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Showcasing the innovative use of technology through Krishi Gyan Sagar- Exeriences from South Central India

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Background

The advancements in the Information and Communications Technologies (ICTs) provide several opportunities and are viewed by people from all over the world. Applications of ICT are applied to several fields that include agriculture and rural development as well. In recent years the mobile mediated technology is much talked because of the greater penetration of the mobile phones especially even in the rural areas. According to a news report: "*Only 46.9 per cent of the total 246.6 million households have toilet facilities. Of the rest, 3.2 per cent use public toilets. And 49.8 per cent ease themselves in the open. In stark contrast, 63.2 per cent of the households own a telephone connection — 53.2 per cent of mobile phones*" (http://www.thehindu.com/news/national/half-of-indias-homes-have-cellphones-but-not-toilets/article2992061.ece). It shows us the advantage of taking this opportunity and use this hand held device platform.

ICRISAT has begun its work on ICT innovations and knowledge sharing platforms in late 90s. As on the date ICRISAT together with partners has developed and sustained many ICT innovations in providing access to ICRISAT research data and knowledge outputs to its stakeholders - smallholder farmers, National Agricultural Research System (NARS) partners, NGOs, CBOs, private agricultural companies, food processors, and all those who are interested in utilizing these knowledge outputs – for ensuring a food-secure future.

The first project of ICRISAT started with computers and the Internet through village knowledge centers with up-to-date knowledge on best farming practices. These platforms have helped around 46,000 farmers in 21 revenue villages in one of the poorest regions of south central India. Then we moved to address a greater array of earlier ICT platforms last

mile connectivity issues – infrastructure, connectivity, training needs, literacy issues etc., and revolutionized the way we live. ICRISAT started looking for opportunities to use these handheld devices. ICRISAT's work on mobile for development is a major and a successful trial in the field of ICT for agriculture and rural development and is unprecedented in scale and in innovation. The platform enabled expert-farmer-expert communication through mobile mediated voice interactions in three ways: Expert to Farmer, Farmer to Expert, and Expert to Expert.

The next generation of ICT innovations should go beyond providing agro-advisory information to providing quality inputs (seeds, fertilisers, pesticides, credit and insurance) and other services such as access to markets and information on farmer and agribusiness entrepreneur support systems. To realize and fulfil our dreams we have launched **Krishi Gyan Sagar and Krishi Vani,** Innovative ICT mediated Extension and Delivery Platforms. These platforms were launched by honourable agriculture minister of Karnataka on July 5, 2013 at ICRISAT (http://ksiconnect.icrisat.org/launching-of-krishi-gyan-sagar-kgs-and-krishi-vani-an-innovative-extension-system/).

The project adopted ICRISAT's Inclusive Market Oriented Development (IMOD) approach. A major thrust of IMOD is crop diversification and crop systems in order to 'hedge smallholder bets' to mitigate risks. **T**he linchpin of the approach is the public and private sector partnerships to harness markets while managing risks. Furthermore, the platforms are based on a systems approach to improve farm productivity, promote sustainability, resilience of farming systems and directly improve; income and household food security and indirectly health and nutrition.

We started the initial experiment as part of the Bhoochetana project at ICRISAT and have shown promising successful results. Bhoochetana project has been successfully operating since last two years and has worked for improving the productivity and profitability of the smallholder farmers of Karnataka.

Concept & Activity

So far, several on-going Information and Communications Technology (ICT) mediated extension projects and experiments are in developmental phases around the globe. But there are low possibilities of any large scale application and also fail to show financial sustainability. Some of the projects are either supported by the public organizations or private

sector organizations. We aim at developing these platforms: **Krishi Gyan Sagar and Krishi Vani** to bring in financially sustainable model and bring various ecosystem partners on a revenue generation business model.

Krishi Gyan Sagar is a knowledge base platform that works on tablet, mobile as well as web **(**www.krishigyansagar.com), consists of various modules, like fertilizer recommendations, packages of practices in local language, soil maps, farmers' information including his farm and crop details, for executing several extension and delivery activities. In addition to these features the web based application provides report generation feature. This feature helps to generate quick reports, market intelligence and intelligent decision support system for improving productivity and profitability.

Krishi Vani is a mobile innovation for disseminating right information at the right time through public-private partnerships. 35 free voice messages per week per farmer in 16 categories that include agriculture, livestock, and nutrition to Govt. schemes in multiple local languages are delivered. These technological initiatives bring transparency throughout the system.

The experimentation has already been initiated in India to understand the various dimensions and dynamics of these platforms at three experimental hubs located in Addakal and Anantapur districts in Andhra Pradesh, and Bhoochetana districts (four) in Karnataka. Each experimental hub is unique and experiments are carried out with different set of partners to test the hypothesis. ICRISAT partnered with Adarsha Mahila Samakhya (AMS), a federation of women society to test the financially sustainable ICT4D development framework with a focus on Gender at Addakal, whereas in Anantapur, RDT, an NGO is the partner organization and in Karnataka, State Government of Karnataka is partner organization to carry out experimental activities.

We are generating revenue through Public Private Partnership. The Farm Facilitators/ Info Entrepreneurs are earning revenue through the sales of the Green SIM and replacing Airtel commission agents. With this arrangement once the SIM card is sold the village network assistant will get a commission of Rs. 10 as well as when they sell the talk time they will get a commission. We are working in this direction, with the existing infrastructure of the handheld devices, without any training due to the functional literacy of the handhelds and we

have also removed the literacy barrier by providing the voice messages. As on date, the understanding between IKSL, IFFCO and Airtel, once the farmers buy the SIM card and they are actively using the services the SIM is valid for lifetime, in our terms it is mentioned to be 27years.

Airtel came forward and witnessed this as a business opportunity and wanted to standout in this highly mobile competitive world. At the same time it provides an opportunity to capture the rural market. Through them we are introducing a Green SIM which is used to provide voice agro advisories to the farmers free of cost. They are also replacing their commission agents with the rural people. This also provided an opportunity to showcase this as a part of their Corporate Social Responsibility (CSR). And also enhance their business opportunities.

Amplification and Scale

Taking these experiences further, the plans are underway to take these to other inputs by recruiting the input companies (fertilizers, pesticides, seeds, etc.). It also creates a virtual transaction platform to connect the producer to the end user. In the initial phase the input companies take the advantage of directly connecting to the farmers and providing these inputs at their doorsteps at the best affordable price by eliminating the layers. Once farmers get the produce to address these marketing challenges they can directly connect to the producers.

Input companies benefit from the large amount of farmer database created from our platforms. The platforms capture the personalized information about the soil nutrient requirement of each and every farmer in a particular area. This information is used by the various fertilizer companies in targeting a particular market with a particular product according to the requirement. This helps them in capturing a focussed and much wider market share. This is seen as a novel business opportunity by most fertilizer companies.

Outcome of all these activities is to show a new direction and strengthen the traditional extension system of both public as well as the private. Especially these kinds of initiatives are useful to create a successful private extension initiative which the government and other systems are talking about in the recent years.

The initial promising results from our clients: RDT, Adarsha Mahila Samakhya, and GoK, plans are underway to scale up these operations to 3 million in Karnataka with 10000 farm facilitators and 10 million in Tanzania as part of NOAA funded project (A.Tall@cgiar.org).

Looking at the initial successful results, CCAFS approached us to replicate the model on a funded project to initiate these activities in the Tanzania. We will initiate our activities January onwards and a target of achieving 10 million farmers. The platform provides win-win situation to all players by bringing reforms in the value chain as well as supply chain making the platform financially sustainable.

Results

Government of Karnataka – We are successful in disseminating recommendations to 40,000 farmers in 146 villages in Karnataka across 4 locations. This target is reached with 38 Farm Facilitators spread throughout the experimental hubs.

Anantapur – We aimed at creating a community of 5000 farmers in 4 months. Surprisingly we have achieved this target in 15 working days. During this process the farm facilitators generated revenue of Rs 31,000. It creates an opportunity to create new business professional or para extension workers or info entrepreneurs who can be responsible for selling the inputs to farmers, generate revenue by replacing mobile commission agents and market produce to the identified consumer communities.

Addakal – We are successful in selling these Green SIM cards to provide benefits to village network assistant and provide continuous revenue generation opportunities. Promising results were witnessed by selling of sim cards and talk time coupons. Also successfully delivering 35 free voice messages per week per farmer in 16 categories that include agriculture, livestock, and nutrition to Govt. schemes in multiple local languages.

Conclusion

With proper implementation of ICT based services and solutions, the impacts can be achieved. With increase in ICT Infrastructure in rural areas, it is possible to implement intensive ICT applications like provision of customized advisories to each and every farmer in India. This can be done by getting required information like date of sowing and current active crops and the location etc. Ultimately this study underscores the need to such intensive applications as the matching advances like cloud in server side, Smart Mobiles at farmer side and effective ICT infrastructure in place in rural villages of India.

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