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# ZEFNEWS

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EDITORIAL:

## HUNGER-RELATED CONFLICTS REQUIRE COHERENT POLICIES

Of the approximately seven billion people on this planet, around two billion still cannot afford a healthy diet. But hunger and its causes have become more complex. Hunger in conflict-affected states has reached new dimensions, being not only a consequence but also a method of war, such as in Syria, Yemen, and South Sudan. Aid is not allowed into encircled cities and regions, which contradicts international law and the universal human right to food. Diplomacy and, if necessary, military intervention should be considered in overcoming such extreme hunger causes. Emergency aid can only be effective to a certain extent.

Globally, farmland has become scarce and land prices have soared over the past ten years, triggering local conflicts. Political insecurity is rising in rural areas of developing countries, triggering migration. Also, climate change exacerbates conflicts over water and food.

Protests against rapid food price spikes occurred in 2008-9 in over 60 countries, more than half of them violent. The strategic foreign and security policy implications of neglected food systems was noted too late. Meanwhile, they have been partially corrected, with African programs such as the Comprehensive African Agricultural Development Program and the Alliance for a Green Revolution in Africa and with the One World without Hunger initiative with German cooperation.

Citizens can now be more articulate when hunger threatens because social media help them. Thus, hunger has become more political, and that brings new risks and opportunities: Development policy in this area should work coherently with foreign and security policy. Priority measures are to promote agricultural growth in developing countries; reduce extreme food market volatility and increase social security. Research to address the hunger complexity needs to cut across disciplines. That is also why the cooperation here in Bonn between ZEF, the Bonn International Center for Conversion (BICC) and the United Nations University (UNU) is so relevant.

Joachim von Braun.

The author is Director of ZEF's Department for Economic and Technological Change



## ENVIRONMENTAL PEACE BUILDING IN AND WITH COLOMBIA

ZEF and the Universidad Nacional, Bogotá, Instituto de Estudios Ambientales (IDEA) in Colombia have started a joint bilateral doctoral studies program on „**Environmental peace building and development in Colombia**“. The project will be launched officially in Colombia's capital Bogotá with a kick-off event in October 2018. The studies program will look at the **nexus of natural resources, governance and conflict** using innovative and integrative concepts, methods and instruments to explore interdependencies.

The program's focus will be on the joint production of knowledge based on **interdisciplinary exposure and integrative measures**. This is of utter importance in a country in which the recently signed peace agreement will be put to the test by how society will find solutions for the pressing issues the country faces. These issues relate to conflictive **extractive activities and development models, environmental protection** and, above all, the **participation and inclusion of the population** in decision-making processes on how to reduce environmental conflicts.

The **bilateral program for doctoral studies** aims at:

- Introducing interdisciplinary, integrative and innovative scientific approaches, concepts and methods on environmental relations, natural resources and conflict;
- Developing a research agenda addressing the SDGs;
- Internationalizing science and foster comparative analysis of research sites and regions with transnational and regional partners;
- Exploring and reflecting critically on the role of higher education for the SDGs.

The German Academic Exchange Service (DAAD) supports the project with 1.89 Million euros for the next two years.

**Project lead and contact: Eva Youkhana, ZEF.**  
**e-mail: [eva.youkhana@uni-bonn.de](mailto:eva.youkhana@uni-bonn.de)**



## LEAD ARTICLE

## HOW AFRICA CAN BUILD A FUTURE FREE FROM HUNGER AND MALNUTRITION

The news from Africa is often about places where people are facing food shortages. However, while hunger and malnutrition are still clearly a major problem, research from the Malabo Montpellier Panel shows that several countries are starting to win the battle for better nutrition outcomes. The Malabo Montpellier Panel is a group of international agriculture experts who guide policy choices that accelerate progress towards food and nutritional security in Africa.

### The stories behind success

Senegal, Ghana, Rwanda, Angola, Cameroon, Togo and Ethiopia have all reduced malnutrition levels significantly over the last 15 years, some by as much as 50 percent. The report, *Nourished: How Africa Can Build A Future Free From Hunger and Malnutrition*, published by the Malabo-Montpellier Panel, analyses what lies behind their success. In each case, the government has developed ways of spotting nutrition problems early on and is implementing cutting edge programs, at scale, to prevent people reaching the crisis point. Many are also developing policies that mean their health, nutrition and agriculture ministries have to work closely together - and this is yielding results.

### Key factors for achieving progress

While there is still much to do, especially in drought and conflict affected areas, this progress, driven by a systematic combination of political, policy and programmatic actions, shows that the goals laid out in the Malabo Declaration are achievable. Here we summarize five key lessons that these countries' success can teach all of us working on agriculture and food security:

#### 1. Adopt and prioritize a comprehensive, cross-department nutrition policy

Governments need to take a multi-pronged approach to tackling malnutrition, with clear high-level leadership and the involvement of a range of ministries, including agriculture, health, education, and water and sanitation. In Senegal, the Cellule de Lutte Contre la Malnutrition (CLM) sits within the Prime Minister's office and provides technical assistance to define, coordinate and implement the national nutrition policy, while in Ghana the ministries of health, education, and agriculture work closely together on programs that have seen stunting rates plummet, breastfeeding increase, and children's protein intakes grow.

#### 2. Promote broad partnerships to pursue shared goals

Strong public, private partnerships and cooperation with civil society organizations are needed to deliver on governments' nutrition targets. The committee that implements and coordinates Rwanda's National Food and Nutrition Policy includes government ministries, NGOs, the Rwanda Bureau of Standards, the Rwandan Consumers Association, the Private Sector Federation, and the national nutrition technical working group. Similarly, the National Nutrition Coordination Body in Ethiopia includes government sectors, development partners, civil society organizations, academia, and the private sector.

#### 3. Move from reacting to food emergencies to long-term planning

Anticipating and acting to prevent food crises before they occur is vital for reducing malnutrition. After years of crisis





responses in Angola, efforts to get ahead of the malnutrition curve are starting to bear fruit. Two thousand community health workers have been trained to detect and respond to early signs of malnutrition. If a health worker comes across a child with an arm circumference below the safe measurement, they get them supplementary food before they become severely malnourished. The health workers have also access to vitamins and supplements for children and pregnant women, and training in breast-feeding support for new mothers. The country's HIV/AIDS programs now include a nutrition element too: provision of food supplements to orphans.

#### 4. Make it easier for people to access more nutritious food

Malnutrition can be caused by eating poor quality food, which is low in nutrients. Policies that encourage people to grow and eat more nutritious foods can help. For example, a mandatory food-fortification program in Cameroon resulted in a lower prevalence of micronutrient deficiencies in women and children. Togo also has fortification legislation, which has ensured that more nutrient-rich foods, such as oils enriched with vitamin A, are made available to consumers. Over 130 varieties of bio-fortified crops have been released in more than 30 African countries, including zinc-rich rice and wheat, and lentils and sorghum fortified with iron. This could be scaled up for greater results.

#### 5. Harness the power of technology

Technology, including the boom of mobile phone coverage and ownership in Africa, offers immense opportunities for tracking, monitoring and interacting with people

who are tackling, or at risk of experiencing, malnutrition. Innovative projects such as the Nutrition Early Warning System (NEWS), being developed by the International Center for Tropical Agriculture (CIAT), and the mobile apps that enable community health workers to register and refer patients, remind people of check-ups, and or send them information, have the potential to be low-cost and high-impact.

Overall, the lesson these countries teach us is that with concerted effort and a commitment to learning from each other and sharing best practice, reducing malnutrition and achieving the Malabo targets and other sustainable development goals is possible. That should be an inspiration to us all.

This text was published as a blog post on [www.mamopanel.org](http://www.mamopanel.org). It was written by Malabo Montpellier Panel co-chairs Dr. Ousmane Badiane, Africa Director for the International Food Policy Research Institute (IFPRI) and Prof. Joachim von Braun, Director at the Center for Development Research (ZEF) at the University of Bonn.

#### About the authors

**Ousmane Badiane**  
(IFPRI Director)

**Joachim von Braun**  
(ZEF Director)

Contact: [presse.zef@uni-bonn.de](mailto:presse.zef@uni-bonn.de)



## INTERVIEW WITH ALEJANDRO MORA-MOTTA, ZEF JUNIOR RESEARCHER HOW “GREEN” IS TREE PLANTATION EXTRACTIVISM? FIELD RESEARCH INSIGHTS FROM CHILE

**A**lejandro Mora-Motta did his Bachelor’s in Economics and his Master’s degree in Development and Environment. His research focus was on the environmental issues arising from the growth-oriented development model in Colombia. In October 2015, he received a DAAD scholarship to study at ZEF’s doctoral study program (BIGS-DR). The scholarship was awarded by the Right Livelihood College Campus Bonn in collaboration with the Right Livelihood College Campus Austral-Valdivia in Chile and its director Professor Manfred Max-Neef. Alejandro conducted his field research between June 2016 and May 2017.

### What is your research about?

My research is about how tree plantation “extractivism” affects peasant and indigenous communities in central-southern Chile. In my approach I talk about extractivism to refer to the phenomenon in which economic activities are based on the extraction of large volumes of unprocessed or little processed natural resources (raw materials), with an export-oriented focus, and with high socio-environmental impacts. These activities take mostly place in rural areas and cause transformations.

### Which tree species in Chile are we talking about?

Pine and eucalyptus plantations in southern Chile show this pattern, and can be classified as a form of extractivism. The plantations are located mainly in the regions of

Biobío, Araucanía, Los Ríos and Los Lagos, which used to be part of the Mapuche territory. The plantation model started being promoted in the first quarter of the 20th century. However, it was until the establishment of a neo-liberal regime in the early 1970s, under a military dictatorship, that it became one of the leading sectors within the country’s development model. After the country returned to democracy in 1990, the plantation model became more and more popular. By the end of 2015, around 2.5 million hectares of land were planted in all Chile, almost 18 million tons of wood were extracted, and nearly 11 million tons were exported.

### How did you become interested in the topic of tree plantations?

Conducting research on tree plantations is an important issue in two ways: i) in challenging the surprisingly dominant idea that plantation growth is still good for society, and ii) in looking for alternatives to this extractivist model that transcend the technical solutions and recognize political rights to territory for the marginalized peasants and Mapuche people.

### How do your insights into the negative aspects of tree plantations correspond with the official version of being a 'green' activity?

As I mentioned, plantations are a form of extractivism. However, despite being an activity that causes such territorial transformations, there is a strong public discourse





which labels them as a ‘green’ activity. This means, first, that tree plantations have always been presented as a rational environmental option, supposedly since they protect the soils, are carbon sinks, and prevent deforestation of the remaining native forests. Second, the use of the word ‘forest’ is still disputed in the sense that the government and companies use it interchangeably for plantations and native forests. Third, a complete compound of regulations and policies has been settled following the idea of a ‘green growth’. This new ‘green growth’ policy approach fits the global discourses of the Organisation for Economic Cooperation and Development and the Sustainable Development Goals, which are supposed to deliver sustainable development. But, when materializing at the local level, they constitute a set of market-based environmental regulations (like the eco-labels) which are encompassed with the territorial regulatory regime (predominantly private property) that gives priority to extractivism. This reveals a hidden deep environmental crisis, in which Mapuche and peasant communities have progressively lost their territorialities.

#### Why conducting research in the Region of Los Ríos?

There is an increasing number of researches analyzing and interpreting the territorial transformation caused by the plantation model in southern Chile. The plantation model has been implemented mainly in two regions, Biobio and Araucaria, on which, consequentially, most of the research is focused. But more to the south, in Los Ríos and Los Lagos, research on the consequences of the plantations and on the alternatives to them is less prominent. In par-

ticular, Los Ríos, which is a relatively new administrative region, separating from Los Lagos in 1997, presents strong environmental concerns in the public sphere. Despite this, it has shown one of the highest rates of planted land expansion in the last 30 years.

#### You have spent around a year conducting field research in Los Ríos. What special experience would you like to share with us?

Well, a Mapuche woman told me the story of her mother-in-law who had to leave her *mapu*, her territory, due to the plantations. The village in where she lived happened to become completely surrounded by tree plantations. This process of transformation not only affected the landscape but the deep relation the lady had with all aspects of the environment. Mapuche people have a very thorough conception of ‘the good life’, *Küme mongen*, which accounts for an organic relation between their well-being, the ecosystem and their spirituality. The mother-in-law left in deep sorrow saying that plantations brought the ‘bad living’ to their territory.

#### About the interviewpartner

**Alejandro Mora-Motta**  
is a ZEF junior researcher. His research  
is funded by the Right Livelihood  
College via DAAD.  
Contact: [alejandromm87@gmail.com](mailto:alejandromm87@gmail.com)



## FLOOD IN BANGLADESH: HOW HOUSEHOLDS COPE WITH ITS IMPACT ON THEIR FOOD AND NUTRITION (IN)SECURITY

**H**ow do shocks such as extreme weather events but also seasonality in agriculture affect food and nutrition security of households in developing countries? Based on answers to this question, appropriate social assistance programs can be designed. This study examines the extent to which shocks and seasonality lead to volatile food and nutrition security, and how households mitigate to their effects.

### Research scope: households' strategie

We integrate factors such as rural (food) markets as well as the adoption of new technologies and services in the agricultural value chain so that the impact of agricultural seasonality can be captured. Besides, we look at households' risk-coping behavior and adaptation strategies. In addition, we include health, as this aspect is neglected or completely left out in most analyses. We also include the impacts of shocks, seasonality and market conditions on the nutritional health of children under-five. The study authors are collecting high-frequency survey data in the five districts Rangpur, Gaibandha, Nilphamari, Kurigram, and Lalmonirhat in northern Bangladesh on a bi-monthly basis.



### Bangladesh: a natural disaster-prone country

Bangladesh is located in a natural disaster-prone geographic area and suffers from overpopulation. Extreme and sudden weather events such as floods occur frequently and jeopardize food and nutrition security, especially of the vulnerable and marginalized poor. Mid 2017, the northern part of Bangladesh experienced another devastating sudden flood, causing many human casualties and death of animals, losses of livelihoods as well as damage to infrastructure and agricultural production. Concurrently striking neighboring countries, the floods jeopardized the food and nutrition security of the affected households, especially of the vulnerable and poor ones in rural areas. Unfortunately, most disaster response and social assistance programs have not been providing enough financial and other assistance to compensate the affected households' losses.

### Risk and seasonality

To understand the nature, extent, and effect of the present flood in the five districts of northern Bangladesh, ZEF researchers have conducted telephone interviews with flood-affected households about their food consumption and coping strategies during the flood period. These interviews have been part of a research initiative on "The high-frequency survey of risk and seasonality to Food and Nutrition Security in Bangladesh". A total of 309 households were reached among a target of 500 in the five surveyed districts. It was found that 85 percent of the 309 interviewed households were affected by the recent flood.





The severity of the situation in the flood-affected households was assessed by a number of questions we posed, among others about the flood water level in their premises. Almost 28 percent of the households reported that flood water entered their bedroom and inundated the entire house. And almost 27 percent reported that water came to their home yard but not into the bedroom. Around 30 percent reported that flood water didn't enter their premises and almost 15 percent said that the water was far away from their household.

#### **Food and Nutrition situation**

All in all, the recent flood threatened the food and nutrition security in all the five affected districts. Almost 33 percent of the flood-affected households were starving during the last three days of the flood and about half of the affected households didn't have any food stock left for the upcoming three days. Although about 76 percent of the households ate cooked meals during the last three days of their reporting period, most of them practiced food rationing, meaning they had insufficient food or they skipped meals. It was expected that these flood-affected households would get assistance from friends and family, neighbors, or the government, but only 15 percent of them received such assistance.

The rest of the households used their own resources to cope with the extreme weather situation. Those who received assistance mostly got humanitarian assistance such as food and medicine, no cash. Another important outcome from the interviews was that food and nutri-

tion security among households in the surveyed districts was low and even deteriorated by the flood. The affected households ate less food and fewer items than the non-affected ones. The flood-affected households skipped 10 percent more meals during the flood period than the non-affected households. However, they didn't show any significant difference in terms of worriedness about having insufficient food to eat in the last two weeks.

#### **Survival of the poorest**

Households adopted different coping strategies during the flood time: Informal techniques such as depleting their own savings, borrowing from friends and family members, selling off valuable assets etc. were the most common. The formal assistance from the government or non-governmental organizations was inadequate and insufficient in response to their losses. As a result, households most often fall into poverty after a devastating extreme weather event.

**The project is funded by ZEF.**

#### **About the authors**

**Mohammad Monirul Hasan**

(ZEF researcher)

**AHM Saiful Islam**

(ZEF alumnus)

Contact: [monir1021@gmail.com](mailto:monir1021@gmail.com)

[saiful\\_bau\\_econ@yahoo.com](mailto:saiful_bau_econ@yahoo.com)



## CLIMATE CHANGE ADAPTATION: AN UNENDING CHALLENGE FOR WEST AFRICAN SAVANNAH FARMERS

**W**est Africa Savannah farmers are among the ones most affected by climate change on the continent. More frequent droughts and heavier rains add up to already fragile ecosystems, weak economies and unstable political systems. Farmers react to changing climate conditions in different ways. Some scientists believe that governments should consider these activities carried out by farmers to improve their policies on climate change adaptation.

### "Questions and answers" with stakeholders

In this context, a team of researchers of the West African Service Center on Climate Change and Adapted Land Use (WASCAL) evaluated farmers' attitudes and adaptive responses to climate change in two case study regions: Dassari arrondissement in northern Benin and Dano department in southwestern Burkina Faso. Farmers, local authorities and development workers were asked about their personal and institutional positions, and activities on farming climate change adaptation; and small farming households' responses were evaluated in order to assess how suitable they might be as climate change adaptive measures.

### Cross-checking farmers' responses

Our results indicate that farmers' observations of climate change are often subjective and conjectural, and the subsequent adaptive measures are, at large, inconsistent with their observations. We found out that the measures farmers implement, do not respond causally to the climate threats or the impacts pointed out by themselves. For instance, in Dassari, the danger of rainfalls is overstated and the windstorms under-considered, but our estimates reveal that their impacts are inverse. Actually, we learned that farmers' adaptive responses rather tend to address their households' broader needs such as food security, income generation and capitalization of the family. They frequently operate beyond the farm's geographic boundaries, such as undertaking off-farm activities in neighboring cities and even countries. Also, we determined that 'on the ground' adaptations are site-specific and therefore vary regionally.

### Need for differential and systemic policies

These findings call for caution in the crafting of policies on adaptation at national and local scales. Linking hazards, impacts and responses causally can be misleading, and the resulting measures might be ineffective. Likewise, the application of 'one fits all' measures, habitually preferred by policy and decision-makers, should be considered with caution as well. Alternatively, we identified the key features for well-functioning adaptive measures: capability to generate economic benefits in the short term; compatibility with the ecological and institutional settings; and fitting with the local customary farming traditions. And, despite their weaknesses, the national agricultural extension services still seem to hold the best capabilities for encouraging their application.

### About the author



**Daniel Callo-Concha**

is a senior researcher at ZEF

Contact: [d.callo-concha@uni-bonn.de](mailto:d.callo-concha@uni-bonn.de)



## HYDROLOGICAL MODELING UNDER DATA-SCARCE CONDITIONS IN AFGHANISTAN: HOW TO COPE



**A**griculture plays a crucial role in Afghanistan's economy, although only 12% of the country's land area is arable. Yet, the agricultural sector engages around 66% of the country's workforce and consumes around 98% of the overall water withdrawal. Around 46% of the total arable area is equipped with irrigation infrastructure. For more than three decades, the country has suffered from war and political turmoil. Beside causing tremendous human tragedy, their aftermaths have inflicted huge damage upon urban and rural infrastructure, for example on the hydraulic system. This has led to huge water losses and it continues to hinder effective water management of irrigation schemes and watersheds.

### Natural resources, especially water, under pressure

Since 2001, natural resources have been under serious pressure in the country, mainly due to internally migrating or displaced people, of whom many moved to the Kabul River Basin. The pressure on water resources is particularly high as food production mainly depends on irrigated agriculture. Also, the demand for domestic and industrial water use is rising, due to population growth and expanding industry.

Beside these constraints, many regions in Afghanistan are semi-arid and even arid, so severe gaps between water supply and demand are occurring in parts of the country during critical periods. These gaps are expected to widen in the future because of the impacts of climate change (rising temperatures are leading to higher evapotranspiration) as well as changes in land use, causing an even more limited and varying availability of water resources.

### Big action required with small data

Whereas Afghanistan is in urgent need for updating and refining the planning and management of its water resources, hydro-meteorological data are very scarce in the war-torn country. So data scarcity poses the main problem for carrying out hydrological modeling in Afghanistan. In this doctoral research carried out at ZEF, the Soil and Water Assessment Tool (SWAT) was used to

cope with this challenge and to evaluate the water availability in the data-scarce Kabul River Basin of Afghanistan. Climate data (wind, relative humidity, and solar radiation) was used from the Climate Forecast System Reanalysis of the National Centers for Environmental Prediction while the precipitation data was collected from various meteorological stations installed across the Kabul River Basin.

### How smart is SWAT?

The calibrated and validated SWAT model proved to be able to simulate the streamflow appropriately by using observed data in combination with global weather data sets and land use information derived from remote sensing techniques. Furthermore, it can be used for supporting adaptive water management across the basin, identifying the most suitable sites for intensification of the existing irrigation schemes, and finding adequate locations for reservoirs for raising storage capacity of basins or sub-basins. In this way the disadvantageous impacts of climate and land use changes can be counterbalanced. A further strength of applying the SWAT model (supported by remote sensing techniques for hydrological modeling) under data-scarce conditions is its ability to simulate different scenarios under changing climate, cropping patterns and irrigation management practices. Furthermore, SWAT could be an effective discussion tool when addressing water allocation among different consumers and sub-basin users.

### About the authors

**Fazlullah Akhtar and Bernhard Tischbein**

are senior researchers at ZEF.  
Contact: fakhtar@uni-bonn.de  
tischbein@uni-bonn.de



# Viewpoint

INTERVIEW WITH PROFESSOR JANET OLATUNDUN ADELEGAN, WASCAL'S DIRECTOR OF CAPACITY BUILDING  
WASCAL WILL TRAIN AND EDUCATE 3,000 AFRICAN CLIMATE EXPERTS BY 2020



Prof. Adelegan at a side event during the COP23.

**J**anet Olatundun Adelegan has a broad professional background in development economics and work experience spanning from African and international universities to international organizations such as the International Monetary Fund and the Climate Investment Fund, in addition to consultancies to the African and the European Union. She took over as director of capacity building of the **West African Science Service Center on Climate Change and Adapted Land Use** (WASCAL, see [wascal.org](http://wascal.org)) in September 2015.

*When you started as director, WASCAL's initial doctoral program was to be restructured into a broader capacity building program with training on the job. What progress has been achieved so far?* We started the on-the-job training, the "in-service program" only last year. We had participants from relevant government ministries such as the Ministry of Water Resources and the Ministry of Environment in Ghana as well as representatives from other ministries from West African countries. This has helped us to strengthen the capacity of people working with government ministries and those who are making decisions and advising policymakers on a day-to-day basis. So we train people to obtain their PhDs but also to inform policy so they can advise policymakers on how to mainstream some of the findings in combating climate change in West Africa.

*So what are the unique features of WASCAL and its capacity building program?*

Compared to other programs in West Africa in the area of climate change, WASCAL is unique in terms of set-up: We have three platforms on which we operate: capac-

ity building; research; and climate services. In addition to providing scholarships for the graduate students for pursuing their doctoral studies, we have also been able to introduce what is called the Thesis grant, bringing in students who are working on climate change, supporting their research so that we can broaden the base of climate scientists in West Africa. Our program is also unique because we strengthen the capacity of those working with ministries through in-service training. They can use the data, research and policy recommendations generated by WASCAL to inform and advise policymakers and planners about climate change in their day-to-day work.

*One of your goals is to have 3,000 African climate experts by 2020. Is this feasible and enough for bridging the gap between too few African scientists for too many climate-related issues on the continent?*

Three-thousand African climate scientists by 2020 is a feasible and tangible number when we look at the target set by the Association of African universities, which is to have additional 10,000 African PhDs by 2020. I think WASCAL is doing well in contributing to that target. With beneficiaries from all our different programs together and supported by the multiplier effect of those we have trained already we will be able to achieve that figure. Some of the people we have trained, now work with Universities and they are actually supervising and training PhD students.

*Academic brain drain remains an issue in Africa. How can African academics and scientists be motivated and attracted to stay and work in Africa?*

This is possible by creating an enabling environment and also by providing scholarships like WASCAL has done. These scholarships encourage and motivate young Africans to study within their region, to conduct research in their countries and to bring solutions to the table on how to combat climate change effects in West Africa. More than 90 percent of the WASCAL graduates actually stay in the region and are helping and working in West Africa, so it is actually a brain gain.

*One of WASCAL'S initial goals was to increase the number of African experts who represent their countries in international organizations and policymaking bodies. Can you tell us something about this issue?*

There has been improvement because five years ago there were very few climate scientists from West Africa. We have been able to build a lot of capacity and Africans are now actually taking the right place at the decision-making tables with information and data from Africa. They inform policy and have influence on how things are done in Africa. So the gap is closing.

# Facts & news



## Heading for new shores: Research about Abidjan's waterfronts.

Start of a new anthropological research project at ZEF: "Waterfront Metropolis Abidjan" is funded by the German Research Foundation (DFG) and deals with urbanization in Côte d'Ivoire's metropolis. Project leader is ZEF senior researcher Irit Eguavoen

Contact: [eguavoen@uni-bonn.de](mailto:eguavoen@uni-bonn.de)

## ZEF again ranked among the world's leading Think Tanks

ZEF was once again ranked by the University of Pennsylvania, U.S.A., as one of the top think tanks worldwide. ZEF was ranked in the following categories in the University's 2016 report:

Rank 3: Top Science and Technology Think Tanks

Rank 22: Best University Affiliated Think Tank

Rank 24: Top Energy and Resource Policy Think Tanks

The University of Pennsylvania publishes its Global Go To Think Tank Index Report annually. Over 2,500 journalists, policy makers, scholars and faculty members from all over the world participated in the 2016 report.

## New ZEF-led program trains experts in West Africa

ZEF has initiated and will run the new "West African Center for Sustainable Rural Transformation" to strengthen research and education in development planning, agricultural economics and aspects of renewable energy and irrigated agriculture in Africa. ZEF works together with universities in Ghana and Niger. The project will be funded by the German Federal Foreign Office and the German Exchange Service (DAAD) for the upcoming four years with 1.8 Million euros. The program aims to contribute to sustainable development and political stability in West Africa by training experts.

Contact: [wlaube@uni-bonn.de](mailto:wlaube@uni-bonn.de)

## Climate research in and from Africa: WASCAL/SASSCAL event at COP23 in Bonn

The African Science Service Centers for Climate Change and Adaptive Land Management in West- and Southern Africa (SASSCAL and WASCAL), together with ZEF, hosted a COP23 side event in the BMZ-hosted Climate planet about "Climate research made in West and Southern Africa" in Bonn, November 2017. SASSCAL Executive Director Jane Olwoch, WASCAL Executive Director Jimmy Adegoke and ZEF-Director Christian Borgemeister gave presentations and discussed about climate research-related challenges and experiences in Africa at several round tables with the audience



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## STRIVING FOR SUSTAINABLE BIOECONOMIES: STRIVE PROJECT AT ZEF

The project STRIVE (Sustainable TRade and InnoVation transfer in the bioEconomy: from national strategies to global sustainable development goals) combines research expertise from economics, political science and environmental geography. The researchers involved aim to improve the knowledge base for developing sustainable bioeconomy policies and investments. A main research focus is on national and international regulatory frameworks.

**Bioeconomy** can be described as part of the overall economy that uses renewable biological resources from land and sea - such as crops, forests, fish, animals and micro-organisms - to produce food, materials and energy. With regard to this, Bioeconomy is often proposed as a viable strategy to meet the global sustainable development goals (SDGs). As such, current concepts of a bioeconomy go far beyond the topic of biofuels and include the substitution of fossil resource-based inputs to various productive sectors, such as chemical or pharmaceutical industries, the construction sector and food and recycling industries.

However, potential socio-economic shifts towards more sustainable production and consumption do not make outcomes automatically more sustainable. Technological innovations, social and political advancements and consumer behaviour are crucial factors, among others, for initiating, steering and adjusting transitional pathways towards more sustainable economic systems. Also, **institutional and regulatory frameworks** of policy and legislation are necessary elements when establishing emerging bio-based supply and value chains not only to further economic growth, but also environmental and social achievements.

Nevertheless, societal responses to pressing global challenges such as population growth and a growing natural resource scarcity in a more and more climate-constrained world have to be founded on a solid empirical base of social and political science for the development of policies and regulations. As such, **evidence-based policies and governance frameworks** will play a crucial role to, on the one hand, foster bioeconomic developments,

but, on the other hand, to also constraining them where necessary within planetary boundaries.

One of the central questions the STRIVE project will provide answers to is: **how can effective governance frameworks for the bioeconomy be developed nationally and globally, and which regulative characteristics should they contain in order to steer socio-economic transitions towards a sustainable bioeconomy?**



### About the author



**Jan Janosch Förster**  
is a senior researcher at ZEF.  
Contact: [jforster@uni-bonn.de](mailto:jforster@uni-bonn.de)

## HOW FARMERS' ORGANIZATIONS CAN CONTRIBUTE TO EMPOWERING FARMERS IN AFRICA

**P**overty can be understood as the 'inability of people to meet economic, social and other standards of well-being' (OECD, 2001) and comes along with 'limitations of personal freedom and opportunities to participate in society.' Having abilities to cope with these limitations and to stop perpetuating patterns is one definition of being empowered (Spicker, 2007). Poverty itself needs to be addressed on several levels: the communal, governmental, societal, organizational and the individual level.

### Role of farmer organizations in combating poverty

How can socio-economic actors such as farmers' organizations contribute to alleviating poverty and increasing food security? The concepts of poverty and food security are strongly interconnected, as the capability to face and handle the daily limitations and consequences of poverty require a stable individual food-related ability to live a healthy and active life. According to the Food and Agriculture Organization of the United Nations (2002), hunger and malnutrition reduce the individual's productive potential, his/her intellectual and physical development, etc. They thus keep the poor trapped in a repetitive loop of low productivity, hunger and poverty. If defining successful agricultural development as the positive development of a farmer's equity, his/her efficiency in farm production and thus his/her income, the sustainability of agricultural resources and systems and reaching his/her social goals (Gabre-Madhin and Haggblade, 2004), it will in consequence not be reachable if the causes of hunger and malnutrition are not addressed as well. Nevertheless, a membership of a farmers' organization can lead as well to unintentional changes in other aspects of daily life. A potential increase in revenues might change the gender-specific income distribution within the households, for example. Thus, it is neither to be expected that being a member of a group would instantly and out of itself increase the members' income, their productivity and the selling prices, nor is it to be expected that farmers will participate vigorously just because they became members.

### Theories about how 'empowerment' works

Sen (1981) sees poverty mainly resulting from a lack of entitlement, and thus, a question of distribution and exercising economic, social, and political power (e.g. voting, participating in an opposition party, calling politicians to account, etc.) (Spicker 2007, 86-87). Power according to Bourdieu (1986) is composed by the volume of available and potential capital and the access to the profits resulting from the corresponding investments. Capital then again is described as economically, socially or culturally accumulated work or effort (Bourdieu; 1983). By accumulating capital, an individual can increase his power status within the society he/she lives in. Thus, in theory, a farmers' organization could have an impact on the empowerment of its individual members by additionally supporting them to accumulate capital and



resources and to change the inefficient routines they apply within their agricultural processes.

### Integrating theory and practice

Starting point of the study was the search for a definition of 'empowerment' which included Bourdieu's conceptualization of an increase in accumulated capital and resources and changed habitus. In order to develop an implementable measurement of empowerment for practitioners, the concepts of capital and habitus were refined. Through discussing the indicators of empowerment with practitioners from related disciplines, such as economics, behavioral development economics, psychology, community psychology and social sciences, an interdisciplinary perspective was taken in the research questionnaire that thus differentiates capital and mental models into: structural social capital, information capital; economic capital; psychological empowerment; and community participation.

### Comparing situations in Burkina Faso and Kenya

The aim of this study is to compare the empowerment approaches of selected farmers' organizations in Burkina Faso and Kenya and to learn about how they could be improved in order to increase their support to farmers' empowerment. By illustrating the gap between the current and the potential contribution a farmers' organization can make for their members, areas of leverage will be pinpointed where farmers' organizations might need support to continue building favorable structures for their members.

### About the author



**Eli Wortmann-Kolundžija**  
was a senior researcher at ZEF.  
Contact: [ewk@posteo.de](mailto:ewk@posteo.de)

## INDIGENOUS RESPONSES TO DEFORESTATION: LAND USE AND TERRITORIAL CONFLICTS IN PARAGUAY

The Gran Chaco, the second largest biome of South America, underwent deep and fast environmental changes a few decades ago. In the Paraguayan Chaco, covering sixty percent of the country, changes are mainly related to the country's development model: The government has promoted rapid economic growth through large-scale soybean cultivation and livestock farming over the past years. This has led to unsustainable forms of production and environmental destruction. Indigenous peoples are considered to be amongst those most affected by this development, due to their special relationship with and reliance on their lands, territories and natural resources (Tauli-Corpuz 2015).

### The long struggle for indigenous territorial rights

Indigenous organisations and some NGOs have been trying to secure more land for present and future generations for a long time. In addition, indigenous peoples are now facing challenges with regard to their territorial rights to use and manage the lands already secured during the past decades. This doctoral research focuses on how one particular indigenous group in the Paraguayan Chaco, the Angaité of La Patria, is responding to these challenges.

### Inside the experiences of the Angaité of La Patria

This research explores how the Angaité of La Patria responded to changes in access to and the use and management of natural resources in- and outside their land property during the past 20 years (1995-2015). It has been analyzed how their livelihood strategies and territorial use changed during this period and how this process of change in human-environmental relations is reflected in the contradictions, tensions and internal political conflicts that mark everyday life in La Patria. In addition, it was analyzed how external actors have empowered the Angaité to strengthen their livelihood strategies and manage their territory in accordance with their own priorities in order to preserve and develop their particular way of life. This analysis is based on the concept of cosmography, which refers to the changing ideas and practices that contribute to constructing a particular place or territory, and therefore to a particular understanding of the world. The research covers two types of cosmographical practices: ritual and livelihood-related practices (like *choqueo* and *shamanism*).

### Indigenous adaptation strategies

National and international legislation granted the Angaité the right to access, use and management of natural resources within their territory. Results show that despite this legislation, the Paraguayan state promoted land-use practices such as deforestation to create large-scale cattle ranches that were incompatible with certain Angaité livelihood practices. The Angaité responded to these changes mainly by adapting their livelihood strategies



and territorial use, abandoning some traditional practices such as hunting, gathering and fishing and adopting or intensifying others such as leasing land and commercializing timber production. This research concludes that this adaptation, combined with the new state and non-governmental organizations (NGOs) patronage networks, impacted the Angaité leadership and forms of sharing. In doing so, it also undermined the capacities of the Angaité to manage their livelihood strategies and their territory in accordance with their own priorities and way of life.

### About the author

**Marcos Glauser**  
was a junior researcher at ZEF  
Contact: [marcosglauser@gmail.com](mailto:marcosglauser@gmail.com)

