

Use and sustain ICT innovations for bringing research into practice

Dileepkumar Guntuku reports how multidisciplinary institutions need to develop, use and sustain information & communications technology (ICT) innovations for linking research, extension and markets, thereby bringing research into practice.

The current yields in the smallholder farmers' fields are well below their potential; the yield gaps vary by anything between 100-300 per cent across different crops. An important factor is a lack of awareness of, and lack of access to, high quality inputs such as seed, fertiliser, and agro-chemicals.

Furthermore, smallholder farmers do not employ improved crop management practices and their post-harvest management strategies are inadequate primarily due to a lack of knowledge. Farmers are also marginalised from participating in markets due to unreliable productivity, a lack of market information, and weak market linkages.

For a more food-secure world, it is imperative that millions of resource-poor small farms in developing countries significantly raise their agricultural productivity, are more resilient to shocks and seize opportunities to increase their incomes. To do so, farmers need to be able to access and effectively use the right information at the right time.

Public-funded agricultural extension, which played a key role in bringing research into practice during the green revolution, is often inadequate in terms of infrastructure and human resources to meet the needs of smallholder farmers. The development of ICTs now is helping extension become more efficient and farmer-friendly, with real-time advice.

Yet, despite many successful ICT pilot initiatives, reaching out to these farmers with the right information at the right time is still largely an unmet challenge.

To meet the challenge of providing smallholders in India and sub-Saharan Africa with information, the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) has opened a Centre of Excellence

Center of Excellence in ICT innovations for Agriculture

Provides a platform to bring ICT innovations in Agriculture by integrating science, technology and value chain approaches (Farm to Fork)

(COE) in ICT innovations for agriculture.

The COE has developed many information systems, linking research, extension and markets. In south India, for example, internet-equipped village knowledge centres and mobile mediated voice communication platforms provide up-to-date information on best farming practices, including climate adaptation methods, crop rotation, diversification and pest management for crops such as millet and sorghum.

These platforms have helped around 46,000 farmers in 21 villages in one of the poorest regions of south central India, including women, become more food secure and resilient to drought. "Earlier we used to take advice from the shop dealer on mixing of pesticides," explains Satyanarayana Reddy, a farmer from Jaanampeta village.

"Now with ICRISAT's information advisory service we are able to figure out the accurate dosage. It saves money," says Narmadamma from ICRISAT ICT Rural Hub.

Plans are currently underway to

replicate and expand a voice message model across Asia and Africa through a financially sustainable public-private partnership model.

ICRISAT distributes GIS derived micro-level drought vulnerability maps at the beginning of the planting season so that farmers can adjust their plans. These maps are popularly known as drought maps among the rural communities in Addakal district of Andhra Pradesh. A drought map tells how much drought to expect in any village of Addakal in the coming year given a predicted annual rainfall.

Providing free web-based access to research is another priority for international research and development centres. A virtual knowledge series platform, known as KSICConnect (<http://www.ksiconnect.icrisat.org>), enables ICRISAT to highlight their most interesting projects, cutting-edge research, and fascinating stories to a global audience.

This platform also allows experts across the globe to share their project experiences and research results. KSI Connect provides agricultural stake-

holders with direct access to technical experts and the latest scientific innovations in agriculture, without having to participate in face-to-face training sessions.

Since its launch in July 2012, more than 150 videos have been uploaded and more than 75 countries, with around 3,000 users visiting KSICConnect every month. This platform also enables ICRISAT to organise periodical expert-farmer interactions.

ICRISAT launched an Open Access Repository (<http://oar.icrisat.org>) in May 2011 to provide an easy interface for researchers, practitioners, or web-connected farmers to use, build on and share research conducted at ICRISAT.

Since its creation more than 144,000 documents have been downloaded by people from more than 70 countries,

with around 6,000 unique users visiting the Repository every month.

The rise of new ICT devices such as tablets and smart phones will certainly create new opportunities for user-friendly information tools for better agricultural advice services and inform farmers about quality inputs and market access. They will also create job opportunities for info-entrepreneurs that can create crucial added value for farmers.

Current research will provide insight into how a sustainable 'backbone communication network' can be developed to improve the quality and convenience of information (crop, market, weather and user's choice) dissemination to smallholder farmers and transparency within the value chains. To significantly scale up this 'knowledge to the poor' revolution,

research, development and private sector organisations have to work together to develop and sustain new ICT innovations.

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ICRISAT's Centre of Excellence (COE) in ICT innovations for agriculture has developed many information systems, which link farmers to research, extension and markets.

Credit ICRISAT/PS Rao