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ZEFNEWS

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for a global sustainable future

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EDITORIAL

INNOVATION FOR SUSTAINABLE FUTURES

STRATEGIC DIRECTIONS AT BONN UNIVERSITY

Nations face growing ecological, social and economic challenges in the Anthropocene. Reconciling human economic activity with nature's cycles requires decoupling economic growth from the excessive use of finite resources. We also have to shape the future of work in a networked and digitalized world. Moreover, high levels of income inequality between and within countries needs urgent action to minimize exclusion.

In many democratic social market economies, these challenges result in a loss of confidence in political systems, thus putting their institutions at risk. The Sustainable Development Goals (SDGs) aim to tackle these challenges, but may remain an empty catalog unless science-based priority setting and context-specific implementation research guide their strategic enactment. Research thus has an important role to play in addressing both the challenges and risks of our times.

Among the factors behind Bonn University's recent success in the German Excellence Initiative is a strategic focus on "Innovation and Technology for Sustainable Futures". A unique feature of Bonn University is its cooperation with UN agencies and other global partners, for instance through the Center for Development Research (ZEF) and international research networks across all faculties. The University's sustainability research agenda features five closely related sub-themes that address key SDG challenges:

- 1. Modeling, Foresight, and Risk Assessment Capacity** in social-ecological systems, which include forecasting behavior and footprints under social, economic, and biophysical constraints.
- 2. Technological and Digital World Innovations**, including research on developing bio-friendly materials offering the potential to reduce environmental footprints through sustainable consumption and production. Digital innovations in agriculture, health

care, and other service robotics offer opportunities that need to be shaped and guided toward sustainability.

- 3. Institutional Innovation, Behavior and System Transformations**, including societal transformation toward a circular bio-based economy (the bioeconomy), low-waste circular economic systems, and eco-efficient crop production.
- 4. Nutrition and Health**, including causalities of health and diseases through their root causes embedded in the social, economic and ecological systems.
- 5. Development and Change**, including determinants and consequences of migration, the role of markets and services for development, and alternative approaches to transformation governance.

This issue of ZEF News highlights some of this research agenda's initiatives and activities. It shows that ZEF has already a strong base on which to expand its work.

Joachim von Braun is the Director of ZEF's Department of Economic and Technological Change.

Jan Börner is a senior researcher at ZEF and Professor at the Agricultural Faculty of Bonn University.

They serve as Speakers of Bonn University's Transdisciplinary Research Area "Innovation and Technology for Sustainable Futures". (TRA6)



LEAD ARTICLE

CHARTING A PATH

TOWARDS THE SUSTAINABLE DEVELOPMENT GOALS IN GERMANY

The Fridays for Future movement has intensified the debate about the effects of our consumption behavior and lifestyle on the environment and the climate.

Industrialized countries, like Germany, are called on to assume their global responsibility for the future development of the planet. Germany has made some progress in this regard, but still has some way to go towards achieving its climate-related sustainable development goals (SDGs). To account for the finite resources of our planet, a bio-based transformation of the German economy is required.

Where do we stand?

To align its efforts with the SDGs, Germany revised its sustainability strategy in 2016 and laid down a set of indicators to monitor its progress towards achieving the SDGs. A look at progress to date reveals a substantial backlog, in particular with regard to the climate-relevant goals (SDGs 7, 11, 12 and 13). To accomplish its goals, Germany needs to reduce greenhouse gas emissions, achieve sustainable and efficient resource management, and improve waste management. In addition, the sustainability strategy lacks ambitious goals to achieve a resource-saving transformation of production processes and consumption behavior.

Towards a bio-based economy

One piece of the puzzle is the shift from a carbon-based economy to a sustainable bio-based circular economy. The Bioeconomy makes use of biological principles and processes to produce goods and services. Examples are bio-based production materials, such as bioplastic, and biotechnology for processing to replace energy intensive processing methods. This transition needs to be demand- and technology-driven. The German Bioeconomy Council has called on governments to facilitate the implementation of technological innovations in society and industry and thereby make use of synergies with climate and environmental protection. Professor Joachim von Braun, Co-Chair of the Council and Director of ZEF's Department of Economic and Technological Change, insists that such a shift will be essential to combat biodiversity loss and reconcile global production and consumption patterns with nature.

A bio-based economy also requires changes in consumption to less resource-intensive products, for instance from meat to alternative sources of proteins such as insects, algae and legumes. These substitutes have the potential to halve greenhouse gas emissions generated by the food system and thereby reduce global emissions by a quarter by 2050. At the same time, reduced meat consumption will decrease water demands and mortality rates. Such alternatives are already important protein sources in parts of Africa and Asia. However, it is difficult to make general global dietary recommendation as eating habits differ across cultures and agro-ecological systems.

Current studies on consumer preferences in Germany suggest that the chances of wide adoption of meat alternatives are limited.

A fair distribution of the costs

It cannot be denied that the bio-based and resource-saving transformation of the German economy will be costly. Eco-certified products are more expensive, infant bio-based industries are not yet competitive, renewable energy sources need support and investments in research and development are essential. To finance the transformation and to change consumption behavior, politics can alter the relative prices of resource-intensive and less resource-intensive products through taxation or subsidies, thereby internalizing the costs of consumption for future generations.

However, this will hurt poor people much more than wealthier households. Poorer households usually spend a higher share of their income on food and transport. A carbon tax requires compensation for these households and the population whose livelihood is affected by higher energy prices, such as commuters. A tax reform could decrease the tax burden on those with low and middle incomes.

Besides carbon pricing, other incentives to induce behavioral changes towards sustainable consumption need to be tested, such as awareness campaigns. The Wissenschaftsplattform Nachhaltigkeit (Scientific Platform for Sustainability) is currently developing potential solutions in this area.

Outlook

The SDGs are relevant indicators for industrialized countries like Germany. To assume their global responsibility, industrialized countries need to realize the transition from fossil energy resources to renewable and clean energy, but also change production processes and their populations' consumption habits.

Restrictions on consumption behavior are unlikely to gain consensus in society unless they include participatory approaches, for instance locally restricted experiments, to lead the population along the path towards a sustainable economy. This needs to be accompanied by intensified research activities in the area of bio-based products and production processes.

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FOREIGN DIRECT INVESTMENT IN AFRICAN FOOD AND AGRICULTURE TRENDS, DETERMINANTS, AND IMPACTS

The food and agriculture sector in Africa presents great potential for prospective private sector investors in the context of rising food demand, which is a consequence of population growth, urbanization, and growing incomes. However, despite this outlook, the current level of investment is still low and much more investment is necessary in order to keep pace with rising demand. Foreign direct investment (FDI) has the potential to fill this gap, especially where local private-sector investment is insufficient as a result of financing constraints.

Over the past 15 years, the total amount of FDI inflow into the African food and agriculture sector summed up to USD 48.7 billion. Almost half of this figure was invested in fertilizer production. Despite popular perceptions of extensive land-grabbing by foreign investors in Africa, investments in crop production, which involve land acquisition, constitute only 10% of total food and agriculture FDI inflows to the continent.

About the author



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Even though the FDI inflows have been growing over time, especially after the agricultural commodities shock of 2008-2009, the continent still only receives 10% of global food and agriculture FDI. The low levels have spurred public-private initiatives, such as Grow Africa, to bolster investments.

The African Continental Free Trade Area (AfCFTA) agreement is also expected to boost FDI inflows to the continent. Apart from providing capital, FDI is also expected to create quality employment, bring new technologies that increase productivity, improve infrastructure, and affect domestic investors through spillover effects.

Research conducted by ZEF suggests that the investing companies are primarily driven by the potential that an emerging domestic consumer class represents. As a result, they target mainly local and regional markets rather than global markets. Other determinants of investments are a country's supply of agricultural land and the quality of infrastructure and institutions.

Importantly, the latter factors are amenable to policy makers' interventions. Additionally, because of the agglomeration economies, past investments further attract new FDI inflows due to production linkages and knowledge spillovers.

Further research is essential in helping policy makers to make informed decisions on how to attract the best kind of investment and how to maximize the beneficial impacts of these investments for the people they serve.



Photo: Thomas Daum

"AS SCIENTISTS IN AFGHANISTAN WE FACE MANY CHALLENGES" INTERVIEW WITH FAZLULLAH AKHTAR

Fazlullah Akhtar is a hydrologist and ZEF alumnus. He gained his PhD in 2017 and now works as an infrastructure expert at the office of the Chief Advisor to the President of Afghanistan, Ashraf Ghani.

In a country with ongoing conflict such as Afghanistan, how can science contribute to addressing the numerous challenges?

We face many challenges. Data relevant to agriculture and natural resources were destroyed in the past years due to the non-stop violent conflicts. Monitoring stations which were recording meteorological data were destroyed. A secondary option is the use of satellite data: I also obtained data from NASA (National Aeronautics and Space Administration) for my PhD research on the hydrological conditions in the Kabul river basin.*

Today, the Afghan government has installed some stations, for example under the Ministry of Agriculture as well as the Ministry of Energy and Water. They are working to refine and calibrate the data properly to achieve a realistic spectrum of the meteorological situation in the country. Without these data we would not have been able to plan any development projects.

In the last 18 years, there has not really been a smart project to fill all the data gaps and initiate research especially in the field of hydrology etc. We still do not have accurate data on the demand-supply gaps, especially in the agriculture sector which consumes around 97-98% of our surface water. As an agricultural country, we still have not been able to create a market for the local labor force because of our inaccurate planning and management, caused by the absence of reliable data sets. I think we have to invest in improving our capacity by building up a qualified pool of technical staff for the relevant organizations.

What does the academic landscape look like in Afghanistan at the moment?

Hardly any of the Afghan universities, with minor exceptions, has a specialized Master or PhD program in applied sciences. This means there is no research and without research we cannot compete and meet the growing challenges in the agriculture and water sectors. The government cannot afford to finance research projects in an adequate way because it still faces a lot of national security challenges. The public universities receive only minimal support. Unfortunately, little investment has been made in the sector of science, research and educa-



tion over the past years or even decades. Changing this is really important and our only hope. Because if you cannot educate people, you cannot change institutions and social behavior.

A Memorandum of Understanding between ZEF, the University of Bonn and the National Statistics and Information Authority in Afghanistan (NSIA) was signed in December 2018. What is the purpose of this collaboration and the current state of the project?*

The core component of this memorandum was to connect joint research projects, data sharing, research paper writing, and joint report writing. One of my key concerns has always been to build up the capacity of the NSIA to enable it to work independently in the future. Since I knew that one of ZEF's core goals is to build capacity in developing countries I thought we could use the skills of ZEF more wishfully and smartly. We were successful because we learn from each other and NSIA is now linked to a European organization like ZEF with its global reputation and contacts. By working together I think NSIA can become independent within the next five to 10 years and may then lead such projects by itself. This is a hopeful start.

*The interview was conducted by
Alma van der Veen and Andreas Haller*

* More information about Fazlullah Akhtar's doctoral research in ZEF news no. 36, page 11, bit.ly/2PbnhAn

** More information about the Memorandum of Understanding <https://bit.ly/2BxOzZl>.

See also the article about Dr. Akhtar in "forschung", Sommer 2019, page 12 (German).

Photo: Fazlullah Akhtar

RECONCILING HUMAN LIVELIHOOD NEEDS AND NATURE CONSERVATION INTERDISCIPLINARY FIELD COURSES IN KENYA'S FOREST BIODIVERSITY HOTSPOTS



Photo: Christine B. Schmitt

Field Course in Kitui County

Kenya hosts unique forest ecosystems that are under threat from deforestation and degradation. The four-year project 'Reconciling human livelihood needs and nature conservation in Kenya', funded by the German Academic Exchange Service (DAAD), aimed at understanding biodiversity and land use patterns in three Kenyan forest biodiversity hotspots. The overall goal was to develop approaches for forest conservation that take into account local livelihood needs. Cooperation and exchange between German and Kenyan University staff and students were key to the project.

We conducted international and interdisciplinary field courses in three areas: the riparian forest remnants in the semi-arid Kitui County, the coastal forest in the Arabuko-Sokoke National Park, and the moist montane forest in the Taita Hills. In each area, teams of students and senior researchers collected the data required for a comprehensive forest landscape assessment. This included the study of species distributions (e.g., plants, butterflies, birds, small mammals) and ecosystem functions (e.g., seed removal, predation of artificial caterpillars) in and outside the forest, evaluation of land cover and tenure systems, and interview surveys to elicit local perceptions of landscape management and nature conservation.

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Ongoing forest degradation and loss of biodiversity

In all study areas, the high dependency of the local population on subsistence agriculture, fuel wood, and timber undermined the enforcement of formal forest conservation measures. Despite the ongoing forest degradation, there was a sharp divide between the remaining natural forest characterized by high species diversity, including endemic and threatened species, and the surrounding agricultural areas that supported fewer species, and especially fewer specialized species. In terms of vegetation for example, 80% of all individual trees on agricultural land in the Taita Hills were exotic, mainly *Grevillea* and *Eucalyptus*. Though an important economic asset, exotic trees also may have negative biodiversity effects.

Approaches for forest conservation

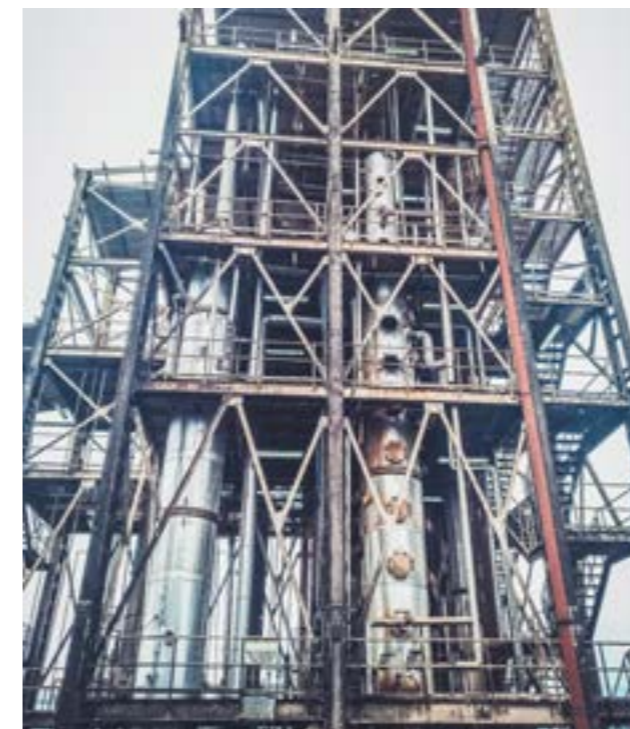
Solutions for forest conservation must be tailored to the particular cultural and ecological circumstances of each area. Generally, enhanced communication and collaboration between governmental and community organizations is required to clarify forest tenure, rights of use, and benefit-sharing issues. Next to protecting the remaining natural forest, it is key to improve local livelihoods. Training and capacity building for farmers and community organizations can support local communities in becoming the custodians of their own environment. This may include the promotion of agroforestry systems and useful indigenous tree species, the development of value chains for local produce, and community tourism initiatives. We hope to have inspired the students who participated in this project to consider these issues in their future careers.

For more information about the project, see: biodiversitynetworkkenya.wordpress.com

DEVELOPMENT OF THE BIOECONOMY IN NIGERIA OVERCOMING OIL DEPENDENCY

Inclusive and sustainable development is a difficult task in oil dependent countries. Oil dependency is usually accompanied by problems like volatile oil prices, rent seeking and non- or de-industrialization. Recent developments in global geopolitics and the rising interest in green growth and renewable energy, means that oil dependency is set to become even more unsustainable for national economies. The bioeconomy is often seen as an alternative for economic development that could improve income, employment, and environmental sustainability. In many African countries bioeconomic sectors are the largest contributors to economic growth.

Nigeria is Africa's largest oil producer. Oil accounts for about 90 percent of its export earnings. Despite huge revenues from oil, Nigerians still suffer from low living standards, poor governance, infrastructure deficits, and frequent power-cuts. The Nigerian agricultural sector employed more than 36 percent of the labor force and contributed about 20 percent to the GDP in 2018. However, agriculture has not sufficiently improved the living standard of those engaged in the sector, especially that of smallholder farmers. One of the reasons is poor market access for agricultural products. Value addition and alternative markets within the bioeconomy could improve the livelihood of smallholder farmers. Against this backdrop, the Nigerian government implemented a biofuel policy in 2007. The bio-refining industry is still in its infancy in Nigeria and is supported to some degree by the government, mainly in the form of research stations



Photos: Anyokwu Evelyn Ewere



and pilot projects. Bio-refineries could promote integrated and sustainable development by expanding the market potential for agricultural biomass.

About research methods

This research assesses the impact and potential social and environmental trade-offs of the bioeconomic transition in Nigeria with an emphasis on bio-refineries. In 2018, during preliminary field work, interviews were conducted with representatives of bio-refineries, the Ministry of Energy and Environment, the Energy Commission of Nigeria, and the Renewable Energy Division of the Nigerian National Petroleum Corporation. Some of the refineries were only partially operational while others had only an online presence. Although government's bio-refining projects have yet to take off, all the interviewees saw huge market potentials and net benefits in the projects. Several challenges were mentioned: structural dependence on and support for the oil sector and its products, huge investment cost for developing the projects, and poor technical capabilities in the country.

The research project employs parametric and non-parametric matching methods to understand the implication of oil dependency on bio-based growth. Further to this, household surveys will be used to determine the local welfare impact of bio-refineries. Lastly, a spatially explicit economic simulation model will be used to estimate the environmental impact of full-scale development of bio-refineries in terms of land use changes and deforestation. The outcome of the study will help shape policy development towards a sustainable bioeconomic strategy for Nigeria.

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PERENNIAL AGRICULTURE IN UGANDA

RESEARCHING THE IMPACT ON SMALLHOLDERS' LIVELIHOODS



Photo: Tina Beuchelt

The northern part of Uganda has faced several challenges including two decades of civil war between 1986 and 2006 and a high influx of refugees from the Democratic Republic of Congo and South Sudan. Poverty levels are very high. Most people depend on smallholder farming in mixed cropping systems on less than two hectares of land. The major crops are seasonal cereal crops, including millet, sorghum, sesame (simsim) and upland rice. Perennial pigeon pea, however, has traditionally acted as both cash and food crop.

Monoculture annual cropping systems dominate the world's food production and land use. In many cases, this has led to the destruction of natural environments beyond recovery. Annual systems have been identified as a major cause of soil degradation and erosion, leading to high levels of nutrient mining and leaching. With climate change and its impacts upon us, more sustainable approaches to agricultural production are urgently needed. There is a consensus that future approaches to agricultural intensification have to better emulate natural systems, if the next generations are to be fed sustainably.

The benefits of perennial agriculture

Perennial agriculture is the farming of long-term crops and trees that provide a mix of ecological, economic, and social services and benefits. In Uganda, perennial crops

such as pigeon pea, cotton, coffee, and bananas are traditionally part of smallholder farming systems. They provide multiple services and benefits to farmers, including food, fodder for livestock, and fuel wood.

Perennial crops can save labor time, provide living roots and soil cover that persist throughout the year and, in addition, contribute to agrobiodiversity. A clear understanding of social and economic benefits and challenges of perennial systems is crucial for both future adoption and adaptation. So far, no study has explored the perenniality of farming systems in Uganda through a holistic, interdisciplinary, and participatory approach.

The Right Livelihood College Campus at ZEF

This research project is part of the Right Livelihood College (RLC) at ZEF, and works in cooperation with the "Alternative Nobel Prize" awarded Land Institute in Kansas, USA, the National Agricultural Research Organisation (NARO), Uganda and Makerere University in Uganda. The project critically investigates perennial smallholders' mixed farming systems. It applies interdisciplinary and participatory approaches and uses qualitative and quantitative means of data collection, including household survey, focus group discussions, and whole-farm bio-economic modeling exercises. The goal is to understand smallholders' knowledge, perceptions, and management practices of perennial pigeon pea cropping systems, and to determine the economic costs and benefits and the trade-offs that exist between annual, perennial and mixed systems. The contribution of this research is timely, as the future of smallholder farming, and of food production in general, is uncertain in Uganda. Natural environments are showing their limits. The question is, what role do perennial polyculture systems play currently and in the future to support smallholders' livelihoods and sustain natural environments?

About the author



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DOCTORAL THESES @ ZEF

COCOA AND SHEA VALUE CHAINS IN GHANA

INTERVIEW WITH ADJOA ANNAN, DOCTORAL RESEARCHER AT ZEF

Adjoa Annan is a doctoral student at the Ghanaian-German Centre for Development Studies, which is a collaboration between ZEF and the Institute of Statistical, Social and Economic Research (ISSER), University of Ghana, Accra. The centre and Adjoa's research is funded by the German Academic Exchange Service (DAAD).



Currently you work on a study of the cocoa and shea value chains in Ghana. Could you please tell us a little bit about your research?

This study tries to understand how quality is promoted or non-promoted in food and agriculture value chains. It uses the cocoa and shea value chains of Ghana as case studies. The cocoa sector is state regulated and quality is highly controlled by the marketing board, whereas the shea sector is privately driven with control of quality in the hands of private firms and actors. The initial focus of the study was to understand the knowledge exchange and innovation diffusion on quality enhancement technologies in the sectors. However, during data collection, it was observed that, knowledge exchange on quality enhancement did not play a central role in promoting quality. Buyers in the sectors were more concerned with controlling sourcing commodities and implementing mechanisms in purchasing commodities. Quality enhancement was not highly innovative and its uptake was low, with some producers resisting innovations. As such, the current focus of the study examines the power relations and control of quality in the upstream (i.e. production, farm gate level) and downstream (i.e. end-market) segments of the chains. A disconnect in the promotion of quality in the cocoa and shea value chains was noticed. This serves a double function; whereas in the downstream of the chains it is promoted as a branding and marketing tool, in the upstream, it is promoted as a control and sourcing tool.

When we look at the value chains of agricultural products from Africa, often the raw materials are harvested there, but lots of the refinement takes place elsewhere. What is the potential for the industry of luxury goods, such as confections and cosmetics, in Ghana?

Efforts are being made to strengthen origin processing and to promote locally owned processing and manufacturing companies in the country. The Ghanaian government seeks to increase its share of processed cocoa beans into intermediate products such as cocoa butter, liquor and powder as well as chocolate from 40 to 50 percent. With respect to shea, Ghana is the hub of shea processing in

West Africa and is trying to expand shea production to sustainably meet its processing capacity. There is an increase in chocolate consumption among Ghanaians because of sensitization and educational programs implemented over the past years. Shea is domestically consumed and its use in beauty and hair products is gaining momentum in Ghana. However, to maximize profits in both value chains, in my opinion, Ghana should increase its trading of intermediate cocoa and shea products. Ghana could also benefit by the marketing and branding of Ghanaian chocolate or confections and shea luxury products in the regional, African, and international markets. I believe these efforts could contribute to increasing margins and profits. More so, producers participating in these value chains could capture higher values if policies were to target the alleviation of poverty by, for example, increasing prices.

What is your personal motivation for your doctoral research?

After my undergraduate and master's research on agriculture and rural development, I observed that producers in value chains capture little of the overall value. For my PhD I wanted to further understand why producers who integrate into international markets remain poor, especially producers who participate in value chains where the production of a quality commodity is portrayed as rewarding.

What are the advantages of the collaboration between ZEF and ISSER, and how does this contribute to your research?

I think such collaboration provides opportunities for knowledge exchange between the various institutions, countries and students. It also provides the opportunity for aspiring PhD candidates to contribute towards possible solutions to developmental issues in Ghana. ZEF offers a sound academic as well as a friendly environment for international students and in my opinion, Bonn is one of the best places to have an intercultural experience.

The Interview was conducted by Andreas Haller



De-pulping shea fruits in Dakpemyili community

Photo: Adjoa Annan

AFFORESTATION IN DRYLANDS OF WEST AFRICA

REHABILITATION OF DEGRADED CROPLANDS



Situation at the beginning of the trials



Situation 15 months after planting

Photos: Florent Noulèkoun

The ongoing cropland degradation in West Africa, particularly in its dryland regions, is increasingly threatening food security, environmental health, and rural and urban livelihoods. This situation is exacerbated by the growing impacts of climate change. Afforestation with multipurpose tree species has been recognized worldwide as a low-cost and viable option to reverse land degradation in the face of climate change.

To confirm this approach for the semi-arid areas of West Africa and to assess the suitability of five multipurpose

tree species for planting on degraded croplands, afforestation trials were conducted in the Sudano-Sahelian zone of Benin. The planted multipurpose tree species included the fast-growing *Leucaena leucocephala* Lam. (river tamarind), *Moringa oleifera* Lam. (drumstick), *Jatropha curcas* L. (physic nut) as well as slow-growing *Anacardium occidentale* L. (cashew) and *Parkia biglobosa* Jacq. (African locust bean).

Based on an assessment of survival rates and functional traits of saplings subjected to fertilization and supplemental irrigation treatments, the study revealed a variety of fast- and slow-growing species suitable for afforestation in semi-arid Benin.

Climate-growth modeling analysis, considering risks for future afforestation efforts due to projected water deficits, showed that deep rooting might be an effective adaptive trait to enhance biomass growth in the changing environment. For the rehabilitation of degraded croplands in the West African drylands, the findings suggest the need for silvicultural management and a multi-species afforestation system integrating a diversity of species able to develop deep-penetrating root systems.

About the authors

Florent Noulèkoun

is a research professor at Korea University. He conducted his doctoral research at ZEF supervised by Asia Khamzina, a professor at Korea University and former senior researcher at ZEF.

John P.A. Lamers, a senior researcher at ZEF, advised Florent on his research.

FROM GANG MEMBERS TO TOUR GUIDES

COMMUNITY TOURISM DEVELOPMENT IN BOGOTÁ'S MOST VIOLENT NEIGHBOURHOOD EGIPTO

After 52 years of internal conflict and four years of peace negotiations, the Colombian government and the guerrilla group 'Revolutionary Armed Forces of Colombia' (FARC) signed a historic peace agreement in 2016. Since then, Colombia has become one of the ten fastest growing tourist markets in the world. The official peace has brought a new dynamic into the tourism sector.

Most of the tourists start their journey in Bogotá, the vibrant capital and largest city in Colombia. Bogotá's image has been transformed from one of the most dangerous cities of the world to a tourist destination. Many urban communities developed their own tourism-based businesses, for instance the Breaking Borders Tour through the neighborhood Egipto. Situated high above the historical center La Candelaria, the neighborhood Egipto was known for drug trafficking, robbery and gang violence. Walled-up and marginalized by society, it was a no-go area for everyone else in the city. Three years ago, members of the "La 10ma" gang and the Universidad Externado de Colombia in cooperation with Impulse Travel started an initiative to rebuild Bogotá's most violent neighborhood. The former gang members took tourism classes at the University, and were trained in language skills and in the basics of tourism management.

Breaking Borders Tour for tourists

The tour starts on the Calle 10, the entry point to Egipto, home to 142 families and 600 people. Referring to painted murals, former gang members tell the visitors about more

than 27 years of violent conflict between rival gangs of the vulnerable neighborhood Egipto. They also talk about their own life stories, about being part of a gang, family members murdered or being held in prison, and violence and crimes. To underline their stories, they openly show their scars. But their voices do not sound sad. On the contrary, they speak very enthusiastically about the transformation of their social environment, their personal development, and the positive impact the Breaking Borders Tour has had on the community and their home environment. One guide said that while children in Egipto used to aspire to become gang members, they now want to become tourist guides.

There is a thin line between controversial slum tours and the commercialization of violent history, and the revalorization of marginalized barrios through community-based tourism. Yet the numbers speak for themselves: after three years without deaths due to arms and drugs, the project Breaking Borders seems to consolidate peace in Egipto.

About the author

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Photos: Emilia Schmidt

Facts & news



In Cape Town, township community urban gardens serve daily meals to the poorest. Left: Nicolas Gerber, ZEF.

New project on African urban nutrition

ZEF has kicked-off a new pan-African project on urban nutrition. Nicknamed **NOURICITY**. It is an EC H2020 ERA-Net Cofund project (2018-2021) funded by a group of donors from the LEAP-Agri Partnership. The project will be coordinated by ZEF in partnership with the Centre of Excellence in Food Security at the University of the Western Cape, South Africa, the Institute of Statistical, Social and Economic Research (ISSER) at the University of Ghana, and Wageningen Economic Research in the Netherlands.

The project aims to investigate the structure and dynamics of urban food systems in Africa (including rural-urban food value chains and food safety issues) and how they interact with food consumption and behavior in determining the health and nutrition status of the urban population. The research adopts a comparative approach across three study sites in Accra, Cape Town and Kampala.

Together with nutrition and public health practitioners and actors identified in each of the three study sites, the researchers will devise and test policy scenarios and develop a partnership concept for improved urban nutrition in Africa.

Website: nouricity.org

Contact: Project coordinator Nicolas Gerber (ngerber@uni-bonn.de)

Award for research on endangered biomes in Brazil

ZEF junior researcher Gabriel Frey and ZEF senior researcher Jan Börner are part of a research group that received the MapBiomas Award. They received it for their research on the identification of biomes under risk of losing forest cover to the expansion of agriculture. Spreading soy plantations are a major threat to Brazil's rainforest and savanna areas. Using a machine learning approach, the researchers developed a model to predict soy expansion in Amazonian and Cerrado biomes.

Frey received the award in Brazil on behalf of his five colleagues. "Conservation policies and enforcement actions should look more carefully into these areas, especially the processes that lead to their possible conversion into soybean farms. Infrastructure projects also need to be taken into account", he said.

The Brazilian Annual Land Use and Land Cover Mapping Project (MapBiomas) is an initiative that involves a collaborative network of biome, land use, remote sensing, GIS and computer science experts that rely on the Google Earth Engine platform and its cloud processing and automated classifiers capabilities to generate Brazil's annual land use and land cover time series.

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