Eva Weltzien Rattunde.

Bettina G Haussmann.

Dr Eva Weltzien Rattunde, Principal Scientist (Sorghum Breeding & Genetic Resources); Dr Bettina G Haussmann, Principal Scientist (Pearl Millet Breeding); and Dr Sabine Homann-Kee Tui, Scientist (Crop Livestock Systems Development) are presently working at ICRISAT's African locations. Tobias Dierks is Regional Information Officer in WCA, and Benjamin Kumpf was, until recently, Communication Specialist at ICRISAT-Patancheru.

Close Partnerships

ICRISAT's partners in research have been MSc and PhD scholars from the University of Hohenheim who worked on the project, *Adapted farming systems in West Africa,* 1985-2000, co-coordinated by ICRISAT's long-term friend and former economist Dr Matthias von Oppen. Other German partners include the Universities of Bonn, Giessen, Hamburg, and Tübingen.

Dr Matthias von Oppen.

The donkey drawn hoe or HATA is a labor-saving device.

An interesting invention stemming from these projects is the HATA (Houé à traction asine [donkey drawn hoe]) used by farmers in Niamey. This labor-saving invention delivers seed and fertilizer, which has been shown to double yields of millet, the country's staple food crop.

Germany is interested in biodiversity, and through ICRISAT's core funding is supporting the CGIAR's largest genebank as well as genetic diversity research to safeguard crop biodiversity in areas where the local landraces are endangered.

Conclusion

German collaboration has done much to enlarge ICRISAT's scientific and developmental knowledge, which in turn has helped it to improve the lot of the SAT poor. ICRISAT values and continues to seek greater partnership and support from Germany in order to sustain its development-oriented research, to do what we call *Science with a Human Face.*

About ICRISAT

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that does innovative agricultural research and capacity building for sustainable development with a wide array of partners across the globe. ICRISAT's mission is to help empower 600 million poor people to overcome hunger, poverty and a degraded environment in the dry tropics through better agriculture. ICRISAT belongs to the Alliance of Centers of the Consultative Group on International Agricultural Research (CGIAR).

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Germany and ICRISAT

Reducing poverty together!

*Dr Werner Petuelli, Director of GTZ in Niger (*second from right*) with ICRISAT scientists at Sadoré.*

The watershed approach has developed several dryland areas of India.

Introduction

Rural poverty, drought, increasing biotic stress, and a rapidly degrading natural resource base are the challenges ICRISAT faces in the semi-arid tropics (SAT) of Africa and Asia. ICRISAT's researchers use cutting-edge science for finding solutions to these problems. But we cannot address all these issues on our own, so we build partnerships that provide synergies to our core mandate, which lead to greater global impact. One such strong partnership is with Germany, and it has helped us reduce poverty, increase food security, intensify human development and protect the environment in the farming systems of the SAT.

For over 30 years Germany has been an invaluable partner to ICRISAT and has contributed both to ICRISAT's core funding as well as to special projects through the Bundesministerium für Wirtschaftliche und Entwicklung Zusammenarbeit (BMZ) and the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ). Since the founding of the CGIAR in 1971, Germany has been one of ICRISAT's most important donors. Together, ICRISAT and Germany have worked on a number of projects and progressed far in our common battle against poverty and deprivation in Africa and Asia.

Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

gtz BEAF Advisory Service on Agricultural Research for Development

Projects implemented with German support

Recent collaborative projects between Germany and ICRISAT include:

- *Assess and document the Andhra Pradesh experience of establishing a Consortium of capacity building service providers for watershed management* (2008) – The state of Andhra Pradesh has been a pioneer in adopting the watershed approach for developing its large dry tracts and has evolved over time into a leader in institutionalizing watershed development through participatory approaches. But there is a pressing need for a range of resource organizations to cater to the multiple needs of watershed management and so a Consortium of Resource Organizations (CRO) was formed to administer to the wide-ranging needs of watershed development. This project assesses and documents the work of the Consortium.
- *Consortium on capacity building for watershed management in India* (2008) – The watershed approach has been recognized as a growth engine for equitable and inclusive development of rain-fed areas in India. However, the huge public investments in watershed management in the last 20 years have not led to optimal benefits. The challenges, identified through a previous GTZ project, led to the development of this project, which is being implemented in three pilot states in the first phase of the project in Karnataka, Rajasthan, and Uttarakhand.

Finger millet. Inset: *Foxtail millet.*

The participants of the CODE-WA project meeting in Ougadougou.

- *Genetic, physiological, and molecular approaches to improve heat and drought tolerance of tropical tomato* (with AVRDC) – The overall goal of this project is to improve stability and to increase the production of tomato in developing areas of the tropics through the development of heat and drought tolerant varieties. Protocols have been developed to adapt the approach and knowledge on drought research of ICRISAT's grain crops for tomato as a vegetable crop. Those protocols are currently being implemented to evaluate diverse breeding and germplasm material.
- *Sustainable conservation and utilization of genetic resources of two underutilized crops – finger millet and foxtail millet – to enhance productivity, nutrition and income in Africa and Asia* – Finger millet and foxtail millet are important crops in many countries in Asia and Africa. The goal of this GTZ-supported project is to enhance rural livelihoods and household food and nutritional security in the finger millet and foxtail millet growing areas of Africa and South Asia through the cultivation of adapted, higher-yielding and stable cultivars of these two crops, and enhancing the capacity of the national agricultural research system (NARS) in managing genetic diversity.
- *Community management of crop diversity to enhance resilience, yield stability and income generation in changing West African climates* (CODE-WA) is a research-action project to enhance farm community resilience, production stability, and income generation in West Africa under variable and changing climates by enriching agro-biodiversity management across a climate gradient. The project assists NARS and farmers to more effectively utilize agro-biodiversity of locally adapted, farmer-preferred crops and supporting natural resource management (NRM) practices as a buffer against current climate variability and as preparation for future climate change.
- *Arresting the scourge of* Striga *on sorghum in Africa by combining the strengths of marker-assisted selection and farmer participatory approaches* aims at increasing productivity and household food security in sorghum growing areas of Eritrea, Kenya, Mali and Sudan that are highly infested with the parasitic weed *Striga hermonthica*. It has been successful in introgressing *Striga* resistance quantitative trait loci (QTLs) in seven farmer-preferred varieties, and it has also substantially built capacity for marker assisted selection (MAS) through the training of postgraduate students and provision of equipment to participating countries. Simultaneously, studies in population genetics, socio-economics and seed supply systems have been undertaken to ensure the effective integration of seven *Striga*-resistant farmer selected varieties into farming systems in the target countries.
- *Enhancing access to genetic diversity through scaling up participatory plant breeding: roles of different types of farmer and development organizations in Mali* – This project supports farmers towards improving the productivity and stability of sorghum production by enhancing access to new varieties. The project has strengthened farmer and community organizations and their linkages to research institutions to scale up farmer participatory testing of sorghum varieties and decentralized seed production.
- *Supporting farmers' activities in the value chain of biofuels* – Although the technologies for biodiesel production and policies are in place in a country like India, the supply of raw material for biodiesel production remains problematic. In order to address this constraint, GTZ has initiated action in a farmer-based biofuel production system by establishing a biodiesel refinery within the public-private partnership framework in Andhra Pradesh with approval from the State Government. This GTZ-supported project is a private-public-people initiative between Southern Online Bio Technologies Ltd., India; Lurgi, Germany; and ICRISAT.

Jatropha has good potential as biofuel; mature jatropha seeds (inset) *from which oil is extracted.*

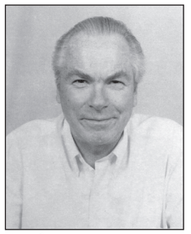
The needs of livestock owned by small-scale producers merit special attention.

- *Mobilizing regional diversity for creating new potential for pearl millet and sorghum farmers in West and Central Africa* – This project, recently concluded, was designed to enhance long-term household food security in pearl millet and sorghum growing regions of West and Central Africa (WCA) through more efficient and sustainable use of pearl millet and sorghum genetic resources. The access of NARS and farmers to new pearl millet germplasm from WCA, characterized for adaptation to the predominant agro-ecological zones of WCA, has increased. However, the project's major impact has been in achieving regional research collaboration in West Africa, especially in the exchange of germplasm across the region – from scientists to farmers.
- *Dry season feeding of livestock in the Semi-Arid Tropics (SAT) of Zimbabwe* was successfully completed in 2008. The goal of this project was to improve productivity and sustainability of livestock production in Zimbabwe. It contributed to a series of projects on crop-livestock interactions, focusing on improved access to livestock markets as an incentive for farmers to invest in improved production technologies, particularly dry season feeding.
- *Improving water productivity of crop-livestock systems in Sub-Saharan Africa* (funded by BMZ and implemented through collaboration with ZEF, IWMI, ILRI and ICRISAT), aims to optimize productive use of water to increase incomes and improve the environment, within crop-livestock systems in the semi-arid areas.
- *Entrepreneurial commercialization of small-scale livestock production in semi-arid areas of southern Africa: a value chain approach*, is funded by DAAD (German Academic Exchange Service) in cooperation with ILRI.
- *Validating farmers' varietal characterization and production constraints: pearl millet in Rajasthan* – The project undertook on-farm conservation of traditional pearl millet genetic resources.

ICRISAT scientist, Dr Eva Weltzien in a sorghum field in Africa.

German nationals at ICRISAT

German nationals have contributed significantly to our research in the past and continue to do so at the various ICRISAT centers in Asia and Africa. Over the years Germans have helped guide ICRISAT at the top policy levels, including Prof. Hans-Jürgen von Maydell, who was the Chairman of ICRISAT's Governing Board from 1996 to 1997. Dr Waltraud R Wightman was Special Assistant to the DG, 1996-97. Dr K Leuschner served as Principal Scientist (Entomology) from 1981 to 1996. Currently Profs. Volker Hoffmann and Hartwig Geiger contribute towards strengthening Germany's commitment to ICRISAT.



Prof. Hans-Jürgen von Maydell.