



zef

Center for
Development Research
University of Bonn

Annual Report

Bioeconomy: Sustainable Transformation
and Development

2016 - 2017



Abbreviations*)

AGRODEP African Growth and Development Policy Modeling Consortium

ASARECA Association for Strengthening Agricultural Research in Eastern and Central Africa

AVRDC World Vegetable Center

BICC Bonn International Center for Conversion

BIK-F Senckenberg Biodiversity and Climate Research Center

BLE German Federal Institute for Agriculture and Food

BMBF German Federal Ministry of Education and Research

BMEL German Federal Ministry of Food and Agriculture

BMUB German Federal Ministry of the Environment, Nature Conservation, Building and Nuclear Safety

BMZ German Federal Ministry for Economic Cooperation and Development

BRAC Bangladesh Rural Advancement Committee

CAS Chinese Academy of Sciences

CCAP Chinese Center for Agricultural Policy

CIFOR Center for International Forestry Research

DAAD German Academic Exchange Service

DLR German Aerospace Center

ECFF Environment and Coffee Forest Forum

ECFS Eurasian Center for Food Security

EC-JRC Joint Research Centre of the European Commission

ECOWAS Economic Commission of West African States

EEA Ethiopian Economic Association

ENTRO Eastern Nile Technical Regional Office

FANRPAN Food, Agriculture and Natural Resources Policy Analysis Network

FARA Forum for Agricultural Research in Africa

FAS Sustainable Amazonas Foundation

FOFIFA National Center for Applied Research in Rural Development

FZJ Research Centre Jülich

GIZ German Federal Enterprise for International Cooperation
GlobalHort Global Horticulture Initiative

ICARDA International Center for Agricultural Research in the Dry Areas

ICRAF World Agroforestry Centre

IFPRI International Food Policy Research Institute

IGIDR Indira Gandhi Institute of Development Research

IHEID Graduate Institute of International and Development Studies

IIASA International Institute for Applied Systems Analysis

IIPHG Indian Institute of Public Health

ILR Institute for Food and Resource Economics, University of Bonn

INRA National Institute of Agronomic Research

IOA Institute of Oriental and Asian Studies

ISSER Institute of statistical, social and economic research

IPAM International People's Agroecology Multiversity

IZNE International Center for Sustainable Development

KoGa Horticulture Competence Centre

KUL Catholic University of Leuven

LMU Ludwig-Maximilians-University of Munich

MCC Mercator Research Institute on Global Commons and Climate Change

RWI Rhenish-Westphalian Institute for Economic Research

UAB Autonomous University of Barcelona

UAM University of Applied Management Ghana

UDS University of Development Studies of Tamale

UFZ Helmholtz-Centre for Environmental Research

UHB Université Félix Houphouët Boigny

UNEP-WCMC UN Environment World Conservation Monitoring Centre

UNU-EHS United Nations University - Institute for Environmental and Human Security

UoA University of Antananarivo

WHH World Hunger Help

WUR Wageningen University

*) in alphabetical order.

Imprint

Publisher:

Center for Development Research (ZEF)

University of Bonn

Genscherallee 3, D-53113 Bonn

Germany

Contact:

Press and Public Relations

Phone: # 49 (0) 228 73-6124

e-mail: presse.zef@uni-bonn.de

www.zef.de

Editor: Alma van der Veen

Layout: Sebastian Eckert & Yesim Pacal

Printers: Köllen Druck+Verlag

Photos: ZEF. Cover photo by Galia Figuera Alfonso

Published in January 2018

Contents

1. Introduction by ZEF's directors	4
2. Lead article Bioeconomy: Research in Support of Sustainable Transformation and Development	5
3. ZEF's research agenda	7
3.1 Innovation, knowledge and science policy	8
3.2 Land, water, food and energy	13
3.3 Health, nutrition and ecosystems	20
3.4 Governance, conflicts and natural resources	21
3.5 Markets and public services	23
3.6 Mobility, migration and urbanization	26
4. Capacity development	28
4.1 ZEF's doctoral studies program (BIGS-DR)	29
4.2 ZEF doctoral graduations mid 2016 - 2017	30
4.3 Regional capacity development programs	33
4.4 Right Livelihood College	37
5. Selected outreach and social media	38
6. Budget 2016/2017, ZEF's funding partners	40
7. ZEF's International Advisory Board	42
8. ZEF's main research countries [map]	43

ZEF Annual Report
online:

[zef.de/publications/
non-scientific-
publications/zef-
annual-report](http://zef.de/publications/non-scientific-publications/zef-annual-report)



ZEF Website:

zef.de



1

INTRODUCTION BY ZEF'S DIRECTORS

ZEF looks back on an eventful 2017. Starting with presenting ZEF's Food Monitor www.foodmonitor.org at the "Green Week" in Berlin on January, launching the book "Food Price Volatility and its Implications for Food Security and Policy" at ZEF in February over conferences, workshops up to the COP23 in Bonn in November, we had many "full houses", have been interacting with many partners from all over the world and have seen 36 ZEF doctoral students obtaining their doctoral degrees. You can read about our activities in detail in this report.

As a mainly third-party funded institute, we are proud of having acquired additional research projects such as Waterfront Abidjan (funded by German Research Association DFG) as well as new Graduate cooperation projects in Ghana and Colombia. In addition, ZEF has been part of major educational and research initiatives by the University of Bonn such as the new Global Health Masters program or the Collaborative Research Centre (German acronym SFB) supported by the German Research Council (DFG) entitled "Future Rural Africa: Future-making and social-ecological transformation".

From mid-2016 up to mid-2017 ZEF has been going through its third external review by an independent review board consisting of three internationally



renowned development experts. The overall impression of the review panel was a positive one, though there is always space for improvement.

One of the reasons for ZEF's considerable scientific output are its strong networks and the untiring commitment of its International Advisory Board, directors, junior and senior researchers, its alumni, senior fellows and its various international and national partners. ZEF remains successful in acquiring competitive grants from a variety of major donors and is deeply grateful for their continuous support, which contributes over 80% of the Center's overall budget and thus constitutes

the backbone of ZEF's scientific success and outreach. Among the major donors are the German Federal Ministry of Education and Research (BMBF), the German Federal Ministry for Economic Cooperation and Development (BMZ), the German Federal Ministry for the Environment (BMUB), the German Federal Ministry of Food and Agriculture (BMEL), the State of North-Rhine Westphalia, the German Academic Exchange Service (DAAD), the European Union, the Robert Bosch Foundation, the Foundation *fiat panis*, and the Volkswagen Foundation.

Handwritten signature of J. V. Bremer

Handwritten signature of Eva Jaskovcova

Handwritten signature of C. Boffenbender

BIOECONOMY: RESEARCH IN SUPPORT OF SUSTAINABLE TRANSFORMATION AND DEVELOPMENT

2

By Joachim von Braun, Jan Börner, Christian Borgemeister, Eva Youkhana

The future of humankind depends on a secure, and sustainable availability of food, energy, water, and industrial raw materials with safe and healthy properties. In order to achieve transformation toward such sustainability, economies must be more and more based on renewable resources including bio-based materials, i.e. whole economic systems need to become “biologized”. Productivity in such a scenario will increasingly depend on science and innovations around bio-based production and processing technologies. This puts the knowledge-based bioeconomy at the center of an economic strategy that aims to reconcile humanity with nature.

The Bioeconomy is envisioned to entail knowledge-based production and utilisation of biological resources, innovative biological processes and principles to sustainably provide goods and services across all economic sectors. Bioeconomy is not free of conflicting goals and these need to be considered in research. Moreover, bioeconomy is much more than using biomass for energy. It embraces the sustainable management of ecological systems, understands land, forests, and soils as fragile resources that provide wealth through ecosystem services. It learns from nature by employing biomimicry, and utilizes biosciences to transform established economic sectors, such as chemical

industries, pharmaceuticals, food, and construction into sustainable ones. Biologization will increasingly be connected with digitalization of society and – if well designed – the two can shape innovation for sustainability.

ZEF research and policy engagement with partners make significant contributions to bioeconomy concepts and implementation for some time already, and increasingly so over the past five years. Bonn University has recently identified bioeconomy research as a strategic area for sustainable development. The bioeconomy has been rapidly expanding during the past ten years, driven by increased prices of natural resources, such as land and water, by new technological opportunities, and by changed consumer preferences. The Paris Agreement on climate change lent further impetus to investment in a sustainable bioeconomy.

A first Global Bioeconomy Summit in Berlin in November 2015 was testimony to the accelerated worldwide initiatives in this field. A second Bioeconomy Summit is scheduled for April 2018. The advancing of bioeconomy is now actively pursued in about 50 countries worldwide, and demand for research partnerships increases rapidly.

‘Biologisation’ of the economy addresses both, the efficient

use of biological resources in the production of materials and products, and the sustainable use of renewable biological raw material instead of fossil carbon sources for industrial processes. A knowledge-based and sustainable bioeconomy contrasts with current exploitative use of biological and other natural resources, and related effects on water, soils and climate which threaten the future of humankind and earth systems. Bioeconomy is expected to play an increasing and decisive role in addressing some of the grand challenges faced by society, and at least six of the Sustainable Development Goals (SDGs) require a bioeconomy approach to be realistically achieved. Transformative impact of bioeconomy is required specifically for addressing these challenges:

- Growing population and higher living standards, leading to increased demand for food, animal feed, fiber for clothing, material for housing, water, energy, health services, etc.;
- Declining resources - e.g. degraded ecosystems and loss of ecosystem services, including land degradation and unsustainable ocean fisheries, declining biodiversity – due to unsustainable management practices –, and the effects of climate change on resources;
- Adapting to limitation in fossil resources by providing a meaningful



substitution of the consumption of such finite resources by the use of bio-based and other renewable resources;

- The move to production systems that reduce and recycle waste streams or strategies where “waste” is designed to act as a bio-resource for further biological processes.

The expansion of world biofuel production in recent years is indicative for a bioeconomy in the making, but this particular sector has initially not dealt sufficiently with its negative side effects for food security, landscapes and the environment. The biofuels aberration teaches that sound policy impact analysis has to precede hasty policy action. Biomass has to be used judiciously for food, energy and industrial products, appropriately adjusting to the local context. This includes (1) bioscience-based crop breeding technologies for a resource efficient and climate smart food system as well as (2) behavioral change to reduce excessive consumption and waste of food and biomass. Both contribute to multiple SDG dimensions, including health, and fundamentally require cross-disciplinary research. A challenge for bioeconomy policy is that it cuts across sectors, while policy is mostly designed along sectoral pillars, such as agriculture, energy, health, and environment. A nexus approach coherently cutting across sectors is needed for governance of the bioeconomy.

Bioeconomy needs development partnerships. Germany has been a front runner in bioeconomy research and policy action and is well positioned now to partner with emerging economies in this critical area of transformative innovation. Africa, for instance, is rich in biomass resources and has growing science capacities. Bioeconomy strategies need to be job creating in emerging economies. With improved value chains in Africa, a bioeconomy strategy promises job generation and poverty reduction and thereby supports pro-poor development. Yet, there are risks if poor communities' rights to land and water are not protected, which is also an area for research advising development policy. Science and technology cooperation between emerging economies and Europe can support internationally coherent bioeconomy strategies. Reconciliation of African food security goals with bioeconomy is a matter of technological and institutional innovations that accelerate sustainable growth in African agriculture.

Bioeconomy must ultimately be understood in a context of needed societal, technological, and economic change for sustainability. The essence of such change is not just technological (new science) and behavioral (adjusted consumption), but the central issue may very well be institutional, i.e. providing long-run

incentives for sustainable farming, sound bio-resource management and industrial development. The governance of this process must be just and fair, as well as stakeholder-specific, focusing for example on research system capacities, industry patterns and potentials, or federal and local policy orientations. Instead of aiming for a unified concept of bioeconomy governance, principles of justice in resources access and good bioeconomy governance must be developed. In particular, many costs and benefits of bioeconomic transformations tend to accrue as externalities, hence the need for smart public policy and standard setting, yet another area on ZEF's research agenda.

Sources

1. von Braun, J. 2015. Bioeconomy - Science and Technology Policy to Harmonize Biologization of Economies with Food Security. In: D. Sahn (ed.) *The Fight Against Hunger and Malnutrition*. Oxford University Press pp 240-262 <https://global.oup.com/academic/product/the-fight-against-hunger-and-malnutrition-9780198733201?cc=us&lang=en&>
2. El-Chichakli, B., J. von Braun, C. Lang, D. Barben. 2016. Five cornerstones of a global bioeconomy. *Nature*, Volume: 535, Pages: 221–223 – Comment (14 July 2016). doi:10.1038/535221a <http://rdcu.be/jhFc>
3. Global Bioeconomy Summit 2015 and Global Bioeconomy Summit No. 2 2018 <http://gbs2018.com/home/>

RESEARCH AGENDA

3

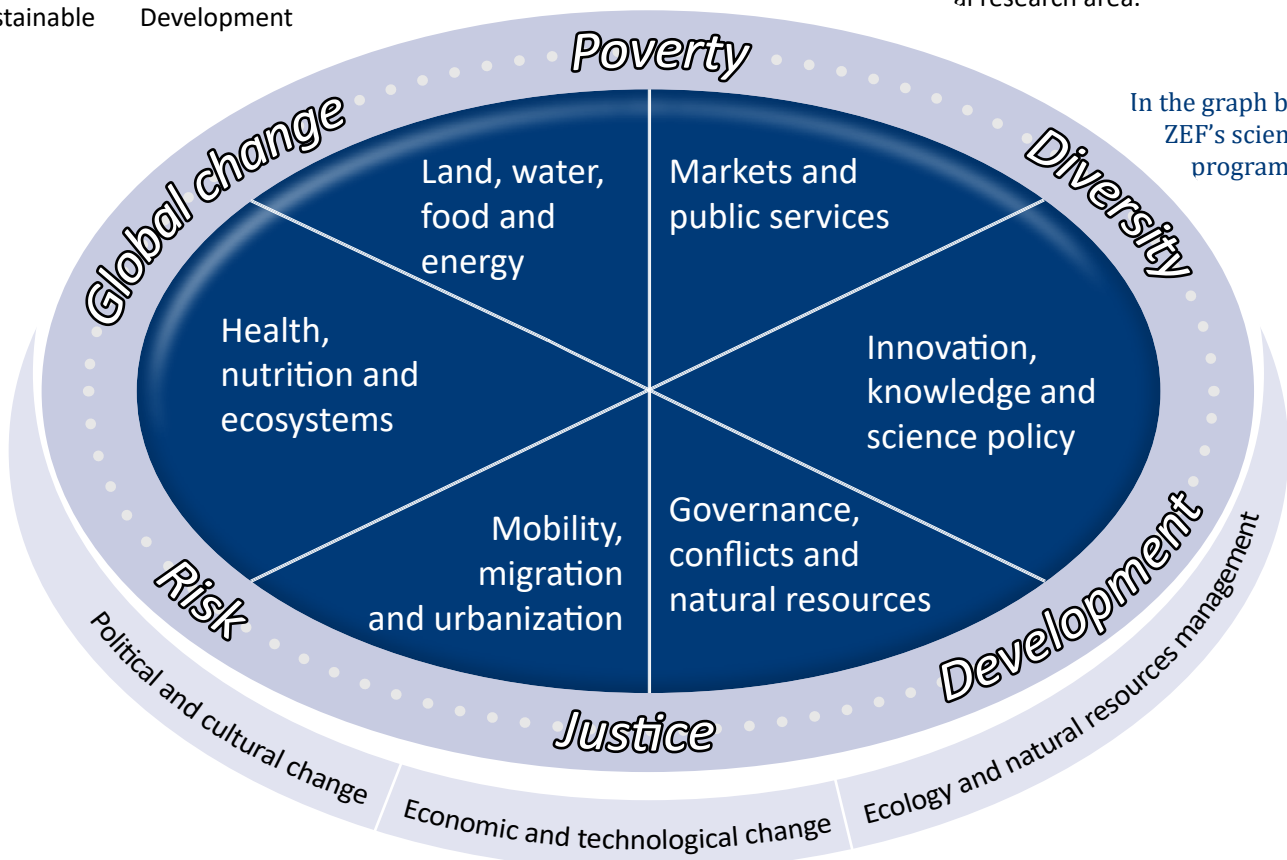
ZEF's work is dedicated to development research in its different and interlinked components. The Center's core research areas are based on the disciplinary strengths of our three departments, as well as on our interdisciplinary expertise. In addition, we aim to ensure transdisciplinary stakeholder involvement across all research activities, i.e. in the definition of research topics and the perception of scientific findings at different levels with a view to their technical, political and societal implementation.

ZEF's six core research areas take the Sustainable Development

Goals into account which are succeeding the 2000-2015 Millennium Development Goals. In this regard, the six core research areas ensure the full thematic integration of ZEF's science program and contribute in a sustainable way to the Center's global research and development objectives which focus on global change, poverty reduction, justice, maintaining diversity, and risk management. ZEF's development objectives are to be implemented via inter- and transdisciplinary research, emphasizing gender issues.

The manifold aspects of global change such as continued human population growth, climate change and geopolitical developments build an overarching frame under which the research agenda has been developed. As such, each of the six core research areas relates to the overall sustainable development goals, while accentuating a specific bundle of topics on which a particular focus is set. All areas are closely interlinked and sometimes overlap thematically, also allowing for the continuous amplification of thematic arrangements beyond the given frame of the individual research area.

In the graph below:
ZEF's science program.



3.1

INNOVATION KNOWLEDGE SCIENCE POLICY

West African Science Service Center on Climate Change and Adapted Land Use (WASCAL)

Over the past year, our overall goal has been to strengthen WASCAL based in West Africa by (i) completing the installation of critical infrastructure, (ii) transferring key data to the WASCAL Data Infrastructure, (iii) handing over the developed methods and tools and (iv) building capacities; (v) completing initiated but incomplete research outputs such as tools, methods, or procedures to strengthen the research and knowledge base for the implementation of WASCAL 2.0.

Gradually, key deliverables are being handed over to WASCAL in West Africa including data, computer infrastructure and software to process information, methods and tools, research findings. Yet, due to a series of delays, not all of the anticipated mile stones have been achieved. Therefore, a no-cost extension was requested and approved till December 2017.

Doctoral researchers

Siaka Dembele (Mali): Developing cultivation practices to combat early drought challenges. The case of sorghum in Mali (doctoral graduation in 2016).

Amouzou Kokou Adambounou Célestino (Togo): Dynamics of nitrogen and phosphorus under the impact of climate change and agricultural land use in the West African Sudan Savannah (ongoing).

Florent Noulekoun (Benin): Tree growth dynamics and silvicultural management for afforestation of degraded

Establishing academic infrastructure for dealing with changes in land use and climate in West Africa

agricultural lands under changing environmental conditions in Sudano-Sahelian zone of Benin (ongoing).

Ten doctoral students at the WASCAL Climate Change Economics Doctoral Program of the Cheikh Anta Diop University in Dakar, Senegal.

Publications

Callo-Concha, D., Denich, D., Lamers, J.P.A., Schwachula, A., Hornidge, A.-K., Khamzina, A., and C. Borgemeister (2016): Bridging science and development: lessons learnt from two decades of development research. *Agroforest Systems*.

Sanfo, S., Fonta, W.M., Ibrahim, B., and J.P.A. Lamers (2016): Survey Data on Key Climate and Environmental Drivers of Farmers' Migration in Burkina Faso, West

Africa. *Data in Brief* 9: 1013-1019.

Noulèkoun, F., Khamzina, A., Naab, J., and J.P.A. Lamers (2017): Shoot and root responses of woody species to silvicultural management for the afforestation of degraded croplands in the Sudano-Sahelian zone of Benin. *Forest Ecology and Management* 385: 254-263. Elsevier B.V.

See WASCAL Website: wascal.org/publications/journal-articles

Contact:

Christian Borgemeister
[cb@uni-bonn.de]

John Lamers
[j.lamers@uni-bonn.de]

Main funder: BMBF

Website: wascal.org





Biodiversity accounting in Bolivia

German-Bolivian Partnership for integrating biodiversity measures in environmental impact assessments

The project “German-Bolivian Partnership for integrating biodiversity measures in environmental impact assessments” aims to strengthen biodiversity conservation as part of environmental impact assessments in Bolivia through collaboration between Universidad Católica Boliviana, Cochabamba, and ZEF, involving environmental engineers, nature conservation practitioners and policy makers.

Research activities

The project activities focused on networking with relevant stakeholders in the field of Environmental Impact assessments in Bolivia.

Further activities comprise the development of a Handbook on the integration of biodiversity in Environmental Impact Assessments, which was published mid-2017. Regarding research activities, two PhD proposals were developed and aligned according to the identified research needs with regard to biodiversity in Bolivian Environmental Impact Assessments.

Events

Second German Workshop in Bonn, October 2016.

Third Bolivian Workshop in Cochabamba, July 2017.

Third German Workshop in Bonn, September 2017.

Doctoral researchers

Candan Ergeneman: Biodiversity, Ecosystem Services and Resilience Thinking: An Impact Assessment Framework for Bolivia (ongoing).

Vanessa Gandarillas: Indicators for terrestrial biodiversity impact assessment of hydroelectric Environmental Impact Assessments in the Amazon Ecoregion of Bolivia (ongoing).

Contact

Jan Henning Sommer
hsommer@uni-bonn.de

Main funder: DAAD

Main cooperation partner: Universidad Católica Boliviana

Website: zef.de/biodiv-eia.html



In focus: Bolivia

Despite its abundant natural resources Bolivia remains one of the poorest country in South America. Moreover, the strong political focus on economic growth has led to rising pressures on natural ecosystems and other serious threats to the environment and biodiversity.

Like in many other countries, Bolivia reacted to this environmental pressure by introducing environmental impact assessments.

Nonetheless, Bolivia’s great diversity of ecosystems and outstanding natural capital calls for a stronger consideration of biodiversity-related indicators in these assessments that need to be developed and adapted to local conditions and requirements.

PARI brings together partners from Africa, India and Germany to contribute to sustainable agricultural growth and food and nutrition security in Africa and India. PARI offers independent scientific advice to the German government's "One World, No Hunger"-Initiative (SEWOH). The latter is one of the most significant initiatives to improve food and nutrition security in Africa. It does so by stimulating the generation and implementation of innovations in agriculture and the food sector. Among other activities, SEWOH seeks to achieve its objectives by establishing Green Innovation Centers in 12 African countries and India. Countries covered by PARI include Benin, Burkina Faso, Cameroon, Ethiopia, Ghana, Kenya, Mali, Malawi, Nigeria, Togo, Tunisia, Zambia and India.

Research activities

1. Innovation research with future-oriented impact analyses

- The crop and economic modeling teams finalized adaptations of their respective models and applied them to the assessment of crop-related innovations for maize in Ghana and Nigeria.
- The GIS-based mapping tool eAtlas was launched and training workshops were held in several African countries. In addition, maps displaying rural typologies to identify investment opportunities and gaps for agricultural innovation were completed for eight African PARI countries.
- The African national partners finalized three national innovation studies which provide baseline information on the state of agricultural innovations, existing Innovation Platforms and innovation investments in the respective country.

Sustainable agricultural growth, food and nutrition security in Africa and India

- Country-specific and cross-cutting thematic research was carried out by all PARI partners. Focus areas include, among others, mechanization, innovation platforms, seeds and seed systems, vocational training, personalized nutrition and gender.

2. Identifying and stimulating technological and institutional innovations

- The PARI Agricultural Innovation Database was launched to share promising agricultural innovations from PARI's German partner universities as well as leading agricultural universities in the PARI countries.
- Farmer innovation contests took place in Ethiopia, Kenya, Malawi and Zambia. Contests are underway in Mali and Cameroon.
- Research in this area focused, among other topics, on the role of the private sector in scaling of innovations, scaling innovations in the dairy sectors of Tunisia and Kenya, and learning from the Indian experience on scaling grassroots and high-tech agricultural innovations.

3. Engaging with food and agriculture policy making to enhance approaches for innovation that improve food and nutrition security

PARI consortium members organized and participated in several events and bilateral meetings to engage key stakeholders and present research findings, including side-events at important scientific and policy-related conferences in Africa. Among them, PARI contributed to the development and adoption of the Berlin Charter on Creating Opportunities with the Young Generation in the

Rural World at the "Future of the Rural World" G20 Conference hosted by the German government in April 2017 in Berlin.

Events

September 25, 2016: PARI side-event at the 5th African Association of Agriculture Economists Conference in Addis Abeba, Ethiopia. Two PARI researchers were awarded for their research contributions at the Conference.

December 8-9, 2016: PARI Annual Research and Planning Meeting in Nairobi, Kenya

January 20-29, 2017: Presentation of the solar milk cooling system developed by the University of Hohenheim at the International Green Week in Berlin.

July 31 – August 1, 2017: PARI Policy Roundtable with leading agricultural stakeholders from government, private sector, farmer groups, research and development cooperation in Accra, Ghana. Organized by PARI and hosted by the Science and Technology Policy Research Institute (STEPRI) of the Council for Scientific and Industrial Research (CSIR).

September 5, 2017: PARI side-event at the African Green Revolution Forum 2017 in Abidjan, Côte d'Ivoire.

Publications

Studies:

Rezaei, E. E., Siebert and S., Ewert, F. (2016): Climate and management interaction cause diverse crop phenology trends, *Agricultural and Forest Meteorology* 233: 55-70.

Hoffmann, M.P., et al. (2017): How does inter-annual variability of attainable yield affect the magnitude of yield gaps for wheat and maize? *Agricultural Systems*.

Siebert, S., Webber, H. and Rezaei, E. E. (2017): Weather impacts on crop yields – searching for simple answers to a complex problem. (in press). Environmental Research Letters. [DOI:10.1088/1748-9326/aa7f15](https://doi.org/10.1088/1748-9326/aa7f15)

Wang, E. et al (2017): The uncertainty of crop yield projections is reduced by improved temperature response functions. Nature Plants 3: 17102.

ICT tools:

The ReSAKSS Country e-Atlas (2017) is a GIS-based mapping tool designed to help policy analysts and policymakers access and use high quality and highly disaggregated data on agricultural, socio-economic, and bio-physical indicators (eatlas.resakss.org).

PARI Agricultural Innovation Database (2016) includes technological, managerial and institutional innovations that could be applied along agricultural value chains (database.research4agrinnovation.org).

The Smartphone App TimeTracker (2016) is a simple, picture-base smartphone app which allows respondents in household surveys to record daily activities themselves. Developed by the University of Hohenheim and the Stuttgart Media University (timetracker.cc).

Doctoral researchers

Mekdim Regassa: Research on land constraints and food security in Ethiopia (ongoing).

Pallavi Rajkhowa: Research on innovations in food systems and farm households in India (ongoing).

Contact

Heike Baumüller
[hbaumueller@uni-bonn.de]

Joachim von Braun
[jvonbraun@uni-bonn.de]

Main funder: BMZ



Main cooperation partners:

Forum for Agricultural Research in Africa (FARA) and its 12 national partners, the African Growth and Development Policy Modeling Consortium (AGRODEP) facilitated by the International Food Policy Research Institute (IFPRI, Africa Office), University of Hohenheim, Technical University Munich, and research collaboration partners in India.

Website: research4agrinnovation.org

Twitter: @pari_zef

Supporting the West African contribution to the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)

WABES makes use of the experience of its international partners in (a) bringing together interdisciplinary expertise in a science-based context, (b) facilitating West African expert networks and interfaces, (c) implementing graduate programs in West Africa, and (d) developing and disseminating tools and approaches to support the IPBES work programme.

Research activities

The overarching goal is to connect Biodiversity and Ecosystem Service (BES) experts from West African universities, research institutions, and existing science-policy interfaces.

Annually conducted workshops will act as exchange platforms and as distribution hubs for IPBES developments, supplemented by discussion groups to connect experts and policy makers across West Africa and beyond.

Complementarily, a Master of Science (MSc) program on BES assessments is being established in Abidjan, Côte d'Ivoire, addressing participants from all 15 West African ECOWAS countries. Altogether, the framework shall act as pioneer for strengthening the sub-regional expert pool to support and disseminate assessments within the scope of IPBES.

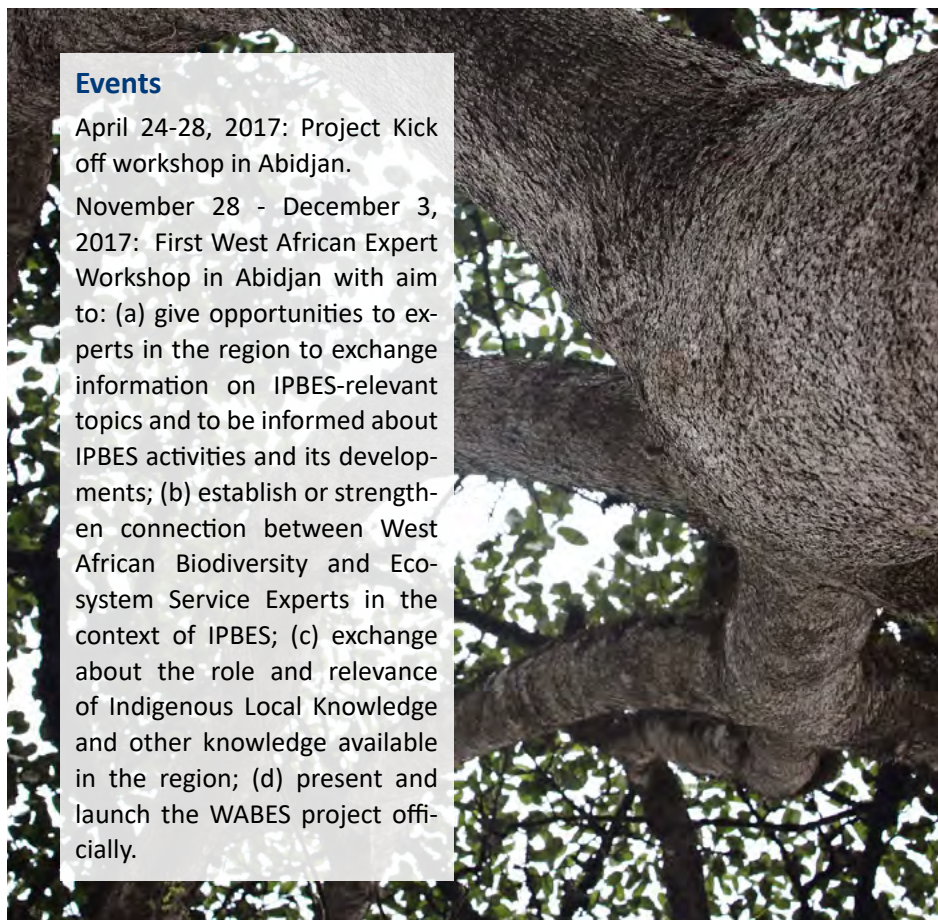
Contact

Jan Henning Sommer
[hsommer@uni-bonn.de]

Main funder: International Climate Initiative (IKI), BMUB

Main cooperation partners: UHB, UFZ, UNEP-WCMC, WASCAL

Website: wabes.net



Events

April 24-28, 2017: Project Kick off workshop in Abidjan.

November 28 - December 3, 2017: First West African Expert Workshop in Abidjan with aim to: (a) give opportunities to experts in the region to exchange information on IPBES-relevant topics and to be informed about IPBES activities and its developments; (b) establish or strengthen connection between West African Biodiversity and Ecosystem Service Experts in the context of IPBES; (c) exchange about the role and relevance of Indigenous Local Knowledge and other knowledge available in the region; (d) present and launch the WABES project officially.

IPBES: Home for science policy

IPBES is a young science-policy interface platform offering courses and trainings to prepare interested experts for participation in working groups and/or participation in IPBES plenary sessions.

This applies to structural issues (e.g., the role of the IPBES bodies, coordination processes, rules and procedures as well as the possibilities of national interventions) as well as content-related issues (thematic and methodological assessments, integration of indigenous and local knowledge, etc.).

Training and capacity building for participating in IPBES currently exist almost exclusively for industrialized countries and to a small extent through the IPBES's own Fellowship program open to the international community.

Initiatives targeting exclusively experts from the UN-region Africa, especially West- and Sub-Saharan Africa have been missing so far.

WABES strives for a high multiplication potential by linking West African universities, experts and international institutions and bridging the gap between basic and applied research, between different disciplines through interdisciplinary knowledge and by targeting at the science-policy interface.

Lessons learned will be processed in an easily replicable way for adaption of similar participatory planning, knowledge management and capacity building activities of the partners and other institutions.

LAND, WATER, FOOD AND ENERGY

3.2

Improving food security in Africa by harnessing productivity and efficiency gains in the biomass-producing, processing and trading system

BiomassWeb and BiomassNet

BiomassWeb

BiomassWeb has the overall goal to improve food security in Africa through harnessing productivity and efficiency gains in the whole biomass-producing, processing and trading system.

Research activities

Start of the Demand Driven Research and Development (DDR) program: To remain open for the concerns of local stakeholders and to allow for flexibility in identifying research questions based on their questions and demands, BiomassWeb developed the DDR program. Following a competitive selection process, six DDR activities proposed by stakeholders in Biomass' focus countries Ghana, Nigeria and Ethiopia started their research activities in October 2016.

Start of the Young Post-Doc Program: The aim of this program is to enable young African scientists to gain expertise and therewith establish themselves as experts for biomass-related topics by working with BiomassWeb. Five young African scientists joined BiomassWeb in July 2017. They are based at the University of Ibadan, Nigeria, the Forum for Agricultural Research (FARA), in Ghana, and at ZEF.

Events

May 2-3, and May 5-6, 2017: iMODELER Workshops: Two workshops on participatory system analyses were held at the Forum for Agricultural Research in Africa (FARA) in Accra, Ghana and at the University of Cape Coast in Cape Coast,

Ghana. In Accra, members of BiomassWeb together with local stakeholders of the biomass sector developed descriptive and explorative models of biomass-based value webs with the software iMODELER. In Cape Coast, young academics (post-docs and doctoral students) of the university received training on qualitative and quantitative system analysis focusing on "quality and quantity of water in rivers", "illegal mining in Ghana" and "income generation of smallholders".

Doctoral researchers

Getachew Legese Feye: Family Farming and Food Insecurity in Ethiopia: The Role of Risk Perceptions of Family Farmers in Maize Biomass-Based Value Webs in Jimma area (ongoing).

Omarsherif Mohammed Jemal: The Role of Agroforestry Systems to Enhance Household's Food Security: a Case Study in Yayu area, South West Ethiopia (ongoing).

Marcos Jimenez: Temporal Dynamics of Biomass Provision from Agricultural and Agro-Forest Land Use Types at Landscape Scale (ongoing).

Francis Mwambo: Energy Efficiency Analysis of Biomass Production. Considering African land use schemes, human labor and draft animals (ongoing).

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 (ongoing).





Daniel Akoto-Sarfo: Bamboo agroforestry for household energy and food security in Ghana: An exploratory study (ongoing).

Gerba Leta Dufera: The Ethiopian Agricultural Extension System and its role as a “Development Actor”: the case of Bako and Yem Woredas, South-western Ethiopia (ongoing).

Publications

Mohr, A., Beuchelt, T. Schneider, R., Virchow, D. (2016): Food security criteria for voluntary biomass sustainability standards and certifications. *Biomass and Bioenergy* 89: 133–145.

Amankwah, K., Shtaltovna, A., Kelboro, G., and A.-K. Hornidge (2016): A critical review of the follow-the-innovation approach: Stakeholder collaboration and agricultural innovation development. *African Journal of Rural Development* 1: 35-49. (Open Access)

Contact

Manfred Denich
[m.denich@uni-bonn.de]

Christine Schmitt
[cschmitt@uni-bonn.de]

Tina Beuchelt
[tbeuchelt@uni-bonn.de]

Main funder: BMBF, BMZ

Website: biomassweb.org

Biomassnet.org: Launch of the first pan-African expert network on food and non-food biomass

Many African countries still struggle to attain food security, while facing new demands for the use of biomass as a source of income, energy and industrial raw materials. To foster exchange and connect biomass experts from science, policy and practice, African and German researchers launched the first pan-African expert network for food and non-food biomass in Bonn, Germany in July 2017.

The network aims at ensuring that food security and environmental sustainability are not compromised in the development of new biomass uses. It will thus help to strengthen

the emerging African bio-economies. More than 80 experts from Germany and Africa participated in the inauguration meeting, including representatives of four German Federal Ministries, as well as representatives from the International Institute of Tropical Agriculture, the International Centre of Insect Physiology and Ecology, the International Network for Bamboo and Rattan, the University of Ibadan, and the Forum for Agricultural Research in Africa. Interested experts can join the network online at biomassnet.org.



What is bioeconomy?

The global bioeconomy is a complex system in which commodity trade and innovation transfer act as mechanisms linking drivers to impacts, often independent of geographical and administrative boundaries. One example is the rapid expansion of soy bean production in South America, which is driven by international demand, technological change in agriculture, and regional differences in environmental law enforcement.

Research outline

The project focuses on the sustainability implications of transnational biomass trade, technological innovation, and innovation transfer in selected bioeconomy sectors with an emphasis on major biomass and knowledge producing countries and regions. Impacts of bio-based transformations will be evaluated against relevant sustainability dimensions, such as the Sustainable Development Goals (SDG) on poverty eradication (#1), food security (#2), reduced inequality (#10), responsible consumption (#12), climate action (#13), and terrestrial ecosystems (#15).

Research activities

- Joint development of an analytical framework, research approach, and case study selection criteria for the project.
- Global classification of bioeconomy types.
- Systematic literature review and expert survey on Bioeconomy and the SDG as well as key enabling technologies for the bioeconomy.
- Research stays and collaboration with Vienna University of Economics and Business and the Stockholm Environmental Institute (respectively, developing a Consequential Life Cycle Assessment framework and a carbon footprint calculation tool).

Events

Annual Conference of the Green Growth Knowledge Platform, September 5-9, 2016, Jeju, South Korea
 Kongress BIO-raffiniert IX: Die neue Rohstoffwelt der Bioökonomie – welche Rolle spielt der Kohlenstoff? – February 13 - 14, 2017 Oberhausen
 FABLE Workshop - April 6-7, 2017 at IIA-SA, Laxenburg, Austria

Doctoral researchers

Salwa Haddad: Assessing potential economic and environmental implications of the growing bioeconomy using a global Computable General Equilibrium model (ongoing).

James Henderson: Drivers of new agro-industrial frontiers: identifying actor behaviors, mechanisms, and incentives of soybean expansion in South America (ongoing).

Gabriel Ponzoni Frey: Modern agricultural frontier development and pasture restoration in the Brazilian Amazon: implications for biodiversity and ecosystem services (ongoing).

Publications

Ibisch, P. L., M.T. Hoffmann, S. Kreft, G. Péer, V. Kati, L. Biber-Freudenberger, D. DellaSala, M.M. Vale, P.R. Hobson, and N. Selva (2017): A global map of roadless areas and their conservation status. *Science*, 354(6318): 10.1126/science.aaf7166 .

Escobar, N., Manrique-de-Lara-Peñate, C., Sanjuán, N., Clemente, G., & Rozakis, S. (2017): An agro-industrial model for the optimization of biodiesel production in Spain to meet the European GHG reduction targets. *Energy*, 120, 619-631.

Guta, D. and J. Börner (2017): Energy security, uncertainty and energy resource use options in Ethiopia: A sector modelling approach. *International Journal of Energy Sector Management*, 11(1): 91-117.

Selbmann, K. and Ide, T. (2016): Climate Change, Biofuels, and Conflict. In: Sarup Singh, R., Pandey, A. & Gnansounou, E. (eds.): *Biofuels: Production and Future Perspectives*. CRC Press: 25-35.

Contact

Jan Börner
 [jborner@uni-bonn.de]

Main funder: BMBF

Website: strive-bioecon.de



Food Security Criteria within Biomass Sustainability Standards (FSS)

The Food Security Standard takes up the topic of local food security and the Human Right to Adequate Food as new elements for sustainability standards and certification schemes. It provides practicable and measurable food security criteria for all kind of traded agricultural products.

Aim of this project is to develop, implement and test the set of food security criteria and related tools in food insecure regions in Africa, Asia and Latin-America.



Implementation of food security criteria

Research activities and events

- Development of conceptual framework and theory of change
- Establishing contacts and signing MoUs with sustainability standards, biomass producers, etc.
- Stakeholder workshop held in Germany with actors from ministries, sustainability standards, civil society and research on the proposed criteria set and associated potentials and risks in implementation
- Project Kick-Off Workshop with relevant key stakeholders, July 22, 2017
- Presentation by Beuchelt, T.D., Schneider, R. and H. Voigt on “What business can do: Respecting the right to food when using biomass from food insecure countries.” at the 2nd International BioSC Symposium “Towards an Integrated Bioeconomy”, 28 November 2017, Cologne, Germany.
- Presentation by Beuchelt, T.D. and M. Nassel on “Biomass potentials and the SDGs: Adding a food security and equity perspective”. 25th European Biomass Conference, June 12-15, 2017, Stockholm, Sweden.

Publications

Beuchelt, T.D., Mohr, A. and R. Schneider (2017): The human Right to Food and sustainable soil management: linking voluntary agricultural sustainability standards with food security. In: Ginzky, H., Heuser, I., Tianbao Qin, Ruppel, O. and P. Wegerdt (eds). International Yearbook on Soil Law and Policy. First volume. Springer, pp. 237-262.

Mohr, A., Beuchelt, T.D., Schneider, R. and D. Virchow (2016): Solving Trade-Offs Between Food Security and Biomass Use: Rights-Based Food Security Criteria for Biomass Sustainability Standards and Certifications. Biomass & Bioenergy. Vol. 89, 133–145. Doi:10.1016/j.biombioe.2016.02.019 (open access).

Contact

Tina Beuchelt
[beuchelt@uni-bonn.de]

Main funder: BMEL

Main cooperation partner:
Welthungerhilfe (WHH)

Website: zef.de/project/FSS-projectwelthungerhilfe.de



Strengthening the resilience of urban and peri-urban supply systems

The overall objective of RARSUS is to strengthen the resilience of urban and peri-urban supply systems. ZEF's contribution is to develop options for sustainable water and food provision systems as well as strategies for adapting to changing environments. This implies mainly flood risk reduction through adapted management in urban settings.

Research activities

ZEF's research focus is on: (i) deriving

options to counterbalance negative impacts of urbanization on the water cycle; (ii) managing risks (such as flood), (iii) working out strategies to strengthen (peri-) urban agriculture. ZEF's study region is in Niamey, Niger.

The major activities of the new project comprised so far: (i) selecting and delineating regions for surface and groundwater modeling, (ii) inventory of monitoring systems, (iii) working out monitoring and modeling concepts jointly with the partners.



Innovative impulses reducing the water footprint of the global cotton textile Industry towards the UN Sustainable Development Goals in Pakistan

InoCottonGROW aims at reducing the water footprint and advancing the water footprint concept towards a tool to facilitate decision-finding by irrigators, textile producers, traders, and consumers. The overall objective is to reduce water consumption and save resources along the entire value chain from field to hanger.

Research activities

Within the overall objective of InoCottonGROW, ZEF is focusing on:

- Assessing the performance of cotton irrigation in Pakistan (Punjab region) in terms of efficiency, effectiveness and productivity;
- Working out options to improve

irrigation performance by appropriate irrigation scheduling and advanced handling of irrigation techniques;

- Joint testing and demonstrating (University of Agriculture, Faisalabad; Punjab Irrigation; Farmer Organizations) of improving options at the level of fields, farms and areas fed by distributary canals;
- Providing alternatives (irrigating food crops) and comparing with irrigation systems performance in Turkey;
- Data collection, preparation of field experiments and conceiving modeling approaches started in 2017.

Risk Assessment and Reduction Strategies for Sustainable Urban Resources Supply in sub-Saharan Africa (RARSUS)

Events

Kick-off workshop of BMBF's 'Partnership for Sustainable Solutions with Africa' in Bonn, December 1 and 2, 2016.

Kick-off meeting of the RARSUS project organized by the Institute for Technology and Resources Management in the Tropics and Subtropics (ITT of TH Köln (project lead), in Cologne, March 27-28, 2017.

Contact

Navneet Kumar
[nkumar@uni-bonn.de]

Sarah Verleysdonk
[verleysd@uni-bonn.de];

Main funder: BMBF, DAAD

Website: bit.ly/2Dmy3Pi

InoCottonGROW

Events

Participating in a preparatory mission to Pakistan to discuss cooperation options with partners in Pakistan, April 17-25, 2017;

Joining the kick-off conference in Faisalabad and conducting and discussing field experiments with partners in Pakistan, July 11-13, 2017.

Contact

Bernhard Tischbein
[tischbein@uni-bonn.de]

Christian Borgemeister
[cb@uni-bonn.de]

Main funder: BMBF

Website: inocottongrow.net

Diversifying agriculture for balanced nutrition through fruits and vegetables in multi-storey cropping systems

NutriHAF is a research and capacity building project that explores how to integrate appropriate vegetable crops into multi-storey cropping systems. Goal is to increase nutrition security as well as diversify and intensify agriculture and thus to reduce pressure on natural habitats in biodiversity hotspots.

Research activities

- We selected seven plant varieties (pigeon pea, cow pea, jute mellow, amaranth, Ethiopian kale, pumpkin, cabbage) for our research;
- We provided seed and created 77 trial areas at eleven locations;
- We carried out a participatory cooking demonstration and tasting evaluation of the cultivated leafy vegetables;
- We conducted an extensive gender-disaggregated household survey with 334 households in four selected villages;
- We analyzed the local (agriculture and food) extension sector;
- We conducted a study of vegetables value chains;
- We created a training curriculum for the various project work packages;
- We organized roundtable discussions with government representatives at the regional level;
- 28 Master students were selected and supervised during their master thesis.

Contact

Jochen Dürr
[jduerr@uni-bonn.de]

Main funder: BLE

Main Cooperation: AVRDC, FOFIFA, KoGa, IZNE, UoA, ASARECA, FANRAP, GlobalHort, ECFE, WHH

Website: bit.ly/2mMXmjd

Events

All post-docs presented their results at the Tropentag 2016 in Vienna;

Workshop with officials from Bureau of Agriculture, Development agents and farmers held in Mettu, Ethiopia, May 2017;

NutriHAF project in collaboration with Mettu University organized an Academic Day on July 12, 2017 on Diversifying Agriculture for Better Nutrition in a Sustainable Way. More than 100 academics from different Ethiopian universities followed the invitation. All MSc students presented their results.



Publications

Teshome, A. and J. Dürr (2018): Pathways to improve nutrition security through horticultural crops in coffee based farming system: the case of 'Yaya' biosphere reserve area of Ethiopia. *Acta Horticulturae*.

Nischalke, S.M., Abebe, M., Assefa, B., Keding, G.B., Kriesemer, S.K., Randrianarison, N., and T. Beuchelt (2018): Gender challenges in horticultural research in Ethiopia and Madagascar. *Acta Horticulturae*.

Kriesemer, S.K., Keding, G.B., Etissa, E., Nischalke S.M., and H. Jaenicke (2018): Participatory evaluation of vegetables to enhance household nutrition in forest garden areas in Ethiopia. *Acta Horticulturae*.

Nischalke S.M. M.; Abebe, M.; Assefa, B.; Kriesemer, S.K. and Beuchelt, T. (2017): Forgotten forests? Nutrition potential of ancient coffee forests and agro-forestry systems in South-Western Ethiopian Mountains through a gender lens. *Mountain Research and Development*, Vol. 37, Issue 3, 254-262.

Dürr, J. (2017): The contribution of vegetable value chains to the Guatemalan economy. *European Journal of Horticultural Science*, Volume 82, 311-318.

Global, basin, and local case studies of resource use efficiency under growing natural resource scarcity

The Water-Energy-Food Nexus

The project conducts an assessment of tradeoffs and synergies across the water, energy and food sectors in the Nile Basin (covering Ethiopia, Sudan and Egypt). This includes an evaluation of the opportunities for a decentralized energy production and use, as well as of entry points for a more efficient resource use.

Research activities

The project conducted assessments of tradeoffs and synergies across the water, energy and food sectors, including the evaluation of opportunities for the decentralized energy production and use, as well as of entry points for increased resource use efficiency in Ethiopia's Nile Basin.

Events

A project workshop was held in Addis Ababa, Ethiopia in September 2016.

Doctoral researchers

Helen Berga: Modeling the Nexus between Water, Energy and Food in the Eastern Nile Basin (ongoing).

Rahel Bekele: Essays on Irrigation Systems of Ethiopia: Institutional and Technological Performance Analysis (ongoing).

Varun Gaur: Decentralized Energy and its synergies with Water-Energy-Food Security (WEF) Nexus in India (ongoing).

Publications

Guta, D.D., J. Jara, N.P. Adhikari, Q. Chen, V. Gaur and A. Mirzabaev (2017): Assessment of the Successes and Failures of Decentralized Energy Solutions and Implications for the Water-Energy-Food Security Nexus: Case Studies from Developing Countries. Resources, 6(3), 24 (Open Access).

Contact

Alisher Mirzabaev [almir@uni-bonn.de]

Main funder: BMZ

Main Cooperation: IFPRI, ENTRO, Addis Ababa University

Finding the right energy mix for poor households

Synergies to boost the agricultural production of households, at the same time, improve access to energy can be achieved by facilitating better access to markets, adopting agro-forestry practices such as tree cultivation, enabling livestock ownership, as well as higher household assets.

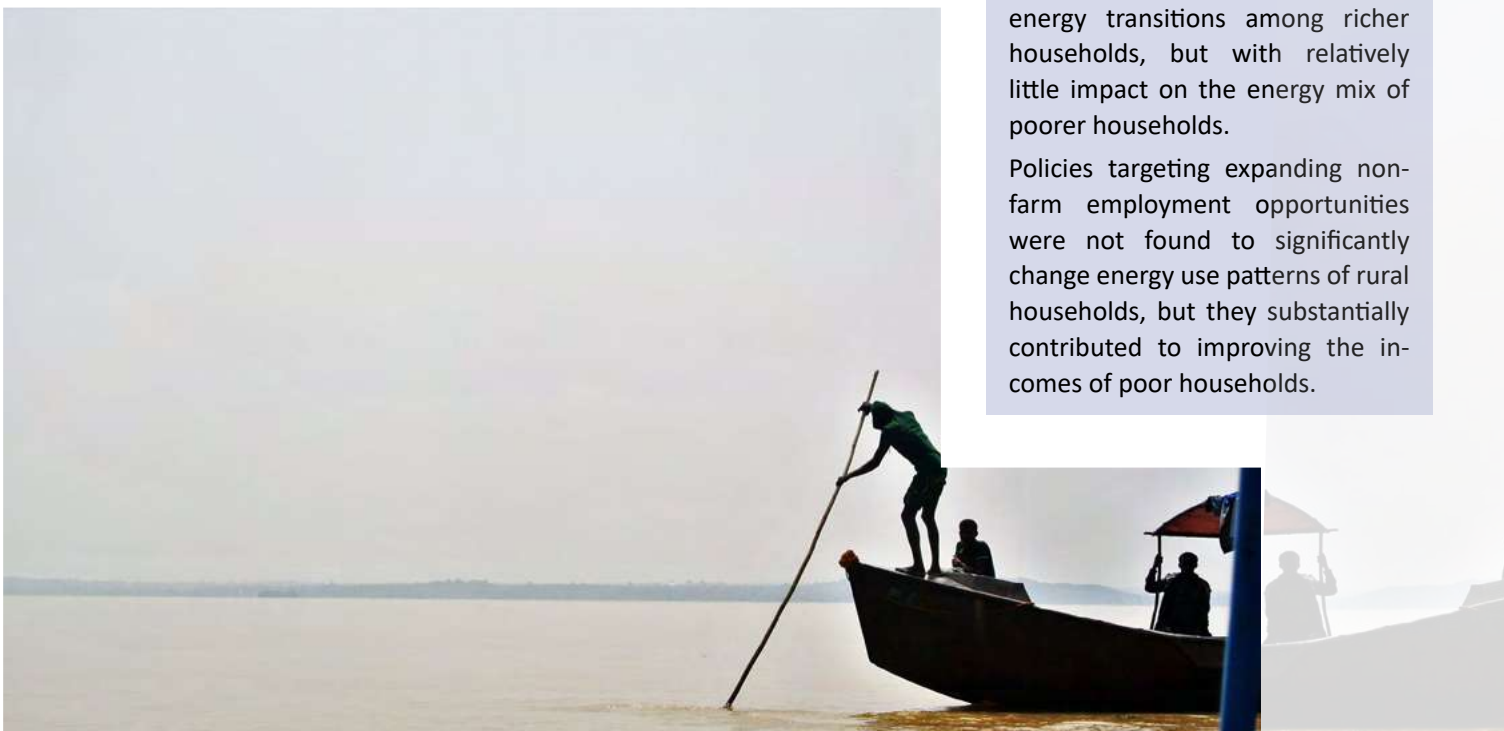
The results also point at a significant scope for increasing agricultural incomes in Ethiopia through higher input use and promoting the adoption of sustainable land management practices.

Increased agricultural incomes, along with expanding the non-farm sector, would allow for building up the household asset base.

By increasing opportunity cost and productivity of agricultural labor it could also incentivize agricultural innovations and structural transformations.

Public subsidies for solar panels and biogas may effectively facilitate energy transitions among richer households, but with relatively little impact on the energy mix of poorer households.

Policies targeting expanding non-farm employment opportunities were not found to significantly change energy use patterns of rural households, but they substantially contributed to improving the incomes of poor households.



3.3

HEALTH, NUTRITION AND ECOSYSTEMS

HEALTHCAP

HEALTHCAP is a science-based capacity building project that aims at improving risk assessment strategies to address the growing threat from water-related diseases in Uzbekistan. The project is exploratory, attempting to explain health risk through a combination of disciplinary and interdisciplinary research. The overall purpose is to close the gap between 'research and practice'.

Research activities

- Identifying opportunities for strengthening health research capacity building in Uzbekistan for improved surveillance and monitoring of water-related diseases.
- Understanding the intrinsic and extrinsic global environmental change factors influencing water-related diseases in the Tashkent Province of Uzbekistan.
- Identifying tools and policies to improve risk assessment strategies for public health policies and programs on water-related diseases in the Tashkent Province.

HEALTHCAP operates in two case study districts: Olmalik and Kibray in the Tashkent Province. Besides, relevant policy assessments, institutional arrangements and socio-ecological conditions at the national level are being considered. HEALTHCAP strengthens health data base management in the selected districts, and its research findings offer insights for improving surveillance and monitoring of water-related diseases

Health research capacity and water-related diseases: improving risk assessment strategies for public health care in Uzbekistan

and strengthening Uzbekistan's water safety plan.

Activities

- Short-term courses were given to Master students at the Tashkent Medical Academy, which will be repeated and integrated in the existing Master's course on public health.
- Ms. Minjung Cho, HEALTHCAP doctoral student won a doctoral thesis award at the 5th World Conference on Research Integrity in The Hague, the Netherlands, May 2017.
- The team is preparing 'state of art' papers on urban water management, health care, surveillance and monitoring and health research capacity. The project findings were presented at the Trilateral Workshop in November 2017.
- The team have been analyzing primary data set for publication in international peer review journals.

Doctoral researchers

Minjung Cho: Assessing the Health Research Capacity in water and health sector - Case study in Tashkent province Uzbekistan (doctoral graduation on November 9, 2017)

Publications

Saravanan V.S., M. Cho, S.Z.Tan, D. Fayzieva and C. Sebaly (2017): Spatial Distribution and Trends of Waterborne Diseases in Tashkent Province. Central Asian Journal of Global Health, 6(1). (Open Access).

Contact

V.S. Saravanan
[s.saravanan@uni-bonn.de]

Main funder:

Volkswagen Foundation

Website: <http://bit.ly/2GcFRB2>



GOVERNANCE, CONFLICTS AND NATURAL RESOURCES

3.4

Contributing
to the sustainable use of forest resources
and related ecosystem services

Shaping Environmental
Policies for
Sustainable Tropical Forest
Bio-economies

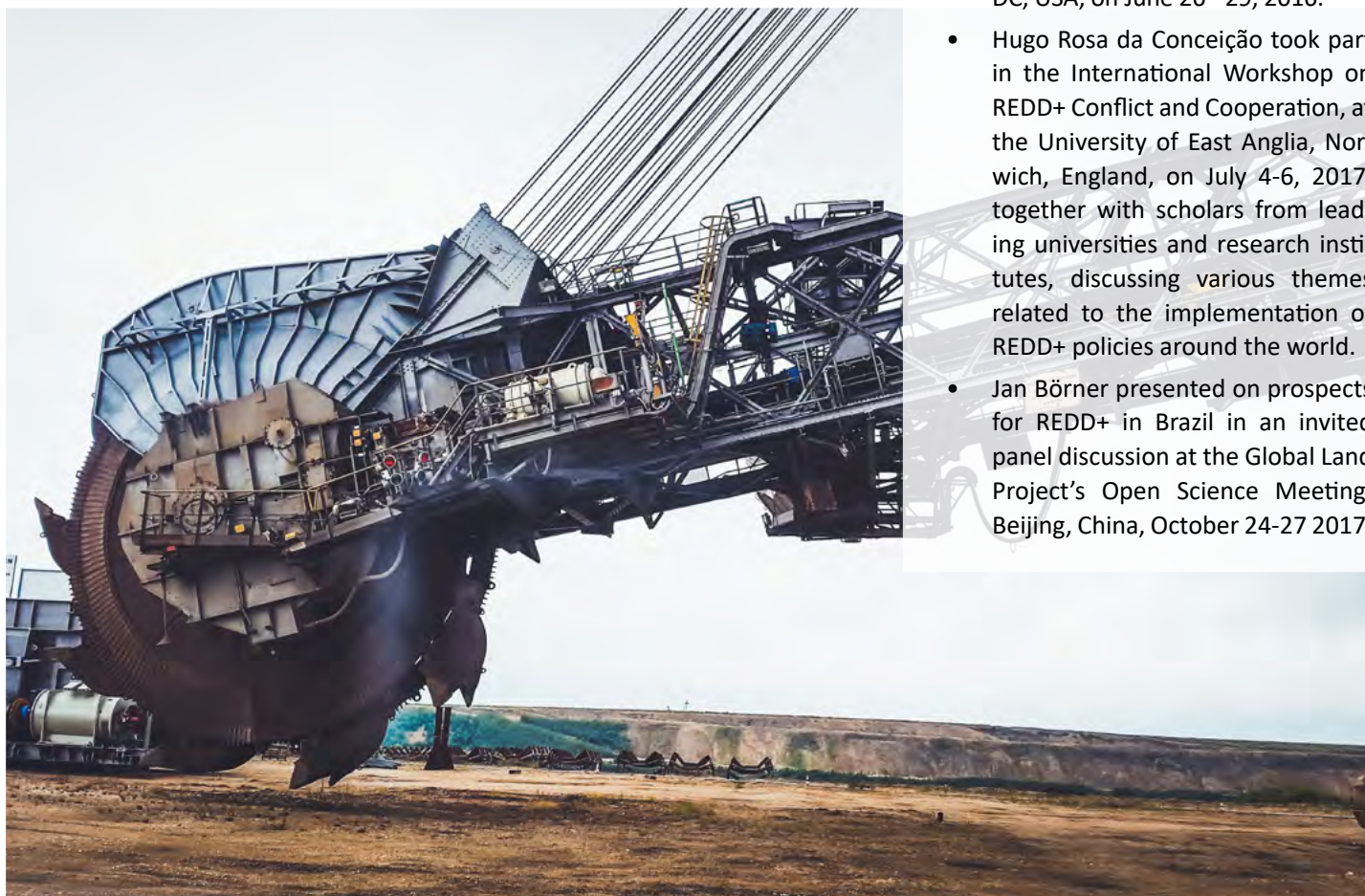
This research aims at understanding how and to what extent countries (case studies in Brazil, Peru, and Ecuador) can influence tropical forest bio-economy pathways through the integration and informed design of environmental policy instruments.

Its ultimate objective is to facilitate the formulation and implementation of environmental policies that contribute to the sustainable use of forest resources and related locally and globally valued ecosystem services.

Research activities and events

- Comparative case studies on the determinants of incentive design in government-led conservation programs in Brazil, Ecuador, and Peru;
- Empirical impact evaluations of conservation programs in Peru and Brazil;
- Analysis of price speculation in the Brazilian land market;
- Classification of deforestation frontiers in the Brazilian Amazon;

- Renzo Guidice with the paper “Unravelling the role of design flaws in incentive-based forest conservation - empirical evidence from the Peruvian Amazon” and Elías Cisneros Tersitsch with the paper “Do conservation incentives increase the effectiveness of protected areas? A spatial matching analysis of the Bolsa Floresta Program in the Brazilian Amazon” took part in the International Society of Ecological Economics 2016 Conference, in Washington DC, USA, on June 26 - 29, 2016.
- Hugo Rosa da Conceição took part in the International Workshop on REDD+ Conflict and Cooperation, at the University of East Anglia, Norwich, England, on July 4-6, 2017, together with scholars from leading universities and research institutes, discussing various themes related to the implementation of REDD+ policies around the world.
- Jan Börner presented on prospects for REDD+ in Brazil in an invited panel discussion at the Global Land Project’s Open Science Meeting, Beijing, China, October 24-27 2017.



Doctoral researchers

Elías Cisneros Tersitsch: Impact evaluation of tropical forest conservation policies in the Brazilian Amazon (doctoral graduation on March 30, 2017)

Hugo Rosa da Conceição: Determinants of incentive-based forest governance in the Amazon: Evidence from Ecuador, Peru and Brazil (doctoral graduation on November 28, 2017)

Johannes Schielein: Land-use forest policy and economic development in the Brazilian Amazon (ongoing).

Publications

Börner, J., Baylis, K., Corbera, E., Ezzine-de-Blas, D., Ferraro, P.J., Honey-Rosés, J., Lapeyre, R., Persson, U.M., Wunder, S. (2016): Emerging Evidence on the Effectiveness of Tropical Forest Conservation. PLOS ONE, 11(11): e0159152. (Open Access)

Börner, J., K. Baylis, E. Corbera, D. Ezzine-de-Blas, J. Honey-Rosés, U. M. Persson and S. Wunder (2017): The Effectiveness of Payments for Environmental Services. World Development, 96: 359–374.

Khamzina, A., J.P.A. Lamers, J. Börner with O.O. Cofie, P. Drechsel, Chr. Gordon, J. Miranda, S. Mukherjee, L.Verchot, H. Vereecken, L. Weihermüller, S. Zelaya-Bonilla, F. Ziadat. (2017): Land resources and the SDGs. In: Paul L. G. Vlek, Asia Khamzina, and Lulseged Tamene (eds.): Land degradation and

the Sustainable Development Goals: Threats and potential remedies. CIAT / CGIAR. 17-31. (Open Access)

Bolte, A., Börner, J., Bräsicke, N., Degen, B., Dieter, M., Saake, B., Schneider, B.U. (2016): Perspektiven der Forst- und Holzwirtschaft in Deutschland.

Valone, T.J., Barta, Z., Börner, J., Cardenas, J.-C., Giraldeau, L.-A., Kokko, H., Oldekop, J., Pauly, D., Rustagi, D., Sutherland, W. (2017): Governance of Renewable Resources. In: Giraldeau, L.-A., Heeb, P., Kosfeld, M. (eds.): Investors and Exploiters in Ecology and Economics: Principles and Applications. Ernst Strüngemann Forum / The MIT Press. 97-118.

Outreach:

For pictures and stories about field trips look at the project's blog at blogazonia.wordpress.com

Johannes Schielein gave an interview to the ARD radio on the recent surge in deforestation in the Brazilian Amazon: bit.ly/2EBcxDE

Jan Börner was interviewed by Deutschlandfunk on the role of biodiversity in ecosystems: bit.ly/2C9qAPg

Contact

Jan Börner
[jborner@uni-bonn.de]

Main funder: Robert Bosch Foundation

Main cooperation partners: CIFOR, GIZ, FAS, IPAM, UAB, BIK-F

Website: zef.de/envpol.html



MARKETS AND PUBLIC SERVICES

3.5

Analysis and implementation of measures to reduce price volatility in national and international markets for improved food security in developing countries

Food Price Volatility

The volatile and rapidly rising commodity prices of recent years are an expression of changes in global markets and of resource scarcity. Although food grains are mainly viewed as commodities, they are also the basic food of the poor and the “currency” of the bottom two billion people.

The high increase in food prices poses a threat to food security, particularly for the poor, who spend up to 60 percent of their income on food. Volatility means increased uncertainty, with negative implications for investment, especially for small businesses, which lack access to funding opportunities.

Moreover, commodity price volatility impairs the growth and development of import-dependent low income countries. The project looks at different ways to stabilize food prices and to contribute to a resilient food system that can continuously feed its population. One research focus is based on the question how to improve the functioning of markets. Furthermore, we develop tools for early warning of risks for food security. This includes research as well as the implementation of a website, which collects information on early warning and related indicators (see box).

Countries of research are, among others India, Bangladesh, China, Ethiopia, and Mali.

Research activities

Daniel Mekonnen has been working on a paper that evaluates the impact of short-term price shocks on child mortality in India, Ethiopia, Nigeria, and Bangladesh. The study uses data from several rounds of the Demographic Health Surveys (DHS) from these countries.

Fuad Hassan conducted a household survey in Bangladesh to investigate rural household food security.

Till Ludwig conducted a household survey in India to analyze determinants of food and nutrition security of smallholder farmers in risky environments.

Regine Weber investigated food crises in East Africa and the utilization of innovative data sources for food security monitoring. She analyzed early warning systems for food security risks and explored ‘Google Search Queries’ as a data source for food security risk monitoring in East Africa.

Bernardina Algeri has investigated the possible contagion risk coming from energy, food and metals commodity markets and assessed risk spillovers from biofuel to food commodity markets and from crude oil to food markets. The study is published as ZEF Discussion Paper on Development Policy No.237.

Events

In November 2016, Till Ludwig conducted a training course at the Modern High School for Girls in Kolkata together with Welthungerhilfe on „Food security, nutrition and sustainable agriculture“.

The Food Monitor website was launched on January 29, 2017, at the International Green Week in Berlin. The Food Monitor is an early warning system providing near to real-time information about global market developments, food price volatility and global food supplies. Food Monitor communicates risk information via a direct and automatic connection with Twitter, meaning alerts and updates on the latest risks are available and communicated immediately. Website: foodmonitor.org

Joachim von Braun and Mekbib Haile from ZEF, Mathias Kalkuhl from the Mercator Research Institute on Global Commons and Climate Change, Berlin, Maximo Torero from the World Bank in Washington, DC., USA and Stefan Schmitz from BMZ presented results and conclusions of the book “Food Price Volatility and Its Implications for Food Security and Policy” (Eds.: Matthias Kalkuhl, Joachim von Braun, Maximo Torero, Springer International Publishing, 2016) and discussed “Food Price Risks, Food Security, and G20” at a public seminar on February 14, 2017 at ZEF.

Mekbib Haile presented his paper on Impact of climate change, weather extremes, and price risk on global food supply at the Eighteenth World Congress of the International Economics Association (IEA) in Mexico City in June 2017.



Doctoral researchers

Regine Weber: New Indicators for Food Crises Monitoring in Developing Countries (ongoing).

Till Ludwig: Determining the dietary quality of vulnerable groups in risky environments (ongoing).

Fuad Hassan: Interlinkages between food prices and agricultural wages and impact on farm mechanization: Evidence from Bangladesh (ongoing).

Isaac Bonuedi: Agricultural Commercialization, Household Nutrition, and Policy Implications (ongoing).

Henri Kankwamba: Economic disruptions, commodity and factor market linkages in eastern Africa: Implications for income distribution, food and nutrition security (ongoing).

Pablo Evia: the Role of Government Transfers, Decentralization and Social Policy in Bolivia (ongoing).

Emmanuel Rukundu: Effects of Community-based Health Insurance on Child Health Outcomes and Utilisation of Preventive Health: Evidence from Rural South-Western Uganda (ongoing).

Nina Pkhikidze: Research on economics of infrastructure and development in Georgia and Armenia (ongoing).

Publications

Haile, M.G., Kalkuhl, M., Algieri, B., and S. Gebreselassie (2017): Price shock transmission: evidence from the wheat-bread market value chain in Ethiopia. *Agricultural Economics* 48 (6): 769–780.



Usman, M. A. and M.G. Haile (2017): Producer-retail price transmission in the cereal markets of Ethiopia. *Food Security*: 1-15.

Haile, M. G., Wossen, T., Tesfaye, K., and J. von Braun (2017): Impact of Climate Change, Weather Extremes, and Price Risk on Global Food Supply. *Economics of Disasters and Climate Change* 1(1): 55-75.

Wossen, T., Abdoulaye, T., Alene, A., Haile, M.G., Feleke, S., Olanrewaju, A., and V. Manyong (2017): Impacts of extension access and cooperative membership on technology adoption and household welfare. *Journal of Rural Studies* 54: 223-233.

Kozicka, M., Kalkuhl, M., and J. Brockhaus (2017): Food Grain Policies in India and their Implications for Stocks and Fiscal Costs: A Dynamic Partial Equilibrium Analysis. *Journal of Agricultural Economics* 68(1): 98-122.

Wossen, T., Berger, T., Haile, M. G., and C. Troost (2017): Impacts of climate variability and food price volatility on household income and food security of farm households in East and West Africa. *Agricultural Systems*: 1-19.

Brockhaus, J. (2016): The Role of Storage and Information in Stabilizing Food Prices and Supplies. Ph.D. Thesis. University of Bonn.

Kozicka, M. (2016): Policies for Food Security in India: An Assessment of Current Policies and Reform Options. Ph.D. Thesis. University of Bonn.

Mujahid, I. (2016): Assessing the Role of Trade and Reserve Cooperation in the Food Price Dynamics: Indonesia in the Regional and Global Economic Architecture. Ph.D. Thesis. University of Bonn.

Contact

Project director: Joachim von Braun [jvonbraun@uni-bonn.de]
Main funders: BMZ, EU Commission
Main cooperation partners: IFPRI, Matthias Kalkuhl (MCC Berlin), EEAA, IFPRI, ILR Bonn, Bernardina Algeri (Università della Calabria)

Websites: zef.de/volatility.html
foodmonitor.org

Twitter: @_Foodmonitor

What is FOODMONITOR?

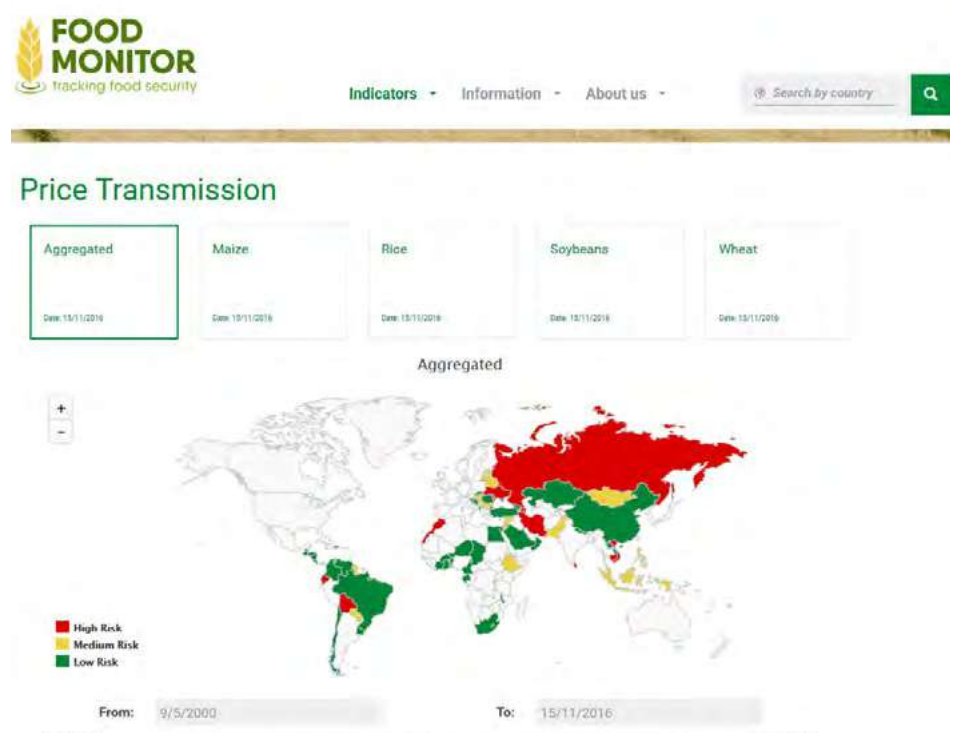
Timely information on the regional and local food security situation is crucial for the detection of emerging food and nutrition security risks. Early detection and up-to-date monitoring is required for early action/early response, e.g. for starting the delivery of assistance, for allocation of resources between regions with differing needs, or for stimulation of local action based on increasing awareness and monitoring efforts.

One focus of the project is the development and testing of an early warning platform for food security risk and crisis identification: FOOD MONITOR (www.foodmonitor.org) brings together several indicators at the local and global scale to monitor the food security situation. Using close to real-time information, Food Monitor provides price information on international markets and their transmission to local markets for major staple commodities such as wheat, rice, corn and soybeans. At the same time, the systems informs about the global supply situation.

The Food Security News Hotspot indicator is meant to represent the media coverage of a food security crisis as this often scales with the intensity of the crisis. Thanks to the automated Tweet functionality, Food Monitor informs about changes of risks to food security. All data on the website has been integrated with a Twitter page to ensure that any increases and/or decreases in risk are automatically published via Twitter.

While there are several market-oriented indicators and different websites or early warning systems, there is a lack of timely assessments based on local knowledge that are made available in a systematic manner and to a wider audience. Particularly in complex situations, this knowledge can directly inform how the food security situation is changing and may therefore play a vital role in timely and sound assessments, which, combined with further indicators, can improve early response actions. In cooperation with Welthungerhilfe the project has been working on introducing a systematic local knowledge-based system into Food Monitor since 2016.

Contact: Regine Weber, rweber@uni-bonn.de



The food monitor website www.foodmonitor.org

3.6

MOBILITY, MIGRATION AND URBANIZATION

A selection of ongoing doctoral research conducted at ZEF on Mobility, migration and urbanization

For more information about this research theme look at:

zef.de/research-capacity-development/zef-themes/mobility-migration-and-urbanization/outline.html

Ekren, Elizabeth: Institutions, innovation and opportunity in asylum-seeker communities: Evidence from North Rhine Westphalia, Germany.

The purpose of this research is to understand and describe failures, processes and responses of refugee communities to address top-down institutional failures in asylum policies. Germany's "refugee crisis", beginning in 2014, forms a qualitative case study. In addition to extensive review of grey literature and media reporting, this study will utilize legal and government documents, expert interviews with industry professionals and in-depth, semi-structured interviews with refugees, and include living together in government accommodation centers in a municipal district of the City of Cologne.

Fellahi, Anis: Rural youth outmigration choices in light of government employment and development policies in Algeria: The case of Batna province in the Aures Region.

This qualitative study analyzes the migration choices of rural youth in Algeria taking into account government employment policies which seek to provide these groups with jobs and dissuade them from migrating. Snowball sampling has been adopted over a period of nine months in the northeastern province of Batna to conduct in-depth interviews with rural migrants and non-migrants, expert interviews, and informal discussions. See also Anis Fellahi's blog post about his visit to a conference about Migration issues in Washington D.C., USA at: blog.zef.de/?p=2291

Kumar, Amit: Marginality at the interface of contemporary development processes in urban India.

This research analyzes the changing conception of citizenship in the city of Mumbai. This against the background of evicting slum dwellers due to exclusionary slum rehabilitation policies and their resistance against them. The role of the slum dweller is understood as that of an active citizen of the city. The research works with the perception of belongingness to the city and with roles and responsibilities of the slum dwellers.

Mussa, Essa: Long-term effects of childhood work on human capital formation, migration decision, and earnings in rural Ethiopia.

This study aims to assess the long-term effects of the competition between childhood labor and education on occupational patterns, migration decisions, adult human capital formation, labor productivity, and earnings later in life. The study is expected





to develop a general framework that integrates the short-term trade-offs between childhood work and early human capital formation with the long-term effects of childhood work on labor market outcomes.

Sakketa, Tekalign: Ethiopian youth in agriculture: relative deprivation, well-being and occupational choices.

This doctoral thesis examines current dynamics of youth employment, occupational choices and factors driving these dynamics within the agricultural sector in Ethiopia across space, time and gender. It looks into relative deprivation and argues that confining this to the monetary sphere may be misleading and does not capture the real effects on well-being or occupational analyses.



Zhang, Liwen: Rural Hukou residents' mobility for employment in China.

Chinese society has experienced a tremendous transformation over the past 35 years and the population of China has maintained high-speed and large-scale mobility within the country under the context of globalization. To comprehend the shift of labor-forces from the rural to the urban and the change of social structures and power relations in the process of mobility are the starting points for understanding Chinese society.



4

CAPACITY DEVELOPMENT



4.1

ZEF'S DOCTORAL STUDIES PROGRAM (BIGS-DR)

For general information about the ZEF doctoral program and the application and registration procedure please look at:

zef.de/application_doc.html

ZEF's doctoral studies program, the "Bonn International Graduate School for Development Research (BIGS-DR)", offers an interdisciplinary and international three-year doctoral education. Since its inception in 1999, around 650 students from 90 countries have participated in the program.

Highlights

Benedict Chijioke Oyiga (Nigeria, batch 2011,) received this year's award of Bonn University's Faculty of Agriculture (500 Euros) for his dissertation on "Genetic variation of traits related to salt stress response in wheat (*Triticum aestivum* L.)". Dr. Oyiga has conducted his research at the Institute for Plant Production and Plant Breeding under Prof. Leon. His research was financed by BMZ via a special project grant of ICARDA.

Minjung Cho (South Korea, batch 2014) received the "Best Dissertation Award" of \$750 for her oral presentation at the Doctoral Forum of the 5th World Conference on Research Integrity taking place in Amsterdam, The Netherlands, May 2017. Her presentation was about "Institutional Assessment of Health Research Capacity in Uzbekistan: Productivity, Organizational Capacity and Research Translation".

Mekbib Haile, Essa Chanie Mussa and Tekalign Gutu Sakketa, three of our Ethiopian ZEF colleagues, were selected to participate in the prestigious 6th Lindau Meeting on Economic Sciences. The event took place in Lindau,

Germany, on August 22 – 26, 2017, where 19 Nobel laureates in economics met with 400 young economists from all over the world. This opportunity is given only to outstanding young scientists, who have to pass a highly competitive multi-step selection process. lindau-nobel.org

Marwa Shumo (Sudan, batch 2014) was invited to the Falling Walls Lab Finale of 2016 in Berlin, which took place at the Akademie der Künste in Berlin on November 8, 2016. She also performed at a Women's Science Slam in Bonn, July 29, 2017, where she told about her research on the Black Soldier Fly. **Read her blog posts at <http://blog.zef.de/>**

Interdisciplinary training

Tackling development issues requires crossing the boundaries of individual disciplines. Therefore, development research is to be based on integrative thinking among a variety of disciplines. ZEF's doctoral education and research therefore bridges and combines interdisciplinarity skills and disciplinary expertise.

The interdisciplinary training at ZEF prepares the doctoral graduates to work in interdisciplinary teams and cooperate with partners from various professional and cultural backgrounds in an international partnership effort for sustainable development. This enables participants to explore new academic fields and be competitive on an international job market.

The structured course program

The teaching program includes two blocks of courses spread over the first and third year of the program, (1) an interdisciplinary course which provides a sound theoretical background, including knowledge and skills to address the complex and interlinked problems of development, and (2) courses structured along disciplinary lines in economics, social sciences, and ecology, with a special emphasis on theory and methodology of each field. ZEF also offers special short courses in topics such as GIS, remote sensing, mathematics and statistics etc. Individual students may visit laboratories at the University of Bonn or other cooperating institutes in Germany or abroad. Key skills are trained in workshops on intercultural competence, research ethics and leadership development.

Besides the course work during the first phase, the doctoral students have to prepare and finalize their research proposals. After their supervisors approved the research plans, the students travel abroad to conduct field research in a developing country, taking one to two years. Subsequently, the students return to ZEF to write up their doctoral theses during the last six to 12 months of the program.

Welcome to new doctoral students at ZEF

In August 2017, ZEF welcomed 30 new doctoral students from 18 countries (see photo on the left page).

4.2

DOCTORAL GRADUATIONS MID 2016 - 2017

All doctoral theses available at:

zef.de/publications/zef-doctoral-theses/doctoral-theses

*January 7, 2016. **Jiaxin Tan (China) on:** Industrial Water Pollution in Dongying City, the Yellow River Delta of China: Communication Interfaces between Government Agencies and the Local Population.*

*May 7, 2016. **Tigist Araya Gessesse (Ethiopia) on:** Above- and belowground carbon stocks in semi-arid land use systems under integrated watershed management in Gergera watershed, Ethiopia.*

*August 7, 2016. **Jan Brockhaus (Germany) on:** The Role of Storage and Information in Stabilizing Food Prices and Supplies.*

*August 26, 2016. **Divya Rajeswari Swaminathan (India) on:** Agricultural transformation and indigenous communities. A case study of the Soliga Communities in the montane forests, Southern India.*

*August 31, 2016. **Marta Kozicka (Poland) on:** Policies for Food Security in India: An Assessment of Current Policies and Reform Options.*

*September 22, 2016. **Kaderi Bukari (Ghana) on:** Farmer-Herder Relations in Ghana: Interplay of Conflict, Environmental Change, Cooperation and Social Networks.*

*September 9, 2016. **Elias Danyi Kuusaa-na (Ghana) on:** Large-scale land acquisitions for agricultural investments in Ghana - implications for land markets and smallholder farmers.*

*October 10, 2016. **Daniel Ayalew Mekonnen (Ethiopia) on:** Social Interactions, Aspirations, and Agricultural Innovations: Linkages with Income and Food Security.*

*December 13, 2016. **Timo Falkenberg (Germany) on:** Wastewater-Irrigated Urban Agriculture in the Context of WASH in Ahmedabad, India - The Impact of Irrigation Water Quality on the Incidence of Diarrhea.*

*December 14, 2016. **Benedict Chijioke Oyiga (Nigeria) on:** Genetic variation of traits related to salt stress response in wheat (*Triticum aestivum* L.).*

*December 20, 2016. **Narayan Prasad Adhikari (Nepal) on:** Spatial variation of biomass energy supply and demand in rural Nepal.*

*December 21, 2016. **Bertrand Nero (Ghana) on:** Meanings of violence and its impacts on the socio-political relations among the Samburu and Turkana of Baragoi, Northern Kenya.*

*January 20, 2017. **Willis Okumu (Kenya) on:** Meanings of violence and its impacts on the socio-political relations among the Samburu and Turkana of Baragoi, Northern Kenya.*

*March 30, 2017. **Marco Elías Cisneros Tersitsch (Germany) on:** The impact of public policies on deforestation in the Brazilian Amazon.*

*April 25, 2017. **Poulouma Louis Yamogo (Burkina Faso) on:** Managing seasonal soil nitrogen dynamics in inland valleys of the West African savanna zone.*

*May 4, 2017. **Karsten Alexander Schulz (Germany) on:** Towards an Integrated Governance Approach to Climate Change and Food Security in the Upper West Region of Ghana.*

*May 5, 2017. **Tran Tu Van Anh (Vietnam) on:** Civil Society Action against Industrial Water Pollution in Vietnam: the Case of the Đồng Nai River Basin.*

*May 18, 2017. **Qiu Chen (China) on:** Civil Society Action against Industrial Water Pollution in Vietnam: the Case of the Đồng Nai River Basin.*

*May 29, 2017. **Arda Bilgen (Turkey) on:** Demystifying the (post-)politics of Southeastern Anatolia Project (GAP): An analysis of the what, why, and how of GAP and the operation of development in Turkey from a critical perspective.*

*May 31, 2017. **Johanna Rapp (Germany) on:** The Challenge of Governing Natural Resources / A Social Network Analysis of Actors' Collaboration in Ghana's Petroleum Sector.*

*June 15, 2017. **Alejandra Sepulveda Lozada (Mexico) on:** Food web dynamics in coastal vegetated habitats of the Southern Gulf of Mexico.*

July 3, 2017. **Fazlullah Akhtar (Afghanistan) on:** Water availability and demand analysis in the Kabul River Basin, Afghanistan.

July 20, 2017. **Muhammed Abdella Usman (Ethiopia) on:** Water, sanitation and agriculture: Linkages and impacts on health and nutritional outcomes in rural Ethiopia.

July 21, 2017. **Jose Estuardo Jara Alvear (Ecuador) on:** GIS-based sustainability assessment of decentralized rural electrification in the Amazon region: case study Ecuador.

August 21, 2017. **Charles Yaw Okyere (Ghana) on:** Water Quality in Multipurpose Water Systems, Sanitation, Hygiene and Health Outcomes in Ghana.

September 1, 2017. **Marther Ngigi (Kenya) on:** Managing risk under climate change in rural Kenya - Multiple shocks, poverty, gender and the potential for group-based approaches.

September 9, 2017. **Denise Margaret Matias (Philippines) on:** Sustainability of community forestry enterprises: indigenous wild honey gathering in the UNESCO Man and Biosphere Reserve Palawan, Philippines.

October 4, 2017. **Daniel Alejandro Rozas Vásquez (Chile) on:** Mainstreaming the ecosystem services approach in strategic environmental assessment of spatial planning in Chile.

October 10, 2017. **Wan Teng Lai (Malaysia) on:** We Come. We Work. We Relate: The Migrant Laborers in Penang, Malaysia.

November 9, 2017. **Minjung Cho (South Korea) on:** Institutional Assessment of Health Research Capacity in Uzbekistan: Research Productivity, Organizational Capacity, and Research use in Policy.

November 28, 2017. **Hugo Rosa da Conceicao (Brazil) on:** Determinants of incentive-based forest governance in the Amazon: Evidence from Ecuador, Peru and Brazil.

December 5, 2017. **Alisher Ergashev (Uzbekistan) on:**

How Fruit Consumption Might Be Fruitful for the Economy: Analyzing Effects of Improvements in Fruit and Vegetable Availability and Accessibility in Uzbekistan.

December 15, 2017. **Kokou Adambou-nou Amouzou (Togo) on:**

Dynamics of macronutrient cycles under the impact of climate change and agricultural land use in the West African Sudan Savanna.

December 19, 2017. **Mohammad Monirul Hasan (Bangladesh) on:**

Investment in health within agriculture, water, sanitation and hygiene nexus for rural households in Bangladesh.

December 20, 2017. **Lucie Andeltová (Czech Republic) on:** Action-based and outcome-based payments for environmental services: An experimental auction for tree plantings contracts in Kenya.

December 20, 2017. **Tekalign Sakketa (Ethiopia) on:** Ethiopian youth in agriculture: Relative deprivation, well-being and occupational choices. Doctoral Thesis at Faculty of Agriculture, University of Bonn.



Field research impressions reflected in a photo exhibition @ ZEF

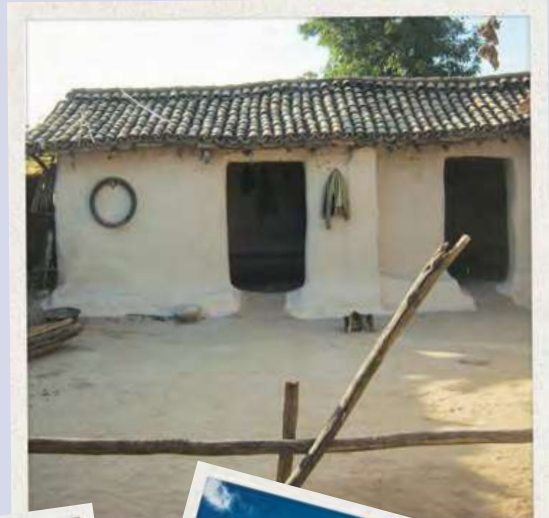

In 2017, four ZEF doctoral students (**Sebastian Forneck, Till Ludwig, Sneha Sharma and Poornima Thapa**) who were or had been conducting field research in India collected their photographic impressions of the country and showed them in a photo exhibition at ZEF.

Background: ZEF's doctoral students conduct a six to twelve-month field research period as part of their three-year doctoral education at the Institute. Equipped with an approved research plan about what and how they want to investigate and with which local partners and, in addition, a budget for what to spend on what, they go abroad, often to their home countries, where they look into specific research questions. Depending on their academic discipline they may measure crop yields and soil matter, analyze materials in the lab, or they conduct surveys among households, interview experts as well as decision and policy makers, evaluate literature and media coverage, and so on.

PHOTO EXHIBITION

INSIDE OF INDIA. IMPRESSIONS AND INSIGHTS FROM FIELD RESEARCH

AT THE CENTER FOR DEVELOPMENT RESEARCH [ZEF] | WWW.ZEF.DE
GENSCHERALLEE 3 | 53113 BONN | GROUND FLOOR
DAILY OPENING HOURS 9 AM - 4 PM
SEPTEMBER - DECEMBER 2017



REGIONAL CAPACITY DEVELOPMENT PROGRAMS

4.3

Academic education at West African universities in cooperation with German counterparts

The WASCAL Graduate Studies Program

The WASCAL Graduate Studies Program supports and facilitates academic education amongst West African universities in association with German counterpart institutions. The Program focuses on educating Doctoral and Master's students.

ZEF's role over the past years was to coordinate the participation of German academia to WASCAL's various capacity building activities and assist WASCAL and partners in West Africa in administration, program conceptualization and networking.

Activities

Between October 2016 and June 2017 over 50 WASCAL staff members, including researchers, IT, administrative staff,

finance and management staff, as well as GSP directors and deputy directors were trained in reporting by the usage of the pro-report online platform to fulfill the reporting obligation towards BMBF.

Training sessions

December 5-8, 2016: WASCAL Competence Center staff (researchers, IT, administration) in Ouagadougou on project reporting and monitoring with Pro-Report.

December 12-13, 2016: WASCAL Headquarters senior and junior staff (finance, management, capacity building, Human Resources) in Accra.

January 2017: WASCAL Graduate Schools Program directors in Bonn.

March 2017: WASCAL Graduate Schools Program deputy directors and coordinators in Ouagadougou.

Contact:

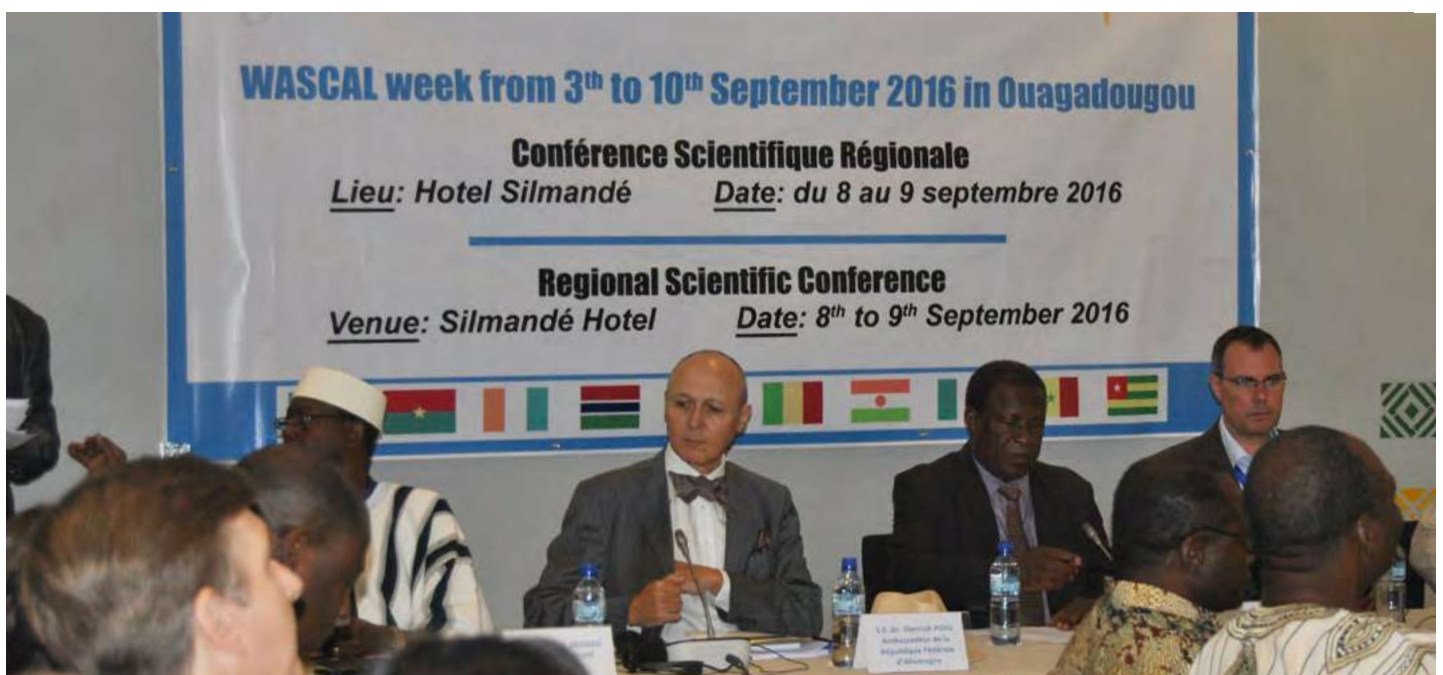
Project coordinator:

JPA Lamers,

[jlamers@uni-bonn.de]

Main funder: BMBF

Website: wascal.org/graduate-programmes/graduate-studies-programme



ZEF established the Ghanaian-German Centre for Development Studies (GGCDS) in collaboration with the Institute of Statistical Social and Economic Research (ISSER) at the University of Ghana. The GGCDS runs a PhD program in development studies, engages in staff capacity building, funds research and conference travel of lecturers, students and alumni, and provides the basis for joint workshops and research projects. Since 2008, 62 PhD students have been admitted and 23 have graduated.

Activities

The GGCDS has been granted further DAAD funding beyond the project lifespan. Beginning from 2017 the DAAD will sponsor seven in-region stipends annually. Two Ghanaian and five students from other African countries will be sponsored for four years to pursue their PhD at the GGCDS. Funding is earmarked for three batches and is renewable afterwards. The GGCDS also attracted further funding for the West African Program for Sustainable Development Management under Chancellor Merkel's special initiative for West Africa.

From 2017-2019, 24 master students will be sponsored to obtain an M. Phil. in Development Management. The Program is run at the Faculty of Planning

and Land Management of the University for Development Studies in Northern Ghana. Like in the other components of the project ZEF staff provides input into curriculum development and teaching. Currently researchers of the various GGCDS partner institutions are working on the submission for an application for a DAAD call for West African Centers of Excellence in which the consortium aims to partner with the University Aboudou Moumouni in Niamey, Niger. The focus is on sustainable rural transformation and the collaboration aims to bridge the anglophone-francophone divide in West Africa.

Representatives of ZEF and ISSER also participated in the 8th Meeting of the DAAD Centres of African Excellence in Voi, Kenya. During the meeting new approaches to evaluation and monitoring, collaboration between centers, as well as the future of the centers past the current funding period was discussed.

Events

Extractivism and the (mis-)management of water resources: Examples from Brazil, GGCDS-organized Water Lecture at ZEF, October 20, 2016.

Civilizing Land Grabs and Extractive Industries: Societal Negotiations and the Role of Law (October 23-24, 2016) GGCDS-Workshop, at ZEF.

From Land Grabs to Land Rush: The impact of domestic medium- and large-scale investment on land relations, smallholder livelihoods and farming systems in northern Ghana. Presentation by GGCDS-coordinator Wolfram Laube and GGCDS-alumnus Michael Ayamga at the African Studies Association Biennial Conference 2016, September 7, 2016, Cambridge, UK.

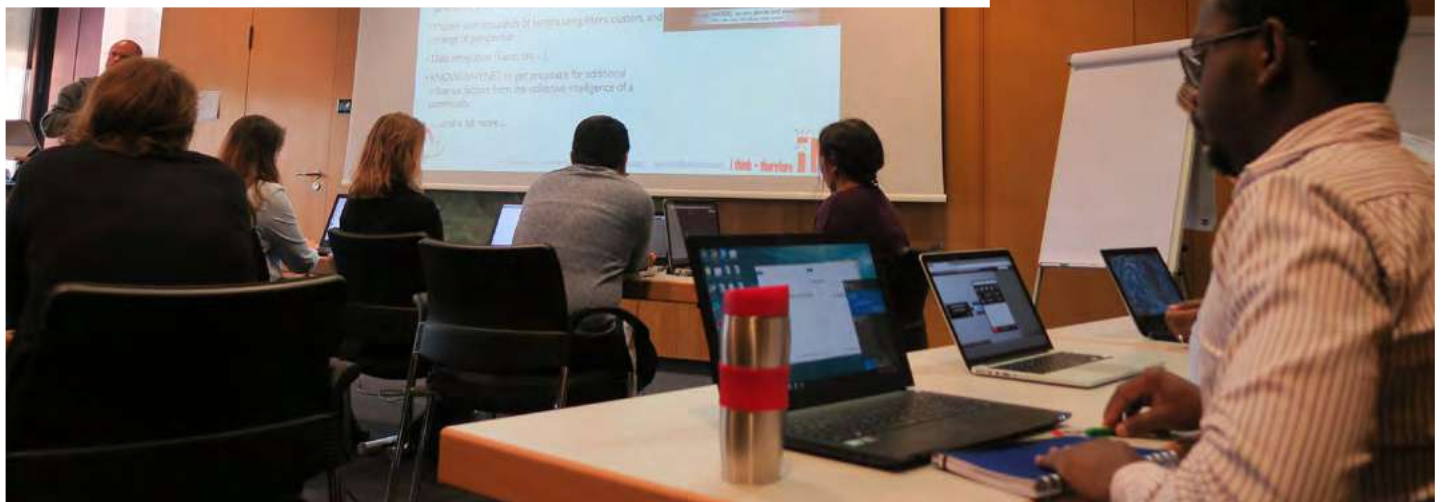
Contact

Wolfram Laube
[wlaube@uni-bonn.de]

Funders: DAAD and Engagement Global (post-graduate resource center at UDS)

Main cooperation partners: ISSER, University of Ghana, and Faculty of Planning and Land Management (FPLM), UDS, UAM

Website: zef.de/projects/ggcds



The NRW Fortschrittsskolleg 'One Health and Urban Transformation' is a transdisciplinary graduate school hosted by ZEF in cooperation with other institutes of Bonn University, the University of Applied Science Bonn Rhein-Sieg, and the United Nations University - Institute for Environment and Human Security (UNU-EHS). The junior researchers will conduct research in four metropolitan regions: Ruhr Metropolis (Germany); Ahmedabad (India), Accra (Ghana), and São Paulo (Brazil).



Events

The graduate school started in July 2016 and will investigate the various dimensions and transformations of the urban systems and their impact on human, animal and environmental health. The One Health approach adopts an integrative perspective of health, recognizing the interactions between environmental, social and economic systems shaping human, animal and environmental health.

Thirteen doctoral students were selected in a multi-stage selection process involving all cooperation partners.

The selected students have joined ZEF from the beginning of July 2017 and have begun the academic course program and proposal development.

September 5, 2017: Fortschrittsskolleg Kick-Off Event

Doctoral researchers (starting 2017)

Annie Nana: Assessment of sanitary and environmental risks related to wetlands agriculture, Accra, Ghana.

Kayleigh Bleymann: Antimicrobial resistance and implementable approaches to AMR mitigation in São Paulo, Brazil.

Anna Brückner: Promoting health through urban blue projects in deprived quarters, Ruhr area, Germany.

Jessica Fellappi: Greening São Paulo: Improving quality of life and health through brownfield redevelopment.

Juliana Minetto Gellert Paris: relationship between food systems and nutritional health within socioeconomically stratified areas of São Paulo City.

Ana Perez Arrendondo: Adoption of risk transfer mechanism among small and medium scale farmers and the social capital role in Accra, Ghana.

Samara Evangelista Gomes: São Paulo's new master plan: potential impacts on water availability, quality and distribution and related consequence for urban and environmental health.

Joshua Ntajal: Integrated flood risk reduction, spatial planning and climate change adaptation: Multi-disciplinary approach to promote human security in Greater Accra Metropolitan Area, Ghana.

Krupali Patel: Nexus surveillance on Antimicrobial use & resistance: A One Health approach for rapidly urbanized mega city of India, Ahmedabad.

Silvia Quintana Sagarnaga: Climate change and agriculture: Addressing adaptation of urban and peri-urban areas in São Paulo.

Yasobant Sandul: Operationalizing One Health Approach: Analysis of Urban Governance of Smart City, Ahmedabad, India.

Merveille Koissi Savi: Climate extreme events and emerging waterborne disease in West Africa.

Dennis Schmiege: Urban transformation processes in the watersheds of Ruhr area and Ahmedabad and implications to One Health related to ecosystems-water-energy-food nexus.

Philipp Swoboda: Effects of rock dust combined with organic materials on crop types grown in India.

Contact

Coordinator: Timo Falkenberg
[Falkenberg@uni-bonn.de]

Main funder: Ministerium für Kultur und Wissenschaft des Landes NRW

Main cooperation partners: University of Applied Sciences Bonn Rhein-Sieg; UNU; Bonn University; Indian Institute of Public Health, Gandhinagar; ISSER, University of Ghana, University São Paulo.

[Website: zef.de/onehealth.html](http://www.zef.de/onehealth.html)

Cooperation between ZEF and IPADS, University of Tokyo, Japan

The partnership between ZEF and the Graduate School of Agricultural and Life Sciences was officially inaugurated in the beginning of 2016 by signing two Memoranda of Understanding: One between the Universities of Bonn and Tokyo and another between IPADS and ZEF. In this partnership, the Graduate School of Agricultural and Life Sciences of the University of Tokyo is represented by the International Program in Agricultural Development Studies (IPADS). IPADS is an international program at Master's and doctoral level that offers its candidates the opportunity to develop expertise across disciplines and country boundaries to tackle agricultural and environmental problems in developing countries around the world. The partnership includes exchange of staff and students as well as joint research and lectures.

Collaborative research and education on agricultural and environmental issues in developing countries

Activities

March 2017. **Powell Mponela from Malawi, Juliet Wanjiku Kamau from Kenya, Bibiana Betancur Corredor from Colombia and Shova Shrestha from Nepal** visited ZEF's partner institute IPADS with Academic coordinator Günther Manske. They attended the ZEF-IPADS Symposium on One Health, took part in joint seminars with IPADS students and in excursions to field sites. The ZEF students were also guests of the Institute for Sustainable Agro-ecosystem Services (ISAS) of the University of Tokyo, where they participated in a five-day field training and lecture program, together with IPADS students.

September 18-22, 2017. IPADS and ZEF organized a joint Symposium on "[One Health for Africa and Asia](#)" which was opened by ZEF director Christian Borgemeister with a lecture. Manfred Denich (ZEF senior researcher) was invited to give lectures in the IPADS introductory course for master and doctoral students.

Contact

Manfred Denich
[m.denich@uni-bonn.de]

Main cooperation partner: University of Tokyo, IPADS

Websites: zef.ipads.jp
ipads.a.u-tokyo.ac.jp



THE RIGHT LIVELIHOOD COLLEGE



4.4

The Right Livelihood College (RLC) is a global capacity building initiative of universities and the Right Livelihood Award (RLA, also known as “Alternative Nobel Prize”) Foundation. RLC provides inter- and transdisciplinary education and research on sustainable development in the Global South. There are RLC Campuses at eight universities in Africa, Asia, Latin and North America, and Europe. The RLC Campus at ZEF was established in 2011, supported by the DAAD. In 2014, also the Global Secretariat of the RLC moved from Malaysia to ZEF. Since 2015, the RLC Global Secretariat at ZEF is supported by the Robert Bosch Foundation to coordinate and promote the global RLC education and research activities.

Activities

- Inter- and transdisciplinary education of international PhD students
- Conferences, workshops and public events with Laureates of the RLA
- Empirical PhD research projects in Chile, Kenya and India on selected aspects of environmental sustainability and social justice in cooperation with Laureates and other partners

Events

Conference on “Transdisciplinarity put into practice” at RLC Campus University of Valdivia, Chile, 5-7 December, 2016, with five Laureates of the Right Livelihood Award among many others

Workshop on “Sustainable agriculture and economic growth: smallholder farmers between markets, policies and environmental change”, at ZEF, June 4-9, 2016, including a Public Lecture at the Agricultural Faculty, University of Bonn, with David Amudavi, Director of the Right Livelihood Award Organization BIOVISION Africa

Cooperation with Deutsche Welle at the Global Media Forum (GMF) Conference, June 13-15, 2017. RLC Campus Bonn invited Laureate Özgür Mumcu from Turkey to the GMF, organized a public panel discussion at ZEF and had an information booth at the World Conference Center Bonn

Doctoral researchers

Divya Swaminathan. Agricultural transformation and indigenous communities: Case studies from Southern India (doctoral graduation on August 26, 2016).

Willis Okumu. Cattle raids, violence and institutional change among pastoralists in northern Kenya (doctoral graduation on January 20, 2017).

Wan Teng Lai. Crossing and re-crossing of domestic workers across the Straits of Malacca: an analysis of migratory pathways against the context of Malaysia’s New Economic Model (doctoral graduation on October 10, 2017).

Juliet Wanjiku Kamau. Productivity and sustainability of ecological organic agriculture systems in Kenya (ongoing).

Alejandro Mora Motta. Fundamental human needs in the context of large tree plantations in Los Ríos, Chile (ongoing).

Amit Kumar. Marginality at the interface of contemporary development processes in urban India (ongoing).

Contact

Till Stellmacher
[t.stellmacher@uni-bonn.de]

Main funders: DAAD, Robert Bosch Foundation

Website: www.rlc-bonn.de
rlc-blog.org



5

SELECTED OUTREACH & SOCIAL MEDIA



[ZEF activities at and around the COP23.](#) ZEF organized a series of events on the occasion of the COP23 in Bonn from November 6 -17, 2017. Find more information about our activities on zef.de/cop23

[ZEF-director Joachim von Braun gives key note at FOOD2030 Conference of EU.](#) ZEF- Director Joachim von Braun gave a presentation at the FOOD2030 Conference on “Harnessing research and innovation for FOOD2030: A science policy dialogue”, of the European Commission in Brussels on October 16, 2017.

[ZEF co-organizes Tropentag in Bonn.](#) Around 1,000 scientists expected to join September 2017. Bonn University hosted Europe’s largest interdisciplinary scientific conference on tropical and subtropical agriculture. Around 30 ZEF researchers and members of its International Advisory Board played an active role in this international event.

For more events and news please visit zef.de

[ZEF involved in course on Global Health Risk Management and Hygiene Policies at Bonn University.](#) June 2017. ZEF organizes a module in a new MSc course in Global Health Risk Management and Hygiene Policies at Bonn University starting from October 2017. The two-year course will be supported by the United Nations University Institute for Environment and Human Security (UNU-EHS) and aims at training leaders in implementing and monitoring public health strategies.

[ZEF-Director Joachim von Braun appointed president of the Pontifical Academy by Pope Francis.](#) The Vatican informed ZEF-Director Joachim von Braun on June 21, 2017 that he has been appointed President of the Pontifical Academy of Sciences for the next five years. Von Braun therewith succeeds the Swiss biologist and Nobel Prize winner Werner Arber.

[ZEF and PARI project at the G20 conference in Berlin.](#) April 27, 2017. ZEF and PARI were at the G20 conference ONE WORLD – No Hunger. Future of the rural world in Berlin, April 27-28, 2017. The conference’s focus was on Innovation, Youth, and Employment.

[New expert panel will join efforts to accelerate agricultural growth and cut hunger in Africa.](#) April 26, 2017. ZEF-Di-

rector Joachim von Braun is co-chair of the newly founded Malabo Montpellier Panel, which brings together leading agriculture and food security experts from Africa and Europe to support efforts by African countries to sustain and accelerate the current pace of growth in order to achieve the goals set by the African Union of reducing poverty and ending hunger within the next decade. The offices of the Panel are at Dakar, London and Bonn (at ZEF).

[Learn lessons from success to beat malnutrition in Africa, advise experts.](#) September 12, 2017. The battle against malnutrition in Africa can be won, according to a new report launched by the Malabo Montpellier Panel at the Africa Green Revolution Forum in Cote d’Ivoire in September 2017. ZEF-director Joachim von Braun is co-chair of the Panel.

[Germany’s Federal Ministry for the Environment is funding ZEF initiative on building biodiversity capacities in West Africa with 2.5 million euros.](#) March 28, 2017. ZEF will receive funds of around 2.5 million euros for the upcoming five years from the International Climate Initiative (IKI) of Germany’s Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety. The project aims at enabling experts in West Africa to strengthen the

region's input to the program of the International Council for Biodiversity.

[Book launch and public seminar on "Food Price Risks, Food Security, and G20" by Matthias Kalkuhl, Joachim von Braun and Maximo Torero \(eds.\).](#)

February 14, 2017. The book and its policy lessons were discussed during a public seminar on "Food Price Risks, Food Security, and G20".

[ZEF ranked again among the world's leading Think Tanks](#)

January 2017. In the 2016 Global Go To Think Tank Index Report of the University of Pennsylvania, ZEF was ranked again among the world's leading think tanks.

[Think Tanks appeal to G20 Ministers of Agriculture for new action toward ending hunger and sustainable agriculture](#)

Bonn/Berlin, January 16, 2017. Research leaders coming together under the T20, a network of Think Tanks from

the G20 countries. In a policy brief prepared for the gathering of G20 Agriculture Ministers during the Green Week in Berlin, January 20-22, 2017, they stressed that sustainable agriculture can only be achieved if land, water and energy are considered jointly in policies, not in isolation.

[Article in Science journal with ZEF contribution on Earth's "roadless areas"](#)

December 15, 2016. A new global map of roadless areas reveals that the Earth's surface is shattered by roads into more than 600,000 fragments. ZEF senior researcher Lisa Biber-Freudenberger contributed to the results.

[Book Presentation: A Rock Between Hard Places: Afghanistan as an Arena of Regional Insecurity.](#)

A "Risk and Uncertainty for Sustainable Development" lecture with Dr. Kristian Berg Harpviken, Director, Peace Research Institute Oslo (PRIO) on November 2, 2016.

[FOODSECURE project's research findings were presented at conference in Brussels](#)

October 2016. ZEF's project on food security presented its research findings to a broad audience in Brussels. Advisors of the European Commission attended and got important inputs regarding policy making on food security.

[ZEF researchers awarded at the 5th African Association of Agricultural Economists \(5th AAE\) in Ethiopia](#)

October 6, 2016. ZEF senior researchers Justice Tambo and Oliver Kirui were awarded for their papers during the 5th AAE at the United Nations Economic Commission for Africa in Addis Ababa, Ethiopia.

ZEF's social media

Keep in touch with ZEF through social media and join us!



Connect with us via [LinkedIn](#). Here, you have the opportunity to network with other researchers connected to ZEF.

ZEFBONN



Our [Instagram](#) account gives you a snapshot of working and studying, and even a behind-the-scenes sneak peek of how things are done at ZEF. Post your own photos and share with us by tagging #ZEF!

BLOG.ZEF.DE

Read the [ZEF blog](#), a researcher-run space where individual junior and senior researchers share stories about their work, both in and out of the field.

ZEF's Alumni Network

All alumni and former researchers are listed under the staff section on the ZEF website. More information and contact: docp.zef@uni-bonn.de



ZEFUNIBONN

Stay up-to-date about our latest and upcoming events and institute related news and pictures on our [Facebook](#) and [Google+](#) page. Some events are recorded live, where you can join us.



ZEFBONN

Start or keep [tweeting](#) @ZEFbonn and follow us to see where we are and what we're doing.

ZEFBONN

If you missed an event you can head over to our [YouTube page](#) to re-watch talks and lectures.



6

BUDGET 2016/2017 ZEF'S FUNDING PARTNERS

Indirect Support*)	in Euro	in %
German Academic Exchange Service (DAAD) / German Federal Ministry of Economic Cooperation and Development (BMZ)	548,204	67.1
Own funds of students	122,700	15.0
DAAD Regional Program / German Foreign Office (AA)	52,768	6.4
SENECYT, Panama	44,710	5.5
CONICYT, Chile	16,000	2.0
Katholischer Akademischer Ausländer-Dienst (KAAD)	15,600	1.9
CONACYT, Mexico	10,800	1.3
SENECYT, Ecuador	3,000	0.4
ICIPE, Kenya	3,000	0.4
Total	816,782	100

External Funds**) Projects	in Euro	in %
German Federal Ministry of Economic Cooperation and Development (BMZ)	3,532,556	30.6
German Federal Ministry of Education and Research (BMBF) via	2,909,855	25.2
<ul style="list-style-type: none"> German Aerospace Center (DLR), or 	Crossroads-Perspective RARSUS STRIVE TelePath WASCAL, West Africa WASCAL-Consolidation WASCAL-Coordination WASCAL-PAUWES WESA	
<ul style="list-style-type: none"> Forschungszentrum Jülich (FZJ) 	GlobE: BiomassWeb	
<ul style="list-style-type: none"> Karlsruher Institut für Technologie (PTKA-WTE) 	GROW InoCottonGROW	
German Academic Exchange Service (DAAD)	1,665,417	14.4
<ul style="list-style-type: none"> DAAD 	International Doctoral Studies Program Intercultural Weekend Seminar Leadership Development Seminar Research Funds	

External Funds - cont.	Projects	in Euro	in %
• DAAD / BMBF	RARSUS-DAAD		
• DAAD / BMZ	Bilateral SDG-Graduate School Greening Environmental Impact Assessments in Bolivia		
• DAAD / BMZ/GIZ/ African Union	Cooperation Water-Energy (PAUWES-ZEF-UNU-ITT, II)		
• DAAD / AA	DAAD/ZEF Centre of Excellence, Ghana RLC Campus II		
German Federal Ministry of Food and Agriculture (BMEL) via		508,076	5.0
• Federal Office for Agriculture and Food (BLE)	NutriHAF Africa		
• Fachagentur Nachwachsende Rohstoffe (FNR)	FSS		
Northrhine Westfalia / MIWF NRW	One Health and Urban Transformation	491,646	4.3
German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)	IKI: IPBES Support, West Africa	460,040	4.0
Center for International Forestry Research (CIFOR)	Forests in the Global Bioeconomy	328,821	2.9
International Food Policy Research Institute (IFPRI)	Montpellier Malabo Panel Water-Energy-Food Nexus	276,797	2.4
European Commission (EU)	FOODSECURE PROIntens	246,516	2.1
Robert Bosch Foundation	RLC Network Junior Professorship	235,239	2.0
Volkswagen Foundation	Healthcap Project Research Funds	175,262	1.5
International Centre of Insect Physiology and Ecology (icipe)	Ento NUTRI SCIPM	143,873	1.3
Andreas Hermes Academy (AHA) / GIZ/BMZ	Farmer Empowerment	138,204	1.2
Third-Party Project Fund available after Project End	Third-Party Project Fund available after Project End	131,804	1.1
International Water Management Institute (IWMI)	Soil Rehabilitation	103,929	0.9
Fiat Panis Foundation	Dr. Hermann Eiselen Doctoral Program	98,212	0.8
International Centre for Research in Agroforestry (ICRAF)	Workshops, West Africa IMMANA	61,675	0.5
World Vegetable Center (AVRDC), International Society for Horticultural Science (ISHS)	GlobalHort II NutriSenseProm	38,312	0.3
Alexander-von-Humboldt Foundation	Research Funds	16,667	0.1
Total		11,562,901	100

Core Funds ^{***})	in Euro	in %
Personnel Costs	1,359,466	76.3
Administrative Costs	283,530	15.9
BMBF & DFG Overhead Shares ^{****})	138,993	7.8
Total	1,781,989	100
Indirect Support & External Funds & Core Funds	14,161,672 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.

7

ZEF'S INTERNATIONAL ADVISORY BOARD



Prof. Dr. Dr. h.c. mult. J.A. van Ginkel

Chair (until September 2017) Prof. Emeritus University of Utrecht, The Netherlands, and former Rector of the United Nations University in Tokyo, Japan.

Prof. Dr. Mohamed H.A. Hassan

Chair (as of September 2017), Co-Chair IAP, Chair UNU Council, UNICONS, Sudan.

Prof. Dr. Bina Agarwal

Professor of Development Economics and Environment, University of Manchester, United Kingdom.

Prof. Dr. Ernest Aryeetey

Vice Chancellor University of Ghana, Legon, Ghana.

Dr. Florence Chenoweth

Former Minister of Agriculture, Liberia and Director of the Food Agriculture Organization (FAO) of the United Nations Liaison Office in New York (LON), USA.

Hans-Joachim Fuchtel

Parliamentary State Secretary, Federal Ministry for Economic Cooperation and Development (BMZ), and member of the Federal Parliament, Germany.

Prof. Dr. Michael Hoch

Rector of the Rheinische Friedrich-Wilhelms-University Bonn, Germany.

Wilfried Kraus

Head of Cultural, Earth System and Environmental Research, Federal Ministry of Education and Research (BMBF), Germany.

Dr. Michael Rabbow

Senior Advisor, E&P Focus Africa Consulting GmbH, Hamburg, Germany..

Prof. Dr. Günther Schlee

Director of the Max Planck Institute of Social Anthropology, Halle, Germany.

Prof. Dr. Frances Stewart

Centre for Research on Inequality, Human Security & Ethnicity, University of Oxford, United Kingdom.

Prof. Dr. Holm Tiessen

Former Director of the Inter-American Institute for Global Change Research (IAI), Montevideo, Uruguay.

Prof. Dr. Carolina Vera

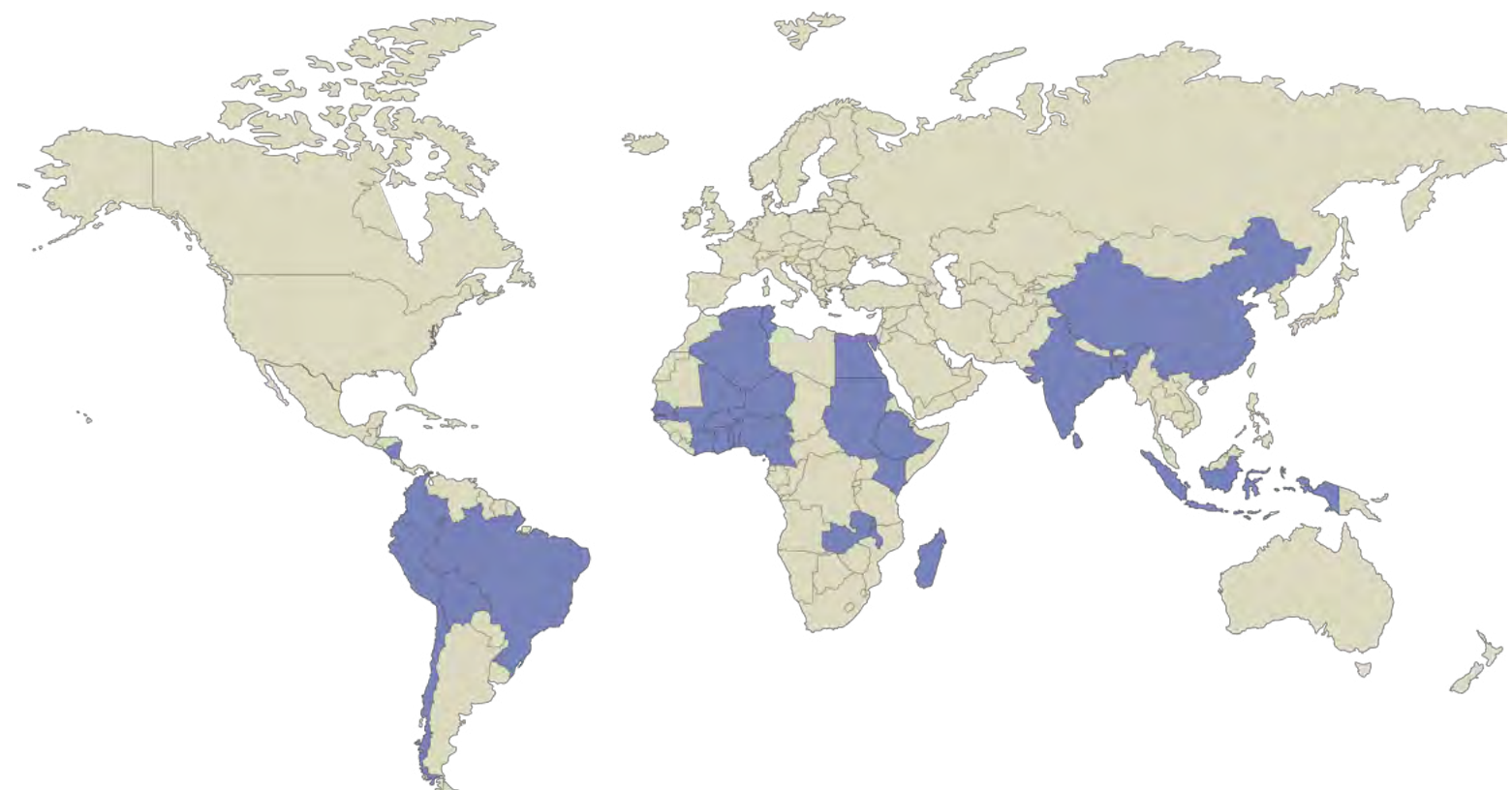
Director Centro de Inv. Del Mar y la Atmosfera (CIMA), Buenos Aires, Argentina.

Representative of the

State Chancellery of North Rhine-Westphalia, Düsseldorf, Germany.

ZEF'S MAIN RESEARCH COUNTRIES

8



UNIVERSITÄT **BONN**

