ATSAF ACADEMY

Council for Tropical & Subtropical Agriculture (ATSAF e.V.)

ATSAF ACADEMY

The projects presented in this booklet - ACINAR (Academy for International Agricultural Research) & JST (Junior Scientists Tandems) - are commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ), and are carried out by ATSAF e.V. (Council for Tropical and Subtropical Research) on behalf of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. In cooperation with professors from German universities and CGIAR++ centers, ATSAF e.V. has established the ATSAF Academy via the ACINAR- and JST-project.

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PREFACE

Prof. Dr. Folkard Asch
Chairman of ATSAF e.V.

Food and nutrition security based on a resource-conserving, energy-efficient agriculture is a paradigm most people subscribe to. Implementing it against societal drag coefficients, the required paradigm shifts, and region- and production-specific defaults is one of the major challenges of the present. Like most growing things, it requires time, patience, and knowledge to get it right. Internationally, even globally mandated centers, such as the CGIAR have taken up the challenge, and what they urgently need are the scientists to make it happen. Scientists who have the knowledge, the dedication, and the potential career pathway to keep them on their science for a sufficient amount of time for the research to yield actionable results. The ATSAF Academy is a platform to initiate future-reaching research defined by international teams of scientists and bring young scientist into the various networks to launch their careers and contribute to making the world a better place. With the support of the BMZ, the first 25 of 100 young scientists have started their research tasks, which we introduce in this booklet. The variety of topics addressed by this relatively small sample of research projects alone shows the enormous extent of the challenges ahead. From varietal adaptation and improvement, via methodologies in diverse fields, agroforestry, governance and learning, to pest and soil fertility management; covering a wide range of plant, animal, socio-economic, and agricultural technology, as well as inter- and trans-disciplinary research topics. In order to achieve a livable and healthy future, all these aspects need to be tackled at once and need to be pursued with unrelenting vigor for the years to come. These young people make me believe it will be possible, let us give them the space and money to let them do their work.

PROJECT OVERVIEW

The aim of the ATSAF Academy is to involve PhD students and MSc students from German universities and from universities of OECD-DAC partner countries in CGIAR++ research projects and in this way strengthen the links between German universities and international, development-oriented agricultural research. Under the umbrella of the ATSAF Academy two scholarship programs are currently being carried out:

- **PhD Research Scholarship (ACINAR - Academy for International Agricultural Research)**
- **MSc Career Exploration Scholarship (JST - Junior Scientists Tandems)**

These projects are commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ), and are carried out by ATSAF e.V. on behalf of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. In cooperation with professors from German universities and CGIAR++ centers, ATSAF e.V. has established the ATSAF Academy via the ACINAR- and JST-project.

The ATSAF Academy offers a scientific support program for its scholars in the form of courses and seminars.

PhD Research Scholarship

ATSAF awards a scholarship of EUR 1,500 per month for a period of three years with the possibility for a 12 month extension if the progress of the PhD project indicates that the PhD can be completed within these 12 months.

Research Grant

In addition to the scholarship, a research grant of up to EUR 25,000 may be requested, which will be paid to the supervising university to be used for research related to the PhD project.

Scientific Support Program

Scholars must be actively participating in the ATSAF Academy and enrolled in a structured PhD program at the supervising university. In order to receive the ATSAF Academy certificate of completion, scholars must complete following modules:

- Module 1: Mandatory module at the supervising university – usually a module on scientific working
- Module 2: ATSAF Academy "Seminar on development oriented agricultural research"
- Module 3: ATSAF Academy "Topic-specific module in the context of the research work of the PhD project"

All modules should have the equivalent of 6 ECTS points. This represents an average total amount of work of 150 - 180 h, with 56 h of class attendance and 94 - 124 h of self-studying. The modules must be completed with a grade minimum or better than B- (75%).

MSc Career Exploration Scholarship

ATSAF's new "Junior Scientists Tandems (JST)" program gives students at MSc level the opportunity to get hands-on experience in research for development in collaborative projects between CGIAR++ centers and German research institutions.

JST supports MSc students enrolled at German universities for a 6 month internship at a CGIAR++ center. At the same time, it supports MSc students from partner countries (as per OECD DAC list) for a 6 month internship at a German research institution. Both must be working – either parallel or sequentially - within the framework of the same collaborative research project between the CGIAR++ center and the German institute. Both will have the opportunity to collect data in the scope of their master's thesis research. The respective MSc students constitute a junior scientists tandem.

JST is a career exploration scholarship and part of the ATSAF Academy. The program uses synergies with existing programs such as the ATSAF Academy PhD Research Scholarship. PhD projects can receive valuable additional work through master's theses. Research is an innovative and creative process that often changes as it progresses, depending on the nature of the results from each step of the research. Masters' theses can be used to separately or additionally research individually arising aspects of a PhD project. Working within a ATSAF Academy PhD project is therefore particularly recommended.

The aim of the JST is to inspire young people for development-oriented agricultural research, to qualify them in this field in an internationally competitive manner and rejuvenate and expand the corresponding professional networks.

ATSAF supports MSc students with:

- ◇ A scholarship for a period of 6 months
- ◇ 5,000 € for MSc students (of any nationality) enrolled at a German university staying at a CGIAR++ center
- ◇ 7,000 € for MSc students from a university of an OECD-DAC partner country staying at a German research institution
- ◇ The opportunity to collect data to complete the Master of Science degree
- ◇ Administrative support from ATSAF
- ◇ A Networking & Training Platform with inception trainings, webinars, and forums

Wheat genotype adaptation to heat and drought stress and its implication on rhizosphere metabolome and microbiome dynamics

Ashly studies the composition of the rhizosphere bacteriome of wheat tolerant to heat stress events and its contribution to plant resilience. To address this issue, Ashly and her team analyzed the functional composition of the rhizosphere bacteriome to four contrasting wheat genotypes under heat stress in two crop cycles at the CIMMYT CENEB experimental research center and breeding station in the Sonora desert of Mexico.

This approach of understanding the composition, and functional properties of the rhizosphere bacteriome and metabolome will help as a baseline to understand the molecular mechanisms underlying the plant-bacteria interactions that promote genotype adaptation to heat and drought stress events and contribute to sustainable agriculture to face climate change.

Ashly Arevalo

Supervision Team

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CIMMYT

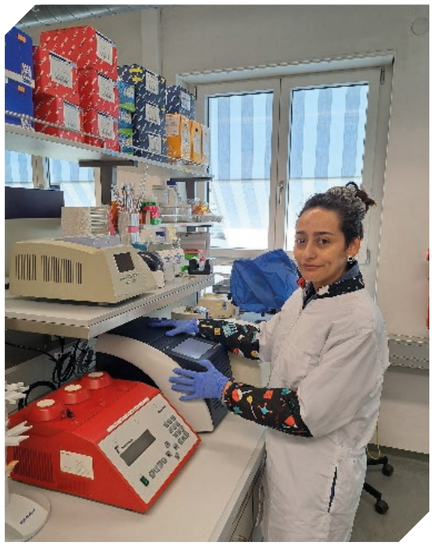
Dr. Hannes Karwat

Nationality

Colombian

Country of Operation

Mexico & Germany



Laboratory work at the University of Hohenheim.

Photo by Mekuria Wolde Assena

Left: Wheat field at maturity stage.

Right: Field trials at CIMMYT CENEB, Mexico.

Photos by Ashly Arevalo

"I AM PASSIONATE ABOUT THE DYNAMICS, SYNERGIES, AND ANTAGONISM IN PLANT-MICROORGANISMS INTERACTIONS EXISTING IN THE RHIZOSPHERE. THIS PROJECT ALLOWS ME TO WORK WITH AN IMPORTANT FOOD SECURITY CROP SUCH AS WHEAT (*TRITICUM AESTIVUM*), CONSIDERING THE IMPORTANCE OF THE PLANT MICROBIOME, AND ROOT EXUDATES AS A MORE HOLISTIC VIEW FOR THE CHALLENGE OF DEVELOPING RESILIENT CULTIVARS FOR ADAPTATION TO DROUGHT AND HEAT STRESS."

- Ashly Arevalo

Jacob Asravor

Supervision Team

University of Hohenheim

Prof. Dr. Manfred Zeller

IITA

Dr. Alexander Nimo Wiredu

Nationality

Ghanaian

Country of Operation

Mozambique

Integrated soil fertility management, farm performance and household welfare: Evidence from smallholder farmers in Mozambique

To halt and reverse the persistent soil fertility decline in Mozambique – one of the world's poorest and food insecure countries, a number of national, regional and donor organizations have been promoting integrated soil fertility management (ISFM) practices as a pathway. Available evidence however indicates that the rate of dis-adoption of these proven technological packages among smallholder farmers continues to be extremely high, highlighting the urgent need for a comprehensive understanding of the underlying drivers of this phenomenon. We adopt a mixed methods research approach to explore these underlying drivers of ISFM dis-adoption and the impact of adoption on farm productivity, efficiency and household poverty.

A lead farmer providing insights into his farming operations during a field visit in Gurue, Zambezia Province.

Photo by Jacob Asravor

Group picture after a focus group discussion with farmers in Chimoio, Manica Province.

Photo by Jacob Asravor

The preliminary results show a raft of complex context-specific issues including market and credit access constraints, human capacity challenges, perception on soil fertility, risk and uncertainty and unfavorable policy settings, inter alia, as the prime drivers of smallholders' decision to abandon ISFM practices in rural Mozambique.

Key informant interview session in Gurue, Zambezia Province.

Photo by John Jaquissone of IITA

"The pressing need to expand agricultural productivity in Sub-Saharan Africa while safeguarding the remaining natural resource base through the sustained uptake of effective technological packages such as ISFM sparked my interest in this topic. My motivation as a budding researcher is to see Africa become self-sufficient in food production through the sustainable use of natural resources and the scaling of ISFM has the prospect to make this a reality."

- Jacob Asravor

Developing an assessment framework along the agroforestry: food security nexus: Sustainable dryland strategies for people-centered land restoration in Tanzania

Mahlet aims to develop an integrated methodological framework that enables the assessment of sustainability, adoption, and scale-up of agroforestry technologies using the semi-arid zone of Tanzania as a case study. The methodological framework enables the evaluation of different agroecology systems and can be applied to compare and identify the most suitable agroforestry practices considering the local biophysical, socio-economic, and institutional factors.

The preliminary findings from this research indicated that most farmers in the case study area favor combining soil and water harvesting technologies with agroforestry to achieve better environmental and economic performance.

Mahlet Degefu Awoke

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ICRAF

Dr. Anthony A. Kimaro

Nationality

Ethiopian

Country of Operation

Tanzania

A participant in a focus group discussion is presenting discussion results in Laikala village, Tanzania.

All photos by Mahlet Degefu Awoke

Based on the preliminary outcomes, a detailed assessment is conducted that evaluates the integration of agroforestry technologies with soil and water harvesting technologies in areas affected by shortage of rainfall.

Top: A farmer in his Grilicidia sepium tree nursery, promoting the adoption of agroforestry and sharing his experience in Mlali village, Tanzania.

Left: A farmer showing Mahlet her papaya production from her farm (papaya and maize intercropping) in Ilolo village, Tanzania.

Bottom: Agroforestry practice in Ilolo village: Grape, sunflower and mango intercropping.

"My project is personally important to me as it addresses a developing country's food security and environmental issues. Growing up in a developing country (Ethiopia) has given me a deep understanding of the issues the developing world faces. These exposures initiated my passion for making the world a better place, especially for people suffering most from drought, poverty, and other natural and human adversities."

- Mahlet Degefu Awoke

Carla Rene Baldivieso Soruco

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Dr. Mark Dubois &
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Nationality

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Country of Operation

Cambodia

Collective Action and Governance of aquatic food systems in Rural Cambodia

Carla's research focuses on analyzing the processes of collective action and governance in aquatic food systems in rural Cambodia. In a collaboration with WorldFish in Cambodia, she is focusing on a case study, the Community Fish Refuges (CFR) project, and studying the implementation and results in Kampong Thom province. The project supports the food security via food sovereignty, by increasing the productivity of the rice field fisheries through agroecological intervention.

One of the main academic challenges are to generate participatory research methods that are appropriate for the local context. Carla believes that there is still a gap in the study of peasant and rural institutional diversity in societies with aquatic food systems.

Developing Causal Loop Diagrams as participatory activities and generating community mind maps of CFR fishpond management in Boeng Rolum Community Fish Refuge, Kampong Thom Province, Cambodia.

All photos by Carla Rene Baldivieso Soruco

Village people and WorldFish team members are mapping the location of a water channel connected to the fishpond in Boeng Malech Community Fish Refuge, Kampong Thom Province, Cambodia.

She wants to draw more attention to fisheries and aquatic systems within agriculture, as they are generally seen as different fields of study, although both correspond to food systems of rural and peasant populations.

Community Fish Refuge at Trapeang Neang Noy, in Kampong Thom Province, Cambodia. Elements of the picture: sign of the pond, division between conservation side (back part) and area where the people can access for harvesting lotus flowers and for water for cattle (front part).

"I WANT TO CONTRIBUTE TO THE STRENGTHENING OF THE COLLECTIVE RIGHTS OF THE FISHING POPULATIONS I WORK WITH. TO THIS END, I CONSIDER IT IMPORTANT TO DEEPEN THE ACADEMIC ANALYSIS OF ECONOMIC DIVERSITIES AND THE RELATIONSHIP OF SOCIETIES WITH ECOLOGY. MY DOCTORAL PROJECT IS PART OF A PERSONAL PROCESS OF INVOLVEMENT WITH PROCESSES OF PEASANT AND RURAL ADVOCACY AROUND ECOLOGICAL AND SOCIAL JUSTICE THAT I STARTED SINCE MY UNDERGRADUATE STUDIES TOGETHER WITH RURAL ORGANIZATIONS IN MY COUNTRY OF ORIGIN, BOLIVIA. "

- Carla Rene Baldivieso Soruco

Enhanced monitoring of insect pests in stored rice based on their sound signature and evaluation of attractants for storage insects

Early detection of insect pests in stored grains is important in postharvest technology for the subsequent implementation of control measures. These have the potential to lead to a reduction of losses, ensure food sufficiency and combat hunger. This project aims to achieve the following:
(1) thoroughly study and document the sound patterns of insect pests and assess the effectiveness of different types of insect lures in stored rice;
(2) develop a handheld acoustic measurement system to detect the insect pest species;
(3) establish a working prototype that can be developed for small and large scale applications and test the sensors and interfaces that can be used with mobile phones; and
(4) assess potential application in other systems such as hermetic storage or grain cooling.

Carlito Balingbing

Supervision Team

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IRRI
Dr. Nguyen Van Hung

Nationality
Filipino

Country of Operation
Philippines

A rice weevil (*Sitophilus oryzae*, Family: Curculionidae) infesting on milled rice product.

Lesser grain borers (*Rhyzopertha dominica*, Family: Bostrichidae) attacking stored grain.

In this study, a micro-electromechanical system microphone and sensors for temperature and relative humidity were integrated in a sensor board. Python algorithms are used to record the acoustic sounds of three major rice insect pests (i.e., *Sitophilus oryzae, Rhyzopertha dominica* and *Tribolium castaneum*).
Four insect attractants were identified based on existing literatures and research studies and were tested by deploying them in the GrainSafe™ storage with 1 ton of paddy rice infested with the insects. Initial results showed the effectiveness of the micro-electromechanical system microphone in detecting baseline sounds of the three major insect pests in stored rice.

The 1 ton GrainSafe™ storage containing rice grains infested with insect pests. Attractants (LED, warm air attractants, coconot oil, vibration exciter) were randomly placed in the storage to lure and trap the insect pests.

All photos by Carlito B. Balingbing

"This project is very important to me because of its potential contribution to reduce losses of rice (or grains) in storage for a sustainable grain supply that is healthy and safe. The application of digital/precision tools in this project is also very interesting for me."
- Carlito B. Balingbing

Lilian-Marleen Beck

Supervision Team

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ICRAF

Dr. Delia Catacutan

Nationality

German

Country of Operation

Cambodia

Inter-organizational learning to foster co-development and implementation of agroforestry innovations in Cambodia

While agroforestry is gaining increasing recognition for its potential contribution towards achieving Sustainable Development Goals, how to facilitate extension programs to promote agroforestry adoption is an understudied area. To overcome these barriers, Lilian aims to fill the scientific gap by designing, conducting, and evaluating an inter-organizational learning process that allows for the co-development of agroforestry innovations together with farmers in a typical extension project time frame.

In the course of this action research, Lilian could observe the intrinsic motivation among participating farmers and innovative integration of agroforestry principles in their farming systems.

In turn, recommendations will be synthesized for designing and organizing inter-organizational learning to promote and sustain agroforestry extension over time.

Farmers practicing agroforestry best practices.

All photos by Lilian-Marleen Beck

A participating farmer presenting his plan to integrate a swale system for flood prevention on his farm.

A farmer explaining her agroforestry system with orange trees, acacia pennata, coconut palms, lemongrass and other crops.

"During my work with farmers in Cambodia so far, I have developed a deep respect and appreciation for indigenous and Khmer small scale farmers. The tension between their potential, but also the immense challenges faced by Cambodian smallholder farmers, moves me and creates a desire to support them on their journey to find sustainable ways to sustain their livelihoods through agriculture and reforestation. Through discussions with farmers and observations I believe that agroforestry has an immense potential for Cambodian farmers. At the same time I want to find real solutions for real problems and I believe that this is only possible if relevant stakeholders are actively involved in identifying those solutions. This is why I am passionate about the action research approach of my project."

- Lilian-Marleen Beck

Water pans as multifunctional components of climate-smart landscapes in semi-arid regions

The study aims to assess the role of water pans in water-scarce semi-arid areas of Kenya for multiple uses as agricultural and livelihood support systems. The study also assesses how the water pans serve as hotspots for greenhouse gas (GHG) emissions and as sinks for carbon and nutrient-rich sediments and the suitability of the sediments for crop production based on their nutrient content and appropriate recovery techniques.

The research focuses on the application of a combination of interdisciplinary research methods, including surveys, semi-structured interviews, water and gas sample collection and analysis as well as mapping and modelling using the collected and remote-sensed data.

Collins Muhadia Bisia†

Supervision Team

KIT

Prof. Dr. Klaus Butterbach-Bahl

ILRI

Dr. Sonja Leitner

Nationality

Kenyan

Country of Operation

Kenya

Livestock watering in a water pan, besides a floating chamber base used to hold a chamber top to measure greenhouse gases. To measure the emissions, the chamber base is closed with an air-tight lid for 3-10 minutes, and gas is pumped to a mobile laser absorption spectrometer that measures the change in gas concentration over time.

This research will yield publications that will present the climate-smart role of water pans in pastoral and agro-pastoral communities, water quality, water level information and GHG fluxes from 22 water pans in the ILRI Kapiti Ranch and the Taita Hills region, landscape-scale estimates on GHG emissions based on existing water pans and future development plans.

Left: A tightly closed chamber (silvery in color) collecting accumulative gases from recently-flooded sediments, to be measured by a mobile laser absorption spectrometer (yellow instrument connected to tubes).

Top right: A drying water pan.

Bottom right: A dried-out water pan.

All photos by Collins Muhadia Bisia

"As semi-arid landscapes have important livelihood support systems, it is important for me to pursue an interdisciplinary approach to researching and recommend sustainable management of water pans as significant components in these systems. My project links to globally important topics that entail climate and greenhouse gas emissions dynamics, as well as agriculture and food security in water-scarce semi-arid regions."

- Collins Muhadia Bisia

Helena Bochmann

Supervision Team

University of Bonn

Prof. Dr. Uwe Rascher

IRRI

Dr. Amelia Henry

Nationality

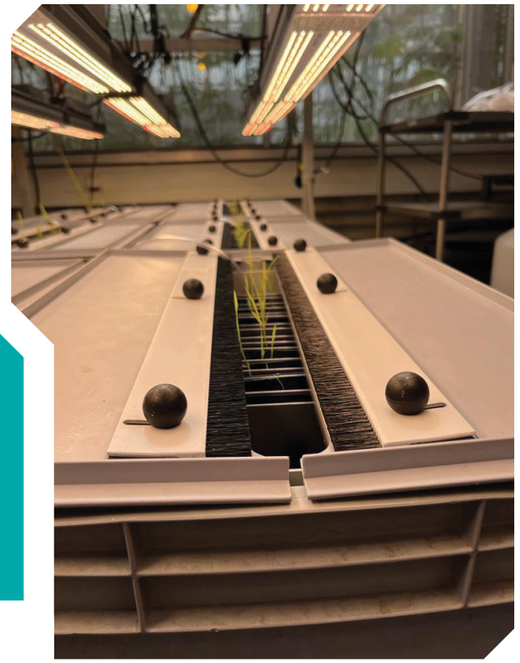
German

Country of Operation

Philippines

The long-term effect of rice lateral root types on drought recovery and yield

In Helena's project, the focus is put on a larger rice panel of 200 lines, which were tested first in field experiments at the International Rice Research Institute (IRRI). A smaller panel will then be formed and studied in greenhouse experiments at Forschungszetrum Jülich to provide a deeper insight into the hydrological properties of different root architectures. The main motivation is to challenge the increased risk of drought due to climate change and improve stable food production.

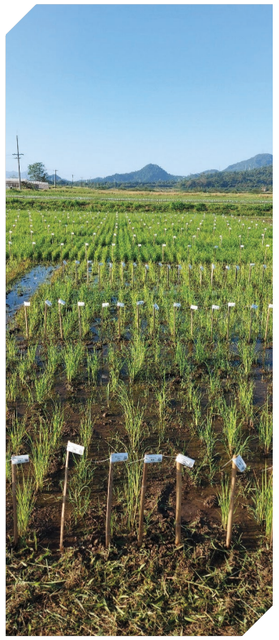


Experiments were performed to validate lines with contrasting root architecture with the GrowScreen-PaGe system at Forschungszentrum Jülich, Germany.

Photo by Helena Bochmann

All lines were grown at IRRI to detect the variation within the rice panel. Crown roots were sampled to search for a subset of rice lines. The experiment was performed by Dr. Amelia Henry and her team.

All photos by Dr. Amelia Henry and her team at IRRI



"Communicating and organizing experiments with two institutes located on different continents can be a challenge. However, being in contact with so many motivated and friendly scientists provides a lot of constructive feedback and improves my research. Drought stress is one of the most important abiotic stress factors. I was interested in drought since my studies in crop science and hope to contribute to research in food production in drought-risk areas."

- Helena Bochmann

Farmer-based mechanisms for strengthening Agroecology and Resilience on the Andes

Giovanna is a human geographer and agricultural economist specialized in agroecology and traditional food systems. After witnessing the struggles of some of the most prominent farmer movements, Giovanna came back to exploring the vibrant Latin American agroecology movements of the Andes in Colombia and Peru.

In her PhD project, she develops a methodological framework to understand farmer-based efforts strengthening agroecology-based production and marketing. The mechanisms under analysis include: (1) famer-led agroecological education, (2) local food and market networks, and (3) farmers-based seed systems of the Andes.

Giovanna leads an interdisciplinary research team of women, applying art-based & participatory research methods stemming from geography, visual anthropology, ethnography, and gender studies.

Giovanna Chavez Miguel

Supervision Team

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CIP
Dr. Stef de Haan

Nationality
Mexican

Country of Operation
Peru & Colombia

Photo of potato landscapes in Laraos, Peru, at 3.300 m.a.s.l.

All photos by Giovanna Chavez Miguel

As an emerging filmmaker, she prepares various audiovisual products parallel to her scientific results, including a documentary feature film, immersive audiovisual installations, workshops, and a photography exhibition for being displayed at Tropentag 2023, institutions, film festivals, and within the farmer communities involved.

Right: Potato Guardian of Cusco.
Top & bottom: Applying art-based research methods.

"It is my wish for farmers, that they can get a fair retribution for the important conservation work they do, so that they must not abandon their ways of life and new generations can continue to maintain agrobiodiversity. With art and science combined, I wish to contribute to the revalorization of colorful farming traditions and to raise awareness about the importance of supporting local agroecological producers."

- Giovanna Chavez Miguel

Geckem Dambo

Supervision Team

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CIMMYT

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Nationality

Malawian

Country of Operation

Mexico

Remotely sensed spectral indices as indicator of climate resilience in a wheat breeding context

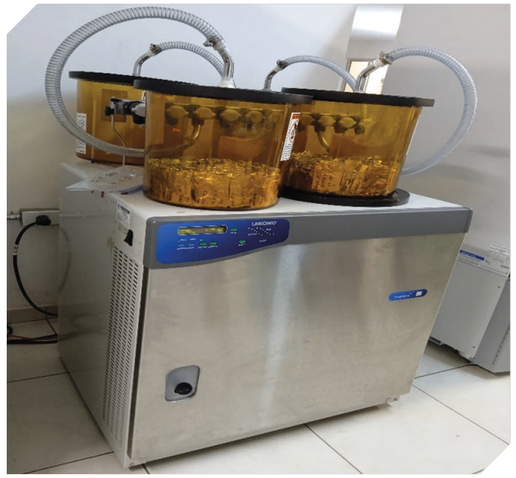
Wheat productivity is being challenged by increases in air temperature and water deficit conditions. Photoprotective leaf pigments play a significant role in preventing the negative impacts of excessive light absorption, which are exacerbated under heat and drought stress. Several spectral indices have been proposed as indicators of stress-adaptive traits for use in genetic improvement. While indices related to photosynthetic potential (NDVI) and canopy temperature (thermal imagery), for example, have been validated, others relating to photoprotection and hydration status are less well documented in the breeding context.

Installing soil moisture tubes in the drought experiment at CIMMYT, Mexico, 2023.

All photos by Pablo Rivera Rodriguez and Deena Thankachan

Therefore, this project focuses on identifying and validating spectral reflectance indices for assessing photoprotection and hydration status in wheat as adaptation mechanisms in heat and drought environments.
Additionally, an array of other physiological and productivity-related traits will be characterized to determine the role of photoprotection and hydration status under different stress conditions, at key growth stages.

Measuring photosynthetic active radiation using a handheld Ceptometer at CIMMYT, Mexico, 2023.



Wheat leaf samples were lyophilized at CIMMYT before being shipped to the University of Hohenheim in Germany for laboratory leaf pigment analysis (2023).

"THE MOST SIGNIFICANT THING IS THAT MY PROJECT WILL HELP ACHIEVE FOOD AND ECONOMIC SECURITY THROUGH THE IDENTIFICATION OF SCREENING METHODS FOR BOTH IN-FIELD AND CONTROLLED ENVIRONMENTS FOR WHEAT ADAPTATION TO HEAT AND DROUGHT STRESS CONDITIONS."

- Geckem Dambo

Drivers of change: Understanding the process of complex technology adoption in Sub Saharan Africa

This research aims to provide detailed insights into the multidimensional process of agroforestry adoption in smallholder households by collecting and analyzing primary data from agroforestry projects in Kenya and Zambia. Key aspects of the study include identifying determinants of the adoption process of complex agroforestry technologies and analyzing specific intrinsic drivers, including farmers' livelihood aspirations. Luzia and her colleagues found significant correlations between livelihood aspirations and personality traits with adoption of agroforestry in rural Kenyan households.
Based on the importance of intrinsic factors in this process, other clusters of intrinsic and extrinsic factors are examined that might constrain or control adoption behavior among smallholder farmers in rural Zambia.

Luzia Deissler

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Dr. Kai Mausch

Nationality

German

Country of Operation

Kenya & Zambia

Pawpaw trees on a farm in Kitui, Kenya.

Photo by Luzia Deissler

Enumerator interviewing farmer in Tharaka Nithi, Kenya. Beans were used to visualize self-set scales to capture livelihood aspirations.

Photo by Alice Karanja, CIFOR-ICRAF

Sack gardening in Tharaka Nithi, Kenya.

Photo by Luzia Deissler

"In my opinion, the essential aspect of our work is the inclusion of livelihood aspirations. If we want to improve people's livelihoods, resilience, and sustainability, we need to make development projects successful. To do this, however, we need to look at the big picture, because human behaviour is just not purely rational. This means taking into account the opinions and values of those for whom the projects are intended."
- Luzia Deißler

Hoa Thi Do

Supervision Team

University of Bonn

Prof. Dr. Eike Lüdeling

ICRAF

Dr. Nguyen La

Nationality

Vietnamese

Country of Operation

Vietnam

Transitioning to tree-based farming systems – Exploring barriers to agroforestry uptake among smallholder farmers in Northwest Vietnam

Hoa and her team assess the impacts of agroforestry adoption as well as factors that drive adoption decision by smallholder farmers in upland Northwest Vietnam. Together with farmers, they conceptualize the farming system as a network of interacting components, which are used to examine various impact pathways of agroforestry. The resulting model reflects the farmers' understanding of their realities, the rationale behind their adoption decisions, and their management of the adoption process. The preliminary results show that farmers perceive multiple beneficial impacts of agroforestry on livelihoods and environment, and that they navigate various adoption challenges. Farmers have managed to overcome the challenges drawing upon their understandings of competing and synergistic inter-dependencies among farm components.

Farmers participate in a Q study to express their perceptions on the impacts of agroforestry.

All photos by Hoa Thi Do

Mixed cropping landscape including paddy rice, sugarcane, maize, fodder crops and trees.

As a follow-up to this research, different modelling approaches are combined to explore farmers' decisions on land allocation and impacts on land use change given social interactions among farmers.

Working with ICRAF's expert on one of their agroforestry trial plots.

"This research provides me hand-on practices in system thinking for complex system analysis which I may often encounter in my future work, especially in development-oriented research. Working with and collecting data and information from people is most challenging but also the most exciting part. The process requires a bit of personal effort to access and gain farmers' trust and learn how to communicate with them in the most effective way. Speaking the same language with local people is my greatest advantage. I want to contribute a comprehensive research approach to gain system-wide understanding of elements, dynamics and trade-offs in agricultural systems."

- Hoa Thi Do

Development of a fluorescent RBL reporter system for diagnosis of porcine cysticercosis

Porcine cysticercosis is caused by the larval stage of *T. solium* (pork tapeworm) parasite in pig. The disease hampers food security especially in Africa and South America, and affects livelihoods of pig farmers resulting in reduced pork value and economic loss. We aim to develop a new, improved serological diagnostic tool for porcine cysticercosis, characterised by high sensitivity and specificity. This project will help to identify infected pigs through parasite –specific Immunoglobulin E (IgE) based pig IgE reporter cell line. We have cloned the pig IgE receptor and transfected this into the RBL NPY-mRFP cell lines. Currently, pig IgE reporter cell line is undergoing selection for stable transfection.

Shahadat Hossain

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ILRI

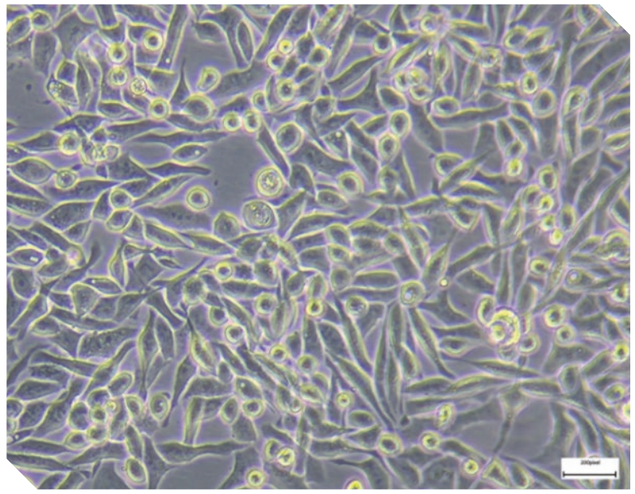
Dr. Philip Toye and Dr. Lian Thomas

Nationality

Bangladeshi

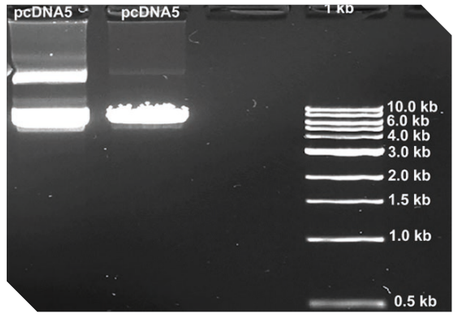
Country of Operation

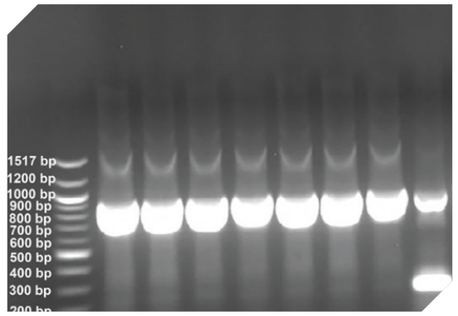
Germany



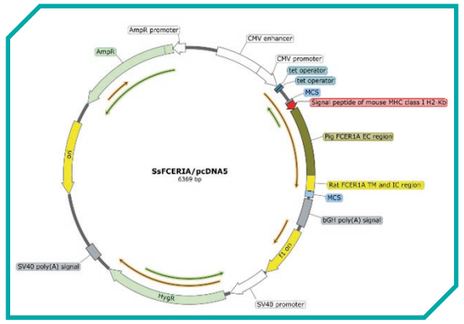
Transfected RBL NPY-mRFP cells.

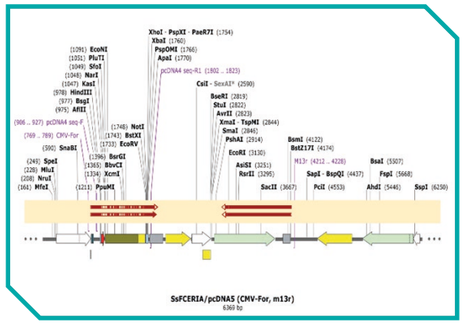
All pictures by Shahadat Hossain





Top: Restriction digestion of pcDNA5 vector.
Bottom: Colony PCR of bacterial transformants containg pig chimeric FCERIA gene in pcDNA5 vector.





Top: Ligation of pig chimeric FCERIA gene in pcDNA5 vector.
Bottom: Sequence analysis of pig chimeric FCERIA gene in pcDNA5 vector.

"In addition to learning several new techniques, I want to use parasite-specific Immunoglobulin (IgE) to develop better tools in order to Improve the standard of current serology based diagnosis of *Taenia solium* cysticercosis."

- Shahadat Hossain

Md. Amirul Islam

Supervision Team

University of Bonn

Prof. Dr. Mathias Becker

CIMMYT

Dr. Timothy J. Krupnik

Nationality

Bangladeshi

Country of Operation

Bangladesh

CropShift-Bangladesh: Effects of emerging rice-based cropping systems on nutrients demand-supply synchrony and crop productivity in Bangladesh

The predominant rice-based systems in Bangladesh are increasingly affected by various external and internal factors, compelling farmers to either intensify or diversify their production systems. Consequently, this leads to the emergence of new cropping patterns and related practices, which may necessitate alterations in the utilization of resources and the management of crops. The aim of this study is to assess changes in land use and agronomic practices in major rice-based systems of Bangladesh and to relate change trends to internal and external determinants acting as drivers of change. As crop management strategies affect cropping systems in a variety of ways, including crop productivity and soil fertility, this research will help in increasing output (production and income) by generating new knowledge on shifts in the system and its impact on soil characters.

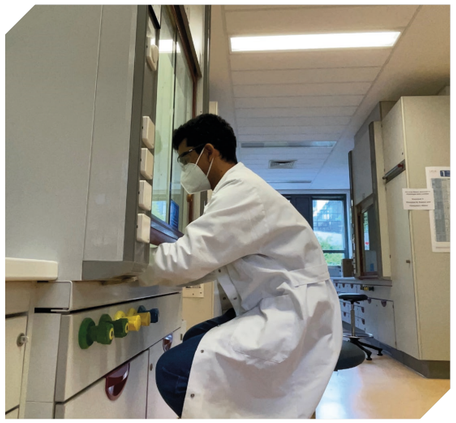
Discussion on production practices with farmers and local government agricultural officials.

All photos by Md. Amirul Islam

"My aim is to quantify changes in rice-based production systems in Bangladesh, on possible drivers for past changes and on foreseeing future changes scenarios. I want to document major change processes in cropping systems and their effects on soil attributes and nutrient balances."

- Md. Amirul Islam

Top and bottom: Conducting field surveys in south central Bangladesh.



Top: Soil sample collection from a farmers field in Bangladesh.
Bottom: Lab analysis at the Plant Nutrition Lab, University of Bonn.

Understanding the climate-induced crop production risks and designing on-farm level agro-advisory tools in the drylands of Senegal and Tanzania

In Sub-Saharan African countries, it is always difficult to obtain reliable climate data or to provide effective climate information services. As a result, assessing and managing climate risks in agriculture becomes more difficult. The goal of this project is to develop a comprehensive approach to understanding climate risk in agriculture in data-scarce dryland regions, as well as to design, implement, and assess the efficacy of a forecast-based ICT agro-advisory tool on farm-level decision making (with a focus on Tanzania and Senegal).

Jacob Emanuel Joseph

Supervision Team

University of Göttingen

Prof. Dr. Reimund Paul Rötter

ILRI

Prof. Dr. Anthony Whitbread

Nationality

Tanzanian

Country of Operation

Senegal & Tanzania

Focus group discussion with lead farmers and extension agents in the Kongwa district, Dodoma, Tanzania.

Photo by Peter Ngowi

Top & Bottom: Soil Sampling collection in Kongwa district, Dodoma, Tanzania.

Photos by Kanuti Tembo

Right: Explaining the design and function of iSAT - a forecast-based agro-advisory tool designed to help farmers in strategic and tactical decisions deployed in Senegal and reached 2720 farmers.

Photo by Lamine Diedhiou

"Although Africa has a lot of natural resources and potential agricultural land, I've seen the worst cases in African smallholder farmers who lost all of their investment after working hard for more than four months due to climate change and variability. These losses are attributed to a lack of or insufficient climate information services, which can assist them in managing climate risks and increasing productivity. As a scholar, my mission is to assist smallholder farmers in Africa in dealing with these challenges by developing and deploying timely location- and crop-specific agro-advisories to assist them in making strategic and tactical decisions."

- Jacob Emanuel Joseph

Anja Lienert

Supervision Team

University of Hohenheim

PD Dr. Christian Lippert

The Alliance (Bioversity and CIAT)

Dr. Stefan Burkart

Nationality

German

Country of Operation

Colombia

A system´s perspective on adoption barriers for the sustainable intensification of cattle husbandry in the Colombian Amazon

The sustainable intensification of cattle husbandry systems has become a core strategy of Colombia´s Government to achieve its Nationally Determined Contributions (NDCs) under the Paris agreement and to contribute towards achieving the Sustainable Development Goals (SDGs). The potential of sustainable intensification to address challenges associated with extensive cattle husbandry systems, such as low productivity, deforestation, greenhouse gas emissions and land degradations, has been widely researched and demonstrated, but adoption levels of improved production practices remain at a low level. Focusing on the Amazon region, this research aims at addressing these knowledge gaps by taking a system´s perspective to analyse adoption barriers. An initial exploratory study using the value chain approach was carried out to improve the understanding of the VC structure and dynamics and to facilitate the pre-selection of attributes and adoption-relevant variable for a Discrete Choice Experiment (DCE). By means of the DCE, preferences and willingness to pay of cattle farmers in the Caquetá department will be estimated for individual components constituting alternative sustainable intensification technology packages. In addition, a Social Network Analysis will be carried out to improve the understanding of spatial differences in information exchange and technology adoption behavior of cattle farmers in Caquetá.

Double-purpose cattle at the foothill of the eastern Andes in the Caquetá department.

All photos by Anja Lienert

Top: Example of land degradation associated with extensive cattle husbandry systems in the Caquetá department.

Bottom: Farmer waiting for the milk collection truck in the early morning hours.

"Most important for me is that the results of my research are relevant for the study regions´ value chain stakeholders and that they can support the sustainable transformation of the cattle sector in the Colombian Amazon. Furthermore, directly and frequently engaging with producers and other value chain actors is an important step for me, as this helps me to adjust my research questions and activities to the social context the best way possible."

- Anja Lienert

Adoption, Impacts, and Preferences for East Coast Fever vaccine among smallholder dairy producers in Kenya

Kevin explores potential pathways for scaling wider adoption of the East Coast Fever (ECF) vaccine in dairying systems in Kenya. With wider adoption of the vaccine, farmers are likely to have stabilized their milk production translating into more sustainable income streams from milk sales. Ultimately, this will contribute to the realization of the Sustainable Development Goals SDG 1 & 2 "no poverty and zero hunger".

The study conducts a choice experiment to examine how vaccine provision can be improved using dairy cooperatives. Preliminary findings indicated that farmers would favor vaccination options provided through their dairy cooperatives.

Kevin Wanjau Maina

Supervision Team

University of Bonn/ZEF

Prof. Dr. Matin Qaim

ILRI

Dr. Elizaphan James Oburu Rao

Nationality

Kenyan

Country of Operation

Kenya

Reconstitution of the East Coast Fever vaccine during a vaccination exercise at Lelan dairy, West Pokot County, Kenya.

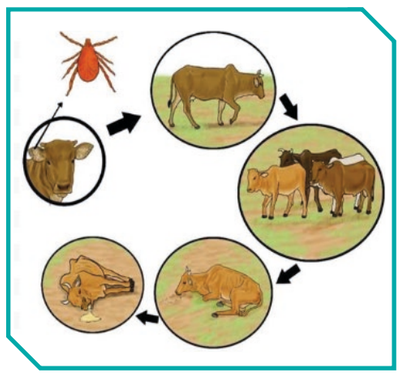
All photos by Kevin Wanjau Maina

Therefore, with the right policy and institutional arrangement, producer organization can play a vital role in the scaling of technologies.

Left: A trained veterinary practitioner administering the East Cost Fever vaccine during a vaccination exercise at Lelan, West Pokot County, Kenya.

Bottom: A tagged animal after vaccination against East Coast Fever.

Transmission of East Coast Fever in dairy cows. (Image Source: ILRI 2016)



"My project is important to me because I want to contribute in making a difference to the huge investment farmers commit to better their lives. I want to be a champion of innovations that address bottlenecks in economic development in the global south."

- Kevin Wanjau Maina

Esther Gloria Mbabazi

Supervision Team

University of Kiel

Prof. Dr. Awudu Abdulai

The Alliance (Bioversity and CIAT)

Dr. Enoch M. Kikulwe

Nationality
Ugandan

Country of Operation

Uganda

Adoption and Impacts of Banana Agronomic Practices on the Livelihoods of Rural Smallholder Farmers in Uganda

The research aims at assessing the impacts of adoption of agronomic technologies on the welfare of smallholder farmers with emphasis on gender dynamics. The findings will provide evidence on the mediating effect of women empowerment on technology adoption and farmers' welfare. Furthermore, the study will assess the resilience of farm households to climate change and COVID-19-related shocks affecting their livelihoods and suggest relevant interventions. All these aspects are of immense relevance to policy makers and other stakeholders in developing countries especially those involved in formulation of development programs targeting smallholder farmers.

Farmers in one of the study sites waiting to load their bountiful harvests on a truck.

All photos by Esther Gloria Mbabazi and the enumerators

"Assessing the impact of adoption of technologies on the welfare of farmers and more so teasing out the mediating role of women empowerment in facilitating better livelihoods is paramount especially in the agricultural field where rural women take on a huge burden in production but hardly feature at higher nodes of the value chain. I would like to contribute to the wealth of knowledge of impact studies in agriculture, especially those that employ a gender lens and conduct research that transforms the livelihoods of marginalized groups in the developing world."
- Esther Gloria Mbabazi

Top: A banana plantation with poor agronomic practices.
Bottom: A banana plantation with good agronomic practices (Mulched and properly spaced).
Right: Gloria, observing the agronomic practices employed in a banana plantation, during fieldwork.

Assessment of resilience to environmental disturbances and the associated genetic progress in dairy cattle performing in sub-Saharan Africa

Dairy production in Sub-Saharan Africa (SSA) is lower than demand and one contributing factor is poor adaptability of dairy cattle to the region's prevailing climatic conditions and local production systems. Richard endeavors to address this issue by quantifying and improving resilience of dairy animals to environmental disturbances in SSA. To achieve this goal, Richard is focused on identifying resilience indicators that can be easily measured using available tools. He is exploring the potential of utilizing indicators already defined and applied in temperate countries to measure resilience in animals within SSA. Additionally, Richard aims to establish the genetic correlations between these indicators and other crucial traits such as fertility and milk production. Richard is also keen on determining the expected genetic gain and potential trade-offs associated with integrating resilience into the cattle breeding program of SSA. Preliminary results from Richard's research indicate the feasibility of quantifying resilience of animals in SSA using some of these indicators.

Richard Dooso Oloo

Supervision Team

Uni Hohenheim

Prof. Dr. Mizeck Chagunda

ILRI

Dr. Ally Okeyo Mwai

Nationality

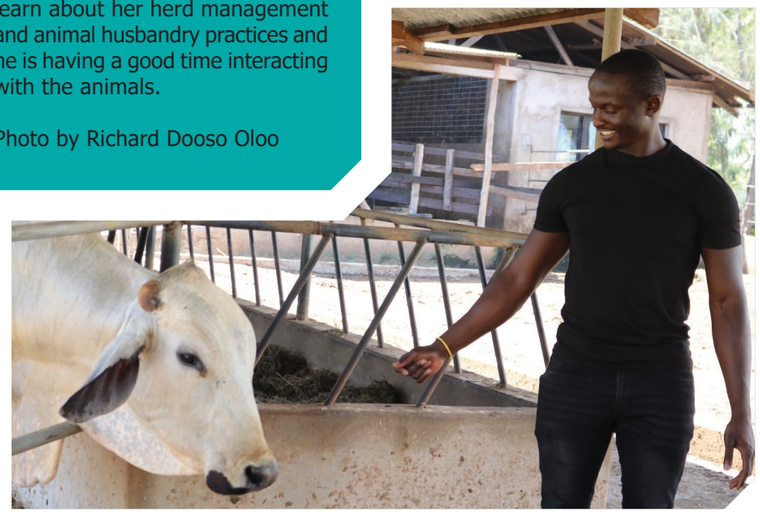
Kenyan

Country of Operation

Kenya

Women from Boran community in Northern Kenya herding their cattle. The region is normally frequented by long droughts forcing these farmers to walk with their animals for long distances in search of feed and water. Only the resilient and well adapted animals survive such conditions.

Photo by ILRI



Richard visits a farmer in Kenya to learn about her herd management and animal husbandry practices and he is having a good time interacting with the animals.

Photo by Richard Dooso Oloo

Richard taking technicians from Kenya Agricultural and Livestock Organization (KALRO) through the process of measuring chemical composition and somatic cell content of milk samples using a portable lactoscan.

Photo by Richard Dooso Oloo

"I developed the art of resilience during my upbringing in rural Kenya, where access to basic amenities was limited and distant. Embracing resilience has proved instrumental in overcoming numerous adversities and propelling me forward. Now, in the face of the challenges posed by climate change, which threaten our food security and livelihoods, I was inspired to extend the spirit of resilience to the realm of livestock. This led to the inception of my PhD journey."

- Richard Dooso Oolo

Ambika Pandey

Supervision Team

University of Gießen

Prof. Dr. Michael Frei

IRRI

Dr. Jauhar Ali & Dr. Varunseelan Murugaiyan

Nationality
Nepalese

Country of Operation

Philippines

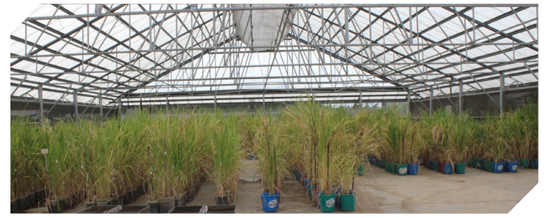
Understanding the genetic and physiological basis of arsenic responses and exclusion in rice (Oryza sativa L.)

The objective of Ambika's research is to analyze the key rice germplasm and identify the specific genes that play a crucial role in the exclusion and accumulation of arsenic (As). Additionally, the study seeks to conduct targeted rice breeding activities towards ecosystems tainted with As. Due to the pressing concerns surrounding global food security and the escalating health implications linked to As exposure through rice consumption, it has become imperative to get a comprehensive understanding of As toxicity, its interaction with rice plants, and the physiological processes behind As accumulation in rice. This research will provide a significant foundation for the characterization, enhancement, and advancement of rice varieties that are in safe limits of As accumulation. The major focus is on farmers who have limited resources and consumers who live in regions susceptible to contamination from As.

Screening experiment using Nipponbare and Glutathione S-Transferase overexpression rice lines to determine the effects of different species of arsenic on its uptake/exclusion, translocation and tolerance at vegetative growth stage (Climate Chamber, University of Giessen, Germany).

Photo by Muhammad Shahedul Alam

The initial findings of the study indicate that the absorption of As by rice plants varies depending on the species and the amount of As present in the cultivated soil. Consequently, it is necessary to develop rice varieties via selective breeding that are suited to the specific environmental conditions in which they will be grown.



Top: Genome-wide association study (GWAS) with 300 rice varieties commonly cultivated in the major rice-growing regions of the world under different irrigation and arsenic treatment condition to identify the genes and QTLs for arsenic exclusion (Greenhouse, IRRI, Philippines).

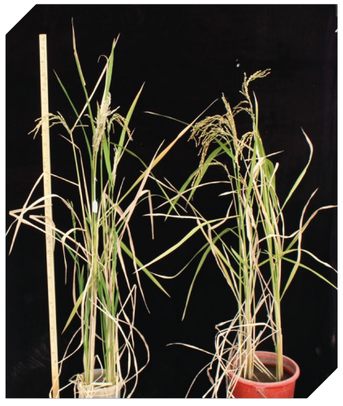
Photo by Angelito Galang

Bottom: Evaluation of 300 rice lines from GWAS panel at IRRI field to study their performance in naturally occurring arsenic condition (IRRI, Phillipines).

Photo by Erik Jon De Asis

"Arsenic contamination in rice is a significant problem that has a direct effect on the health of millions of rice and rice-based food consumers. As contamination of soil and water in major rice-growing regions of Asia results in increased As absorption by rice plants. My research focuses on developing As safe rice varieties with lower accumulation traits. My initiative contributes to the safety of rice by diminishing carcinogenic As in the grain and stalks, making rice healthier and safer for human and animal consumption."

-Ambika Pandey



Plants from the arsenic-treated pot (left) with unfilled panicles exhibiting straight head disease sign, and control pot (right) having panicle with complete seed set (Greenhouse, IRRI, Philippines).

Photo by Ambika Pandey

Welfare impacts of sustainable intensification technologies in smallholders rice-wheat cropping systems in the eastern Indo-Gangetic Basin

This research project evaluates the drivers and impacts of sustainable intensification technology adoption by smallholder farmers in the rice-wheat cropping systems of the Eastern Indo-Gangetic Basin. The adoption of zero-tillage, early sowing, and other resource conserving technologies has potentially profound impacts on both farm productivity, household welfare and systemic resilience in the region, particularly in the context of climate change and associated increases in production risks.

However, both the adoption of such practices, as well as their impacts, is likely to vary considerably across the Eastern Indo-Gangetic Basin's diverse landscapes and households.

Gokul Prasad Paudel

Supervision Team

Leibniz University Hannover

PD Dr. Trung Thanh Nguyen

CIMMYT

Dr. Jordan Chamberlin

Nationality

Nepalese

Country of Operation

Nepal

Observing the zero-tillage wheat in the Eastern Indo-Gangetic Basin in India.

Photo by Dr. Ajay Pundir (CIMMYT)

It is possible that benefits of adoption – and thus incentives facing farmers – differ across alternative outcome indicators, e.g. land and labor productivity, profitability, consumption expenditure and income. This project will conduct new surveys that will complement existing data and analysis under the Cereal Systems Initiative for South Asia (CSISA) project implemented by CIMMYT and partners in the Indo-Gangetic Basin of South Asia.

Understanding barriers of sustainable intensification technology adoption is essential to sustainably intensify the cropping systems and close the yield gaps.

Photo by Gokul P. Paudel

"With my research, I want to bring innovative ideas, find new innovations in the project by data mining, and share to the scientific communities."

- Gokul P. Paudel

Adoption, economic and environmental effect of precision laser land levelling in Indo-Gangetic Plains

Could technology be a solution to manage the water crisis due to agriculture? Subash is answering the question by assessing how a water conservation technology - laser land levelling - is reducing groundwater depletion in the Indo-Gangetic Plains. One puzzling question the project is trying to answer is why the technology got widely adopted in spite of policies such as free electricity for irrigation, resulting in a free water market. The project provides insights on how to scale similar technology and its impact on the wide adoption of such technologies.

Subash Surendran Padmaja

Supervision Team

University of Bonn
Prof. Dr. Matin Qaim

CIMMYT
Dr. Vijesh V. Krishna

Nationality
Indian

Country of Operation
India

Laser land Levelling operation at night.

Photo by Anirudh

The preliminary results show that the adoption of laser land leveler technology is due to private benefits like an increase in yield in addition to public benefits like a reduction in water used for irrigation. The study shows how the accessibility of technology through renting from service providers made the technology scale neutral. The study is also looking into how these gains at the farm on water saving transfer into gains at the system; saving of groundwater for irrigation.

Focus group discussion with farmers.

Photo by Pravakar Behra

Subash collecting data from open tube wells in the study area.

Photo by Gurusewak

"Will world war III be over water? Though this sounds dramatic, it has been rhetoric for the looming water crisis. Working in research organizations and developing technology as a solution to stop water depletion, I was both awed and intrigued by how these technologies would solve the water crisis. If we travel across northern India during April and May, we see tractors with laser land leveller in operation overnight with dust guzzling behind them. I was curious about why farmers are adopting this technology. Are they concerned about the groundwater and would laser land leveller technology help in solving groundwater depletion?"
- Subash Surendran Padmaja

Rhowell Jr. Tiozon

Genetic diversity of pigmented rice and its nutritional benefits

This project aims to unravel the metabolites in the large diversity panel of pigmented rice and determine its potential health benefits. Through the metabolomic approach, the compounds in the colored rice will be characterized and associated with the genotype data. The genes responsible for producing these dietary compounds will be determined. The rice samples are tested for antioxidant and anticancer properties.

Supervision Team

University of Potsdam
Dr. Alisdair Fernie

IRRI
Dr. Nese Sreenivasulu

Nationality

Filipino

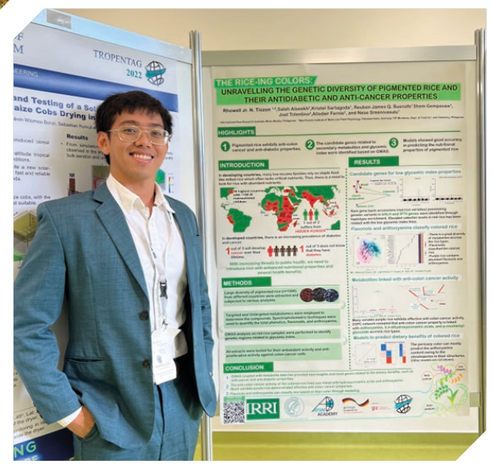
Country of Operation

Philippines

Profiling numerous high-yielding varieties at IRRI's rice genebank.

Assessing the condition of the pigmented rice field during the dry season.

Trying the conventional way of farming rice in the Philippines.



Presenting the results of the first year of the PhD project at the Tropentag Conference 2022.

All photos by Rhowell Jr. Tiozon

"Currently, rice feeds more than half of the world's population. In developing countries, the poor population relies on staple food like rice as the main source of calories and nutrients. Determining the nutritional capacity of rice and its potential health benefits to fight micronutrient deficiency, diabetes, and cancer is vital to alleviate the threats to global public health.

There are few pieces of literature related to the genetics of pigmented rice. First, I would like to contribute to the body of knowledge regarding pigmented rice's genetics and nutritional capacity. Then, I wanted the consumers to benefit from the elite cultivars enriched with essential nutrients. Last but not least, I want the farmers to benefit by planting nutritious rice with a high yield that can attract higher income."

- Rhowell Jr. Tiozon

Model-supported identification of phenotypic traits and development of a field-based screening tool for salinity tolerant sweet potato clones

In 30 years, about half of all arable land will be affected by salinity. Sweetpotato production is considered vulnerable to salinity because plants are often grown in coastal areas and marginal soils. The objective of the sweetpotato salinity project is to describe in detail salinity effects on contrasting varieties and to explore potential mechanisms for salinity tolerance to develop a field based screening tool allowing for the early detection of salinity tolerance in newly tested varieties. The project ultimately aims to generate knowledge and tools to contribute to addressing two of the most pressing development challenges: increasing resilience of crop production system towards climate change and combatting micronutrient deficiency.

Johanna Volk

Supervision Team

University of Hohenheim
Prof. Dr. Folkard Asch

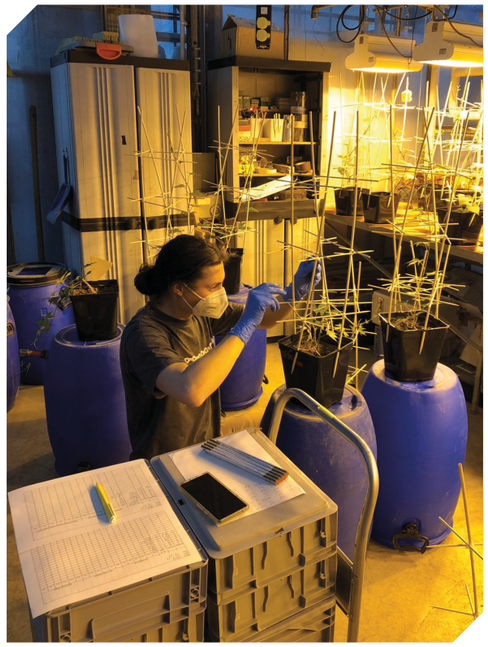
CIP
Dr. Maria Andrade

Nationality
German

Country of Operation
Mozambique

Growth and development measurements in the field supported by trained local students.

All Photos by Johanna Volk



Left: Bachelor student measuring growth parameters in a greenhouse trial at the University of Hohenheim.

Right: Preparing the saline solution for salt water irrigation in the field.

Sampling training with students from a local university.

"I HOPE TO CONTRIBUTE TO HAVING A GREATER UNDERSTANDING ABOUT THE MECHANISMS OF SALINITY TOLERANCE TO FACILITATE THE DEVELOPMENT OF MANAGEMENT OPTIONS AND TO SELECT AND OFFER FARMERS VARIETIES THAT RELIABLE YIELD NUTRITIOUS SWEETPOTATO UNDER SALINITY."
- Johanna Volk

Soil Carbon and Nitrogen Dynamics of Ingerated Animal-Plant-Agricultural Ecosystems of Different Land Use Intensities

Tabitha Nekesa Wanyonyi

Nationality

Kenyan

Country of Operation

Germany

Supervision Team

Justus Liebig University Giessen

Prof. Dr. Jan Siemens

The Alliance (Bioversity and CIAT)

Dr. Stéphanie Jaquet

In cooperation with ATSAF Academy PhD Scholar

-

Genotype x Environment interaction on leaf properties and pigment composition in tropical bread wheat

Deena Thankachan

Nationality

Indian

Country of Operation

Mexico

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University of Hohenheim

Prof. Dr. Folkard Asch

CIMMYT

Dr. Francisco Pinto

In cooperation with ATSAF Academy PhD Scholar

Geckem Dambo

GC-MS Evaluation of Phytochemical Constituents in Medicinal Plants Selected by Traditional Healers in Dinsho

Tadesse Negash Bedada

Nationality

Ethiopian

Country of Operation

Germany

Supervision Team

Martin-Luther University Halle-Wittenberg

Prof. Dr. Bruno Glaser

ICRAF

Dr. Aster Gebrekirstos

In cooperation with ATSAF Academy PhD Scholar

-

The effect of potassium fertilizer on the physiological and morphological response of field-grown sweet potato to salinity stress

Jane Cypriyana Pedinedi Jerald

Nationality

Indian

Country of Operation

Mozambique

Supervision Team

University of Hohenheim

Prof. Dr. Folkard Asch

CIP

Dr. María Andrade

In cooperation with ATSAF Academy PhD Scholar

Johanna Volk

How food safety perception of consumers and farmers influences dietary behaviors in rural vs. urban regions in Kenya: a mixed-methods study

Chiara Masser

Nationality

German

Country of Operation

Kenya

Supervision Team

Justus Liebig University Giessen

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The Alliance (Bioversity and CIAT)

Dr. Irmgard Jordan

In cooperation with ATSAF Academy PhD Scholar

-

From cocoa plantations and degraded soils in the tropics to fruit-rich food forests with agroecology: Cropping system for smallholder

Simon Bock

Nationality

German

Country of Operation

Peru

Supervision Team

Technical University of Munich

Dr. Philipp Menning

The Alliance (Bioversity and CIAT)

Dr. Alejandra Arce

In cooperation with ATSAF Academy PhD Scholar

Giovanna Chavez-Miguel

Analyzing Charcoal Value Chains in the Changing Landscape of Turkana, NW Kenya

Reagan Otieno Ochieng

Nationality

Kenyan

Country of Operation

Kenya

Supervision Team

Humboldt University Berlin

Prof. Dr. Dagmar Mithoefer

The Alliance (Bioversity and CIAT)

Dr. Chris Kettler

In cooperation with ATSAF Academy PhD Scholar

-

Root:shoot growth analysis to assess physiological effects on radiation use efficiency in wheat

Iza Margot Márquez Olea

Nationality

Mexican

Country of Operation

Germany

Supervision Team

University of Hohenheim

Prof. Dr. Folkard Asch

CIMMYT

Dr. Carlos Robles

In cooperation with ATSAF Academy PhD Scholar

-

The role of spikes in wheat adaptation to short-term heat waves

Supervision Team

University of Hohenheim

Prof. Dr. Folkard Asch

CIMMYT

Dr. Carolina Rivera-Amado

In cooperation with ATSAF Academy PhD Scholar

-

José Alfredo Caldera Montero

Nationality

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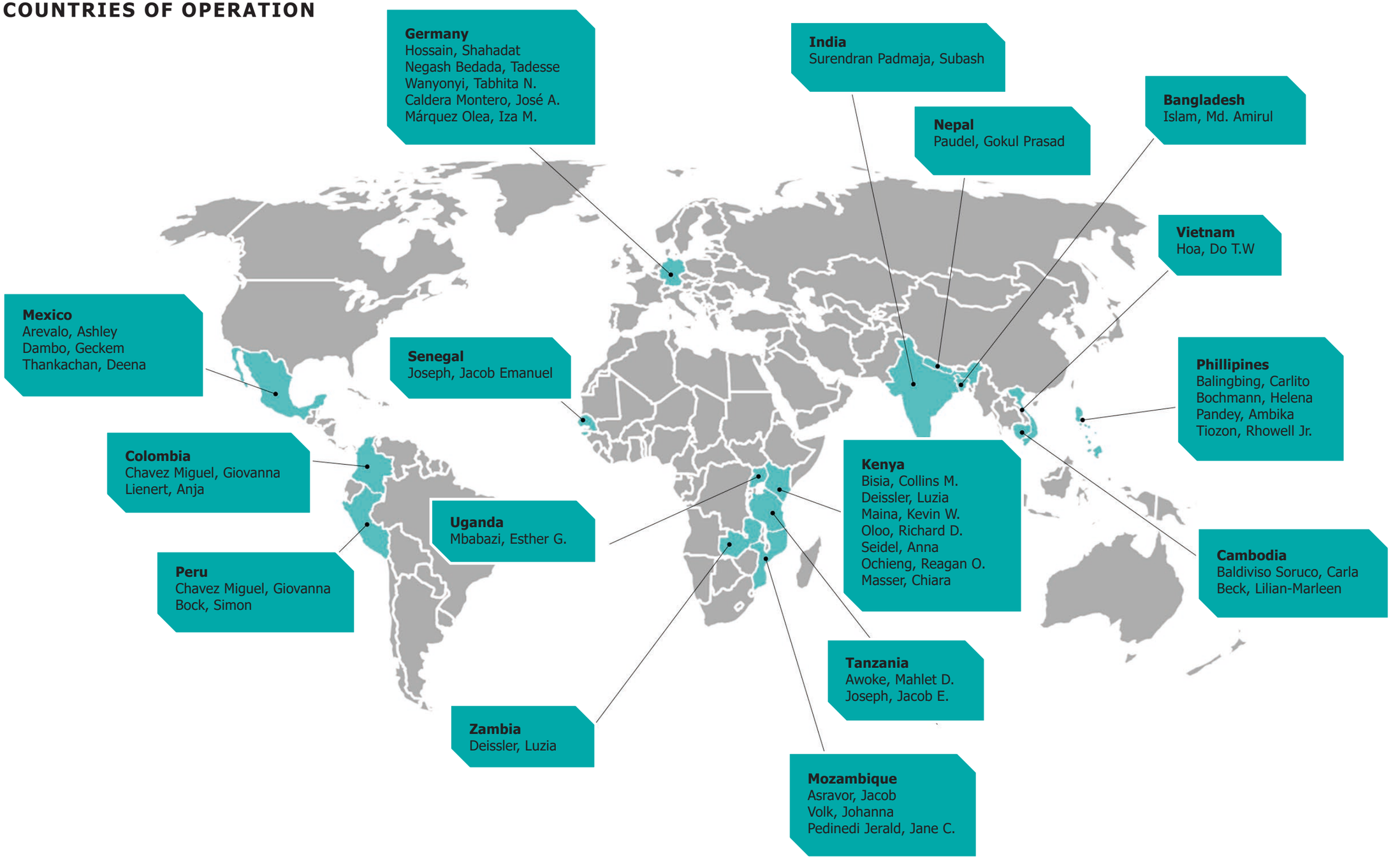
Prof. Dr. Eva Schlecht, Uni Kassel

COUNTRIES OF OPERATION



Germany
Hossain, Shahadat
Negash Bedada, Tadesse
Wanyonyi, Tabhita N.
Caldera Montero, José A.
Márquez Olea, Iza M.

India
Surendran Padmaja, Subash

Nepal
Paudel, Gokul Prasad

Bangladesh
Islam, Md. Amirul

Vietnam
Hoa, Do T.W

Phillipines
Balingbing, Carlito
Bochmann, Helena
Pandey, Ambika
Tiozon, Rhowell Jr.

Mexico
Arevalo, Ashley
Dambo, Geckem
Thankachan, Deena

Senegal
Joseph, Jacob Emanuel

Colombia
Chavez Miguel, Giovanna
Lienert, Anja

Uganda
Mbabazi, Esther G.

Peru
Chavez Miguel, Giovanna
Bock, Simon

Kenya
Bisia, Collins M.
Deissler, Luzia
Maina, Kevin W.
Oloo, Richard D.
Seidel, Anna
Ochieng, Reagan O.
Masser, Chiara

Cambodia
Baldiviso Soruco, Carla
Beck, Lilian-Marleen

Tanzania
Awoke, Mahlet D.
Joseph, Jacob E.

Zambia
Deissler, Luzia

Mozambique
Asravor, Jacob
Volk, Johanna
Pedinedi Jerald, Jane C.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