

Annual Report 2013/2014

Focus: Sustainable Development Goals



Zentrum für Entwicklungsforschung
Center for Development Research
University of Bonn

Cover photo by Christine Husmann, ZEF.

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For an overview of ZEF's staff and its departments please have a look at www.zef.de/staff1.html



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EMERGING DEVELOPMENT AGENDA AND ZEF'S RESEARCH AGENDA

Introduction by ZEF-directors

ZEF's research agenda is continuously evolving as development challenges are changing. The focus on sustainability, however, remains a constant overarching focus of the ZEF agenda. ZEF works to address the individual dimensions of sustainability – economic, social and ecological – in an integrated fashion.

This long-standing approach by ZEF is in high demand as new development agendas are being formulated at global, national and local levels. ZEF is actively engaged in the key dialogues such as on the Sustainable Development Goals (SDGs), the efforts to shape a new national Development Charter (under leadership of the German Federal Ministry for Economic Cooperation and Development (BMZ)), and in shaping the "One World" agenda of the state of North Rhine Westphalia. ZEF engages in such efforts building on the evidence-base of its research conducted in worldwide partnerships.

ZEF, by nature, takes a mid- to long-term perspective on development issues, conducting research in a trans-disciplinary and open-minded way, integrating changing demands both from those who create and those who implement development policy. "What development goals shall we tackle how in the context of Sustainable Development Goals?" was a question also on the agenda of ZEF's International Advisory Board, representing international agencies of science and development as well as high-ranking representatives from relevant German Ministries. ZEF will continue to contribute with its re-

search insights to these debates in the coming years.

ZEF has been able to consolidate its research agenda, identifying core themes of investigation, by conducting long-term programs from Central Asia to China, India, Pakistan and Vietnam, as well as from Brazil to East and West Africa. ZEF's research agenda does not follow short-term development fads and fashions. The team of ZEF directors, researchers and partners instead strives to position ZEF with a newly realigned research agenda that is more deeply integrated, and adjusting to new demands, filling critical research gaps in the emerging development policy agenda.

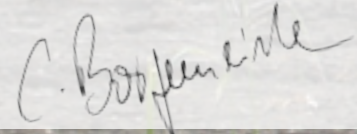
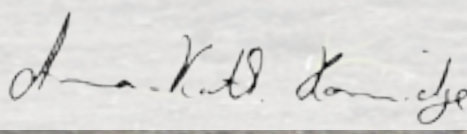
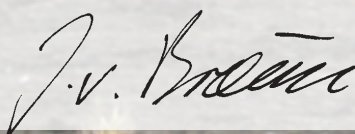
Developing human and institutional capacities for research is an integral part of all of our major research efforts. A central feature of our capacity building endeavors remains the ZEF doctoral studies program, which has been well-established since its inception in 1999. The content of teaching, including methods and topics, as well as the clustering of doctoral research projects, are fine-tuned each year to equip students with cutting edge research skills. In addition, the Center engages with establishing doctoral programs elsewhere, for instance in partner universities in Africa.

The number of articles in peer-reviewed journals and other scientific publications remains a classical and important indicator of our institute's contribution to the broader scientific community. ZEF is proud of the quality and quantity of the publications writ-

ten and/or edited by its researchers. Located in the heart of Bonn, ZEF has the opportunity to attract international audiences in the region to our lecture series', events and scientific conferences and to collaborate closely with other international organizations based in Bonn, such as the United Nations University (UNU) or the Bonn International Center for Conversion (BICC).

ZEF has continued to be highly successful in acquiring funds on the competitive market for research grants. More than 80 percent of ZEF's overall budget derives from such competitive project funding. We would like to express our deep gratitude to all our donors, whose continuous and indispensable support has made the achievements documented in this annual report possible. Among them are the German Federal Ministry of Education and Research (BMBF), the German Federal Ministry for Economic Cooperation and Development (BMZ), the state of North Rhine Westphalia, the German Academic Exchange Service (DAAD), the Robert Bosch Foundation, the Bill and Melinda Gates Foundation, the Foundation fiat panis, the Thyssen Foundation, Bayer AG, the Volkswagen Foundation, the Dreyer Foundation, Union Investment, and many more organizations as well as various governments who grant specific support to ZEF Ph.D. students.

Joachim von Braun, Anna-Katharina Hornidge, Christian Borgemeister



2

LEAD ARTICLE: SDGS NEED PRIORITIES AND A STRONGER SCIENCE BASE

By Joachim von Braun, Anna-Katharina Hornidge and Christian Borgemeister

The Sustainable Development Goals (SDGs) are emerging as a consensus in the United Nations context. The miracle of an agreement among nations on this complex matter seems feasible only because the goals are many, and accountability for achieving them is weak. The UN Open Working Group set up a draft that begins with a clear priority: *“Poverty eradication is the greatest global challenge facing the world today and an indispensable requirement for sustainable development”*. It also refers to *“the commitment to freeing humanity from poverty and hunger as a matter of urgency”* and points out that *“poverty eradication, changing unsustainable and promoting sustainable patterns of consumption and production and protecting and managing the natural resource base of economic and social development are the overarching objectives of and essential requirements for sustainable development.”*

Although this is an appropriate emphasis, the main body of the current draft still consists of 17 goals and countless targets. All are relevant, but to different extents for different groups of people, for nations at different stages of development, and for humanity and nature on the planet as a whole. Their relevance also varies depending on a short or long-term perspective. Therefore, the Open Working Group’s draft calls for a more narrow set of goals at global level, which in fact also applies to country level, as *“...each country has primary responsibility for its own economic and social development...”*.

The draft also underlines that *“people are at the center of sustainable development ...”* and appropriately emphasizes the need *“...to strive for a world that is just, equitable and inclusive,*

and committed to work together to promote sustained and inclusive economic growth, social development and environmental protection and thereby to benefit all, in particular the children of the world, youth and future generations of the world without distinction of any kind such as age, sex, disability, culture, race, ethnicity, origin, migratory status, religion, economic or other status”. In our opinion, culture, education, and institutional arrangements are largely to be pursued at national levels in the context of internationally agreed rights and obligations. Action at the community level remains crucial for the actual implementation of the goals and the governance of everyday life.

Global priorities

Three sets of issues should be emphasized at global level: poverty, health, and environment. Ending extreme poverty and hunger: The SDGs need a clear focus on extreme poverty and hunger reduction – with an ambitious time schedule. This cannot only be a matter for those countries where large numbers of the poor and undernourished live, but should rather be a top priority for all countries. Overcoming glaring inequalities is central for ethical reasons as well as for social and economic sustainability, peace, security, and health. Rapid reduction of child mortality and improved health: The SDGs need to focus on health, giving due consideration to the diverse public health challenges burdening people in high and low income countries and to global threats of infectious diseases, as well as the growing problem of non-communicable diseases. Environmental sustainability and protection of nature: Here, the balance between short

and long-term urgencies needs careful consideration. Acute issues such as pollution of air, food, and water and loss of nature are of utmost urgency, but so are long-term problems, especially climate change, land degradation, and biodiversity loss. Fundamental economic systems changes are called for in order to deal with these challenges, i.e. a quality of economic growth that increases real income and employment in renewable- and bio-based economies that do not pollute or excessively extract non-renewable resources and link environmental with social and economic sustainability in its original meaning as stated in Brundtland 1987. Picking and choosing between protecting this environmental good versus that environmental good will not work. “Mother Earth” as a whole needs protection and that requires sustainable production and consumption modes. The science base for this agenda is still not strong enough. It lacks, for instance, modeling across scales, behavioral change analyses, and studies of the impacts of risks and uncertainties.

Lack of inter-linkages

The three above mentioned main domains of goals are linked in the current SDG agenda. Yet, the inter-linkages are underrated. Excessive goal segmentation was also a short-coming of the MDG agenda. Based on our research, we at ZEF emphasize, for instance, that important aspects of public health need to be addressed in a “one health” approach, connecting people’s health with those of the environment (soil, plants) and animals. We also note that ending extreme poverty and hunger requires sustainable economic growth in combination with targeted actions in social and nutrition policies. And we

emphasize that SDG actions need to take a trans-sectoral approach, which is at the core of a so-called NEXUS approach, especially targeting the nexus between food, water, energy and climate change for sustainable development, informed by interdisciplinary research.

Implementation plan for the SDGs

The SDGs need an implementation plan which gives the Goals sufficient focus in the diverse country contexts. On the large global issues, this calls for accountability and an ambitious but realistic time schedule. Otherwise, the SDGs will not serve the purpose of accelerating the achievement of sustainable development pathways. The three dimensions of sustainability – social, economic, ecological – are the conceptual basis. They remain critical for a balanced agenda. Moreover, the SDGs require local ownership globally. Ongoing discussion processes on their contents are thus crucial in developing and assuring such buy-in.

The UN draft underlines *“Each country has primary responsibility for its own economic and social development and the role of national policies, domestic resources and development strategies cannot be overemphasized”*. We think that overemphasizing the national role can actually lead to neglecting trans-border issues and to lost opportunities for collective actions among communities and nations.

“Developing countries need additional resources for sustainable development. There is a need for significant mobilization of resources from a variety of sources and the effective use of financing, in order to promote sustainable development”. Implementation plans need to entail the actual mobilization of actions, not just of financial investments. This means mobilizing governance and political actions for peace and security, for science, and for behavioral changes on the part of both people and stakeholders. The draft emphasizes further that *“the implementation of sustainable development goals will depend on a global partnership for sustainable development with the active engagement of governments, as well as civil society, the private sector, and the United Na-*

tions system.” While partnership may be important for elements of goal achievement, banking on partnership alone may not be most efficient. The SDGs need ‘Ordnungspolitik’, i.e. the functioning of markets; competition in corporate sectors and across segments of civil society is required. And the role of states is essential for much of public goods delivery. Sound data are needed for the independent monitoring of goal and target achievements.

Realization of the SDGs requires a considerably more significant role for science

In the list of 17 goals contained in the current draft report, only the proposed goal no. 17 mentions science: *“strengthen the means of implementation and revitalize the global partnership for sustainable development”*. Leaving aside the fact that science should be considered an instrument and not a goal, it is surprising how the emerging SDG agenda attributes such a small role to science. Research is mentioned in the context of some agenda items, such as increasing investment in agricultural research, the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, access to clean energy research and technologies, and scientific research to upgrade the technological capabilities of industrial sectors. Apart from an unspecific target *“by 2030 encouraging innovation and increasing the number of R&D workers per one million people by x% and public and private R&D spending”*, the report remains very vague in this area, stating *“... support domestic technology development, research and innovation in developing countries...”* and *“...enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation, and enhance knowledge sharing on mutually agreed terms”*.

Somehow, the international science community has not engaged sufficiently with the UN process to bring the essential role of research into the SDG discourse. In view of the fundamental challenges for human devel-

opment such as the sustainable use of natural resources and protection of nature, sustainable development cannot be achieved without science and the science-based rethinking of given production and consumption patterns. Solutions to the sustainable development problems are not just sitting on the shelf ready for use. On the contrary, it will only be possible to achieve the SDGs by means of significant innovations – technological and societal – which largely depend on inter- and trans-disciplinary scientific research. Specific and durable arrangements are needed that facilitate access by emerging economies and low income countries to science capacities in the richer world, whilst at the same time these countries must scale-up their own science spending and proceed with introducing science policy reforms. An SDG science policy agenda comprising industrialized countries and emerging economies must be developed, based on mutual respect, considering countries’ interests and comparative advantages. Germany with its strong science system is particularly challenged. Commendable steps were recently taken in this regard, i.e. a strategy launched by the German Government for the internationalization of science, a large initiative for innovation in agriculture and food security in Africa, and broad-based consultations towards a Charta for the Future focusing on sustainable development from a one-world perspective. Nevertheless, science policy and development cooperation must become increasingly integrated in the coming years. In sum, the SDG agenda needs to become more focused through an implementation concept that also connects the main goals to an inter-linked agenda and that has a strong science base, devoting a lot of attention to local realities in a global context.

For more information see:

Open Working Group: <http://sustainabledevelopment.un.org/focussdgs.html>

SDSN Website: <http://unsdsn.org/what-we-do/national-and-regional-networks/national-sdsn/germany-sdsn/>

Zukunftscharta Website: <https://www.zukunftscharta.de/zukunftscharta/de/home>

3

ZEF'S RESEARCH AGENDA

We conduct development-oriented research contributing to reducing poverty, enhancing sustainable development and improving development-related policy making.

To achieve this, we conduct research on issues relevant to development and we collaborate with international researchers, in particular from Africa, Latin America and Asia. Above all, we educate up-and-coming researchers

from all over the world in our Doctoral Studies Program.

ZEF's research concept is based on trans-disciplinarity: We strive to bridge the gaps between academic disciplines, between research and policy, and between research and practice.

We focus on a set of "core themes" (listed in the middle of the diagram below) supported by ZEF's "disciplinary capabilities" of the three research de-

partments (depicted in the three outer circles).

This report covers a selection of themes. For a complete overview of ZEF's research areas and themes, please have a look at:

www.zef.de/researchareas.html



3.1 SCIENCE POLICY

Crossroads Asia

The competence network Crossroads Asia pursues the development of a 'new Area Studies' approach, making mobility and related thematic figurations of interaction the basis of the network's scholarly research. In its second phase (January 2015-December 2016), the network will focus less on generating empirical research and more on the conceptual and methodological synthesis of the empirical work conducted in first phase of the project.

This synthesizing approach to rethinking Area Studies is called the Crossroads Perspective, to be based on: 1. Contents and figurative spatialities. It relates to the construction of spatialities and its relevance for research approaches and Area Studies in general. Further questions include the relationship of physical-geographical, social and mental types of mobility with the construction of spatial reference frames. 2. The methodological approach 'Follow the Figuration' is to be elaborated. 3. The development of a conceptual toolkit on how to reflect on research processes, connected with issues of reflexivity, power, positionality, and research ethics.

In the second phase of the network project a leading role is assumed in national and international debates on rethinking Area Studies. The so far developed components of the Crossroads Perspective are currently presented as a toolkit for teaching Area Studies in Germany, e.g. with the introduction of a study module for master students at the verge of social sciences and Area Studies as well as with the establishment of a graduate school on 'Global and Area Studies' at the Humboldt Universität Berlin, one of the network member institutes. Young academics are thus sensitized for the contents, methodologies and their own positionality as introduced by the Crossroads Perspective. Furthermore, close collaboration with the Germany-wide association 'CrossArea', bringing together researchers interested in the rethinking of area studies and their relationship to social science disciplines, has been

established with the aim to develop in a collaborative way the Crossroads Perspective in other regions as well as on other topics.

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Funder: German Ministry of Education and Research (BMBF)

Main cooperation partners: University of Cologne, Ludwig-Maximilians-University Munich, University of Bonn, University Tübingen, Humboldt University of Berlin, Free University Berlin, Zentrum Moderner Orient, Berlin.

Website: www.crossroads-asia.de/

Conversion of knowledge in post-Soviet agriculture:

The impact of local governance on the knowledge management of agricultural actors in Tajikistan

Tajikistan is an agrarian country, in which the livelihoods of most inhabitants are closely linked to agriculture. However, since the country achieved national independence in 1991, its agriculture has experienced fundamental changes (e.g. privatization) with respect to both the political environment (transition) and the professional framework (individual production). Thus, individual action and adequate knowledge is utterly important to ensure even marginal agricultural production. In this context, local actors not only strive for knowledge as a technical asset (innovation), but find it equally necessary to manoeuvre in the socio-political environment of agriculture (local governance). Therefore, this research looks into functional relations between local governance and agricultural knowledge management in place. Specifically, we set out to understand how local governance arrangements enable and constrain farmers' handling (access, usage, creation, amplification and dissemination) of knowledge. Taking the horticultural sector in Tajikistan as an example, we are particularly looking at how the assumed governance-knowledge nexus influences the farmers' ability to innovate (e.g. production and commercialisation) and distribute natural resources.

Activities

Two conferences in 2013.

Highlights

Presentations at Crossroads Asia Conference in Bonn, July 18-19, 2013 and at the International Academic Conference on Agricultural Knowledge and Knowledge Systems in Post-Soviet Societies, September 12-13, 2013 in Bonn.

Doctoral researchers

Andreas Mandler

Publications

Mandler, A. 2014. "Mobilizing Religion to Access Arable Land in Tajikistan." In: E. Smolarz and S. Conermann (eds), *Mobilizing Religion: Networks and Mobility*. Berlin: EB-Verlag.

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Funder: Volkswagen foundation, fiat panis foundation

Main cooperation partners:

Academy of Science of the Republic of Tajikistan, Institute of Philosophical, Political and Legal Sciences, Department of Philosophy of Culture, Deutsche Welthungerhilfe, Tajikistan.

Website: www.zef.de/1968.html

WASCAL

WASCAL is a regional research-focused program designed to help enhance the resilience of human and environmental systems to climate change as well as increased climate variability. It does so by strengthening the research infrastructure in West Africa related to climate change and by pooling the expertise of ten West African countries and Germany. WASCAL is coordinated by ZEF, and implemented in a collaborative effort by West African and German partners. WASCAL is built on three pillars, all based in West Africa: Climate Service Center, Core Research Program and Graduate Studies Program. The ratification by the majority of the member states has made WASCAL a regional international organisation.

Contact (in Germany): Christian Borgemeister and John Lamers (ZEF)

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Funder: BMBF

Website: www.wascal.org



Poverty reduction

The project “Technology assessment and farm household segmentation for inclusive poverty reduction and sustainable productivity growth in agriculture” (TIGA) seeks to create a thorough understanding of the interactions between technology needs, farming systems, ecological resources and poverty characteristics in the different strata of the poor - mostly smallholders and rural farming communities in sub-Saharan Africa and South Asia. Adapted agricultural technology innovations can be a means to increase productivity and escape poverty, where agro-ecological conditions are favorable and people are willing to and capable of investing in agricultural intensification and diversification. Technological innovations go hand-in-hand with institutional and organizational innovations, such as prices, tenure security, the right to participate in decision-making or in farmer-to-farmer exchange programs, field schools and extension programs. We take a spatial-, people-, and transaction- cost specific approach for matching institutional and technological innovations with human capacities and agro-ecological potential. Examples of innovations are: stress-tolerant rice varieties and urea deep placement technology in Bangladesh; vegetables,

cocoa, ginger and maize in Ghana; improved seeds, best practice and lending in marginalized rural communities of Ethiopia; maize, wheat, rice and pulses in marginal districts of Odisha and Bihar; and agricultural service delivery through mobile phones in Kenya.

Activities

Identifying marginality hotspots and suitable agricultural innovations. Elaborating business plans for implementation.

Doctoral researchers

Christine Husmann: The private sector and the marginalized poor – can the gap be bridged? An assessment of the role that business can play in reducing extreme poverty and marginality in rural Ethiopia.

Heike Baumüller: Agricultural innovation and service delivery through mobile phones: Analyses in Kenya.

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Funder: Bill and Melinda Gates Foundation

Cooperation partners: FARA, Accra, Ghana; IFPRI, New Delhi, India; EEA, Addis Ababa, Ethiopia; BRAC, Bangladesh.

Innovations for food and nutrition security

Under the project “FOODSECURE – Exploring the future of global food and nutrition security”, ZEF collaborates with 18 partners worldwide to identify the determinants of food and nutrition security (FNS) and predict FNS internationally in the short and long term. One of ZEF’s main research tasks is to investigate the food and nutrition security impacts of innovation and innovation systems at the farmers, national and international levels. In 2013/14, ZEF has provided the project’s modeling teams with assessments of innovation types in terms of their impacts on FNS, a specific review of impacts of GM crops on food availability and accessibility (income effects) at farm level, as well as a general review of FNS-relevant technology trends to 2050.

Further, ZEF initiated work to analyze the linkages between farmers’ aspi-

rations, their determinants and the adoption of innovations, with a view to assess those linkages in the context of several development outcomes, including FNS. Field work is largely completed and first results are expected by early 2015.

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Funder: EC under the FP7

Website: www.foodsecure.eu

Doctoral research on scientific cooperation

This ongoing thesis reflects on different concepts of innovation and development and how these shape science policy, funding programs as well as science cooperation projects in practice. Science policy and its impacts were also discussed in a workshop at ZEF in February 2014. Here, experts from research, policy and development cooperation agreed that global problems such as climate change, food security, or the depletion of natural resources require integrated approaches by the three communities. While acknowledging hurdles such as different time frames and diverging objectives, the experts called for a closer interaction of the groups in practice and strategic planning.

Doctoral researcher: Anna Schwachula, Germany.

For **contact** and **more information** please look at

www.zef.de/index.php?id=2247

Policy advice and dialogue

ZEF-director Joachim von Braun was appointed to the European Union/ African Union Committee on Research for Agriculture and Food and Nutrition Security and participated in the inaugural meeting of the committee in Brussels, Belgium, on April 30, 2014. The committee is to develop a joint research agenda by November 2014. In addition, ZEF-director Joachim von Braun is Chair of the German Government’s Bioeconomy Council. See: <http://bioekonomierat.de>

3.2 GOVERNANCE

A comparative study on cotton production in Kazakhstan and Uzbekistan

This research evaluates the cotton sectors in Kazakhstan and Uzbekistan and develops potential avenues for improvements. It compares the cotton growing sectors in these two countries and formulates specific recommendations, particularly with respect to how Uzbek farmers and stakeholders can learn from the Kazakh experience. One of the main differences is the range of options farmers have. By offering a variety of different subsidies as well as a freedom of choice on what to grow to maximize profit, the government of Kazakhstan creates conditions under which farmers can prosper. In contrast to this, Uzbek farmers work under a state procurement system that exerts strict state control over the agricultural production system, with only limited opportunities for farmers to make profits. Besides, farmers spend lots of time dealing with state inspections. They even struggle to receive permission from the state to conduct various kinds of transactions such as obtaining permission to grow something other than cotton and wheat. Moreover, almost all agricultural service providers are under governmental control and can thus exploit their monopoly status.

Activities

Field research in Kazakhstan and Uzbekistan in 2013.

Highlights

In May 2014, ZEF Senior Researcher Anastasiya Shtaltovna presented the results of this study at the “Open Society Foundation” in Washington D.C.

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Funder: The Open Society Foundations/Soros Foundation

Website: bit.ly/1pX3qgE

Epistemic cultures and innovation diffusion in post-Soviet Southern Caucasus and Central Asia

This project has investigated the issues of agricultural knowledge and innovation development in post-Soviet and post-conflict Tajikistan and Georgia. The project aimed to investigate how agricultural advisory services could be designed in order to contribute to development and food security in Central Asia and the Caucasus. With limited resources and widespread rural poverty, both countries rely heavily on agriculture for development. Therefore, knowledge creation and the development of locally appropriate agricultural innovations play a crucial role in achieving development, as well as market economy, food, and energy security. Using qualitative research methods, the project has assessed local epistemic cultures, actors and structures of agriculturally oriented knowledge development and innovation as well as the local channels of innovation diffusion. The scientists have conducted in-depth, semi-structured interviews with donor, national and international organizations and stakeholders.

Activities

Field research in Georgia in 2013; two master's theses finished.

Highlights/events

International academic conference “Agricultural Knowledge and Knowledge Systems in Post-Soviet Societies”, ZEF, Bonn, September 12-13, 2013.

Presentation at the “Eastern European Days” on “The management of transparency in organizational change: Accounting, plans and contracts in an Uzbek Machine Tractor Park”, Fribourg, Switzerland, November 21-23, 2013.

Publications

Van Assche, K., Shtaltovna, A., Hornidge, A.-K. 2013: “Visible and invisible informalities and institutional transformation. Lessons from transition countries: Georgia, Romania, Uzbekistan”, in Hayoz, Nicolas and Christian Giordano (eds.) “Informality in Eastern Europe: Structures, Political Cultures and Social Practices”, Bern: Peter Lang.

Shtaltovna, A., Van Assche, K., Hornidge, A.-K. 2012. “Where Did This Debt Come from? Organizational Change, Role Ambiguity and Development in Rural Khorezm, Uzbekistan”. *Internationales Asienforum*, 43 (3-4): 179–197.

Hornidge, A.-K., Van Assche, K., Shtaltovna, A. 2014. Variants of Differentiation in Agricultural Resources Governance – A Case Study from Uzbekistan. *Applying Evolutionary Governance Theory*. Springer.

Hornidge, A.-K., Van Assche, K., Shtaltovna, A. 2014. “Uzbekistan – A Region of World Society. Variants of Differentiation in Agricultural Resources Governance. In: *Soziale Systeme*.

Van Assche, K., Djanibekov, N., Hornidge, A.-K., Shtaltovna, A., Verschraegen, G.J. 2014. “Rural development and the entwining of dependencies: Transition as evolving governance in Khorezm, Uzbekistan”, *Futures*, 10.1016/j.futures. 2014.08.006.

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Volatility in commodity markets, trade policy, and the poor

Volatility describes price fluctuation around a long-term trend. After a long period of low and stable prices, food price levels increased in 2007 and 2008 and remain volatile. Excessive volatility – sudden and extreme food price shocks – threatens the food security in particular of poor people who spend 60-70 percent of their income for food. The research project analyzes the drivers of food prices and price volatility (ranging from speculation, storage and trade, production and demand shocks), its impacts on food security, health and food production as well as policy and risk management strategies to reduce volatility and better deal with volatile prices.

The research focuses on international commodity markets and case studies in selected countries. The aim of the project is not only to better understand causes and impacts of price shocks and price risk but also to develop and provide tools for identifying upcoming crises (early warning system). The findings are used to inform decision-makers in ministries, international organizations and companies.

Activities

Field research in Ghana with grain traders on stocks, speculation and price expectations;

Field research in Ethiopia with small-holder farmers on price risk and production;

Research cooperation in New Delhi, India, on food policies and government stocks;

Development of acreage forecasting models and early warning systems.

Highlights

ZEF-IFPRI workshop on volatility and food security at ZEF, July 8-9, 2014

Final presentation of acreage forecasting tool at Bayer CropScience AG, Monheim

Presentation at international conferences (AAEA) Washington, Global Food Security Conference Noordwijkerhout, the Netherlands

Presentation of early warning research at FAO and WFP.

Doctoral researchers

Jan Brockhaus: Reducing food insecurity by improving transparency, storage and trade on agricultural markets

Mekbib Haile: Volatility of international food prices: impacts on resource allocation and on food supply response

Lukas Kornher: Empirical tracking of the relationship between stocks and prices and policy responses to reduce food price volatility

Marta Kozicka: Evaluation of Food Policies in India, with Special Emphasis to Public Stocking Policies

Irfan Mujahid: Trade Cooperation and Food Price Volatility: Indonesia in the Regional and Global Economic Architecture

Anna Winter: Food price volatility: Impacts on health and coping strategies

Publications

Haile, M.G., Kalkuhl, M., von Braun, J. 2014. Inter- and Intra-seasonal Crop Acreage Response to International Food Prices and Implications of Volatility. *Agricultural Economics* (forthcoming) [dx.doi.org/10.1111/agec.12116](https://doi.org/10.1111/agec.12116)

Tadesse, G. G., Algieri, B., Kalkuhl, M., von Braun, J. 2014. Drivers and Triggers of International Food Price Spikes and Volatility. *Food Policy*. [dx.doi.org/10.1016/j.foodpol.2013.08.014](https://doi.org/10.1016/j.foodpol.2013.08.014)

von Braun, J., Algieri, B., Kalkuhl, M. 2014. World Food System Disruptions in the Early 2000s: Causes, Impacts and Cures. *World Food Policy*, 1(1), 1-22. http://www.ipsonet.org/images/WFP/3.%20von_Braun.pdf

Kornher, L., Kalkuhl, M. 2013. Food Price Volatility in Developing Countries and its Determinants. *Quarterly Journal of International Agriculture*, 52(4), 277-308.

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Funder: Federal Ministry for Economic Cooperation and Development (BMZ); Bayer CropScience AG; Union Investment

Main cooperation partners: IFPRI Washington, ICRIER New Delhi, EEA Addis Ababa, ISSER Accra, Bernardina Algieri, Doris Wiesmann

Website: www.zef.de/volatility.html

3.3 WATER RESOURCES

Water resources institutions and human health:

Contested institutional terrain of water- and vector-borne diseases in Ahmedabad City, India

In this project, ZEF conducts research on water resources institutions and human health in Ahmedabad City, India. The overall goal is to understand the role of urbanization in water resources management and its implications on human health. The research takes an integrated, “systems” perspective. For this purpose, the researchers use a combination of methods: (i) examining the urbanization process and distribution of water-borne and vector-borne diseases from a historical angle, (ii) conducting case studies in two administrative wards in the city to understand the quality of water infrastructure and socio-economic characteristics of households, and (iii) conducting a prospective study among sampled households to understand which diseases occur with which potential causes.

Activities

Ongoing field research on the political dimensions of access to water and sanitation, and its implications on human health.

Highlights/events

Webinar on “Can water supply, sanitation and hygiene be a preventive medicine?” organized by the International Water Resources Association (IWRA), May 12, 2014.

Workshop on ‘Metabolism of water: mobility, power and scale’ at the 5th Water Science Alliance meeting in Berlin, June 17-18, 2014.

Presentation on ‘Turbulent waters, breeding diseases: spatiality of water problems and health burden in Ahmedabad City, India’ at the The European Conference of the German Society for Human Ecology and the Commonwealth Human Ecology Council, Sommerhausen, Germany, May 14-17, 2014.

Presentation on “The pampered and the ignored: the politics behind water- and vector-borne diseases in urban India” at the European Conference on South Asian Studies (ECSAS), Zürich,

Switzerland, July 23-26, 2014.

Publications

Gondhalekar, D., Mollinga, P., Saravanan, V.S. 2013. Towards systematic comparative water and health research, *Water International*, 38:7, 967-976.

Saravanan, V.S. 2014. Can Water Supply, Sanitation and Hygiene be a Preventive Medicine? IWRA Policy Briefing No. 1. March.

Saravanan, V.S., Mavalankar, D., Kulkarni, S.P., Nussbaum, S. and M. Weigelt. 2014. Metabolized-Water Breeding Diseases in Urban India: Socio-spatiality of Water Problems and Health Burden in Ahmedabad City. *Journal of Industrial Ecology*, Vol 18(4).

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Funder: German Research Foundation

Main cooperation partner: Indian Institute of Public Health-Gandhinagar

Website: <http://bit.ly/1vwXqQg>

Integrated Water Resources Management:

Middle Olifants South Africa

The purpose of the Integrated Water Resources Management: Middle Olifants South Africa project is to investigate potential policy instruments and organizational settings, which might contribute to (a) improving water allocation and (b) mitigating water quality. This project is carried out in the Olifants basin, one of the most water scarce regions in South Africa. The overall research goal is to integrate the water quality aspect into an IWRM system and to evaluate the impacts of water policy on farmers’ livelihoods. In addition, the project identifies and assesses the transaction costs inherent to the implementation of water policy while considering the heterogeneity of water users (farmers, mines and households). We investigate research questions such as: what are the marginal values of water in different sectors? What are the impacts of water use on water quality for different locations and times in the basin? What are the transaction costs associated with the implementation of and compliance to water management

policies in the Olifants basin? What do water users and managers employ Information and Communication Technology (ICT) for, and what are the linkages between ICT, transaction costs, and compliance to water management policies in the Olifants basin?

Highlights

Workshops in Berlin, Bonn and Pretoria.

Doctoral researchers

Njiraini Georgina Wambi. The role of institutions, policy and ICT in management of a water stressed basin: the case of Olifants, South Africa
Philippa Kanyoka. Addressing sectoral water values in an integrated hydro-economic water modeling framework Olifants river basin

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Funder: BMBF

Main cooperation partners: in Germany: University of Witten/Herdecke, Ruhr University of Bochum and seven industrial partners. In South Africa: University of Pretoria, the Water Research Commission, Department of Water Affairs and Council for Scientific and Industrial Research.

Website: <http://bit.ly/1yA5PrP>

Water, sanitation, agriculture

The goal of the WATSAN project is to identify trade-offs, synergies, and thresholds among water quality and quantity, sanitation and hygiene, and agriculture as well as their implications for investment priorities and better health and nutrition outcome. The project also aims to strengthening the capacity of households and communities to monitor and manage their own WATSAN environment. Poor environmental health, as well as poor water and sanitation conditions are recognized as the key cause of diarrhea, tropical enteropathy, and intestinal worms. It is also known that improved water quantity and quality as well as improved sanitation and hygiene enhance health and nutrition outcome. Irrigation agriculture influences health through various ways: Water harvesting techniques, irrigation canals, ponds, tanks and/or dams.

3.4 HEALTH AND SANITATION

Activities

Building a multi-disciplinary research team at ZEF, with the partners and doctoral students in the study countries Ethiopia, Ghana, Bangladesh, and India. Data collection and introducing analysis systems in all four countries - entailing the design and testing of complex survey modules at community and household levels (agricultural water uses by types, drinking water by sources, sanitation infrastructures, behavior, health and nutrition), as well as sampling and lab-testing of water at sources and in household storages. Field work and research in each project (country) is handled by a local team of our partner organizations and one ZEF doctoral student.

Doctoral researchers

Muhammed Abdella Usman: Leveraging Water, Sanitation, and Hygiene Nexus: Synergies, Thresholds, and Trade-offs for a Better Nutrition and Health Outcome in Ethiopia

Charles Okyere: Strengthening the Capacity of Households and Communities for an Improved Monitoring of Water and Sanitation Environment: Experiments with School Children in Ghana

Ruchi Vangani: Exploring the links and dynamics therein for WATSAN and irrigation agriculture for a better nutrition and health outcome

Florence McBain: Can improved water-sanitation conditions together with health insurance effectively reduce poverty?

Timo Falkenberg: Health Dimensions of Wastewater-Irrigated Urban Agriculture in Ahmedabad, India

Mohammad Monirul Hasan: Investment in health within Agriculture-Water-Sanitation-Hygiene nexus for the rural households in Bangladesh.

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Funder: Bill and Melinda Gates Foundation

Main cooperation partners: EEA, Ethiopia; ISSER, Ghana; IIPHG, India; BRAC, Bangladesh.

Website: www.zef.de/1967.html

Health research capacity and water-related diseases:

Improving risk assessment strategies for public health care in Uzbekistan

HEALTHCAP is a science-based capacity building project in Uzbekistan. It aims at improving risk assessment strategies to address the growing threat from water-related diseases in the country. The project is fundamental and exploratory, attempting to explain health risk through a combination of disciplinary and interdisciplinary research and to reach out to practice.

HEALTHCAP will operate in two case study districts – one rural and the other in the urban Tashkent Province. Besides, relevant policy assessments, institutional arrangements and socio-ecological conditions at the overall national level will be considered. HEALTHCAP aims to strengthen health research capacities, explaining the interconnections between socio-hygiene, as well as epidemiological, and ecological factors influencing health risks. It also explores different strategies and tools for a comprehensive risk assessment of water-related diseases.

HEALTHCAP will strengthen health data base management in the selected districts. Its research findings will offer insights for improving surveillance and monitoring of water-related diseases as well as for strengthening Uzbekistan's water safety plan.

Activities

Recruitment of team members and project approval from the Ministry of Health of the Republic of Uzbekistan. Preliminary field research.

Highlights

Project inception workshop on 'Working together-Strengthening research communication for effective collaboration', at: RISHOD in Tashkent, Uzbekistan. April 3-4, 2014.

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Funder: Volkswagen Foundation

Main cooperation partners: In Uzbekistan: RISHOD; UzHydromet; RIIWP; International Center for Integrated Assessment and Sustainable Development, Maastricht University, The Netherlands

Website: www.zef.de/healthcap.html



3.5 LAND USE AND FOOD SECURITY

BiomassWeb

Biomass as a resource of renewable energy is expected to play an increasingly important role in the future economies of most countries in sub-Saharan Africa. Therefore, the interdisciplinary research project "BiomassWeb" aims at contributing to food security in this region through harnessing productivity and efficiency in the biomass-producing, processing and trading systems.

The expected trends of rising demand for more diverse biomass-based produce from agricultural land will transform the traditional agriculture from a food-supplying to a biomass-supplying sector. Many African countries actually have the potential to not only meet their own future demand for biomass-based produce but also to export raw materials and processed biomass products. To analyze prospects for enhanced productivity and a more efficient utilization of biomass, we use a 'web perspective' as a multi-dimensional methodology. Thus, we can understand the interrelation between several value chains, in which food, energy sources and other raw materials are produced, processed and traded.

Activities

- Inception Workshop, October 8-10, 2013. Around 40 scientists from Germany and Africa met in Accra, Ghana, to discuss and fine-tune their research.
- WASCAL and BiomassWeb participated in the BMBF Africa Days in Berlin, March 16-18, 2014. Approximately 700 experts from Africa and Germany were invited to discuss the future of African-German cooperation in the fields of education and research.
- Joachim von Braun, Detlef Virchow, Alisher Mirzabaev, and Daniel Callo-Concha participated in the IFPRI 2020 Conference on "Building Resilience for Food and Nutrition Security" in Addis Ababa, Ethiopia, on May 15-17.
- Workshop on "Modeling biomass-based value webs in Ethiopia", in Addis Ababa, Ethiopia, May 19-22, 2014.

Doctoral researchers

Francis Mwambo: Energy Efficiency Analysis of Biomass Production. Considering African landuse schemes, hu-

man labour and draft animals.

Isaac Mbeche Nyang'au: Boundary Work and Agricultural Innovation Systems: Developing a Conceptual and Methodological Framework for Science-Practice Interaction and Knowledge Generation using an example of Push-pull Technology in Ethiopia

Marcos Jimenez: Biomass production at district scale

Omarsherif Jemal Mohamed: Agroforestry Systems for Food Security and Improved Household Biomass Webs: a Case Study in coffee growing area of Yayu, South West Ethiopia

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Funders: BMBF, additional funding by the German Federal Ministry of Economic Cooperation and Development (BMZ)

Main cooperation partners: University of Bonn, University of Hohenheim, Research Centre Juelich, Forum for Agricultural Research in Africa, International Centre of Insect Physiology and Ecology, International Institute of Tropical Agriculture, International Network for Bamboo and Rattan

Website: www.biomassweb.org

Food and nutrition security

ZEF is one of the leading partners in the research consortium "FOODSECURE" which carries out a European Commission-funded project under its 7th Framework Programme: "Exploring the future of global food and nutrition security". The project aims at improving the resilience of the global food system. It does so by providing means to mitigate risks and uncertainties in the world food system, which are caused by economic and climatic shocks, while providing for sustainable economic growth. The project researchers at ZEF describe and assess research and innovations products as well as institutions of relevance to food and nutrition security (FNS). In addition, they evaluate science and technology policies and priority setting in the context of FNS

and of sustainable and green growth strategies in developing countries as well as related to the international science system. They also analyze the correlation between FNS, land use and the exploitation of natural resources such as soils, water and ecosystems.

Activities

The project offers innovations such as: adding nutrition and its impact to the research and policy agenda; applying an improved scientific methodology (e.g. on food price volatility) in the realms of economic modeling and scenario analysis; setting up a conceptual framework and a typology of countries. The overall goal is to produce policy-relevant scientific outcome.

Highlights/events

ZEF researchers organized a session on “Food and nutrition security; how research informs policy” at the EURO-SCIENCE Open Forum (ESOF) 2014 held in Copenhagen, Denmark, on June 21-26, 2014.

Around 80 researchers from Africa, China, Ethiopia, Europe, and the U.S. met at the ILRI campus in Addis Ababa, Ethiopia, from October 7-9, 2013.

Doctoral researchers

Marta Kozicka: Evaluation of Food Price Stabilization Policies in India, with Special Emphasis to Public Stocking Policies

Daniel Mekonnen: Aspirations, adoption of agricultural innovations, and household food and nutrition security: Case of Ethiopia

Tekalign Gutu: The future prospects of rural young people and Ethiopian agriculture

Publications

Wheeler, T., von Braun, J. 2013. Climate Change Impacts on Global Food Security. *Science*, 2 August 2013, Vol. 341, No. 6145: 508-513.

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Main funders: EU FP 7, Wageningen University, IFPRI, ILRI

Website: www.foodsecure.eu

Land use planning

RegioPower is an interdisciplinary project, conducted under the WoodWisdom/BioEnergy program topic “Forest for multiple needs of society, including enhanced productivity and optimized use of forest feedstock”. This project aims to develop a prototype of an innovative software platform for moderating between lignocellulosic resources demands from industry, land-based production of lignocellulosic resources and the provision of ecosystem services by land-use and land-management. The project intends to support an optimized regional resource allocation including resource distribution and logistical aspects. In addition, it aims to generate and provide knowledge for an optimized land-use to make improved use of complementary regional potentials for the provision of lignocellulosic resources from forestry and agriculture. This includes knowledge of the robustness of land-based resources and ecosystem services provision under climate change and the potential to contribute to the mitigation of climate-change driven risks.

Activities

- Development of a method to assess preferences in ecosystem services based upon simple voting mechanisms for mobile devices.

- Modeling of outcomes of different regional scenarios in modifying the forest management of ecosystem services and timber production.

- Use of choice methods for selecting and evaluating major ecosystem services at regional scale as a basis for informed decisions,

- Development of a prototype of the market place was developed and an integrative modeling approach for regional resources provision assessment and modeling of trade-offs for bundles of ecosystem services was developed.

The two latter tools are currently being tested in a case study in Slovenia

on the marketing problems for timber after the ice-rain catastrophe.

Highlights

Regional Workshop Germany, Bonn June 30 – July 1, 2014.

Publications

Frank, S., Fürst, C., Witt, A., Koschke, L., Makeschin, F. 2014. Making use of the ecosystem services concept in regional planning—trade-offs from reducing water erosion. *Landscape Ecology*, DOI 10.1007/s10980-014-9992-3. IF: 2.897

Fürst, C., Frank, S., Witt, A., Koschke, L., Makeschin, F. 2013. Assessment of the effects of forest land use strategies on the provision of Ecosystem Services at regional scale. *Journal of Environmental Management*, 127, 96-116. IF: 3.245

Frank, S., Fürst, C., Koschke, L., Makeschin, F. 2013. Assessment of landscape aesthetics - validation of a landscape metrics-based assessment by visual estimation of the scenic beauty. *Ecological Indicators* 32, 222-231. IF: 2.695

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Funders: ERA WoodWisdom / BioEnergy (in Germany: BMELV / FNR)

Main cooperation partners: HCN (Germany), PiSolution GmbH (Germany), Scheller System Technik GmbH (Germany), SIMOSOL (Finland), Slovenian Forest Institute (Slovenia), SLU (Sweden), Uni Helsinki (Finland), UBO (Germany), Associated: Chinese Academy of Forestry

Website: www.eli-web.com/RegioPower

3.6 ENVIRONMENTAL AND CLIMATE CHANGE

Opportunities for climate change mitigation and adaptation through afforestation of degraded lands in Central Asia

The main research objectives of this project are to develop environmentally balanced and economically competitive agroforestry options in Central Asia and to analyze how their adoption can be stimulated by policy incentives. The researchers conduct multi-scale studies, including remote sensing assessment for the entire Central Asia and in-depth regional, farm and field studies in the lower Amu Darya River Basin. Among the agroforestry options, afforestation of highly salinized and abandoned croplands is assessed as a strategy to increase the productive capacity of the degraded land and improve rural livelihoods through supply of commercial products and provision of other ecosystem services. Of particular interest is the capacity for biomass and soil carbon sequestration in afforestation as well as in traditional agroforestry systems - such as windbreaks and tree-crop interplanting, to improve soil fertility and contribute to the global effort of climate change mitigation. We also evaluate the current spatial extent of the natural mountainous, riparian and desert forest ecosystems, thus providing the basis for biomass and carbon stock quantifications.

Activities

We performed a trend analyses of time series of satellite data acquired by medium spatial resolution sensors, thus detecting a significant decline in cropland vegetation cover as an indicator of land degradation. Comparative analyses of time series of various vegetation indices pointed at a similar spatial pattern of reduced cropland productivity. The identified hotspots covering about 20% of the cropland territory in the study region are the priority areas for rehabilitation measures such as afforestation. Subsequent GIS-based multi-criteria analyses, considering the water availability and other growth constraints, showed that much of these areas would be suitable for

planting stress-tolerant tree species. The soil carbon survey in experimental afforestation trials and traditional agroforestry systems revealed their role as significant carbon sinks. Particularly the organic carbon storage largely exceeded that in cultivated cropland and was comparable to that in native riparian forests. Besides the environmental benefits and financial attractiveness, the adoption of tree farming in degraded cropping areas requires policy support. Preliminary results of the policy analyses showed that exempting the unproductive croplands from annual cropping in favor of afforestation, securing long-term land tenure and providing forestry training would motivate about half of the farming population to initiate tree planting on their degraded croplands.

Highlights

Invitation to Science and Implementation Workshop of the CGIAR Coordinated Research Program on Dryland Systems. June 30 - July 4, 2014. Amman, Jordan.

Invited talk at the Workshop on Agroforestry Practices in Central Asia organized by the University of Central Asia and United States Forest Service. May 12-14, 2014. Bishkek, Kyrgyzstan.

Invited lectures Intercropping and agroforestry systems for the UNESCO Chair at Urgench State University, Uzbekistan. April 2014.

Invitation to Salinity Management Workshop for the CGIAR Coordinated Research Program on Water, Land and Ecosystems. December 7-8, 2013. Amman, Jordan.

Invitation to the 8th Berlin Debate on Science and Science Policy Joining Forces to Save the World: Why We Need Both the Natural and the Social Sciences to Get the Job Done. November 7, 2013. Berlin, Germany.

Doctoral researchers

Utkur Djanibekov (2014) defended
Sophia Baumert (2014) defended
Tilman Schachtsiek (2014) defended
Olena Dubovyk (2013) defended
Begzod Djalilov: Exploring impact of policies and institutions on adoption of afforestation on degraded land in

Uzbekistan: Multi-agent system modeling approach.

Tigist Araya Gessesse: Organic carbon dynamics in land-use systems in Tigray, Northern Ethiopia.

Ephraim Sekyi-Annan: Performance evaluation of reservoir-based irrigation schemes in the Upper East Region of Ghana.

Florent Anguilles Noulèkoun: Afforestation for rehabilitation of degraded cropland in Sudano-Sahelian zone of northern Benin.

Publications

Baumert, S., Khamzina, A., Vlek, P.L.G. 2014. Soil carbon sequestration in *Jatropha curcas* systems of Burkina Faso. *Land Degradation and Development*. DOI: 10.1002/ldr.2310

Fürst, C., Berry, P., Genleletti, D., Khamzina, A., Sanfo, S. 2014. Inaugural Editorial. *Change and Adaptation in Socio-Ecological Systems 1*: 35-39.

Tüshaus, J., Dubovyk, O., Khamzina, A., Menz, G. 2014. Comparison of medium spatial resolution ENVISAT-MERIS and Terra-MODIS multi-temporal time series for vegetation decline analysis: A case study in Central Asia. *Remote Sensing 6* (6): 5238-5256.

Schachtsiek, T., Lamers, J.P.A., Khamzina, A. 2014. Early survival and growth of six afforestation species on abandoned cropping sites in irrigated drylands of the Aral Sea Basin. *Arid Land Research and Management 28*: 410-427.

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Funders: Robert Bosch Foundation, Germany; CIFOR, Indonesia

Main cooperation partners: INRES, ZFL (both Bonn University); Department of Geography, University of Würzburg; UNESCO office in Uzbekistan, Urgench State University (UrDU); CIFOR, Indonesia

Websites:

1. bit.ly/ZEF_afforestation;
2. bit.ly/ZEF_forest-asia;
3. www-naweb.iaea.org/nafa/swmn/crp/swmncn-landscape-salinity.html

Environmental and tropical forest conservation policy research group

The research group linked to the Robert Bosch Juniorprofessorship on “Economics of Sustainable Natural Resource Use and Bioeconomy” focuses on measuring and modelling the effects of environmental policies on land use and land cover change as well as socio-economic indicators.

Activities

Since August 2013, the research group has conducted field work in Brazil, Peru, and Ecuador. In the Brazilian state of Amazonas a household survey was conducted in collaboration with the Sustainable Amazon Foundation (FAS) in order to contribute to evaluating one of the area-wise largest incentive-based forest conservation policy programs in the world, the Bolsa Floresta Program. In Peru, Ecuador, and the Brazilian state of Acre, government-led incentive-based conservation schemes were studied using a qualitative case study approach to understanding the political and institutional determinants of program design. Research group members were involved in submitting four grant proposals and advising an international organization on the design of evaluation protocols for a 50 million USD conservation agriculture program in Brazil. Research findings were presented at the Ecosystem Services Partnership Conference 2013 in Bali and the PolicyMix Conference in Leipzig,

Highlights

In December 2013, the research group co-organized the first international workshop on impact evaluation in the conservation sector in Barcelona. (Funding by the Robert Bosch Foundation and the European Association of Environmental and Resource Economists).

Doctoral researchers

Marco Elías Cisneros Tersitsch: Measuring environmental policy effectiveness in the Brazilian Amazon
Hugo Rosa da Conceição: Understanding the determinants of environmental policy choice and design
Johannes Schielein: Spatio-temporal

patterns of deforestation and land use

Javier Miranda: Economic modelling of environmental policies

Renzo Giudice: Environmental policy scenarios for the Peruvian Amazon

Publications

Figueiredo, R. de O., Börner, J., Davidson, E.A. 2013. Watershed services payments to small-holders in the Brazilian Amazon: challenges and perspectives. *Revista Ambiente & Água*, 8(2): 6-17.

Prado Córdoba, J., Wunder, S., Smith-Hall, C., Börner, J. 2013. Rural Income and Forest Reliance in Highland Guatemala. *Environmental Management*, 51(5): 1034-1043.

Rodríguez Osuna, V., Börner, J., Cunha, M. 2014. Scoping Adaptation Needs for Smallholders in the Brazilian Amazon: A Municipal Level Case Study. *Change Adaptation Socioecol. Syst. (CASES)*, 1(1): 12-25.

Rodríguez Osuna, V., Börner, J., Cunha, M. 2014. Small-Scale Producers, Risk and Climate Change in an Amazonian Municipality. In: Lac, S., McHenry, M.P. (eds.): *Climate Change and Forest Ecosystems. Climate change and its causes, effect and prediction*. Nova Publishers Inc.. 135-151.

Angelsen, A., Jagger, P., Babigumira, R., Belcher, B., Hogarth, N., Bauch, S., Börner, J., Smith-Hall, C., Wunder, S. 2014. Environmental Income and Rural Livelihoods: A Global-Comparative Analysis. *World Development*, in press.

Börner, J., Wunder, S., Wertz-Kanounnikoff, S., Hyman, G., Nascimento, N. 2014. Forest law enforcement in the Brazilian Amazon: costs and income effects. *Global Environmental Change*, in press.

Duchelle, A.E., Almeyda Zambrano, A.M., S. Wunder, Börner, J., Kainer, A.K. 2014. Smallholder Specialization Strategies along the Forest Transition Curve in Southwestern Amazonia. *World Development*, in press.

Wunder, S., Börner, J., Shively, G., Wyman, M. 2014. Safety Nets, Gap Filling and Forests: A Global-Comparative Perspective. *World Development*, in press.

Lambin, E.F., Meyfroidt, P., Rueda, X., Blackman, A., Börner, J., Cerutti, P.O., Dietsch, T., Jungmann, L., Lamarque, P., Lister, J., Walker, N.F., Wunder, S. 2014. Effectiveness and synergies of policy instruments for land use governance in tropical regions, *Global Environmental Change*. 28, 129-140

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Funder: Robert Bosch Foundation

Main cooperation partners

IFOR, GIZ, FAS, UAB, Natura-Bolivia

Website: www.zef.de/envpol.html

Economics of Land Degradation

The purpose of Economics of Land Degradation (ELD) research is to conduct integrated global and national assessments of the costs of action vs. inaction with regard to combating land degradation on global and national levels. We conduct case studies in Argentina, Bhutan, China, Ethiopia, India, Kenya, Niger, Malawi, Russia, Senegal, Tanzania, Uzbekistan. ELD research emphasizes the need to initiate investments to combat land degradation. Yet, such actions and investments can be made only after assessing the extent and severity of land degradation as well as its impacts on human welfare. Methodologically, ELD research is guided by the Total Economic Value framework, accounting for the values of terrestrial ecosystem services in its analysis.

Activities

Case studies launched in 12 countries. Video produced on ELD.

Highlights

ZEF/ELD Session on “How to mobilize societal change to address land degradation and reduce poverty in the developing world: the role of local policy actions?” at the Second Global Soil Week in Berlin on October 30, 2013.

Side-event on “Building Resilience for the Poor through Sustainable Land Management”, at the IFPRI 2020 Conference in Addis Ababa, Ethiopia, on May 15, 2014.

National ELD meeting in Kenya with national decision-makers, researchers and civil society representatives on January 21, 2014.

Doctoral researchers

Oliver Kirui: Economics of Land Degradation, Sustainable Land Management and Poverty

Evelyne Kihui: Enhancing Pastoral Practices and Institutions for Sustainable Rangeland Management and Improved Livelihoods

Publications

Nkonya, E., & Anderson, W. 2014. Exploiting provisions of land economic productivity without degrading its natural capital. *Journal of Arid Environments*. DOI: 10.1016/j.jaridenv.2014.05.012

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Funder: BMZ, Germany

Main cooperation partners: ELD Initiative, Germany; IFPRI; IGDR, India; ICARDA, Ethiopia; KARI, Kenya; UNCCD, ETH Zürich, Ministry of Natural Resources and Sustainable Development of Argentina, CCAP/CAS, China; ECFS, Russia; EEA/EEPRI, Ethiopia; Institut National de la Recherche Agronomique du Niger.

Website: www.zef.de/index.php?id=2290

Integrated land use

The European Land-use Institute (ELI) started in 2012 as European Nodal Office of the Global Land Project and is committed to networking activities with the Ecosystem Services Partnership, International Association for Landscape Ecology, and International Union of Forest Research Organizations. ELI is a network of 70 partners in 21 countries. Its mission is to provide a platform for enhancing exchange, supporting building successful consortia and working on publications. The headquarters of the virtual institute are at ZEF. We developed a common research profile that links agriculture, forestry, water management and urban systems research along a number of cross-cutting issues which embed socio-ecological and economic aspects and therefore provide the basis for or-

ganizing sector-overarching research and development activities.

Activities

We started in widening the network to the Baltic Sea Area with trans-boundary cooperation in land use planning as the focus of a number of joint events, research and development activities. We contributed to the Open Science Meeting of the Global Land Project in March, 2013, in Berlin and will provide a symposium on Ecosystem Services at the IUFRO World Conference in October, 2014. Mid 2013 we started the interdisciplinary journal "Change and Adaptation in Socio-Ecological Systems" at de Gruyter, see: www.degruyter.com/view/j/cass

Highlights

RegioResources 21, 2013 (Catania, Italy), 2014 (Katowice, Poland), see: regioresources21.eli-web.com

Publications

Fürst, C., Opdam, P., Inostroza, L., Luque, S. 2014. A balance score card tool for assessing how successful the ecosystem services concept is applied in participatory land use planning. *Landscape Ecology*. DOI: 10.1007/s10980-014-0052-9.

Fürst, C., Berry, P., Geneletti, D., Khamzina, A., Sanfo, S. 2014. Inaugural editorial. *Change Adaptation in Socio-Ecological Systems* 1, 35–39.

Fürst, C., Frank, S., Witt, A., Koschke, L., Makeschin, F. 2013. Assessment of the effects of forest land use strategies on the provision of Ecosystem Services at regional scale. *Journal of Environmental Management*, 127, 96–116. IF: 3.245

Fürst, C., Helming, K., Lorz, C., Müller, F., Verburg, P. 2013. Integrated land use and regional resource management – A cross-disciplinary dialogue on future perspectives for a sustainable development of regional resources. *Journal of Environmental Management*, 127, 1–5, IF: 3.245

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Conservation auctions in developing countries

Payments for Ecosystem Services (PES) are an increasingly popular market-based instrument to preserve ecosystems and their services. Ensuring the efficiency of PES schemes is important for their future success. In this respect, it is an important task for buyers of ecosystem services to reduce producer surpluses by making payments that are aligned with actual provision costs. Conservation auctions can help reduce surpluses through competitive bidding. While auctions are being applied successfully in developed countries such as the US and Australia, their use in developing countries is limited to a few pilot research initiatives. Therefore, this project aimed to assess the applicability of auctions in rural areas of the developing world and test the efficiency of alternative auction and contract designs. The study area was the Kapingazi watershed close to Embu, about 130km north of Nairobi, Kenya. We ran a field experiment auctioning reforestation contracts (a proxy for PES contracts) with two alternative contract designs: (i) one paying for survived trees, (ii) and one paying for planted trees. We found the auctions to be well-understood. However, transaction costs were higher than those of alternative approaches and, in our case, did not offset the benefits. We found no differences in tree survival, overall cost per survived tree, and the contractor's motivation to fulfill the contract.

Highlights

Workshop on "Conservation Tenders in Developed and Developing Countries - Status Quo, Challenges and Prospects". Boppard, Germany, September 12-13, 2013. www.zef.de/auction_workshop.html

Doctoral researchers

Lucie Andeltova: Cost-Effectiveness of Conservation Auctions for Outcome-Based and Action-Based Payments for Environmental Services and the Social Aspects: Experiments in Kenya.

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Funder: BMZ through GIZ, Germany

Main cooperation partner: ICRAF

Website: bit.ly/ZEF_conservation

3.7 MOBILITY AND MIGRATION

Crossroads Asia: Conflict, Migration, Development

In the final year of the first project phase, Crossroads Asia shifted its focus to synthesizing first empirical results collected during the extensive field research periods. Empirical and theoretical work during the four-year project phase showed that the established Crossroads-Perspective, as a research tool kit in the spirit of rethinking area studies, can usefully be applied to the study of other regions in the world that are characterized by complex webs of figurations, in order to overcome the limited scope of traditional area studies. This new Crossroads-perspective makes it possible to focus on specific spaces constituted by human experience, imagination and actions in contexts which are thematically defined in each case and not defined by territorial boundaries.

Workshops

- International Crossroads Studies Conference, November 27-28, 2014 at ZEF, Bonn
- 'Spaces of Conflict', Workshop at LMU München, October 11, 2014.
- Transregional Crossroads of Social Interaction: the Shifting Meaning of Regional Belonging in South and Central Asia. March 21, 2014
- 'Concepts of Space and Ordering in the Area Studies' – joint workshop with DFG Area Studies group of Prof. Müller-Mahn, Geographisches Institut, Bonn University. February 17, 2014.

Selection of lectures

Hill, J.: "Small places, large issues: Farmer-managed irrigation in the Karakorum (Baltistan) and trans-Himalaya (Ladakh)", Crossroads Asia Lecture Series, ZEF, January 9, 2014.

Hornidge, A.-K.: "Crossroads Studies", presentation on "CrossArea – Vielfalt und gemeinsame Interessen der Area Studies in Deutschland", Centre for Area Studies, Universität Leipzig, March 27-28, 2014.

Mielke, K.: "Natural resource governance, power and intervention in rural northeast Afghanistan: A post-institutional analysis of access to everyday livelihood resources", Workshop at the University of Indiana, April 18-20, 2014.

Mielke, K.: "Pakistan – Land der Konflikte: Die internationale Dimension", Bonner Politikforum, February 25, 2014.

Hill, J.: "Farmer-managed irrigation systems in the Karakorum and trans-Himalaya: How sustainable are present-day irrigation development interventions?" Invited speaker at International Conference on Sustainable Development, December 4, 2013, Chandigarh, India

Hill, J. "Encountering modernity: Mountain communities, irrigated agriculture and development trajectories in the valleys of the Pamir, Karakoram and trans-Himalaya." 8th Annual HSS Conference 'Asian Ecologies: Capitalism, Modernity and the Environment', April 7, 2013, at LUMS, Lahore, Pakistan.

For a list of all lectures, see

<http://crossroads-asia.de/termin-archiv.html>

Doctoral researchers (at ZEF)

Andreas Mandler, Homa Maddah and Helena Cermeno

Publications

Mielke, K., Hornidge, A.-K. 2014. Crossroads Studies: From Spatial Containers to Interactions in Differentiated Spatialities. 'Area Studies'-Discussion paper of the Research Network Crossroads Asia. In: Crossroads Asia Working Paper Series, No. 15.

Hornidge, A.-K. 2014. Wissensdiskurse: Normativ, Faktisch, Hegemonial. In: Soziale Welt, 65: 7-24.

Mielke, K. 2014, forthcoming. Unveiling Dichotomies, Conceptualizing Politics. Social Order as Boundary Concept. In: Asien – The German Journal on Contemporary Asia (April 2014).

Hornidge, A.-K., Oberkircher, L., Kudryavtseva, A. 2013. Boundary Management and the Discursive Sphere – Negotiating 'Realities' in Khorezm, Uzbekistan, Geoforum, 45, pp. 266–274.

Hill, J. 2014. Farmer-managed irrigation systems in Baltistan and Kargil. Ladakh Studies, 31: 4-23.

Hill, J. 2013. The role of authority in the collective management of hill irrigation systems in the Alai (Kyrgyzstan) and Pamir (Tajikistan). Mountain Research and Development, 33 (3): 294-304

For all crossroadsasia publications see <http://crossroads-asia.de/en/publications.html>

Contact: Anna-Katharina Hornidge

Email: hornidge@uni-bonn.de

Funder: BMBF

Main cooperation partners:

University of Cologne, Ludwig-Maximilians-University Munich, University of Bonn, University Tübingen, Humboldt University of Berlin, Free University Berlin, Zentrum Moderner Orient, Berlin.

Website: www.crossroads-asia.de/en/home.html

3.8 RENEWABLE ENERGY

Bioenergy, bioeconomy and food security:

Development research and policy advise on the nexus of energy, food, water and land.

Modern bioenergy has become a core component of sustainable economic development as it plays an important role in poverty reduction and green growth. Therefore, bioenergy innovations are crucial, especially in developing countries where many households and rural communities rely on traditional bioenergy. However, managing the multiple tradeoffs among bioenergy use, agricultural productivity, and ecosystem functions is a major development challenge. For overcoming it, we have to identify the drivers, tradeoffs and impacts of bioenergy production, trade and use in the Water-Energy-Food Security Nexus.

Specific objectives of this project are:

- Assess the economic, social, health-related and environmental consequences of modern bioenergy development among households and communities in developing countries.
- Explore the constraints and opportunities for community-based decentralized energy production and use, especially in off-grid rural areas of the developing countries.

- Identify policy instruments, governance and institutional structures for stimulating the innovations in bioenergy production and use by households and communities.

Activities

The project was initiated in September 2013. The analytical framework for its activities has been developed, see ZEF Working Paper no. 135. In addition, case studies in Ethiopia, India and China have been initiated.

Highlights

Presentation on “Bioenergy in the Nexus: Challenges and Opportunities for Food Security and Poverty Reduction” at the international GWSP conference on “Sustainability in the Water-Energy-Food Nexus” Bonn, May 19-20., 2014

Doctoral researchers

Dawit Guta: Biomass-based energy, rural livelihood and energy security in Ethiopia.

Varun Gaur: Decentralized Bioenergy in India and its synergies with Water-Energy-Food Security Nexus

Energy working group at ZEF

During the last year, ZEF has expanded its research activities in areas related to sustainable energy for development. Therefore, the ZEF Energy Working Group was established. It brings together about 20 ZEF senior and junior researchers, from all departments, working or having interest in energy-related research. The main purpose of the Working Group is to foster synergies and increase our overall impact in this research area. The Working Group meets on a monthly basis to share relevant knowledge and information, but also to discuss ideas for joint papers and project proposals.

Contact: Alisher Mirzabaev

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Funder: German Federal Ministry of Economic Cooperation and Development (BMZ)

Website: www.zef.de/index.php?id=2290



4

CAPACITY DEVELOPMENT

4.1 ZEF'S DOCTORAL STUDIES PROGRAM

ZEF's doctoral studies program offers an interdisciplinary and international three-year doctoral education. Since its inception in 1999 around 600 students from 80 countries have participated in the program.

Highlights

- Evita Pangaribowo and Rapti Sirdardane-de Zoysa, two young ZEF researchers, spoke at the inaugural meeting of the newly established UN Scientific Advisory Board meeting in Berlin on January 30-31, 2014. They were among six young scientists invited to talk.
- Elias Cisneros, ZEF Junior Researcher from Germany, won the Public Policy Award with his two co-authors for the paper "Unintended consequences of anti-corruption strategies: Public fiscal audit and deforestation in the Brazilian Amazon" at the Annual Congress of the International Institute of Public Finance in Taormina, Italy, August 22-25, 2014.
- His Majesty the King of Bhutan awarded Sonam Tashi, ZEF Junior Researcher and DAAD-scholar from Bhutan, with the National Golden Order of Merit for academic excellence. Sonam Tashi is one of the few experts on organic farming in his country.
- Willis Okumu, ZEF Junior Researcher from Kenya, has been selected as member of the Africa Good Governance Network of DAAD.

Leadership training for sustainable development

The participants of the ZEF Doctoral Studies Program are trained as so-called change agents. Thus, they are educated to share their experiences and newly acquired knowledge, participate actively in international networks as multipliers, and initiate long-term development processes in their home countries.

Particularly popular among ZEF's doctoral students is the annual "Intercultural weekend seminar" which is funded by DAAD and aims to strengthen the students' intercultural competencies.

Since 2011, the ZEF Doctoral Studies has been collaborating with the Food Security Center at the University of Hohenheim. With the support of Foundation fiat panis, students of both institutions participate in three block courses, organized alternatively in Hohenheim, Bonn or Berlin. In workshops such as on "Politics and science" students learn strategies and methods for applied research. Another leadership workshop deals with topics such as motivation and team building, change management, communication and conflict. In 2014, the doctoral students from ZEF and FSC met in Mainz for a one-week workshop on ethics of food and nutrition and science. More information at: <http://www.zef.de/index.php?id=2360>.

Ethical aspects of doctoral research

ZEF has developed an ethics policy and ethical clearance procedure to ensure that we conduct our research in an ethically correct way, according to international standards. All studies, the collection of primary data, or the use of secondary data including personal or confidential information, require the authorization of the ZEF Research Ethics Committee. This concerns issues such as the anonymity and integrity of participants in surveys, which has to be guaranteed. Also, data for surveys are only to be collected by voluntary consent and the collected data has to be stored securely. This particularly applies to studies with vulnerable and dependent people, e.g. children. Doctoral students should understand not only the risks but also possible implications before starting into their research. For this purpose, we offer special seminars and workshops.

Welcome to new doctoral students

ZEF welcomed this year's batch of new doctoral students. Twenty-six students from 20 countries started into the three-year doctoral program at ZEF. Here, they will strengthen their interdisciplinary and disciplinary skills. In addition, they conduct one year of practical field research in a developing country and/or context.

For general information on the ZEF doctoral program, its application and registration procedures, please look at www.zef.de/doctoral-program.html

4.2 ZEF DOCTORAL DEFENSES MID 2013 - MID 2014

11-Feb-13

Nargiza Nizamedinkhodjayeva (Uzbekistan)

Livelihood strategies: gender and generational specificities of rural livelihoods in transition

19-Mar-13

Muhammad Mehmood-Ul-Hassan (Pakistan)

Nurturing interdisciplinarity in agricultural research through capacity-building: A case study of ZEF's Uzbekistan project

12-Apr-13

Hart Feuer (USA)

Pre-industrial ecological modernization in agro-food and medicine: directing the commodification of heritage culture in Cambodia

12-Jun-13

Katja Mielke (Germany)

Re-constructing Afghanistan? Rewriting rural Afghans' Lebenswelten into recent development and state-making processes. An analysis of local governance and social order

19-Jun-13

Liu Dan (China)

China's new rural cooperative medical scheme: evolution, design and impacts

26-Jun-13

Girma Kelboro Mensuro (Ethiopia)

Unraveling the parks and people dichotomy: local interests and conflicts in Nech Sar National Park, Ethiopia

18-Oct-13

Olena Dubovyk (Ukraine)

Multi-scale targeting of land degradation in northern Uzbekistan using satellite remote sensing

22-Nov-13

Sven Genschick (Germany)

Pangasius aqua-'culture' in Vietnam. An analysis of current aquaculture practices with Pierre Bourdieu's theory of practice

05-Dec-13

Jonas Ayaribilla Akudugu (Ghana)

Organising and implementing local economic development initiatives at the district level in Ghana

12-Dec-13

Simon Benedikter (Germany)

Strategic group formation and power relations in the water sector of the Mekong Delta, Vietnam

18-Dec-13

Beatrice Wambui Muriithi (Kenya)

Commercialization of smallholder horticultural farming in Kenya: poverty, gender, and institutional arrangements

08-Jan-14

Elena Kim (Kyrgyzstan)

International development and research in Central Asia: Exploring the knowledge-based social organization of gender

10-Jan-14

Sophia Baumert (Germany)

Life cycle assessment of carbon and energy balances in Jatropha production systems of Burkina Faso - sustainability assessment using carbon and energy balances as indicators

26-Mar-14

Maksud Bekchanov (Uzbekistan)

Efficient water allocation and water conservation policy modeling in the Aral Sea Basin

26-Mar-14

Utkur Djanibekov (Uzbekistan)

Trees, crops, and rural livelihoods: afforestation of marginal croplands in Uzbekistan

31-Mar-14

Sisay Demeku Derib (Ethiopia)

Balancing water availability and water demand in the Blue Nile: a case study of Gumara watershed in Ethiopia

28-Apr-14

Panagiota Kotsila (Greece)

Socio-political and cultural determinants of diarrheal disease in the Mekong Delta. From discourse to incidence

21-May-14

Manh Quyét Vu (Vietnam)

Multi-level assessment of land degradation: the case of Vietnam

26-Jun-14

Quy Hanh Nguyen (Vietnam)

Another epistemic culture: reconstructing knowledge diffusion for rural development in Vietnam's Mekong Delta

26-Jun-14

Ruchika Singh (India)

Actors', ideas and ideational realm in irrigation management: the case of decentralization in Madhya Pradesh, India

06-Aug-14

Tilman Schachtsiek (Germany)

Exploring the potential of multipurpose tree species for revegetating abandoned cropping sites in the lower Amu Darya Basin

4.3 CAPACITY DEVELOPMENT IN ASIA AND AFRICA

German-Pakistani research collaboration and academic capacity building program

ZEF's Department of Political and Cultural Change and the Faculty of Arts and Social Sciences of the Government College University (GCU) Lahore completed this collaboration program after three years of capacity building and exchange activities (2011-13). Activities in 2013/14 included organizing a second spring school on "Introduction to qualitative social sciences research methods" in Lahore. Under the overall topic of "Social change, marginality, and urban development in Lahore" for this training cycle, seven students from the Departments of Economics, Psychology, History, and Political Science had prepared draft research proposals, which were discussed with supervisors, tutors and ZEF staff. After finalizing their proposals, the students carried out empirical field research in Lahore to collect data and write up their Master's theses. ZEF researchers assisted the students with practical advice during fieldwork. Among the thesis topics were "Marginality among Khwaja Saras in Lahore", "Informal Female Islamic Religious Institutes in Lahore: A Study of Al-Huda and Alnoor", "Impact of Energy Crisis on the Subjective Wellbeing of the Laboring Class", and "Is there a Green Movement? Social Activism for Environmental Protection in Lahore". After submission of their theses, the three best students were chosen to take part in ZEF's doctoral course from November 2013 until January 2014. The stay at ZEF offered them the opportunity to familiarize themselves with the German academic system, ZEF and its research, and life in Bonn. Out of 13 students who took part in the two training cycles, five were further trained at ZEF and two have so far enrolled in international Ph.D. programs.

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Funder: German Foreign Office via German Academic Exchange Service (DAAD)

Website: www.zef.de/index.php?id=2329

Improving irrigation water use in the Punjab Province of Pakistan by raising flexibility and integrating surface and groundwater resources

The current water distribution in Pakistan is supply-driven and follows strict rotational principles (called "Warabandi"). Although this strategy offers advantages in terms of transparency and operational handling of the irrigation systems, the capacity to react on an increasingly variable environment and diversifying water user demands is limited. Against this background the project works out options for a more flexible, site-specific and demand-oriented irrigation scheduling while integrating surface and groundwater resources in Punjab. The project has a strong focus on capacity building and joint learning with the partner universities University of Agriculture in Faisalabad, PMAS-Arid Agriculture University in Rawalpindi, water management associations, Punjab Power and Irrigation Department, International Water Management Institute in Lahore and local farmers.

Activities:

- Students of UAF with support of IWMI collected and analyzed data on groundwater use in Punjab.
- Strategies towards demand-oriented irrigation scheduling and the integration of surface and groundwater use (conjunctive use) were worked out by the project partners.
- Options for improving water management in rainfed-systems were discussed in order to lower the high pressure on irrigated areas.
- December 2013: workshop in Faisalabad with water managers and farmers in Punjab. Strategies towards flexible irrigation scheduling were presented and discussed. The feedback from water managers, farmers and practitioners indicated that flexible scheduling approaches in combination with decentralized storage facilities have the potential to support farmers in better matching site-specific and time-dependent water demands, especially under an increasingly variable environment.

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Funder: German Foreign Office (AA) via German Academic Exchange Service (DAAD)

Website: www.zef.de/2162.html

The ZEF-led DAAD Center of Excellence in Ghana

The Ghanaian-German Center for Development Studies (GGCDS) was established in 2008 in collaboration with the Institute of Statistical Social and Economic Research (ISSER) at the University of Ghana. It trains dedicated and innovative future leaders from Ghana and other African countries who commit themselves to the development of their countries and can contribute to the partnership between Germany and African countries. Ph.D. candidates undergo training in interdisciplinary development theory, methodology, and professional skills and conduct research on a range of topics related to the economic, social, and political development of their countries. This research not only generates new insights and knowledge that feed into development processes but also equips the students with expertise enabling them to take up responsible positions in universities, government, NGOs, and international organizations. The GGCDS supports academic exchange and capacity building such as research visits in Germany and international conference participation for students as well as for staff. After a successful evaluation of the GGCDS in 2012/2013, funding for a second project phase until 2018 has been granted. In this phase, the partnership effort will be expanded to the University of Development Studies (UDS) in northern Ghana.

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Funder: German Federal Foreign Office via DAAD.

Main cooperation partners: ISSER, University of Ghana; Faculty of Planning and Land Management, UDS.

Website: www.zef.de/index.php?id=2183

The WASCAL Graduate Studies Program

WASCAL supports a total of ten Graduate Research Programs in West Africa on selected priority areas of climate change. Each Graduate Research Program focusses on specific climate change-related areas and challenges for West Africa. Aiming at training the next generation of climate change scientists in West Africa, WASCAL's Graduate Studies Department in Accra is currently supporting 98 Ph.D. students and 60 MSc students in six Doctoral Programs, located in Benin, Côte d'Ivoire, Ghana, Mali, Senegal and Nigeria and four Master's Programs in Togo, The Gambia, Niger and Nigeria. The Ph.D. students are coming from the ten WASCAL member countries, whereas lecturers and supervisors represent at least 22 West African and six German universities. ZEF researchers supervise students and give courses. The Graduate Program on Climate Change and Economics at Senegal's Cheikh Anta Diop University in Dakar, for example, is supported by ZEF Senior Researchers Tobias Wünscher and Marc Müller. The four Master's Programs focus on relations between climate change and education, energy, land use and human security. WASCAL graduate students are encouraged to spend up to six months abroad, to gather ad-

ditional data or discuss their findings and work with their supervisors. In Germany alone, there are 17 scientists at 11 partner universities or institutions involved in the program. The first batches of students from the Graduate Research Programs in Akure (Nigeria), Cotonou (Benin), Dakar (Senegal) and Kumasi (Ghana) are about to graduate while the second batches have recently finalized their course work. Candidates for the third batches are currently being selected.

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Funder: BMBF
Website: www.wascal.org

Doctoral Program for Environmental Planning at Addis Ababa University, Ethiopia

Since 2010, ZEF has cooperated with the University of Addis Ababa to establish the first Ph.D. Program on Environmental Planning in Ethiopia. The interdisciplinary and applied program aims to improve the academic capacities in Ethiopia in the field of environmental planning and natural resource management. A total of 26 Ph.D. students are currently enrolled in the Program. By the end of 2013, the organizational and financial responsibilities of the activities were fully handed over to the Ethiopian partners. ZEF will continue

to support the Program with lecturing and supervision.

Contact: Till Stellmacher
E-mail: t.stellmacher@uni-bonn.de
Funders: DAAD, Ministry of Education of the Federal Democratic Republic of Ethiopia
Website: www.zef.de/1629.html

Right Livelihood College (RLC) - Campus Bonn

The Right Livelihood College (RLC) is a global science and capacity building network of universities and the Right Livelihood Award (RLA). In 2013, the number of RLC Campuses increased to seven worldwide. The RLC Campus Bonn at ZEF promotes interdisciplinary capacity building and applied research in the fields of poverty alleviation, environmental sustainability and social justice by promoting exchange and synergies between RLA laureates, Ph.D. students, researchers, practitioners and an interested public. RLC Bonn provides 3-year Ph.D. scholarships for research in Africa and Asia and organizes international scientific conferences, workshops and public talks.

The **RLC Campus Bonn** organized a workshop on "Mobilization for change: Participatory research and the empowerment of the marginalized". Scientists, policy makers and Ph.D. students from all over the world participated together with the Right Livelihood Laureates Dipal Barua (Bangladesh), Anwar Fazal (Malaysia), and Raul Montenegro (Argentina). *May 2014*

For a full list of all RLC events see: www.rlc-bonn.de

Contact: Till Stellmacher
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Funders: DAAD, University of Bonn
Website: www.rlc-bonn.de



5

BUDGET 2013/2014, ZEF FUNDING PARTNERS

Indirect Support*)	in Euro	in %
German Academic Exchange Service (DAAD) / German Federal Ministry of Economic Cooperation and Development (BMZ)	389,117	56.8
China Scholarship Council	62,600	9.1
German Academic Exchange Service (DAAD) Regional Program / German Foreign Office (AA)	37,260	5.4
Own funds of students	36,900	5.4
Katholischer Akademischer Ausländer-Dienst (KAAD)	30,600	4.5
Government of Iran	23,100	3.4
CONICYT, Chile	20,050	2.9
Evangelisches Studienwerk e.V. Villigst	12,300	1.8
Hanns-Seidel-Stiftung	12,000	1.8
Landesgraduiertenförderung Hamburg	11,400	1.7
Ministry of Education, Indonesia	11,400	1.7
La Caixa Foundation, Spain	10,710	1.5
Friedrich-Ebert-Stiftung	10,250	1.5
German Federal Ministry of Economic Cooperation and Development (BMZ) / CGIAR	9,685	1.4
Stiftung der Deutschen Wirtschaft (SDW)	6,150	0.9
Ministry of Agriculture and Rural Development of Vietnam	1,608	0.2
Total	685,130	100

*) Scholarships directly funded by the donors.

External Funds**)	Projects	in Euro	in %
German Federal Ministry of Education and Research (BMBF) via		5,807,487	54.6
<ul style="list-style-type: none"> German Aerospace Center (DLR), or 	Agricultural Knowledge Systems, Georgia and Tajikistan Crossroads Asia Analysis Uzbekistan European Land-Use Institute Forest Landscapes Institutions and Development Innovative Technologies for multidimensional special development International Advanced Study Courses (IPSWaT) International Project Office/Global Water Systems Project (GWSP) Science and Technology Cooperation with Uzbekistan WASCAL project, West Africa		
<ul style="list-style-type: none"> Forschungszentrum Jülich (FZJ) 	GlobE: BiomassWeb Olifants, South Africa		
<ul style="list-style-type: none"> Karlsruher Institut für Technologie (KIT) 	Client China Delight		
German Federal Ministry of Economic Cooperation and Development (BMZ)		1,882,110	17.7
directly	Bioenergy, Bioeconomy and Food Security Economics of Land and Soil Degradation Excessive Price Volatility		
BMZ via			
<ul style="list-style-type: none"> German Academic Exchange Service (DAAD) 	Ph.D. Course at the University of Addis Ababa, Ethiopia		
<ul style="list-style-type: none"> International Center for Agricultural Research in the Dry Areas (ICARDA) 	Wheat for Asia		
Bill and Melinda Gates Foundation	AG-WATSAN-Nexus TIGA	735,701	6.9
German Academic Exchange Service (DAAD) / German Foreign Office (AA)	Capacity-Development DAAD/ZEF Centre of Excellence, Ghana Improving Irrigation Water Use in the Punjab Province of Pakistan RLC Campus II	491,887	4.6
Robert Bosch Foundation (RBS)	Junior Professorship – Prof. Börner Junior Professorship – Prof. Khamzina	422,666	4.0
European Commission (EU)	FoodSecure Urban	291,384	2.7
Volkswagen Foundation (VW)	Conversion von Scientific Relations, Tajikistan Research Funds Laube (Fellowship) Healthcap	184,429	1.7
German Academic Exchange Service (DAAD)	International Doctoral Studies Intercultural Weekend Seminar	133,919	1.3
Fiat Panis Foundation	Dr. Hermann Eiselen Doctoral Program	105,834	1.0

**) Third-party projects of ZEF. Funds budgeted i.a.w. annual financing plans.

International Food Policy Research Institute (IFPRI)	Enhancing Women's Assets to Manage Risk & Climate Change	100,155	0.9
German Research Foundation (DFG)	Health Impact of Water Access in urban Tibet Water Resources Institutions & Human Health, India Workshops	59,098	0.6
Union Investment	Price Development for Food Products	58,277	0.5
Third-Party Project Funds available after project end	Third-Party Project Funds available after project end	53,291	0.5
AVRDC	GlobalHort	50,000	0.5
German Federal Ministry of Food, Agriculture and Consumer Protection (BMELV)	Regiopower – Part 1	44,905	0.4
CIFOR	Mapping of forest cover in Central Asia	40,172	0.4
German Technical Cooperation (GIZ)	International Agricultural Research Zukunftscharta	39,258	0.4
FOSI	Study of cotton farmers in Kazakstan and Uzbekistan	26,093	0.2
UNEP	Contribution to GWSP	26,000	0.2
Bayer CropScience	International Price Effects on Land Use & Production	23,696	0.2
Participants' fees	Participants' fees for GWSP Conference	17,313	0.2
DIE	Contribution to GWSP	15,000	0.1
IFPRI/CGIAR	Contribution to GWSP	11,992	0.1
IGBP	Contribution to GWSP	10,290	0.1
UNU-IHDP	Contribution to GWSP	6,670	0.1
Stiftung Internationale Begegnung der Sparkasse Köln Bonn	Contribution to RLC	3,720	0.07
Dreyer Foundation	Doctoral Scholarship	711	0.03
Total		10,642,058	100
Core Funds***)		in Euro	in %
Personnel Costs		1,162,845	62.3
Administrative Costs		283,530	15.2
BMBF & DFG Overhead Shares****)		420,176	22.5
Total		1,866,551	100
Indirect Support & External Funds & Core Funds		13,193,739	Euro

*) Scholarships directly funded by the donors.

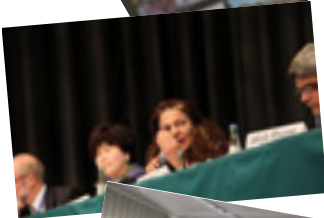
**) Third-Party Projects of ZEF. Funds budgeted i.a.w. annual financing plans.

***) University of Bonn, State of North-Rhine Westphalia funds for ZEF.

****) Partial BMBF & DFG Overhead Shares.

6

SELECTED OUTREACH



Lectures at ZEF

Public Lectures

“Water, Sanitation, Agriculture and Nutrition: The BRAC experience in Bangladesh”. With Mahabub Hossain. *September 8, 2014.*

“Why human rights matter for the post-2015 agenda”. ZEF/DIE Lecture with Joshua Castellino. *September 3, 2014.*

“Agricultural transformation in Africa”. With Segenet Kelemu, Director of *icipe* in Nairobi, Kenya. *August 29, 2014.*

„Independent media in a time of war“. With Amy Goodman. Organized by RLC Bonn. *June 30, 2014.* Watch the video at youtu.be/phE_l6Q5hFM

Risk and Uncertainty Lectures

“From Ypres to Damascus: The Quest for Global Abolition of Chemical Weapons”. With Paul F. Walker, Director of Environmental Security and Sustainability Green Cross International. *April 9, 2014.* See the video at youtu.be/noWGnCV1Wy4

“Vulnerable victims: redress through reparative justice”. With Ruben Carranza, Director of the Reparative Justice Program at the International Center for Transitional Justice, New York. *February 13, 2014.*

“International development: Ideas and Practice”. With David M. Malone, UN Undersecretary General and new Rector of United Nations University in Tokyo. *September 27, 2013.*

Water Lectures

“Averting Water Wars in Asia”. With Prof. Brahma Chellaney, Centre for Policy Research, New Delhi. *June 25, 2014.*

World Water Day co-organized with UN Water Decade Programme Bonn on “Water and Energy: The Nexus and beyond in Bonn”. *March 20, 2014.*

Awards and events

ZEF was listed again among the world wide leading think tanks: In the 2012 Pennsylvania ranking ZEF is among the 10 best “**Science and Technology Think Tanks**” and the 20 best “**University Affiliated Think Tanks**” (see www.goto-thinktank.com)

In 2014, the **Global Secretariat of the Right Livelihood College** moved from Penang, Malaysia, to Bonn and is now headquartered at ZEF. The inauguration of the new RLC Global Secretariat at ZEF took place in the Old City Hall of Bonn on *May 26, 2014.*

The Global Water System Project (GWSP) conference on “**Sustainability in the Water Energy Food Nexus**” brought together 300 scientists from around the world, among them many ZEF researchers. *May 19-20, 2014.* <http://wef-conference.gwsp.org/>

For all events see: www.zef.de

Watch ZEF's youtube channel: www.youtube.com/user/zef-bonn

Press coverage: www.zef.de/index.php?id=1422

Publications

For a detailed overview of all publications published by ZEF-researchers visit:

www.zef.de/publications.html



7

ZEF'S INTERNATIONAL ADVISORY BOARD

Professor Hans van Ginkel (Chairman of the Board). Former Under-Secretary General of the UN and Rector of the United Nations University in Tokyo, Japan

Professor Bina Agarwal
Professor of Development Economics and Environment, University of Manchester, UK; former Director, Institute of Economic Growth at the University of Delhi, India

Professor Ernest Aryeetey
Vice Chancellor, University of Ghana, Legon, Ghana

Mr. Gisbert Dreyer
G. Dreyer Planungsgesellschaft m.b.h.; founder of the Dreyer Foundation, Germany

Professor Jürgen Fohrmann
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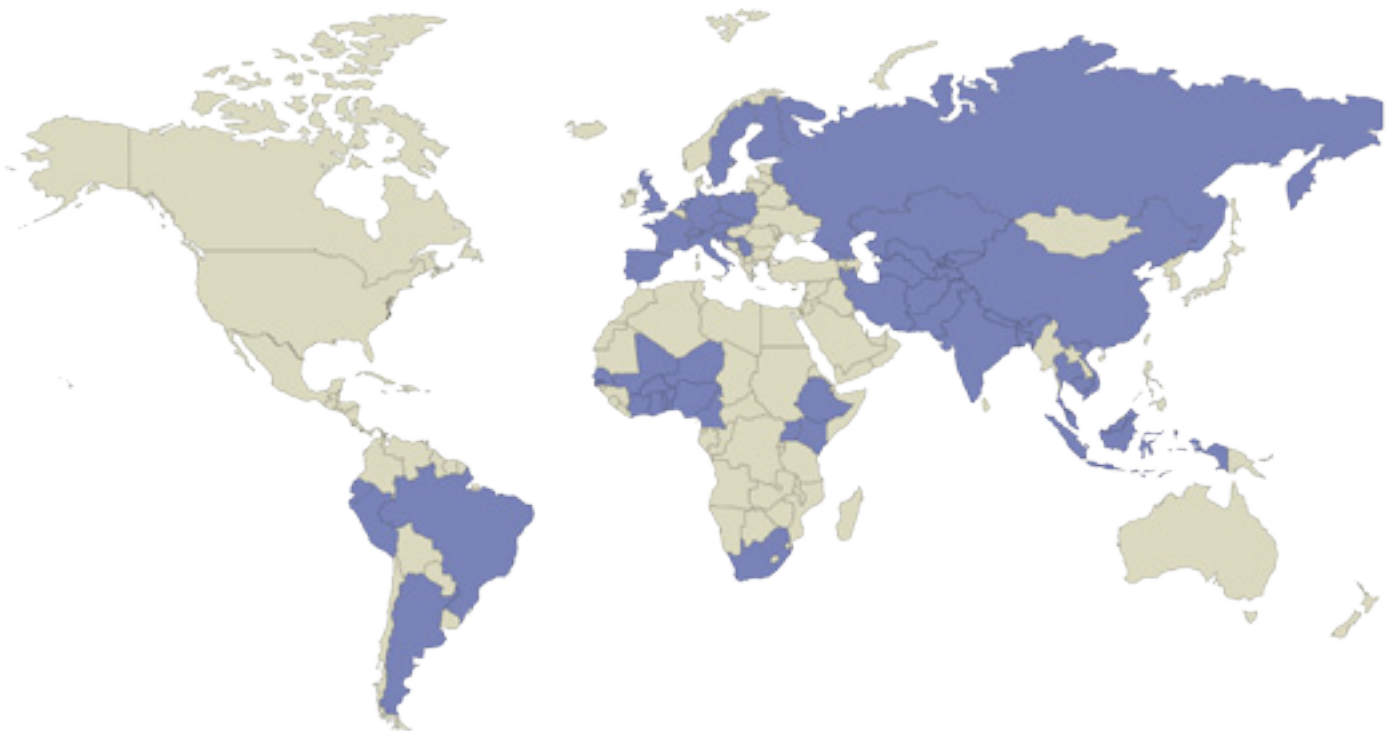
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