



# FOSTERING INDIA-AFRICA EXCHANGE OF AGRICULTURAL TECHNOLOGIES AND KNOW-HOW

Insights from a Study Visit of African Researchers to India

22-29 October 2017





In October 2017, 14 researchers from African research institutions, representing eleven African nations, embarked on a knowledge-exchange trip to India. The goal of the visit was to enable intercontinental learning, with a particular focus on best practices and innovative approaches to mechanization, vocational training, technology scaling and marketing. This visit was organized by the Program of Accompanying Research for Agricultural Innovation (PARI) and coordinated by the Indian Council for Research on International Economic Relations (ICRIER). During the one-week visit participants travelled to urban centres as well as rural areas where they had a chance to connect to a wide variety of agricultural stakeholders in India.



**National Bank for Agriculture  
and Rural Development  
(NABARD), Mumbai**

Established in 1982, the National Bank for Agriculture and Rural Development (NABARD) was set up to foster rural prosperity by promoting sustainable and equitable agriculture and rural development in India through participative financial and non-financial interventions, innovations, technology and institutional development.

During their visit, the group of researchers learnt about India's most pressing challenges to rural development, which include small agricultural land holdings, fragmented value chains and climate change. They were also introduced to the innovative approaches and projects pioneered by NABARD. A main take-away from this visit was the importance of adopting a community-centric approach. The bank carefully selects development projects, ensuring that they are

suited to a community which has the capacity and the willingness to take full ownership over the project.

The difficulty of extending agricultural credit to farmers, in particular to the youth, is a common challenge in India and Africa. This visit spurred the idea of developing a collaboration between NABARD and some of the African research institutes represented in the group to set up farmer-oriented credit facilities in their respective countries. NABARD's *Kisan* (farmer) credit card, an innovative cyclical credit system for farmers, could be a viable model for Africa. The card offers credit with sanctioned limits by the bank for a period of five years, from which the farmer can withdraw to purchase inputs. The farmer may augment the credit using extra deposits, thereby reducing the interest rate.







## Jain Irrigation Systems Ltd., Jalgaon

With its roots dating back to 1963, Jain Irrigation Systems has grown into a large multinational company with a turnover of 70 billion dollars in 2016-17. The Indian company supplies agricultural technologies, such as micro-irrigation systems, piping, solar panels, tissue culture plants, as well as financial services and agro processed products around the world. The visiting researchers were given a glimpse into the company's structure, as well as its philosophy to "leave this world better than you found it". A commitment to innovation and dynamism by prioritizing investment in research and development, partnering with research institutions and supervising PhD research is a key ingredient of the company's success.

Currently, Africa is only exploiting 2% of its irrigation potential. Considering that Jain Irrigation Systems is already active in Kenya and Rwanda, the researchers saw significant investment opportunities for the company on the continent. The group also discussed the potential of collaborating with Jain Irrigation Systems to establish a training program for Africans.



## Amul Dairy, Anand

The group visited Amul, a dairy cooperative, which is credited with launching India's "white revolution" that transformed India from a milk-deficient nation into the world's largest milk producer. Dating back to 1946, the Amul cooperative model, which links small milk producers through three tiers of self-organized cooperatives directly to the dairy factory, was soon replicated nationwide. Today, Amul is India's largest food brand with an annual turnover of 4 billion dollars in 2016-17. The cooperative's membership counts 3.6 million small farmers who supply 30 million litres of milk per day.

The African researchers followed the dairy value chain to the Pethapur Village Dairy Cooperative Society, one of over 18,000 village societies that collect and send milk to Amul. All farmers are paid the same price, and the cooperative functions in such a way to eliminate middlemen, ensuring that farmers receive a larger share of the consumer price.







**Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI) and National Innovation Foundation (NIF), Grambharti**

The group had the chance to learn about India's research infrastructure and the integration of grassroots innovations into the national innovation strategy at the Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI) and the National Innovation Foundation (NIF). Thanks to more than 25 years of advocacy work, SRISTI has succeeded in generating nationwide recognition for grassroots innovations by Indian farmers and entrepreneurs as a valuable complement to innovations that come out of formal research systems. Set up in 2000 by India's Department of Science and Technology, NIF is charged with documenting, adding value and protecting the intellectual property rights of grassroots innovators and traditional knowledge-holders and disseminating their innovations.



The African participants agreed that such locally developed and adapted grassroots innovations could also benefit smallholder farmers in their countries and expressed their wish to explore similar approaches to identifying, disseminating and protecting such innovations in Africa.



**Smallholder farmers, Karnal**

The group also stopped in the district of Karnal in the state of Haryana, one of India's main Basmati rice producing regions. The researchers met local smallholder farmers who are organized in cooperatives from which they receive inputs. While basmati rice is traditionally cultivated by hand, farmers in the region had managed to introduce costly machinery by sharing the machines among several farmers. The sharing of machinery, commonly referred to as 'uberization', is a growing trend in India and Africa, driven by local startups that provide short-term high-tech farm equipment rentals to smallholders.

**About PARI**

The Program of Accompanying Research for Agricultural Innovation (PARI) brings together partners from Africa, India and Germany to contribute to sustainable agricultural growth and food and nutrition security in Africa and India as part of the "One World, No Hunger" Initiative supported by the German government.

More information available at  
[www.research4agrinnovation.org](http://www.research4agrinnovation.org)

PARI is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ).

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