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Participants at the newly-inaugurated technology park in Flola village, Bougouni district. The well was dug to irrigate the research crops that will soon be planted.

Innovation platforms and technology parks to boost technology uptake in southern Mali

Two innovation platforms (IPs) and two technology parks were launched recently in southern Mali. The IPs aim to facilitate knowledge sharing while the technology parks will provide infrastructure for farmers and agriculture students.

The IPs and technology parks were established in Koutiala and Bougouni districts of Sikasso region.

Koutiala district launch

Mr Kissima Nimaga, member of a seed producers' cooperative and a leader of the newly-created IP said, "Through this platform, many producers will benefit from the new varieties of cereals, legumes and fruit trees developed by ICRISAT, ICRAF (World Agroforestry Centre), AVRDC (The World Vegetable Center) and their partners in the national seed system. Our expectation is to meet with new partners of the seed sector."

At the opening session of the IP meeting, Mr Bougouna Sogoba, Director, Association Malienne d'Eveil au Développement Durable (AMEDD), said that IPs bring people together to enhance their knowledge and address their concerns through continuous interaction and mutual learning; the aim being to influence or change perceptions, practices and public policies.

How the Technology Parks work

Dr Birhanu Zemadim Birhanu, Scientist – Land and Water Management (ICRISAT), Africa RISING Coordinator, Mali:

"One of the recommendations of the external review of the Africa RISING project conducted in October 2014 was the need to establish a research hub or technology park. A technology park is a community-based experimental station consisting of a series of replicated and unreplicated experiments (mother trials). The aim is to: 1. Evaluate and demonstrate new technologies; 2. Provide hands-on training for farmers; 3. Facilitate knowledge flow among farmers; 4. Train students; 5. Determine farmer preferences for technologies.

"We decided to establish technology parks both in Bougouni and Koutiala with the help of local NGOs AMEDD and MOBIUM. Two site coordinators were hired to monitor implemented activities in the technology parks. ICRISAT, ICRAF, AVRDC and Institut d'Economie Rurale, Mali, developed joint protocols to utilize the technology parks as areas to implement joint activities. Volunteer farmers are identified and offered training on different technologies and to implement agreed activities.

to page 2...

Innovation platforms and technology parks ... from page 1

Mr Arouna Bayoko, Technical Manager, AMEDD, who moderated the meeting, spoke on the importance of periodic exchange meetings; pooling of diverse experiences and knowledge; exchange visits; sharing workshops; regular dialogue with policy makers to build strategic partnerships; as well as capitalization of shares.

Amongst the group that visited the new technology park in M'Pessoba village, a representative of the Director of the Centre d'Apprentissage Agricole (CAA), an agronomic school in Koutiala, said, "We do a lot of theory at school, but students lack practice. This park provides the opportunity through on-site training."

Participants at the Koutiala district IP meeting.

Mr Moussa Coulibaly, a farmer, said, "I have spent 42 years practicing market gardening but have noticed that educated youth dream of working in offices after graduation. The technology park offers an opportunity to combine theory with practice and hopefully attract youth to the agricultural sector."

Bougouni district launch

At the IP launch, Mr Siriki Sidibé, Deputy Chair, Conseil de Cercle of Bougouni, said that the platform allows members to exchange their thoughts and allows producers to interact frankly with researchers. Commenting on the technology park he said, "The technology park is a practical way to strengthen the capacity of farmers."

The IP sessions provided a forum for farmers who had benefited from the Africa Research in Sustainable Intensification for the Next Generation (Africa RISING) project to share their success stories. Mr Dramane Samake, a farmer from Sikoroni, said many farmers from his village benefited from the improved practices and technologies they adopted. "We tested new dual-purpose varieties of cowpea and soybean which are also useful as fodder. I got a good harvest with the new varieties of okra. The delicious new variety of soybean – 'soumbalashow' is a success. Last year I was trained to process the product and could taste and appreciate soybean sauce," he said. Mr Samake hopes the positive outcomes will continue. "We hope to find markets for our produce within the platform. In our village we do not have a market big enough to sell our products; we are looking for global buyers. With a big purchase, we can earn more money compared to retail buyers," he said.

Ms Togola, Djeneba Mariko, President, Doukafa Sabati Association (a women's group), feels that the trainings will improve income generation activities among women and also educate them on various issues. "It is said that Sikasso region is the largest agricultural producer, paradoxically, it is the region where malnutrition is the highest. Women and children suffer the most due to lack of information on preparing nutritious food. We need to find a good balance in the combination of foods we prepare and the role of women will be crucial," she said.

At Koutiala the IP was launched on 19 May while in Bougouni it was launched on 21 May. ■

How the Technology Parks work...

These volunteer farmers choose a technology and replicate it in their own farm to train other fellow farmers on each identified technology (baby trials). With one technology park we expect to increase the uptake of improved technologies to nearly 380 farmers in each district at the end of the growing season."

Dr Catherine Dembele, Post-Doctoral Fellow, ICRAF (World Agroforestry Centre): "We want to encourage producers to plant local species of fruits trees to provide nutrients and complement the basic foods composed of millet, maize and sorghum in the rural areas. An example is the Ziziphus which produces big fruits that are rich in vitamins and nutrients. Also, we have tamarind, baobab and shea. We know that producers are not planting local species mainly because it takes a long time to produce; whereas in grafting those species, we reduce this time of juvenile growth. This may encourage producers to plant local species that are adapted to the soil and also provide nutritious elements that are not found elsewhere."

Dr Albert Rouamba, Senior Scientist, AVRDC (The World Vegetable Center): In 2015, we plan to organize new intercropping testing trials and capacity building sessions on production and post-harvest techniques, biological control, integrated control and the production of seeds for gardening. The tests will be conducted in three different periods [rainy season, early season (August to November) and the normal season (November to April)]. The early season production aims to help producers to produce for the market at a time when they can earn more money due to favorable market conditions. Capacity building will also include graduate training session for students.

Project: The IPs and the technology parks are established as part of Africa RISING project.

Partners: ICRAF, AVRDC, ICRISAT; NGOs – AMEDD, MOBIUM (Mouvement Biologique Malien); and farmers' organizations worked together for the establishment of IPs and technology parks.

Investor: USAID (Feed the Future)

CGIAR Research Program: Dryland Systems

Community-driven development initiatives finding success

An ICRISAT study on community-driven initiatives in VDSA villages shows that their effectiveness depends on the level of local community participation in the selection of projects and their involvement in its implementation. Widespread participation and local institutional support also ensured the benefits flowed to a large number of households, including those from minority and socially weaker sections.

To test how such initiatives work, in 2011, six VDSA villages – two in Telangana and four in Maharashtra – were granted US$ 7,000 (₹315,000 in 2011 prices) for projects to collectively meet community needs. The villages first discussed their community problems and needs. The identified interventions were then endorsed by the *gram sabha*s (local village general assemblies).

Better systems for providing household water (in two villages) and village computer centers for students (in three villages) were the most successful types of community-driven initiatives. The study found community-driven initiatives are more likely to achieve success when:

- There is support from local institutions, village officials and informal leaders;
- The grant is given to a community rather than a single person (village head or any other local official);
- The grant is for a new project, not previously started incomplete work; and
- Transaction and administration costs for implementing the project are minimized by participation of the local communities at different levels of operations.

Collective action

The research showed that securing a public service requires collective action at and across multiple scales in a community. For example, in Aurepalle, where seven mini water tanks were built, 324 households and 325 students from the surrounding area gained better access to drinking water. Discussions and field visits revealed that user groups which had effective norms/rules for providing cash and labor for repairs had better maintained tanks.

One of the seven mini water tanks installed in Aurepalle village to supply drinking water.

Table 1. Village grant schemes and beneficiaries in six villages.

Village	Grants schemes	Beneficiaries	Benefits/year
Telangana			
Aurepalle	Mini water tanks (seven tanks)	324 households + 325 students	US$ 5,526
Dokur	New pipeline for drinking water	420 households	US$ 6,890
Maharashtra			
Shirapur	Computer center	335 students	US$ 2,422
Kalman	Computer center	450 students	US$ 3,488
Kanzara	Mini *dal* mill	20 households	US$ 82
Kinkhed	Computer center	34 students/ month	US$ 650 (3 months)

Note: Only tangible economic benefits (2013) have been quantified.

In Dokur, the grant was utilized to connect an additional 203 households to the village water tank with pipelines system for drinking water, with households contributing ₹2,000 (US$ 31.33) per new connection and all users paying a monthly user charge of ₹15 (US$ 0.23). Increasing scarcity of drinking water and the high-cost of alternatives prompted the communities to come together, evolve new rules and share the additional funds to meet the daily supply of drinking water.

Transformative

Computer knowledge centers established in publicly accessible schools of Shirapur, Kalman, and Kinkhed have a high enrolment rate of students, benefitting 335, 450 and 110 students respectively. A user fee of ₹100-150 (US$ 1.55 – 2.35) per student is charged per session (three months), with advanced diploma courses at a significantly lower cost. Within two to three years these computer centers helped transform the teaching process in the schools as computer-based teaching aids are increasingly being used.

On the other hand, the mini-processing unit for pigeonpea established in Kanzara is having a limited impact on the community, benefitting only 20 households. Seasonality of demand for the processing unit of pigeonpea (three months in a year) and a decline in area under pigeonpea cultivation resulted in no or low economic benefit of the grant compared to the grants to the other five villages.

Different perspective

The community member's perspectives towards the village grant differed from the use of grants from government programs, possibly reflecting a different collective action and community level participation on the projects.

If well implemented, village grants also have the potential to improve local governance. Experience with village grants may also encourage community members to think of alternative options for local development and engage and participate in other community development activities. ■

References

Process Documentation, Research and Impact of Community Driven Development Grants Research in Rural India

Process Documentation Research and Impact of ICRISAT Village Grant

Project: Village Dynamics in South Asia

This work is now incorporated as part of the CGIAR RESEARCH PROGRAM ON Policies, Institutions and Markets

Investor: Bill & Melinda Gates Foundation

Partners: IRRI & Socio-Consult, Bangladesh, ICAR-RCER, IIWM, NIAP and ICRISAT, India

Congratulations


Photo: PS Rao, ICRISAT

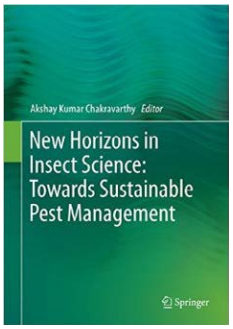
Deepa Jaganathan Research Scholar, Center of Excellence in Genomics, ICRISAT, has been awarded the Young Scientist Award by Dr KV Rao Scientific Society for her article – Genotyping-by-sequencing Based Intra-specific Genetic Map Refines a 'QTL-hotspot' Region for Drought Tolerance in Chickpea – published in *Molecular Genetics and Genomics*. The co-authors of the article are Mahendar Thudi, Sandip Kale, Sarwar Azam, Manish Roorkiwal, Pooran Gaur, PB Kavi Kishor, Henry Nguyen, Tim Sutton and Rajeev Varshney.

This is the third award she has received for her PhD work supervised by Dr Rajeev Varshney. The award carries a certificate, trophy and a cash prize of ₹20,000. ■

Dr CLL Gowda former DDG-R, ICRISAT, has been conferred the 2015 ASA Fellow Award by the American Society of Agronomy. Dr Gowda dedicates this award to the smallholder farmers in the drylands of Asia and sub-Saharan Africa as a recognition for the work he did during his 40-year career with ICRISAT.

The award will be presented during the 2015 Annual Meeting in Minneapolis on 16 November. ■

New Publication



Integrated Pest Management (IPM) for Reducing Pesticide Residues in Crops and Natural Resources

Authors: GV Ranga Rao, B Ratna Kumari, KL Sahrawat and SP Wani

Published in: New Horizons in Insect Science: Towards Sustainable Pest Management. AK Chakravarthy (ed). 2015. Springer India, India, pp. 397-412. ISBN 978-81-322-2089-3

Abstract: In India about 51% of food material has pesticide residues, compared to 21% worldwide, of which 20% are above maximum residue levels (MRL) prescribed by FAO (Anon 1999).

Integrated pest management (IPM) was introduced in the year 2000 in Kothapally village under the integrated watershed management program to alleviate the plant protection problems in crops like cotton, pigeonpea, and chickpea. To understand the impact of IPM on pesticide residue levels, crops, soil and water were monitored on select IPM farms and the results compared with non-IPM farms in Kothapally and Enkepally villages, Telangana, India. The residues of endosulfan, monocrotophos, chlorpyrifos and cypermethrin were tested for their presence.

Data collected over the period 2007-2009 show that contamination on IPM farms was below MRL. Only 4% of the tomato and brinjal samples had pesticide residue higher than MRL. Contamination of soil in brinjal fields was lower compared to that in tomato fields. None of the pulses and cotton samples tested revealed any pesticide contamination.

Most water samples tested in 2006-07, showed pesticide below MRL in both bore wells and open wells, and water samples analyzed in 2009 from food crop and vegetable fields did not reveal any pesticide residues.

The data obtained in 2008-2009 on pesticide residues in crops and vegetables clearly indicated a downward trend and the water samples from Kothapally were found to be free of residues, underlining the impact of IPM on reducing the level of pesticide residue.

http://oar.icrisat.org/8700/

Announcement

Scholarship

Istituto agronomico per l'oltremare and School of Agriculture, University of Florence, invites applications for the second edition of MSc in Natural Resources Management for Tropical Rural Development, 2015-2017.

Applicants from Ethiopia, Kenya, Somalia, Mozambique, Burkina Faso, Niger, Senegal and Sudan are eligible.

Deadline: 10 July

For more details: http://www.iao.florence.it/landwater/

Photo contest

Get featured on Bioversity International's social media channels by sharing a photo and story of a woman (or women) who is contributing to agricultural biodiversity in some way. Take a photo of her cooking a traditional dish, selling food at the market, harvesting wild herbs or growing vegetables on a farm. Tell why these actions are special. Photos with the most votes will have the chance to win a Digital SLR camera!

Deadline: 22 July

Full instructions on http://bit.ly/1KojU0r.