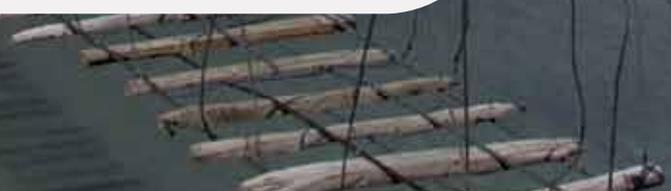




In focus: water and environment in a mobile world

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Editorial: Migration and mobility are making our world more complex

The year 2015 was still young when the deadly attack on the French satirical magazine *Charlie Hebdo* continued a series of events that has been keeping the world in turmoil. The conflict over the political border between Russia and Ukraine or the activities of the 'Islamic State' in Iraq and Syria show the relevancy of ZEF's research on mobility and migration. The mobility of people, goods, ideas and even viruses inherently questions political borders and socio-cultural, ethnicity and religion-based boundaries. The events in Paris and the worldwide reactions to them in the form of demonstrations for press freedom illustrate how powerful symbols can be in guiding human action. Looking at West Africa, the outbreak of the Ebola virus shows how a virus spreading along the main geographical and social transport routes and nodes can redefine a world region through its mobility – Western Africa becoming 'the Ebola region'. In line with research both at ZEF and within the competence network of Crossroads Asia, such events indicate that some of the geographically fixed categories in

which our world operates, are becoming increasingly characterized by degrees of dynamism that no longer justify a division of the world into territorially fixed units. Ebola, regional Jihadism, just as much as the value of freedom of speech and press do not stop at political borders. Instead, migration flows and the mobility of ideas make our world more complex – and the call for interdisciplinary and transdisciplinary research as practiced at ZEF becomes even more pressing.



Anna-Katharina Hornidge
Director of ZEF's Department of
Political and Cultural Change (until
April 30, 2015)

Crossroads Studies: From spatial containers to studying the mobile world

The question of how to conduct research in and about non-'Western' regions and places in the 21st century is currently being discussed by international academics working in the field of Area Studies as well as by social scientists. Area Studies represents the classical academic so-called container-approach, which regards areas as territorially fixed units with certain cultural characteristics. This approach is still common in German academic teaching and research today. Yet, the areas studied are not territorially fixed units. Instead, they are characterized by an increase in exchanges of people, goods and ideas, as well as by the infusion of alternative images of reality.

Crossing academic boundaries

The competence network Crossroads Asia aims to scrutinize these conventional concepts of space – by focusing on 'Central' and 'South Asia'. "The classical Area Studies approach considered regions as closed entities", Professor Gudrun Lachenmann of Bielefeld University explained in an interview given during a Crossroads Asia Conference in Bonn in November 2014. "The new approach, as practiced within the Crossroads Asia Competence Network, considers areas as part of a globalization process. Global factors

have become so dominant that the traditional way of looking at regions became kind of illegitimate". The increasing mobility of people, goods, and ideas along Asia's crossroads does not justify a division into territorially fixed areas as containers. Instead, a conceptualization of area that takes new dynamisms into account is required. And this is exactly what the competence network Crossroads Asia intends to do. With the broader aim of rethinking conventional Area Studies approaches, the network brings Area Studies' expertise from Central, South Asian and Iranian Studies together with social sciences and humanities, namely geography, political sciences, sociology, linguistics, social anthropology, and history.

Mobile new world

"Research within the competence network of Crossroads Asia draws on the idea of different types of mobility and immobility, and thus of boundary-strengthening and –weakening practices", says Anna-Katharina Hornidge, member of the Crossroads Executive Board and former scientific coordinator. "Interconnections, and the multi-scalar flows of goods, ideas, people, but also belief systems, demand innovative approaches to understand global, regional and local phenomena", she adds. "Thus, we are not only interested in political and territorially-fixed borders and boundaries but just as much in socio-cultural, ethnicity and religion-based boundaries and the social, cognitive and geographic mobilities that do not only transgress these but scrutinize the existing patterns of social organization", concludes Hornidge.

As areas are no longer restricted entities, different types of borders and boundaries are negotiated, take





The increasing mobility of people, goods, and ideas along Asia's crossroads does not justify a division into territorially fixed areas as containers anymore.

Picture by
Andreas Benz.

shape, come into being or are again deconstructed. This certainly applies to the classical world regions identified after the Second World War such as Central Asia and South Asia. Moreover, global events additionally infringe upon the sovereignty of nation states and their possibilities to act as territorially fixed entities. Ebola and Jihadism do not stop at borders.

From theory to practice: examples of Crossroads research

Crossroads Asia's research so far has resulted in possible stepping-stone concepts, what Robert Merton calls mid-range concepts. One example is the concept of the 'Kashmir space' (Mato Bouzas 2012). It assesses how Kashmir as a specific space draws considerably on boundary-strengthening processes. These are linked to feelings of belonging (and the lack of it) that also explain the cultural and social heterogeneity of Kashmir as assessed in Skardu, a border town located in Gilgit-Baltistan. Here, the dichotomy of being in a certain place and at the same time feeling one belongs to another place is unveiled. Another research example is the concept of 'linguistic conflictuality' (Rzehak 2013). This Crossroads study about the languages of Dari and Pashto contributes to the fields of linguistics of communication and functional grammar. Linguistic conflictuality poses that language reflects conflicts as an aspect of social action and interaction. We see that language transcends physical borders and the margins of traditional communities of speech: for example when the BBC service in Pashto coins neologisms that find currency in both Afghanistan and Pakistan.

Positionality

Rethinking Area Studies requires a reflection of global and national knowledge structures. It facilitates and determines what type of and whose knowledge is heard, from academic disciplinary to interdisciplinary knowledge production, as well as our own researcher's position in reaffirming or changing existing epistemologies. How do the theories and methods, which largely originate from western and northern empirical contexts while claiming to be of universal value, influence how we approach our research objects and subjects? How are we ourselves shaped by our disciplinary and Area Studies backgrounds, by our own socio-cultural background and ethnic origin, our sex, age, position within the academic sector, etc.?

Outlook

The bundling of conceptual, methodological and epistemological considerations under the notion of Crossroads Studies as a program for research and teaching is not intended to lead away from areas. It focuses rather on the dynamics and (im-)mobile elements that determine the social and communicative construction of spatial realities. Moreover, it underlines how the (re-)negotiation processes of physical and social spaces have to be at the core of Area Studies research and teaching in the 21st century.

Crossroads Asia is funded by the Area Studies Initiative of the German Ministry of Education and Research (BMBF). It started in March 2011 and runs until the end of 2016.

Anna-Katharina Hornidge and Katja Mielke

Anna-Katharina Hornidge is Director of ZEF's Department of Political and Cultural Change until April 30, 2015. Katja Mielke was a ZEF senior researcher until January 2015.



Response of migrants to typhoon Haiyan in the Philippines

The Philippines remain vulnerable to climate change – as shown by continuous extreme climate events, most notably typhoon Haiyan in 2013. In its aftermath, we could see that cross-border migrants played an important role in strengthening international humanitarian response to the typhoon's impact. This research investigates the role cross-border migrants played in the context of typhoon Haiyan. We approached the phenomena of environmental change and mobility by analyzing transnational migrant networks in terms of cosmopolitanism, community-building, solidarity, humanitarianism and empathy.

Collective and multiple answers to disasters

Ten percent of the Philippine population reside abroad as cross-border migrant workers. We noted that international humanitarian response has been strengthened and/or driven by either the familial affiliation of cross-border migrants to the provinces affected by the typhoon or their national affiliation to the Philippines itself. These two types of networks lead to two different but not mutually exclusive responses to extreme climate events by Philippine cross-border migrants. First, the familial affiliation of the victims reinforces migration through immigration relief opportunities such as those offered by Canada and the United States. Second, cross-border migrants from the Philippines, with or without a familial affiliation to typhoon victims, become transnational activists during extreme weather events in their home country. National affiliation to the Philippines made cross-border migrants pro-active citizens who shared in international solidarity activities in the aftermath of typhoon Haiyan. Philippines living all over the globe were involved in fundraising events and provided financial support to local people affected by Haiyan and not receiving humanitarian aid.

So cross-border migrants supported the demands caused by sudden environmental changes.

Aid and support empower ordinary people

This research reveals how ordinary people draw on the resources, affiliations, and opportunities of the societies they live in to politically mobilize collective action around an environmental issue and to respond to a humanitarian crisis. In this process, transnational activists gain new attitudes, try out new forms of action in response to feelings of empathy and emerge with new identities as empowered individuals through their contacts within and across borders. More importantly, people involved draw upon a collective bond, a we-feeling, a specific belonging to a community, rooted in a particular relationship.

Environmental change and mobility

Based on the data gathered we pose that the relationship between the phenomena of environmental change and mobility has causal linkages. We also think this is based on empirical indicators, such as the transnational ways of life of migrant networks and their cross-border linkages, which need to be carefully interrogated. We highlight the growing awareness of communal risks such as environmental change, which is encouraging a sense of a shared future on a transnational scale, among individuals and countries. We argue that these bonds can be articulated as practices of cosmopolitanism surpassing the nation-state model. Articulations of solidarity, empathy and commitment at a distance with strangers and foreigners are expressed in moral spaces based on the common good and relationships with the other. We will continue to conduct research, focusing on the transnational ways of life of migrant networks and their cross-border linkages.

Cleovi Mosuela and Denise Margaret Matias

Mosuela is a doctoral student at the University of Bielefeld, Matias at ZEF.

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Developing food and nutrition security criteria for biomass standards

International demand for and trade in biomass are growing as governments start shifting from fossil fuel-based economies to bio-based ones. While bio-economy strategies put food security at the top of their priorities, instruments to realize such primacy have not yet been developed. Nevertheless, the EU has initiated some regulations during the past years that have led at least to voluntary sustainability standards for producing biomass according to socio-ecological criteria. However, these standards hardly assess impacts on local food security and practical indicators, based on rigorous scientific reasoning, are still lacking. To fill this gap, a research team at ZEF developed a research project called "ESSZert" (Food and Nutrition Security Criteria for Biomass Standards and Certifications). The project is being carried out in cooperation with the NGO Welthungerhilfe (www.welthungerhilfe.de).

Objectives

ESSZert aims at developing a set of suitable criteria and indicators to measure the impacts of biomass production and trade on local food security. The criteria developed are meant to provide guidance for voluntary sustainability certification systems regulating biomass supply chains. It should be possible to apply them to all types of biomass independent of its later use (e.g. food, feed, fiber, fuel). ESSZert collaborates with the project "BiomassWeb" (<http://biomassnet.org>) at ZEF and is highly transdisciplinary through its intensive cooperation with stakeholders such as practitioners, politicians, and standards organizations.

Research approach

ESSZert developed its own conceptual framework based on the four dimensions of food and nutrition security: access, availability, utilization, and stability. It also takes into account the right to adequate food using the FAO's voluntary

guidelines. Based on an evaluation of existing sustainability standards for biomass, the researchers want to develop additional indicators so the concept of the right to adequate food can be applied on the level of individual companies. They also want to define minimum and advanced requirements for family-run as well as large-scale farms that are reliable, easy to measure and adjustable to local contexts. Criteria and indicators will be discussed and checked for practicability through stakeholder workshops and expert interviews with certification bodies, standards initiatives, NGOs, auditors, enterprises and politicians.

There are plans for a preliminary field test of the indicators developed and for a second project phase involving rigorous testing and evaluation in low-income countries.

ESSZert is funded by the Federal Ministry of Food and Agriculture (BMEL) from November 2014 until July 2015.

Anna Mohr
(left side, with team colleagues Detlef Virchow and Tina Beuchelt) is a senior researcher at ZEF.
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Planting trees for a better environment in rural Uzbekistan

For more than a decade, ZEF has been conducting research in Central Asia. Interdisciplinary research teams have developed innovative land and water management strategies based on long-term field research in Khorezm, a province in northern Uzbekistan. Planting small-scale forest plantations on degraded croplands is one of these innovations.

Background

Water input by precipitation is low in the arid environment of Uzbekistan. Thus, the main source for agricultural and domestic water use is the surface water of the Amu Darya River. In addition, water management has always been a challenge in the region – mainly due to a highly complex irrigation system. However, water management will become even more challenging considering the projections of decreasing water supplies during the main irrigation season, namely summer.

“Irrigated agriculture is a major economic activity in the lower Amu Darya Basin. Yet, it is now being threatened by precarious water supplies and increasing soil salinity”, says Holm Voigt, ZEF junior researcher and member of a research team active in Central Asia. “In Uzbekistan alone, yield reductions cause monetary losses of several million US\$ annually”, Voigt adds.

ZEF researchers found that the afforestation of highly salinized cropland patches with well-adapted, multi-purpose tree species has the potential to maintain agroecosystem services and sustain rural income. It can do so by supplying valuable timber and non-timber products while requiring little irrigation. “By using remote-sensing technologies my colleagues at ZEF and ZFL revealed that around 20% of the irrigated agricultural area in Khorezm has been degrading under conventional cropping and irrigation practices. Planting trees on such lands would be a feasible land use alternative – also from a financial perspective”, Holm Voigt explains.

Objectives and methodology

Since water is such a critical resource in Central Asia the researchers thoroughly investigated the modalities of water use for tree planting. “We wanted to better understand the water fluxes within a multi-species tree plantation on the irrigated croplands of Khorezm”, says ZEF researcher Voigt. “So we investigated the quantities of water taken up by trees as well as the factors controlling the respective processes”. Extensive field measurements for three different species, namely *Elaeagnus angustifolia*, *Populus euphratica*, and *Ulmus pumila* resulted in a comprehensive dataset. “The main focus was on direct sap-flux measurements which I applied to each species with several replicates. Additionally, we monitored groundwater and soil water fluxes as well as climatic parameters. At the end of the vegetation period, we carried out a biomass assessment to complete the field data set”, Voigt reports.

Preliminary findings

“Estimated water consumption of all three species is modest compared to the average seasonal irrigation input for annual crop cultivation”, Voigt concludes. “These results indicate the potential of saving irrigation water through afforestation of degraded cropland parcels. On a ten-year rotation basis *U. pumila* showed the lowest water uptake while *E. angustifolia* and *P. euphratica* take up almost double the amount of water. However, the latter two species also produce more biomass and thus generate a higher income for the land user”.

Outlook

The impact of afforestation on the groundwater budget is now being estimated through hydrological modeling analyses. An adequate spatial scale for introducing trees in the region can thus be determined.

This research is supported by the Robert Bosch Foundation via the project “Opportunities for climate change mitigation and adaptation through afforestation of degraded lands in Central Asia”. (See http://bit.ly/ZEF_trees).

Holm Voigt
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Water quality matters: Celebration of achieving MDGs on safe drinking water premature

What are the trade-offs, synergies, and thresholds involved in water quality and quantity, sanitation and hygiene, and agriculture? This question has been tackled by a research team at ZEF. The researchers also investigated the implications for investment priorities and better health and nutrition outcome. Research has been carried out in four case study countries in Africa and South Asia: Ethiopia, Ghana, India, and Bangladesh. These countries were selected because they have certain water and sanitation-related features: drinking water, sanitation services, and hygiene conditions are seriously deficient, whereas health and nutrition situations are particularly adverse. The study is based on an analysis of primary data collected in the four countries and the Demographic and Health Survey (DHS) data of USAID.

Preliminary insights

In terms of the MDGs regarding safe drinking water coverage, the world has been able to meet the target five years ahead of schedule. In 2010, 88% of the global population had access to safe drinking water. Nevertheless, the positive global picture masks the situation in developing countries, particularly in sub-Saharan Africa. Ghana and Ethiopia are on track to meeting the MDGs target for improved access to drinking water – as are Bangladesh and India. However, meeting the MDGs target is not the only goal. The extent to which access to improved drinking water sources has actually increased, varies strongly by income group and is related to other social and economic aspects. With wide income disparities, the post-2015 target for universal access to improved drinking water will remain a challenge. In Bangladesh and India, almost 50% of the poorest households have access to improved drinking water sources on their premises – in contrast to less than 5% of the poorest households in Ethiopia and Ghana. Having water on the premises is positively associated with hygiene behavior and has hence positive consequences on human health. Based on the analysis of DHS data, the prevalence of child diarrhea in Bangladesh, Ethiopia and Ghana is twice as high in households that do not have water sources on their premises as in households with such sources.

Water quality remains an issue

So, despite considerable progress in achieving the MDGs for access to drinking water, our

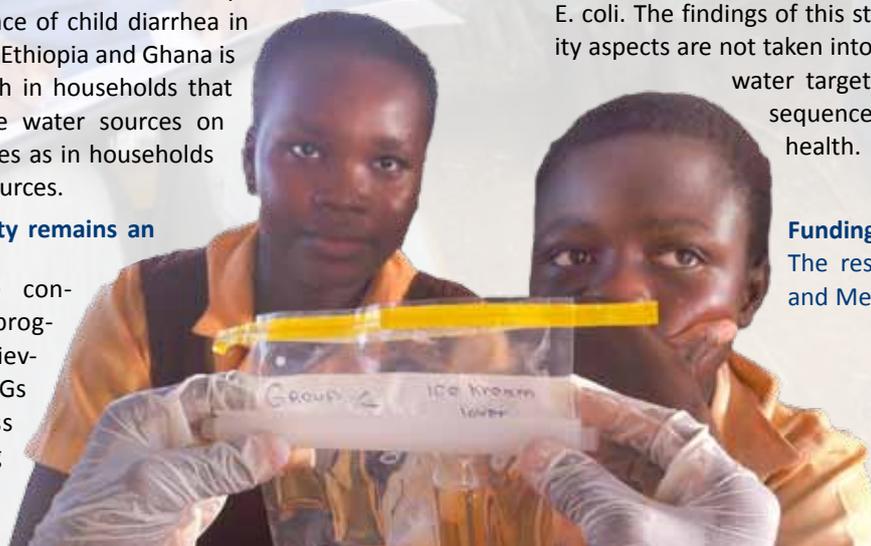
study found that water quality remains a big issue. The indicators used by the WHO/UNICEF Joint Monitoring Program on Water and Sanitation do not incorporate water quality aspects. Water quality indicators reveal values and concentrations of substances and chemicals that represent a health risk. Safe and high-quality water is essential to ensure minimum or zero content. The water-quality guidelines of the WHO suggest that water for human consumption should contain a faecal coli form-count of less than zero pathogens per 100 ml of water. Between 2013 and 2014, ZEF conducted baseline surveys in Bangladesh, Ethiopia, Ghana and India, targeting households with a child under five years. In addition to household surveys, our field research collected water samples at sources and storage. The water testing equipment used in the research varied across the countries – depending on the locally available equipment and its suitability in the local context.

Access versus health and safety

The results of water quality testing reveal that access to improved drinking water does not ensure that the improved water sources are safe to drink. In Ethiopia, 52% of the rural households surveyed had access to improved drinking water. Nevertheless, the data revealed that the water of 56% of households in the sample is contaminated with E. coli. In addition, the stored drinking water was contaminated with E. coli in 43% of households with access to improved drinking water and 73% of households with no access to it. Over 48% of surveyed households with access to improved drinking water in Ghana have their stored drinking water contaminated with E. coli and are thus categorized as unsafe or at very high risk. In India, despite achieving almost universal coverage of improved drinking water, water was contaminated in 73% of households' tap water and 80% of households' stored drinking water. A water quality census conducted in Bangladesh found that 72% of households' drinking water was contaminated with E. coli. The findings of this study show that if water quality aspects are not taken into account the MDGs' drinking water target might undermine the consequences of safe drinking water on health.

Funding

The research is funded by the Bill and Melinda Gates Foundation.



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Diving into known territory: Water-related research of the Global Water System Project at ZEF

Humans are changing the global water system in a globally significant way without adequate knowledge of the system and thus its response to change. This was the central tenet of the Global Water System Project (GWSP) when it started a decade back.

Water plays a central role in all processes and activities supporting both humans and ecosystems. The existence and development of human beings in the Earth system depends on the storage and circulation of water – as liquid, vapor or ice – through biochemical cycles and a hydrological cycle fueled by the sun. Food, energy and other ecosystem services for humans and nature are all connected through multiple interactions and feedbacks within what is increasingly recognized as a global water system. For more than a decade, GWSP has been seeking to answer the fundamental and multi-faceted question: How are humans changing the global water cycle, the associated biogeochemical cycles, and the biological components of the global water system and what are the social feedbacks arising from these changes?

The GWSP has taken a global and broad temporal perspective on the world's freshwater. The program has been scientifically integrative, addressing gaps and collating results, while having an impact on policy makers and on policy-making processes. GWSP played a crucial role in the transformation of the water sciences with regard to assessing the so-called global water crisis in increasingly concrete and quantitative terms (Vörösmarty et al 2013). This research transformation toward the global scale has been a 'game-changer' with respect to our thinking and research on the water systems of the planet.

Research insights

GWSP's research has found that uncoordinated local human actions can add up and lead to large regional, continental and even global changes and affect the global water system on which the welfare of current and future generations depends. Economic development, population increase, climate change, and other global to local drivers influence the global water system and global water use, resulting in an increased risk of water availability in time and space. The mounting pressure on water systems across the planet also arises from non-sustainable water engineering

practices, pollution, and biotic stressors.

The century time-scale used by the GWSP researchers indicates the patterns and consequences of long-term human use of water and trajectories of change that will be difficult to slow or reverse. However, current scientific knowledge cannot predict exactly how or precisely when a planetary-scale boundary will be breached. Such a tipping point could trigger irreversible change with potentially catastrophic consequences.

Call for action and outlook

The Bonn Declaration on Global Water Security, which was adopted by consensus at the close of the GWSP Open Science Conference in 2013, recommends promoting the adoption of science-based evidence into the formulation of goals for sustainable development. Stewardship requires balancing the needs of humankind and those of nature through the protection of ecosystems and the services they provide. Without such a design framework, we anticipate highly fragmented decision-making and the persistence of maladaptive approaches to water management.

In August 2015, GWSP will organize an international conference on "Sustainable Development Goals: A Water Perspective. Indicators, Interlinkages and Implementation: Integrated Review of the post-2015 Development Agenda from the Perspective of Water."

For more information see www.gwsp.org



Anik Bhaduri

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Viewpoint



Interview with ZEF- senior fellow Devesh Rustaghi about his work on behavioral development economics

You started your doctoral research at ZEF but graduated at the ETH in Zürich. In 2013 you were appointed Assistant Professor of Applied Microeconomics at the Goethe University in Frankfurt as well as Associate Director of the Frankfurt Laboratory of Experimental Economics (FLEX) at the same university. What is your research focus nowadays? And what kind of research is being conducted at the Laboratory?

I am primarily working in the area of behavioral development economics and behavioral political economy. Within this area, I am interested in the foundations of human moral and cooperative behavior and its implications for economic outcomes. Some of my exciting projects include cheating in milk markets in India, diffusion of cooperative behavior in Ethiopia, differences in cooperative behavior in Switzerland, and transmission of cooperating and moral behavior by parents and society to children. Besides these, FLEX members are engaged in a wide gamut of research, from financial markets to trust in organizations. These projects involve both laboratory and field research.

You won a prize for your doctoral thesis and have published articles in prestigious journals like Science and American Economic Review. What makes your research so prize and publication-worthy?

Well, I guess we were able to show convincingly outside the lab in a natural environment that people's intrinsic motivation to be either cooperative or envious matters – especially for economic outcomes of general interest like forest commons management or teamwork in organizations. The previous view on these topics thus far was that we needed extrinsic motivations like bonuses to make people overcome these problems. We showed that



sometimes people's intrinsic motivation to abide by moral values and norms is enough to solve such problems.

Your doctoral thesis was one of the milestones in behavioral commons management. What attracted you to this field of economics?

As a child I was already fascinated by forests and wildlife, the sounds within and their management by individuals. During my master's thesis, I eventually got the opportunity to study forest management in India as well as in Tanzania. I did this from an economic point of view, building on a self-regarding foundation of human behavior. During my PhD, I accidentally stumbled upon the theoretical and laboratory research of Ernst Fehr and Urs Fischbacher. They build their research on the behavioral foundation of human behavior. The idea is that not all individuals are self-regarding; some care about other people either positively or even negatively. I thought we should test the implications of this theory for commons management - but outside the lab, in a natural domain. That's how the idea was born. Academically, it was also a good way to bridge the gap between the lab and the field.

I wanted to conduct this research in the forests that form the habitat of the great apes in Africa and approached ZEF for funding. However, ZEF only had funds for research on wild coffee in the rain forests of Ethiopia. But ZEF liked my proposal and suggested that I should strike off the apes



Behavioral economics found out that people's motivation to be cooperative is not only driven by incentives.

and replace them with coffee forests. How can inanimate forests match the apes, I thought, and politely refused. But, after two months of futile trying to get funds I reluctantly agreed to go to Ethiopia. To my surprise, Ethiopia turned out to be a wonderful country and I do not regret my decision at all.

You are still affiliated with ZEF and you teach in its doctoral program on a regular basis. What would you recommend ZEF students who are interested in pursuing a successful career like yours?

I know this sounds cliché but motivation, dedication and persistence pay off, so you should not give up easily. Also, develop a habit of reading papers in top journals early on so that you can learn at an early stage about high standards in your discipline. You may also use them as a guideline to set your own standards and assess what is expected from you.



The pictures in this article show game theory in practice.

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Facts & news

Maria del Pilar Tejada Ocampo tragically died in the German Wings airline accident en route from Barcelona to Dusseldorf on March 24, 2015. Maria was a 33-year old doctoral student from Colombia who joined ZEF's Department of Economic and Technological Change in August 2014.

ZEF-Director Anna-Katharina Hornidge has been appointed full professor at the University of Bremen and the Leibniz-Center for tropical Marine Ecology (ZMT) as of May 1, 2015.

ZEF will support a new program of the German Federal Ministry for Economic Cooperation and Development (BMZ) on "Green Innovation Centers" in Africa and Asia. Together with its African partners, ZEF will support this initiative with science policy. **Contact:** Detlef Virchow, d.virchow@uni-bonn.de. See http://bit.ly/ZEF_nohunger

ZEF and Global Hort will coordinate a new German-African research project launched and financed by the German Federal Ministry of Agriculture (BMEL). "NutriHAF" and its African partners will investigate options to combat malnutrition in Ethiopia and Madagascar by intensifying multi-storey fruit and vegetables cultivation. **Contact:** Christine Husmann, husmann@uni-bonn.de. See http://bit.ly/ZEF_NutriHAF

The Right Livelihood Campus Bonn (RLC), which is located at ZEF, will organize a workshop on "Food security and sustainable agriculture: The future of smallholder farmers" at ZEF in Bonn from May 30-June 4, 2015. **Contact:** Till Stellmacher, stellmacher@rlc-bonn.de. More information at www.rlc-bonn.de

The FOODSECURE project met in Bratislava from March 24-27, 2015, to take stock of scientific achievements and plan the upcoming project phase until Autumn 2016. **Contact:** Nicolas Gerber, ngerber@uni-bonn.de. See www.foodsecure.eu



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Why taking action against land degradation in Eastern Africa is worth the effort

Land degradation is threatening the rural livelihoods and food security of millions of people in Eastern Africa. Recent assessments show that over the last 30 years land degradation has occurred on 51% of the land area in Tanzania, 41% in Malawi, 23% in Ethiopia and 22% in Kenya. Investments in sustainable land management are an economically sensible way to address land degradation. Investments ensure the long-term conservation of the productive capacity of lands. Despite the losses caused by on-going land degradation and an urgent need for action to prevent and reverse land degradation, the problem has not been addressed in an appropriate way yet.



Land degradation threatens the lives of millions of people.

Research objectives and approaches

The research conducted at ZEF seeks to analyze the drivers and economic costs of land degradation in Eastern Africa using a Total Economic Value framework. This enables us to conduct a fuller accounting of the losses in land ecosystem services due to land degradation. The study compares the costs and benefits of action against land degradation versus the costs of inaction. We classified the drivers of land degradation into two categories: proximate and underlying. Proximate drivers are those that have a direct effect on the terrestrial ecosystem. These include both biophysical causes and unsustainable land management practices. Underlying drivers comprise institutional, socio-economic and policy factors that affect land degradation indirectly through their influence on land management practices.

Results

We looked at nationally representative agricultural household surveys and found that there are numerous drivers of land degradation in Eastern Africa. They include biophysical, demographic, regional and socio-economic factors. We identified the following major determinants that can incentivize sustainable land management in the region: more secure land tenure; better access to extension services; and markets for farmers. The costs of land degradation are estimated to have been about US\$2 billion in Malawi, US\$11 billion in Kenya, US\$18 billion in Tanzania and US\$35 billion in Ethiopia between 2001-2009 – representing an equivalent of 5% of the Gross Domestic Product (GDP) in Malawi, 7% in Kenya, 14% in Tanzania and 23% in Ethiopia. The costs of action over a 30-year period represented only a quarter of the costs of inaction in all of these four countries. Thus, every dollar invested in sustainable land management is estimated to bring about four dollars in return. This makes a compelling argument that action against land degradation is more favorable than inaction.

The project is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ).



The author (right) during a research stay in Kenya.



Oliver K. Kirui

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The impact of the Southeastern Anatolia Project on the political and ecological landscape in the region

Can you tell us something about your research on the Güneydoğu Anadolu Projesi (GAP project) in Turkey?

I am investigating what kind of discourses and practices the elites (politicians, bureaucrats, experts, and intellectuals) have shaped for the formulation and implementation of the Southeastern Anatolia Project (GAP). GAP is a huge modernization and development project in the Southeastern Anatolia Region of Turkey. I am also analyzing how the approach of the above-mentioned actors has contributed to a 'de-politicization' of issues, people, and institutions.



The dam project GAP has had enormous side-effects.

What are the main critical issues regarding GAP?

Opponents of the project criticize the privatization of rivers, the limitation of the right to use water, expropriation of private lands, eviction of villages, depopulation, desertification, clearance of forests, and the submerging of historic homes and cultural sites. GAP has also been harshly criticized in the past for flooding villages and displacing the inhabitants. From the perspective of Kurdish inhabitants in particular, there have been occasions where GAP had brought more instability to the region and its citizens than peace and happiness. In addition, GAP has an international dimension. It has been criticized for being a project that enables Turkey to control the flow of water to downstream states, and thus to build dominance over Iraq and Syria.

Was it difficult to get access to the people you wanted to interview?

The people I wanted to talk with were predominantly politicians, bureaucrats, experts and intellectuals and so I knew it was going to be difficult to get access to them.

Arranging interviews with bureaucrats and experts at various ministries and governmental institutions was relatively easy. The hardest thing was to arrange interviews with the Members of Parliament at the Turkish Grand National Assembly. It was impossible to plan ahead and I had to cancel many other appointments for this reason, which was embarrassing and frustrating. I had to wait in the corridors of the parliament for hours, go from door to door, and drink infinite amounts of tea with strangers in parliamentarians' offices every day to catch a Member of Parliament for a quick interview, if I was lucky. Still, despite difficulties, I managed to interview 64 people, 28 of them Members of Parliament, in a short period of time.

What were the challenges you faced while conducting your field research?

Some bureaucrats and even politicians were reluctant to give their consent to be voice-recorded "just to be on the safe side" or "to leave no trace behind". Though I can understand their concerns given the tense political climate in Turkey, hearing such words from high-level bureaucrats and politicians was both surprising and challenging. Another related challenge I had to deal with was that some of my interviewees were very suspicious of my work because of its political content. On one occasion, a prominent professor, who had previously been a high-level bureaucrat, accused me of working for the German intelligence service at the end of our conversation.

Can you tell us something about the results of your research so far?

I came to the conclusion that by depicting Southeastern Anatolia as a "backward" region in need of special treatment, the elites were able to maintain the hierarchical relationship between them and non-elites and to legitimize their top-down interventions. Also, the characterization of GAP as a 'civilization' or 'salvation' project indicated that despite the changes within the project and a changing understanding of development over time, the project still embodies elements of social-evolutionist paradigms. These paradigms conceive development as a positive and irreversible process through which all societies eventually pass in a similar unilinear fashion.



Read the full interview on ZEF's Website www.zef.de.

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“Small-scale farmers have a double burden to bear”. ZEF-researcher Mekbib Haile about his research on price volatility in Ethiopia

Can you tell us something more about your research?

My PhD research is about international prices, price levels and price volatility. I am investigating how they affect food production and conducting analyses on global and farm levels. My focus is on key staple crops, namely wheat, corn, soybeans and rice. The overall presumption is that higher food price levels are good for agricultural producers and thus for smallholder farmers. The higher food prices are, the larger the profit and thus the income that farmers earn. So farmers have been happy with increasing food prices since 2005. However, this price development has been associated with large fluctuations, which we call price volatility. This entails risks for farmers since they have to make planting decisions without knowing how crop prices will develop until the next harvest season – which is on average three to four months later. Thus, my PhD thesis analyzes food markets and assesses, among others, whether the impact of recent price dynamics on the overall food supply is driven more by the increase in price level or by the volatility of food prices.

High prices – good for producers, bad for consumers!?

The high food price spikes, particularly during 2007/2008, had adverse implications for consumers. On the other hand, not all producers benefit from such price increases since some of them are net buyers of food. There were several causes for the high food prices in 2007/2008. Among them is harvest failure, for example of wheat in Australia. Besides harvest failure, global food stocks were depleted. Furthermore, a few countries responded to early signs of price increase by banning exports of agricultural products. This made the price-spike worse and caused food shortages in many import-dependent countries. Although net seller-producers could take advantage of high prices, consumers had to bear the cost by paying more money for food. These are the two sides of the coin with regard to the impact of prices on producers versus consumers.

So what were your conclusions with regard to price levels versus price volatility?

We conducted a simulation analysis to assess the overall impact of production on price developments from 2006 to 2010. The specific objective was to evaluate and measure whether the price increase from 2006 to 2010 as compared to the price volatility increase during the same period, was a net benefit or loss in terms of production. We found that the global production impact of the price dynamics, that is, price level and price volatility, was negative in the case of global wheat production whereas it was negligible for rice. Yet, the positive global production impact of higher prices outweighs the downside effect of volatility in the case of corn and soybeans. In summary, the results show that an increased volatility in output

prices has weakened the positive food supply impact of higher international agricultural commodity prices.

Small scale producers are mostly consumers too. What implications does that have?

When you look at the case of Ethiopia, about 95% of national food production derives from smallholder farmers. They are indeed not only producers, but also consumers. This means that the net impact of increasing prices (in levels) largely depends on their selling position, i.e. whether farmers are net buyers or net sellers of food. Yet, even if they are net buyers, at some point in the crop season they sell their produce. So, farmers make their production decisions based on net price level effects (as producer-consumer) as well as on the adverse impact of price volatility. Timing of crop sale is also important: smallholders typically sell their produce when prices are low, which is immediately after harvesting. They buy food during the lean season, when they run out of food. However, at this point, demand and prices are high. This is a well-known liquidity problem of poor farmers, who are always under capital constraints. Small-scale farmers therefore have a double burden to bear, having to deal with large price fluctuations (as producers) and with large price level increases (as consumers).

So how can the situation for small-scale farmers improve?

Farmers rely on their price expectations for their decisions on production and resource allocation. Assisting farmers to formulate efficient price expectations is therefore crucial to enable them to make optimal production decisions. Providing farmers with access to relevant market information is one way of doing this. We conducted a household survey among 415 farmer-households in four different districts in rural Ethiopia in 2013 to obtain information on price expectations of farmers for staple crops during the planting season. We asked what market or other information they used to form their price expectations. For most of them, information on current prices and weather is very important. The empirical part of the study also reveals that smallholders who own information and communication technologies (ICT) and those who live closer to nearby grain markets have more accurate price expectations. Thus, it is important for the government or semi-public institutions to enhance farmers' access to reliable and accurate market information through market information systems or ICTs. Improving infrastructure, both road and information infrastructure, has the potential to improve agricultural productivity and hence the welfare of smallholder farmers in Ethiopia and beyond.

[Read the full interview with Mekbib Haile on ZEF's Website www.zef.de](http://www.zef.de)



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