

Thematic Node 1:      Institutions, livelihoods, and conflicts  
    Research projects 1–6

Thematic Node 2:      Health, services, and planning  
    Research projects 7–10

Thematic Node 3:      Natural resources, economy, and governance  
    Research projects 11–15

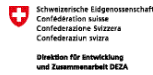
*Information:* On page 276 you will find a more detailed programme (including time and location). The full programme has been prepared as a separate booklet.

If you are looking for a specific poster, please consult the index on pages 279–292, which lists the first authors of all posters in this chapter alphabetically.



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peace

## 3<sup>rd</sup> International Conference on Research for Development Research for Global Transformation

### Programme

#### Monday 20 August 2012

From 07:30	Registration, issuing of conference documents and coffee/tea <a href="#">Room: Foyer UniS</a>					
08:30 - 10:00	<b>Plenary session, Theme 1: Tackling Global Change: Enhancing Positive and Minimising Negative Effects</b> Welcome by: Prof. Hans Hurni, Centre for Development and Environment and Director of the NCCR North-South Moderation: Berhanu Debele, NCCR North-South Regional Coordinator, Horn of Africa - Keynote: Prof. Peter Verburg, Institute for Environmental Studies, University of Amsterdam, Netherlands - Discussant: Prof. Hans Hurni, Centre for Development and Environment and Director of the NCCR North-South - Keynote: Dr. Allan Lavel, Director of the Risk Prevention Program, General Secretariat of FLACSO, Costa Rica - Discussant: Prof. Guéladio Cissé, Swiss Tropical and Public Health Institute <a href="#">Room: A 003</a>					
	Coffee/tea break					
10:30 - 12:00	Parallel workshop sessions 90'			Parallel workshop sessions 180' (to be continued in the afternoon)		
	Session 2: Bioenergy <a href="#">Room: A301</a>	Session 3: Green Economy <a href="#">Room: A 022</a>	Session 11: Highly Skilled Migrants <a href="#">Room: A 201</a>	Session 27: Impact of Knowledge <a href="#">Room: A 027</a>	Session 5: Adaptation to Climate Change <a href="#">Room: A-126</a>	Session 1: Water and Sanitation <a href="#">Room: A-122</a>
	Lunch break <a href="#">Room: Foyer UniS</a>		From 12:30 Poster session <a href="#">Room: Corridor ground-floor</a>			
13:30 - 15:00	Parallel workshop sessions 90'			Parallel workshop sessions 180' (continuation of the morning sessions)		
	Session 6: Mountain Development <a href="#">Room: A 027</a>	Session 9: Landscape Transformation <a href="#">Room: A 301</a>	Session 17: Labour Market <a href="#">Room: A 201</a>	Session 25: Showcasing Re- search Products <a href="#">Room: A 022</a>	Session 5: Adaptation to Climate Change <a href="#">Room: A-126</a>	Session 1: Water and Sanitation <a href="#">Room: A-122</a>
	Coffee/tea break					
15:30 - 17:00	<b>Plenary session, Theme 4: Enabling Research in Global Transformation: Learning from Current Experiences</b> Moderation: Dr. Peter Messerli, Director of Centre for Development and Environment, University of Bern - Keynote: Vet M.B. John Young: Director of Impact Assessment, Partnerships and RAPID, ODI, United Kingdom - Discussant: Prof. Urs Wiesmann, Centre for Development and Environment and Director of the NCCR North-South <b>Future Earth Initiative</b> - Presentation by: Dr. Christoph Ritz, Executive Director of ProClim-Forum for Climate and Global Change, Swiss Academy of Sciences - Plenary discussion <a href="#">Room: A 003</a>					

**Tuesday 21 August 2012**

08:30 - 10:00	<b>Plenary session, Theme 2: Reducing Disparity: Narrowing Regional, Social and Individual Inequalities</b> Moderation: Dr. Boniface Kiteme, Director of CETRAD and NCCR North-South Regional Coordinator, East Africa - Keynote: Dr. Abid Qaiyum Suleri, Executive Director of Sustainable Development Policy Institute, Pakistan - Discussant: Prof. Ulrike Müller-Böker, Director of Development Study Group Zurich and Member of the NCCR North-South BoD - Keynote: Dr. Shahra Razavi, Senior Research Coordinator, United Nations Research Institute for Social Development (UNRISD), Switzerland - Discussant: Dr. Bishnu Raj Upreti, NCCR North-South Regional Coordinator, South Asia <a href="#">Room: A 003</a>					
Coffee/tea break						
10:30 - 12:00	Parallel workshop sessions 90'			Parallel workshop sessions 180' (to be continued in the afternoon)		
	<b>Session 16:</b> Inequalities in Metropolis <a href="#">Room: A 027</a>	<b>Session 12:</b> Livelihood Futures <a href="#">Room: A 301</a>	<b>Session 7:</b> Land Grabbing <a href="#">Room: A 022</a>	<b>Session 23:</b> Research Partnerships <a href="#">Room: A 201</a>	<b>Session 10:</b> Beyond MDGs <a href="#">Room: A-126</a>	<b>Session 13:</b> Sanitation-Health Nexus <a href="#">Room: A-122</a>
Lunch break <a href="#">Room: Foyer UniS</a>			From 12:30 Poster session <a href="#">Room: Corridor ground-floor</a>			
13:30 - 15:00	Parallel workshop sessions 90'			Parallel workshop sessions 180' (continuation of the morning sessions)		
	<b>Session 15:</b> Society, Equity and Health <a href="#">Room: A 301</a>	<b>Session 8:</b> Water and Land Management and Governance <a href="#">Room: A 022</a>	<b>Session 24:</b> Technology Transfer <a href="#">Room: A 201</a>	<b>Session 22:</b> No session	<b>Session 10:</b> Beyond MDGs <a href="#">Room: A-126</a>	<b>Session 13:</b> Sanitation-Health Nexus <a href="#">Room: A-122</a>
Coffee/tea break						
15:30 - 17:00	<b>Plenary session, Theme 4: Enabling Research in Global Transformation: Learning from Current Experiences</b> Moderation: Prof. Thammarat Koottatep, Asian Institute of Technology, NCCR North-South Regional Coordinator, Southeast Asia - Keynote: Dr. Hassan Mshinda, Director General, Tanzania Commission for Science and Technology, Tanzania - Discussant: Prof. Marcel Tanner, Director Swiss Tropical and Public Health Institute and member of the NCCR North-South BoD					
	<b>Sustainable Development Goals</b> - Presentation by: Dr. Michael Gerber, Head of Analysis and Policy Division, Swiss Agency for Development and Cooperation - Plenary discussion <a href="#">Room: A 003</a>					
ICRD 2012 group photo <b>Reception</b> <a href="#">Room: Foyer UniS</a>						

Note: Room: A-126 is located in the basement

**Wednesday 22 August 2012**

08:30 -	<b>Plenary session, Theme 3: Enhancing Diversity: Fostering Cultural and Natural Heritage</b> Moderation: Marian Perez, NCCR North-South Regional Coordinator, Central America and the Caribbean - Keynote: Prof. Peter Edwards, Head of Department of Environmental Systems Science, ETH Zurich, Switzerland - Discussant: Christian Zurbrügg, Director of Water and Sanitation in Developing Countries (SANDEC) and Member of the NCCR North-South BoD					
10:00	- Keynote: Prof. Luis Tapia, Coordinator of the Doctoral Program on Interdisciplinary Development, CIDES, Universidad Mayor de San Andres, Bolivia - Discussant: Prof. Brigit Obrist, Institute of Social Anthropology, University of Basel <a href="#">Room: A 003</a>					
Coffee/tea break						
10:30 -	Parallel workshop sessions 90'			Parallel workshop sessions 180' (to be continued in the afternoon)		
12:00	<b>Session 29:</b> Publishing Transdisciplinary Work <a href="#">Room: A-122</a>	<b>Session 4:</b> Environmental Conflicts <a href="#">Room: A-126</a>	<b>Session 26:</b> Integrated Devel- opment Research Approach <a href="#">Room: A 027</a>	<b>Session 19:</b> Parks and Peoples <a href="#">Room: A 301</a>	<b>Session 20:</b> Bio-Cultural Diversity <a href="#">Room: A 201</a>	<b>Session 28:</b> Impact of Re- search on Policy <a href="#">Room: A 022</a>
Lunch break <a href="#">Room: Foyer UniS</a>		From 12:30 Poster session <a href="#">Room: Corridor ground-floor</a>				
13:30 -	Parallel workshop sessions 90'			Parallel workshop sessions 180' (continuation of the morning sessions)		
15:00	<b>Session 14:</b> Rural Women <a href="#">Room: A-122</a>	<b>Session 18:</b> Statebuilding vs. Peacebuilding <a href="#">Room: A-126</a>	<b>Session 21:</b> Legal Pluralism <a href="#">Room: A 027</a>	<b>Session 19:</b> Parks and Peoples <a href="#">Room: A 301</a>	<b>Session 20:</b> Bio-Cultural Diversity <a href="#">Room: A 201</a>	<b>Session 28:</b> Impact of Re- search on Policy <a href="#">Room: A 022</a>
Coffee/tea break						
15:30 -	<b>ICRD 2012 Research Agenda</b> Moderation: Prof. Hans Hurni, Centre for Development and Environment and Director of the NCCR North-South - Presentation by: Dr. Thomas Breu, Deputy Director of Centre for Development and Environment, Coordinator NCCR North-South, and Director of the IGS North-South					
17:00	<b>Panel Discussion:</b> - Prof. Bassirou Bonfoh, Director of CSRS and NCCR North-South Regional Coordinator, West Africa - Prof. Roger Jeffery, University of Edinburgh and Member of the NCCR North-South Review Panel - Dr. Michel Mordasini, Assistant Director-General and Head of the Directorate Global Cooperation, Swiss Agency for Development and Cooperation - Prof. Laurent Goetschel, Director of Swiss Peace Foundation, Member of the NCCR North-South BoD - Further panalist(s) from conference <a href="#">Room: A 003</a>					

Note: Room: A-126 is located in the basement

# Index of First Authors (Abstracts and Posters)

Abiola, Olaposi Olakunmi: <i>Implementation of mobile Lab-on-chip diagnostic device to combat Malaria and Tuberculosis in rural Africa, A case study of rural Nigeria</i>	186
Adhikari, Jagannath: <i>Everyone is Leaving – Who Will Sow Our Fields? The Effects of Migration From Khotang District to the Gulf and Malaysia</i>	97
Adhikari, Jagannath: <i>Transnational Mobility and Improving Entitlements to Food in Marginal Areas of Nepal: A Research Perspective</i>	85
Adler, Carolina: <i>Barriers and Opportunities in Promoting Sustainable Tourism as a Global Change Adaptation Strategy: A Case From Nepal</i>	43
Adu-Gyamfi, Sylvia Esther: <i>Reproductive Resilience to Teenage Pregnancy in Eastern Ghana: A Study of the Begoro Community</i>	235
Ahorlu, Collins: <i>Increasing Resilience of Adolescents in Ghana and Tanzania to Teenage Pregnancy: Factors to Consider</i>	102
Akindès, Francis: <i>State-driven Poverty Reduction in a Context of Crisis: Côte d'Ivoire Navigating Between MDG Constraints and Debt Relief</i>	75
Alca Castillo, Jamil: <i>Timbering Practices, Indigenous Communities, and Protected Areas: The Dilemmas of Inclusion and Participation</i>	125
Alluri, Rina M.: <i>The role of business in peace and conflict: A Sri Lankan perspective</i>	229
Alpízar R., Felipe: <i>Coastal Development and Marine Conservation in Harmony with the People: A Case Study from Costa Rica</i>	126
Alpízar, Felipe: <i>Water management and contentious politics in Costa Rica (1821-2010)</i>	243
Amare, Tadele: <i>Prediction of Soil Organic Carbon for Ethiopian Highlands Using Soil Spectroscopy</i>	248
Anarbekov, Oytur: <i>Irrigation Management Transfer: Questions of Sustainability of WUAs in Ferghana Valley</i>	260
Antognazza, Davide: <i>Building citizenship on skills. An applied research on peace building skills and social emotional learning skills as milestones for a positive and caring youth</i>	187
Arynova, Mira: <i>Managing Groundwater in the Agricultural Zone of the Chui Valley in Kyrgyzstan – Example of the Lower Sokuluk River Basin</i>	249
Aslanyan, Garry: <i>Stakeholder Partnerships to Enhance the Effectiveness of Health Research Capacity Strengthening: ESSENCE on Health Research</i>	148

Bächtold, Stefan: <i>Peacebuilding Evaluation: Can More “Scientific” Methods Enhance the Legitimacy of Peacebuilding?</i>	168
Backhaus, Norman: <i>Decreasing diversity through LSLA! A multifunctional view on land as antidote</i>	188
Badenkoy, Yuri: <i>New Paradigm of Sustainable Mountain Development in Times of Global Uncertainty: The Russian Experience</i>	50
Baide Muñoz, Mario: <i>From vulnerability to resilience: water and sanitation in informal peri-urban settlements in Tegucigalpa</i>	189
Bailly, Cynthia Ozoua: <i>AIDS, Power and local Governance in Northern Côte d’Ivoire</i>	227
Barker, Ian: <i>Technology Transfer in East Africa: Promoting the Uptake of Quality Seeds of New Varieties by Smallholder Farmers</i>	153
Bassan, Magalie: <i>Tools to Assist Key Stakeholders of Faecal Sludge Management in Burkina Faso</i>	158
Bauer, Stefanie: <i>Policies to Achieve Inclusive and Sustainable Growth in India</i>	33
Béchir, Mahamat: <i>Negotiating Intersectoral Services in Remote Rural Zones of Sahelian West Africa</i>	173
Berndt, Christian: <i>Making the Labour Market Work for the Poor: Pathways Towards Inclusive Development?</i>	111
Bétrisey, Florence: <i>Use of the Capability Approach to Question the Potential of PES for Poverty Reduction</i>	31
Bieri, Franziska: <i>Governing Diamonds: The Kimberley Process and the Diamond Development Initiative International</i>	36
Bikketi, Edward: <i>The Role of Social Capital in Social Learning Processes for Soil and Water Management Innovations in Kenya</i>	272
BK, Nirmal Kumar: <i>Intra-household food insecurity: gender dimension of food entitlement</i>	221
Boko, Nadège: <i>Perception of climate change’s impacts on environment and cultural practices in northern Côte d’Ivoire</i>	273
Bonfoh, Bassirou: <i>New Trends in Partnership Research in Africa</i>	149
Bottazzi, Patrick: <i>Governance of Biocultural Diversity: Theoretical Aspects, Framework, and Empirical Perspectives</i>	133
Brandt, Regine: <i>Agroforestry species of the Bolivian Andes: an integrated assessment of ecological, economic and socio-cultural plant values</i>	190
Buergi Bonanomi, Elisabeth: <i>Is the (Incoherent) International Legal Framework Driving Large-scale Land Acquisitions?</i>	55
Bui-Huy, Tung: <i>Assessing health risk due to exposure to arsenic in drinking water in a rural setting in Hanam, Vietnam</i>	191

Calvo Salazar, Cindy: <i>Sustainable environmental sanitation from a resilience perspective: the case of Costa Rica</i>	244
Casarotto, Claudia: <i>A Half-empty Bucket: Women's Role in the Governance of Water Resources in Zambia</i>	62
Chenal, Jérôme: <i>Learning from African Cities</i>	107
Ciftci, Hatice Damla: <i>Can Market Actors Help Solve Environmental Problems?</i>	32
Cissé, Guéladio: <i>Key Global Challenges in Water and Sanitation from the Perspective of the Swiss National Centre of Competence in Research (NCCR) North-South</i>	15
Conradin, Katharina: <i>World Heritage – Protection vs. Promotion?</i>	261
Contzen, Nadja: <i>Factors Determining the Effectiveness of Public Health Promotion Approaches to the Earthquake and Cholera Outbreak in Haiti</i>	192
Contzen, Sandra: <i>Participation of Local Poor in the Implementation of the Honduran Poverty Reduction Strategy (Linked to MDGs)</i>	76
Cvetinovic, Marija: <i>Urban Development - Step into the Process!</i>	193
Das, Bidhan Kanti: <i>Are We Really Interested in Preserving Bio-resources? Observations From an "Eco-development Project" in a National Park of India</i>	127
Davis, Kristin: <i>The New Extensionist: Going Beyond Technology Transfer</i>	154
de Morsier, Guillaume: <i>Design Tools for Sustainable Social Housing Development in Fast-growing Southern Mediterranean Cities</i>	108
Díaz-Carrión, Isis Arlene: <i>Women Empowerment through Conservation in Reserva de la Biosfera de los Tuxtlas (Veracruz, Mexico)</i>	194
Dimoso, Provident: <i>Poverty and Access to Primary Education in Tanzania</i>	267
Dongo, Kouassi: <i>Exploring Experience With Promoting and Publishing Transdisciplinary Work: A Case Study from the NCCR North South</i>	182
Dongo, Kouassi: <i>Productive sanitation: Conversion of urban waste into business opportunity and food security in Côte d'Ivoire</i>	195
Drucker, Adam: <i>The PACS Study: What Kinds of Incentives Can Encourage Agrobiodiversity Conservation?</i>	131
Dwyer, Michael B.: <i>The Uneven Geography of Property Formalisation in Southeast Asia: Some Lessons From Laos and Cambodia</i>	56
Dzhumabaeva, Salamat: <i>Capacity building of water users on climate change risk management in Kyrgyz communities</i>	196
Edwards, Peter: <i>Biodiversity, Self-organisation, and Sustainability</i>	122
Ehrensperger, Albrecht: <i>National and Local Perspectives on the Impacts of Biofuels on Food Security in Kenya</i>	26
Ehrensperger, Albrecht: <i>Pathways to Sustainable Bioenergy</i>	25

Ellis, Karen: <i>Green Growth and Poverty Reduction</i>	30
Ershova, Natalia: <i>Assessment of Water Resources in On-Orcha and Jergital River Basins for Sustainable Water Use</i>	197
Faye, Papa: <i>Negotiating Forestry Management: The Role of Local Conventions in Domination and Resistance Strategies in Senegal</i>	141
Ferdissa, Demissie: <i>Decentralization and ‘negotiating statehood’ in urban Ethiopia</i>	228
Fessehaye, Mussie: <i>Testing Fog-Water Collection along the Eastern Escarpment of Eritrea</i>	198
Fokou, Gilbert: <i>Climate Variability, Institutional Dynamics, and Resource-use Conflicts in the Sahel–Coastal Context of West Africa</i>	37
Fokou, Gilbert: <i>Environmental Conflicts Revisited: Institutional Change, Natural Resource Use and Conflicts</i>	35
Fokou, Gilbert: <i>Strategies of Local Resource Users and the Paradox of State Control and Democratisation in North Cameroon</i>	142
Freytes Frey, Ada: <i>Employment Policies for Poor Youth: The Need for Multidimensional Interventions</i>	112
Freytes Frey, Ada: <i>Growing up amidst the garbage: the construction of youth identities in Reconquista Area</i>	275
Frolova, Galina: <i>Research of Morfometric Characteristic for Sustainable Water Management in the Kugart River Basin</i>	199
Gambon, Helen: <i>Bottom-up Institution Building Initiatives for Sustainable Land Governance</i>	262
Gareeva, Aida: <i>Management of Conflicts over Pasture Resources in Kyrgyzstan</i>	38
Garrard, Rodney: <i>Landscape dynamics in Sagarmatha (Mount Everest) National Park, Nepal</i>	200
Geiser, Urs: <i>Beyond the MDGs: Rethinking State Involvement in Poverty Reduction and Development</i>	74
Gerritsen, Peter R.W.: <i>Constructing Sustainable Development from the Locality: The Experience of the Network for Sustainable Agricultural Alternatives in Western Mexico</i>	134
Ghimire, Anita: <i>Highly Skilled Return Migrants: Enhancing Positive Effects</i>	79
Giger, Markus: <i>The State of Large-scale Land Acquisitions in the “Global South”</i>	57
Giuliani, Alessandra: <i>Integrating Political, Economic, Educational and Sociocultural Processes in an Ecosystemic Model of Culture</i>	135
Gmünder, Simon: <i>Jatropha: Green Gold? Life Cycle Assessment of Different Jatropha Bioenergy Systems in Eastern Africa</i>	27



Goetschel, Laurent: <i>The Transfer of Knowledge Into Policy: Challenges in the Field of Peacebuilding</i>	169
Goetschel, Laurent: <i>When Does Knowledge Have an Impact? The Interaction of “Science” and “Policy” in Development and Peacebuilding</i>	167
Gracheva, Raisa: <i>Transformation of Human–Environment Systems in the Rural Mountain Regions of the Caucasus (Russia and Georgia)</i>	51
Gross, Karin: <i>Society, Equity, and Health: At the Intersection of Public Health, Social Sciences, and Development</i>	103
Grünenfelder, Julia: <i>Discourses of Gender Identities and Gender Roles in Pakistan: Women and Non-domestic Work in Political Representations</i>	113
Günther, Isabel: <i>Demand for Sanitation Among Urban Poor</i>	90
Gurung, Ghana Shyam: <i>Gold Standard Biogas VER Project: Renewables for Improved Livelihoods and Conservation</i>	28
Gurung, Rajya Laxmi: <i>Private Sector in Conflict Context: A Nepalese Experience</i>	230
Haller, Tobias: <i>Legal Pluralism and Transformations of the Commons: Lessons for New Bottom-up Institutional Designs</i>	140
Haller, Tobias: <i>Pulling Down Fences, Crafting New Rules: Resource Governance, Resistance, and Opportunities in Zambia’s Kafue Flats</i>	143
Hashia, Haseena: <i>Rural Women and Food Security in India: Contribution and Constraints</i>	86
Hatcher, Craig: <i>Uncovering law’s hidden spatialities: mobility restrictions in Kyrgyzstan</i>	224
Heinimann, Andreas: <i>Multiple Claims to Land Resources in the Lao PDR: Issues of Lacking Cross-sectoral Spatial Planning</i>	68
Hellmüller, Sara: <i>Bridging the Gap – Examining Local Dimensions of International Peacebuilding in the DR Congo</i>	231
Hellmüller, Sara: <i>Bridging the Perspective Gap: How Perceptions Influence Cooperation Between Local and International Peacebuilding</i>	117
Hergarten, Christian: <i>A Framework for Rapid Soil Organic Carbon Assessment</i>	250
Horst, Alexandra: <i>Demand for Sanitation Among Urban Poor</i>	90
Huber, Alexandra C.: <i>Evidence-based Behaviour Change Interventions: Increasing Safe Water Consumption in Rural Ethiopia - water in rural Ethiopia</i>	21
Hurni, Kaspar: <i>Detecting Landscapes Dominated by Shifting Cultivation at Different Scales in the Lao PDR</i>	255
Inauen, Jennifer: <i>Behaviour Change Techniques to Enhance Arsenic-safe Water Consumption in Bangladesh</i>	22
Jacobi, Johanna: <i>Cultivation at Different Scales in the Lao PDR</i>	263

Jean-Richard, Vreni: <i>Demographic and health assessment of mobile populations and their livestock in Lake Chad area</i>	247
Jeffery, Roger: <i>Situating Evidence in Public Health Interventions: Experiences from India, Nepal, and Sri Lanka</i>	105
Jiménez Zamora, Elizabeth: <i>Climate Change and Adaptation in the Bolivian Highlands</i>	44
Juarez, Norma Helen: <i>Multifunctional Farming Systems and Organic Food Production for Regional Markets in Western Mexico</i>	264
Kaba, Mirgissa: <i>Tapping Local resources for HIV prevention among the Borana pastoral community</i>	201
Kappel, Rolf: <i>Can Foreign Direct Investment in Agriculture Save Us From High Food Prices?</i>	58
Kasymov, Ulan: <i>Designing institutions regulating pasture use in Kyrgyzstan</i>	202
Kengne, Ives M.: <i>Biosolids Recovery from Planted Faecal Sludge Drying Beds: Agronomic and Safety Considerations</i>	91
Kengne, Ives M.: <i>Groundwater Quality and Students' Health Status in Residential Areas of Bonamoussadi, Yaoundé (Cameroon)</i>	17
Khan, Talimand: <i>Strengthening Trust among Stakeholders Through Mediated Dialogues for Effective Forest Governance in Northwest Pakistan</i>	174
Kinoti, Jeniffer: <i>Water Use Conflicts in the Mount Kenya Region: Understanding the Spatial and Thematic Dimensions for Effective Interventions</i>	63
Kipruto, Samuel: <i>Household Welfare Impacts on Access to Health Services in Rural Kenya</i>	269
Kohler, Thomas: <i>Global Megatrends: Threats and Opportunities for Mountain Development</i>	49
Koné, Brama: <i>Climatic Variability, the Population's Epidemiological Profile, and Risk Factors in Korhogo, Northern Côte d'Ivoire</i>	45
Koné, Gnangadjomon: <i>Mobilisation for Political Violence: Who Joins Pro-governmental Militias and Why?</i>	118
Koottatep, Thammarat: <i>Vulnerability and Capacity to Adapt Water Supply Facilities to Climate Change in Developing Countries</i>	18
Kothari, Pragya: <i>Policies to Achieve Inclusive and Sustainable Growth in India</i>	33
Kouamé, Yao Séverin: <i>The Water War in the CNO Zone of Côte d'Ivoire: When a Public Good Becomes a Weapon of War</i>	119
Kudryavtseva, Anisiya: <i>Analytical water governance framework (based on example of irrigation system in Khorezm, Uzbekistan)</i>	202

Kumar, Awanish: <i>Agrarian Change, Dalits and Social Movements: A Study in Maharashtra, India</i>	216
Lanz, Kristina: <i>Effects of Global and National Policies on Rural Women's Livelihoods and Agency</i>	96
Larsen, Peter Bille: <i>Reconciling Cultural Diversity and Biodiversity: Assessing the Role of Communal Reserves, Community Conservation, and Other Models</i>	124
Larsen, Peter: <i>Reserva Comunal Yanasha: Lessons About Cultural and Biological Diversity in the Peruvian Amazon</i>	128
Lavell, Allan: <i>20 Years of Influencing Disaster Risk Research and Management: LA RED in Latin America</i>	150
Lavell, Allan: <i>Climate Change: Disaster Risk Management and Adaptation for Enhancing Sustainability and Reducing Negative Impacts</i>	14
Lichtkoppler-Moser, Julia: <i>Appearing to work? A half-time report of the Austrian Partnership Programme in Higher Education and Research for Development</i>	204
Lieberherr, Silva: <i>Agrarian crisis and mobilization: tracking a social movement in India</i>	217
Liu, Ning: <i>Articulating Urban Mobility, Public Equipment, and User Expectations in a Developing Metropolis</i>	109
Liu, Ning: <i>Going Beyond Basic Needs: New Opportunities to Reduce Inequalities in the Metropolises of the Global South</i>	106
Lognon, Jean Louis: <i>Economic Crisis, Resilience, and the Informal Sector: An Analysis of Barriers to the Creation of Decent Jobs</i>	114
Luqman, Muhammad: <i>Rural Development Visions and Practices of Culturally Rooted Social Movements in North-West Pakistan</i>	218
Lüthi, Christoph: <i>Are Multi-stakeholder Processes in Poor Urban Communities Effective? Some Evidence From the Field</i>	175
Lys, Jon-Andri: <i>What Makes Development-oriented Research Partnerships Effective? Looking Back to Move Forward</i>	147
Maharjan, Kiran: <i>Biocultural Diversity in Kathmandu Valley: Interrelations Between Governance and Development of World Heritage Sites</i>	136
Mathez-Stiefel, Sarah-Lan: <i>Dialogue between Local and Global Knowledge Systems: A Means of Facing Two Conceptual Risks of Biocultural Diversity</i>	137
Maurin, Clémence: <i>Building Public-Private Partnerships in Developing Countries to Develop Sustainable Solutions to Reduce Malnutrition</i>	155
Mbeyale, Gimbage Ernest: <i>Food Insecurity and Coping Strategies in Resource-poor Semi-arid Lowlands in the Pangani River Basin, Same District, Tanzania</i>	87

Mekuriaw, Asnake: <i>Evaluating the Extent and Efficiency of Soil and Water Conservation Structures in the Ethiopian Highlands</i>	256
Messerli, Peter: <i>Large-scale Land Acquisitions in the Global South: Towards a Research Agenda for the Coming Years</i>	54
Messerli, Peter: <i>Public Development Interventions in Lao PDR: Based on Contextual Evidence or Serving Globalised Agendas?</i>	170
Meyer, Werner Paul: <i>Environmentally Friendly and Affordable Rural Transportation: An Important Basis for Sustainable Mountain Development – Examples From Nepal</i>	52
Michel, Claudia: <i>The Impact of Research on Policy: The Case of Stakeholder Dialogues in Development-oriented Research</i>	172
Mishra Panda, Smita: <i>New Economic Policies and Social Transformation: Tribal Women in Rural Odisha, India</i>	98
Mogaka, Violet: <i>Assessing the Drivers of Jatropha Adoption in Kenya and Its Contribution Towards Improving Rural Livelihoods</i>	29
Mohammad, Saleem: <i>Conservation of Indigenous Animal Genetic Resources and Adaptation to Climate Change in the Hindu Kush Mountains</i>	47
Monterrubio-Solis, Constanza: <i>Participatory Conservation in Practice: Power Dynamics in a Mexican Indigenous Community Conservation Area</i>	129
Morvant-Roux, Solène: <i>Labour Arrangements and Financial Inclusion of Agricultural Workers in a Dynamic Agricultural Region in Mexico</i>	115
Mosler, Hans-Joachim: <i>A Systematic Approach to Behaviour Change</i>	23
Mosler, Hans-Joachim: <i>Determining and Evaluating Behaviour Change Techniques in the Water, Sanitation, and Hygiene Sector</i>	16
Mulugeta, Alemmaya: <i>Discursive Space on Environmental Conflicts in Ethiopia: Does It Exist?</i>	39
Munishi, Emmanuel: <i>Rural Urban Migration and Resilience of Maasai Pastoralist Youths in Tanzania</i>	236
Musyoki, Agnes: <i>Women in Rural Development in South Africa: Facing the Realities of a Changing Socio-political Environment</i>	99
Nagabhatla, Nidhi: <i>Socialising the Pixels: Demonstrating the Application of Geospatial Tools for Socioecological Research – The Case of Wayanad</i>	69
Nazarkulova, Ainura: <i>A Collaboration Platform for Development Research and Implementation</i>	205
Nazarmavloev, Farrukh: <i>A Soil Spectroscopy Library and its Application for Soil Fertility Assessments on Agricultural Lands of Tajikistan</i>	251
Nepali, Purna B.: <i>Land Acquisition Dynamics in Nepal: Actors, Process, and Effects</i>	59

Ngatia, Lucy W.: <i>Ecosystem Services: Quantification of Nutrients Production by Selected Large Herbivores in Laikipia, Kenya</i>	252
N'guessan, Tenguel Sosthène: <i>Fight against TB and AIDS: representations and equity in health interventions in West Africa</i>	206
Nguyen-Viet, Hung: <i>Interdisciplinary Research on Environmental Sanitation and Health: Conceptual Framework Development and Field Test</i>	163
Nguyen-Viet, Hung: <i>Microbial Risk Assessment in Vietnam: Translating Research and Training Into Policy</i>	159
Nguyen-Viet, Hung: <i>Quantitative Microbial Risk Assessment (QMRA): research status and future development</i>	207
Nicolay, Gian Linard: <i>Production of Innovations within Farmer–Researcher Associations Applying Transdisciplinary Research Principles</i>	164
Oberlack, Christoph: <i>Overcoming Local Adaptation Barriers through International Agreements? Modes and Challenges under the UNFCCC</i>	46
Obrist, Brigit: <i>Social Equity and Resilience for Health: Towards Research as Development</i>	101
Ogada, Mordecai Owidi: <i>The Role of the Human Dimension in African Conservation</i>	130
Ogalleh, Sarah Ayeri: <i>Integrating Farmers into Development and Implementation of Climate Change Interventions: Experiences from Kenya</i>	271
Oikeh, Sylvester O.: <i>A Model of Public–Private Partnership for Developing Water-Efficient Maize for Africa</i>	156
Panuvatvanich, Atitaya: <i>Coupling Ecological Reuse Systems With Health Risks Determination: An Innovative Approach to Sanitation</i>	92
Parfait, Kouame Koffi: <i>Integrated planning of environmental sanitation management to mitigate urban waste syndromes in Yamoussoukro, Côte d'Ivoire</i>	239
Péclard, Didier: <i>Statebuilding Versus Peacebuilding? The Construction of Political Legitimacy in Fragile and (Post-)Conflict Contexts</i>	116
Pfeiffer, Constanze: <i>“We Have a Lot to Tell You!” Bridging the Gap Between Youth and Decision-makers</i>	176
Pfeiffer, Constanze: <i>Showcasing Research Products</i>	157
Pham-Duc, Phuc: <i>Health Risks Associated With the Use of Wastewater and Excreta in Agriculture in Northern Vietnam</i>	93
Pirie, Gordon: <i>Second-wave Urbanisation: Mobilising African Discourses</i>	110
Pohl, Christian: <i>The Very Slow Publication Process of a Paper on Transdisciplinary Research</i>	183
Portner, Brigitte: <i>Biofuel Production: Linking Global Discourses to National Policies and Local Realities</i>	274

Posluschny-Treuner, Myra: <i>International Large-scale Land Acquisitions: Agricultural Modernisation and the Fight against Poverty in Ethiopia</i>	40
Posluschny-Treuner, Myra: <i>Land grabbing or an essential move towards development? A case study of Ethiopia</i>	226
Primasari, Nova: <i>Dynamics of Land Use and Stakes in Peatlands of Riau Province, Indonesia</i>	257
Providoli, Isabelle: <i>Water and Land Management and Governance</i>	61
Qadamov, Aslam: <i>Wind Erosion Effect on “Protected” and “Unprotected” Areas in Ishkashim, Tajikistan</i>	253
Rabevohitra Ravaoharisoa, Marie Victoire: <i>Protection of the ecosystems and fight against poverty in Madagascar</i>	208
Rahim, Inam: <i>Conservation of Indigenous Animal Genetic Resources and Adaptation to Climate Change in the Hindu Kush Mountains</i>	47
Rahim, Inam: <i>Land-tenure and Conservation Initiatives: A Critical View of Sectoral Approaches in Northern Pakistan</i>	165
Rahman, Md-Mamunur: <i>Engendering Analysis of the Global Value Chain in the Bangladeshi Garment Sector: Enhancing or Undermining Women’s Agency?</i>	100
Rana Muhammad, Amir: <i>Food security and livelihood futures in the resource scarce highlands of Pakistan</i>	223
Razavi, Shakra: <i>The Challenge of Multiple Inequalities and Transformative Social Change</i>	73
Rist, Stephan: <i>From the Margins to the Centre: Transforming State–Society Relations in Bolivia and How This Impacts on MDGs</i>	77
Rist, Stephan: <i>Governance of Biocultural Diversity: Challenges in Integrating Sociocultural and Ecological Processes in Sustainable Development</i>	132
Roden, Paul: <i>Socio-political Change and Development Interventions in Laikipia County, Kenya</i>	270
Roncal, Patricia: <i>Living Well (“Vivir Bien”): An Alternative to Development</i>	138
Roosta, Manigeh: <i>Towards Implementation of Integrated Development Research in Elaborating Copacabana Local Diagnosis</i>	166
Rueff, Henri: <i>Sustainable Land Management and Carbon Finance: A Case Study with Mobile Pastoralists in Pakistan’s Himalayas</i>	48
Ruppen, Sebastian: <i>A Systemic Biomass Management Analysis of Small-Scale Farmers in the Hill-Zone of Western Tajikistan</i>	209
Safarov, Hasan: <i>Assessing soil erosion using radionuclide Cs137 techniques in the Bodomo watershed, Tajikistan</i>	254

Salamanca, Luis Alberto: <i>Disaster, Gender, and Inequality in the City of La Paz, Bolivia</i>	177
Salmi, Annika: <i>Biofuel Production: Linking Global Discourses to National Policies and Local Realities</i>	274
Samanchina, Jarkyn: <i>The Influence of Educational Migration on the Development of Inter-state Relations between Kyrgyzstan and Turkey</i>	80
Samanchina, Jarkyn: <i>Will Kyrgyz Students in Turkey Return to Kyrgyzstan?</i>	225
Sambaiga, Richard F.: <i>Adolescents, Sex and the City in Southern Tanzania</i>	237
Sambaiga, Richard: <i>Voices of Youth on Teenage Pregnancy</i>	160
Sanchez R., Magaly: <i>Highly Skilled Professionals, Diversity, and International Migration</i>	81
Sapkota, Mahendra: <i>Rise of Ethnic Movements and Contested Rural Development in Nepal</i>	219
Schmitt, Vincent: <i>Urban sanitation: Entrepreneurships among the urban poor for waste recycling in Patancheru, AP, India</i>	210
Schnabel, Albrecht: <i>Security Sector Reform as a Development Instrument: Bridging State-building and Peacebuilding Objectives</i>	120
Schönweger, Oliver: <i>Assessing Key Factors and Reciprocal Processes Shaping Large-scale Land Acquisitions in Laos and Cambodia</i>	258
Schönweger, Oliver: <i>Large-scale Land Acquisitions in Lao PDR: Beyond Anecdotal Evidence</i>	60
Schwärzler, Patricia: <i>Dynamics of social relations and sexual practices in the context of HIV/AIDS in Ouagadougou, Burkina Faso</i>	238
Schwilch, Gudrun: <i>Desire for Greener Land: A Process for Effective Desertification Mitigation based on Sustainable Land Management</i>	64
Ser Huay Lee, Janice: <i>Environmental and Socio-economic Trade-offs from Smallholder Oil Palm Expansion in Indonesia</i>	70
Shabdalov, Alisher: <i>Improved Governance of Rangelands in the Western Pamirs: Implications for Common Property Management of Scarce Pasture Resources in the Mountain Regions</i>	265
Shahbaz, Babar: <i>Livelihood Futures in Resource-scarce Regions: How Will Food Entitlement Improve?</i>	84
Sharma, Sagar Raj: <i>Emerging Livelihood Trends in Resource-scarce Areas: Evidence From the Far-western Region of Nepal</i>	88
Sharma, Sagar Raj: <i>Nepal's Development Beyond the MDGs: Who Is to Take the Lead?</i>	78
Sharma, Sagar Raj: <i>Who Needs Research? Challenges of Linking Research With Policy in Unstable States</i>	178

Sherpa, Ang Rita: <i>Community-Based Tourism, Regional Development, and Preservation: The Case of Sagarmatha (Everest) National Park, Nepal</i>	53
Sherpa, Mingma G.: <i>Scaling Up Action Research Outcomes: The Household-Centred Environmental Sanitation (HCES) Approach in a Case Study From Nepal</i>	94
Shigaeva, Zhyldyz: <i>Research on Sustainable Land Management in the Mountain Regions of Central Asia: A Review of Literature from the Last 20 Years</i>	65
Sigdel, Tulasi Sharan: <i>Cultural Politics of Governance: Democratic Practices and State-building in Post-conflict Rural Nepal</i>	121
Sigdel, Tulasi Sharan: <i>Democratic Transition: Cultural Politics of Governance in Nepal</i>	220
Sigdel, Tulasi Sharan: <i>Governance of Biocultural Diversity: Local People's Involvement in Resource Governance in Nepal</i>	139
Silué, Bétio: <i>Equitable Access to Water in Multi-water Supply Systems of Bouaké, Côte d'Ivoire</i>	19
Soh Kengne, Ebenezer: <i>Performances of Constructed Wetlands in the Treatment of Leachate from faecal sludge dewatering beds: effect of Hydraulic Load</i>	240
Speranza, Chinwe Ifejika: <i>Adaptation to Climate Change: Actors, Resources, and Livelihoods</i>	42
Suarez, Patricia: <i>Patterns and Trends of Migration in the Andean Region From a Gender and a Public Policy Perspective: The Case of Bolivia</i>	82
Suleri, Abid Qaiyum: <i>Development in a Changing World: Security Breeds Security</i>	72
Surinkul, Nawatch: <i>Application of PFA-QMRA tool for preventive environmental sanitation: Case study in Klong Luang</i>	211
Sy, Ibrahima: <i>Services Access, Health, and Well-being in an Urban Context: Addressing the Complexity of Social and Health Disparities in Nouakchott, Mauritania</i>	104
Sy, Ibrahima: <i>Wastewater and Health in Urban–Rural Interfaces: Case Studies in West Africa and Southeast Asia</i>	20
Tapia, Luis: <i>Interdisciplinarity and Interculturality</i>	123
Taweesan, Achara: <i>Local Governance for Improving Municipal Solid Waste Management in Thailand</i>	245
Tejada, Gabriela: <i>Transferring Skills upon Return: Matching Experiences and Aspirations in the Host Countries with Reality back in India</i>	83
Temper, Leah: <i>Multiple Users, Legal Pluralism, and Global Interests: “Land Grabbing” Processes and Local Strategies in Kenya's Tana River Delta</i>	144



Thanichanon, Puwadej: <i>Effects of Market Integration on Land Use and Welfare in Xayaburi, Lao PDR</i>	259
Thiam, Djiby Racine: <i>An Institutional Framework for Sustainable Management of Forest Resources in Developing Countries</i>	41
Thieme, Susan: <i>“Action”: Publishing Research Results in Films</i>	161
Tran Thi Tuyet, Hanh: <i>Dioxin exposure risk assessment and the sustainability of public health intervention at dioxin hot spots in Vietnam</i>	241
Traoré, Doulo: <i>Water, Environment, and Health in an Urban Ecosystem: A Geographical Approach to Nouakchott in Mauritania</i>	268
Tsama, Valerie: <i>Irrigation of lettuce with waste water contaminated by faecal sludge: case study of Avo’o river (Yaounde – Cameroon)</i>	212
Tumwebaze, Innocent K.: <i>Developing Behaviour Change Techniques Targeting Cleaning by Users of Shared Toilets in Kampala Slums</i>	24
Tumwebaze, Innocent K.: <i>Sanitation challenge in Kampala slums and intervening factors</i>	246
Udalagama, Tharindi: <i>Situating Evidence in Public Health Interventions: Experiences from India, Nepal, and Sri Lanka</i>	105
Upreti, Bishnu Raj: <i>Opportunities and Challenges of North-South Research Partnerships</i>	151
Van Minh, Hoang: <i>Assessing Willingness to Pay for Constructing Septic Tanks in Rural Vietnam</i>	95
Vanderschuren, Hervé: <i>Advances and Constraints in North–South Technology Transfer and Delivery</i>	152
Verburg, Peter H.: <i>Transformation of Landscapes at the Interface of Global and Local Processes of Environmental Change</i>	12
Vergara, Cristian: <i>Implementation of the REDD+ Scheme – An Evaluation Based on a Multi-Criteria Framework</i>	266
Vu Van, Tu: <i>Excreta storage options and helminth egg die-off: an experiment in Vietnam</i>	242
Vu Van, Tu: <i>Measuring awareness and perceptions: using Protection Motivation Theory framework in Vietnam</i>	213
Wueller, Gabriela: <i>The Role of Stakeholder Involvement in Policy-relevant Research Contributions to Sustainable Development</i>	179
Wymann von Dach, Susanne: <i>MRD’s Editorial Policy for Publishing Transdisciplinary Work</i>	184
Xiaolin, Wang: <i>Emerging Lessons From China on Policies to Promote Green and Inclusive Growth</i>	34

Yiheneu, G.Selassie: <i>Effect of Toposequence and Terraces on Selected Soil Attributes and Crop Performance at Anjeni, Central Highlands of Ethiopia</i>	214
Young, John: <i>Maximising the Impact of Research for Development: The Challenge and Possible Solutions</i>	145
Zelege, Gete: <i>Landscape Transformation: Changing Services of Land in a Globalised World</i>	67
Zelege, Gete: <i>The Changing Environment: Spatiotemporal Analysis of Landscape Transformation Along Major Development Axes in Ethiopia</i>	71
Zelege, Gete: <i>Transboundary Implications of Land Degradation and Management in the Ethiopian Highlands: An Overlooked Issue in the Age-old Nile Debate</i>	66
Zhou, Yuan: <i>The PACS Study: What Kinds of Incentives Can Encourage Agrobiodiversity Conservation?</i>	131
Zimmermann, Anne: <i>How to Get Transdisciplinary Work in a North–South Context Published: Learning From Experiences</i>	180
Zimmermann, Anne: <i>MRD: a journal that fosters sustainable mountain development</i>	215
Zingerli, Claudia: <i>Science Meets Practice: Getting Ready for Fruitful Knowledge Sharing Between Researchers and Stakeholders</i>	171
Zinsstag, Jakob: <i>Towards an Integrated Development Research Approach</i>	162
Zurbrugg, Christian: <i>The Sanitation–Health Nexus</i>	89



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The recent Rio+20 United Nations Conference on Sustainable Development (UNCSD) has reaffirmed that sustainable development cannot be achieved exclusively by technical, regulatory, or financial means. Dealing with the challenges and complexities of global change and sustainable development requires sound development-oriented knowledge and innovation. Only on this foundation, combined with evidence-based negotiations and decisions involving multiple stakeholders from local to global levels, can global transformation become a reality.

The 3rd International Conference on Research for Development (ICRD 2012) – organised by the Swiss National Centre of Competence in Research (NCCR) North-South – will bring together more than 300 researchers and representatives from development agencies, civil-society organisations, and the private sector. The objectives of the ICRD 2012 are to share the most recent insights on development-oriented research conducted in North-South partnerships and to outline an agenda for research partnerships with developing and transition countries in support of equitable and sustainable global transformation. The present pre-conference proceedings contain abstracts of all keynote speeches and presentations to be given at the conference, along with the conference programme and an overview of sessions and presentations.

The NCCR North-South Dialogue Series presents reflections on research topics of concern to programme members throughout the world.

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