



Workshop Summary: Reimagining opportunities for ICT-driven innovation in agriculture and its transformative potential for rice smallholders

26 July 2021, 14.00-17.00h (GMT +7) and
27 July 2021, 14.00-16.45h (GMT +7)

Participants

Workshop Day 1: 54 attendees

Workshop Day 2: 44 attendees

Background and objective

Recent years have seen rapid growth in development and uptake of Information and Communication Technology (ICT)-based technologies in Southeast Asia, driven primarily by lower cost and wider coverage of Internet access, accompanied by wide smartphone penetration even among lower income groups. Farmers already use a wide array of ICT-based tools such as mobile-based information and advisory services, tools for farm recordkeeping, drones for crop monitoring and targeted use of inputs, B2B smartphone-based applications to facilitate communication and business negotiations, remote auditing and other GIS-enabled innovative services. Many of these have enabled the emergence and viability of the concept of 'Smart Farming'.

ICT based solutions offer potential to empowering Myanmar's farmers and address some of the enormous challenges that remain in transforming the country's rice sector. As part of its mandate, the NORAD-funded Myanmar Climate Smart Rice (CSR) Project aims to leverage ICTs to build capacity and support adoption of scalable solutions with transformative potential. It is also anticipated that ICT-based solutions developed under the current project may have wider utility beyond Myanmar, in other rice-growing countries in Asia and around the world.

So, how can SRP, its members and the wider development community help unlock the promise of ICTs to deliver transformative outcomes for rice, and perhaps offer models for extrapolation?

To explore this question a 2-day online ICT workshop (half-day sessions) hosted by SRP¹ was organized with the support of Myanmar Climate Smart Rice Project implementing partners².

¹ The third session is to be held in early-mid August and will be hosted by Myanmar Climate Smart Rice Project Management Unit office.

² The Myanmar Climate-Smart Rice (CSR) Project, funded by the governments of Norway and Switzerland and managed by the United Nations Environment Programme (UNEP), was launched in 2019 with the aim of promoting climate-smart rice production among Myanmar's rice smallholders and connecting them to markets through adoption of the SRP Standard for



The workshop explored the status of the latest ICT innovations today in the global rice sector, documented challenges to upscaling and identified opportunities for further innovation. Summaries of the two days are provided below; presentations are available [here](#) and a recording of the workshop is available on [SRP's YouTube Channel](#).

Day 1: Overview of ICT applications in the global rice sector and horizon scanning for future innovations relevant to Myanmar

Wyn Ellis (Executive Director, Sustainable Rice Platform) welcomed participants to the workshop, highlighting the importance of ICTs to the global food system and in the specific context of SRP's mission to transform the global rice sector. widescale adoption of climate-smart sustainable best practices, helping farmers and protecting the environment.

Achieving this mission will require effective collaboration across the stakeholder spectrum, the ability to harness ICT tools to drive scale and impact, and most importantly, imagination to harness new technologies, find new business models, and unlock the potential of technology convergence to address multiple sustainability challenges affecting rice smallholders.

He highlighted the workshop's goals to learn more about the frontiers of digital agriculture, to understand what kind of services already exist in the digital space, and to help participant better evaluate their functionalities and how they might contribute to scaling and impact.

He then welcomed **Makiko Yashiro (Senior Programme Officer, UNEP)** who, in her opening remarks, stressed UNEP's focus on ICTs as part of the agency's increasing focus on rice within its Sustainable Food Systems portfolio. She also stressed the integral role of ICTs within the Myanmar Climate Smart Rice Project currently undern implementation.

Dr. Arjumand Nizami (Country Director, Helvetas Swiss Intercooperation Pakistan) illustrated in her keynote address how ICT-driven disruptive innovation during the pandemic carries particular relevance to Pakistan's rice sector. She highlighted the benefits of new technologies for food production and food safety, and how ICTs can be harnessed to mitigate negative environmental impacts of food production.

Paul Nicholson (Vice President and Head of Rice Research & Sustainability, Olam International) discussed how Olam is asking key questions that are fundamental to wide-scale implementation of digital tools: How should we communicate to farmers? How should we collect, verify and share our data while making sure such data are effectively used for continuous improvement? And how can we ensure interoperability across data platforms?

Sustainable Rice Cultivation. The project's four implementing partners (Helvetas, Prime-Agri, SRP and UNEP) are working in three rice-production regions in the country, representing different agro-ecological and economic contexts.



Rakesh Munankami (Project Manager, Myanmar CSR Project, Helvetas Myanmar) then provided an overview of the Myanmar Climate Smart Rice Project and the role of ICTs, and presented digital tools currently used for information sharing, online training, and monitoring.

The following speakers presented a range of public and private sector-led global, regional and country-level ICT initiatives in the rice sector, through case studies in Myanmar, Malaysia, Bangladesh, and India.

Malvika Chaudhary (Regional Coordinator-Asia, Centre for Agriculture and Bioscience International, CABI) introduced the global Plantwise programme, an 'e-Plant Clinic' concept in which farmers consult Plant Doctors, data are collected via tablets, analyzed and used to improve plant health, including by means of smartphone-based advisory services.

Ruud Grim (Senior Advisor & Coordinator, G4AW, Netherlands Space Agency) presented the application of GIS & ICT tools through the 'Geodata for Agriculture & Water (G4AW) Programme to monitor rice performance in the field while allowing easy data collection and analysis through linkages with 'Big Data'. Together with maize, rice has been the focus of most G4AW projects (11 projects) in Asia and Africa. EO data is used to Interpret plot-level conditions (e. g. temperature, soil moisture, vegetation) and weather forecasting, allowing for targeted interventions (site-specific advice), resulting in environmental sustainability by applying inputs more effectively. In addition, digital tools allow for traceability throughout the value chain, resulting in improved monitoring of social and environmental sustainability of the rice.

Peter Fröhlich (CEO, AgriCircle) presented the Rice Information Management System (RIMS), a new digital decision support system (DSS) utilizing the Internet of Things (IoT), Artificial Intelligence (AI), Big Data and integration of advanced sensor/satellite technology. The goal is to provide real-time advisory and prediction modelling services for farmers, supply chain actors and governments.

Ashu Sikri (Product Strategist, Digital Green) provided an overview of how Digital Green is empowering farmers to lift themselves out of poverty through grassroots partnerships and data sharing in Bihar, India. Over the past decade, Digital Green has partnered with state governments in India to deliver video based advisory services on agricultural production practices, including sustainable rice, to more than 2 million farmers, 90% of whom are women. Digital Green seeks to build on the success of its community video approach and launch a program to coach smallholder farmers on sustainable practices and build an open monitoring, reporting, verification (MRV) toolkit to track, verify and quantify their climate impact.

Sadman Sadek (Country Manager, Viamo Bangladesh) spoke on the topic of mobile-based behavior change campaigns and remote training. He introduced Viamo, a social enterprise with a presence in 36 countries and projects in 146 countries, focusing on digital Inclusion. In



2020, 30 million people accessed Viamo's platform. He described how using Viamo's m-Extension model, farmers can access information, markets, financial solutions, and remote training utilizing SMS and voice messaging systems.

Otini Mpiganjira (Program Lead, Precision Agriculture for Development, PAD) explained how PAD leverages evidence-based mobile phone communications to improve farmer productivity and environmental resilience in Odisha, India. PAD's *Ama Krushi* programme uses non-smartphone channels such as SMS, call centres and voice messages to provide relevant information to farmers. Simple, targeted messages can impact knowledge and adoption of sustainable practices, while the volume and framing of messages are important factors in influencing farmer responses. The platform was developed by Precision Development (PxD), a global non-profit organization with operations in ten countries in Africa, Asia, and Latin America. PxD reached 5 million users in 9 countries in Q1 2021.

Discussion

During the dialogue session moderator **Jan Willem Ketelaar (SRP Outreach Coordinator)** discussed with representatives from the Myanmar Climate-Smart Rice (CSR) Project (**Kenneth Shein (Co-Founder, Prime Holdings), Marci Baranski (International Rice Manager, UNEP)** and **Ye Win Paing (Project Manager, Helvetas-Myanmar)**), opportunities and challenges for scaling out ICT-based innovations in the Myanmar Climate Smart Rice Project.

Points discussed during the dialogue session included the enormous potential of ICT-based innovations to drive transformation of the rice sector towards sustainability. Opportunities for smallholders participating in the Myanmar CSR project to benefit from adoption of ICT innovations are equally clear. However, to realize these benefits it will be important for development stakeholders to invest in digital infrastructure and literacy training in order to bridge the still existing digital divide. Finally, with a greater emphasis on digital solutions for verification and certification, recording of quality primary data, including on use of farm inputs, by smallholder farmers will be increasingly important. This might require additional investments, including in capacity building efforts.

Jan Willem Ketelaar then concluded Day 1 of the workshop and provided an outline of Day 2 ahead.

Day 2: Exploring SRP's vision for M&E and performance assessment and use of ICT tools.

Keith Jones (SRP Board member and Chair, SRP M&E Committee) welcomed participants and after an overview of the day's programme, shared SRP's vision for an organizational M&E programme currently in development. He underscored the aim to move from practice-based monitoring to quantify the impacts of best practice adoption using the SRP Performance Indicators. He also stressed the social as well as technological dimensions inherent to the challenge; building trust among users to share their data requires a deep understanding of



the social context, including cost, access to smartphone and internet, digital literacy and incentives such as provision of valuable knowledge or market services to the user.

Zafar Iqbal (Manager Sustainability, Rice Partners Pvt Ltd, RPL) then presented ICT approaches to farmers in the Pakistan Water Productivity Project (WAPRO) funded by the Swiss Agency for Development Cooperation (SDC), RPL's parent company, Better Grain, was a pioneer in developing and implementing a rice sustainability program. So far, 28,000 Better Grain Smart Farmers have received SRP training, and Better Grain sources from 1,200 SRP audited farmers, with 100% traceability. 80 rice millers have also been trained in SRP. RPL uses the AKVO proprietary platform to enable field staff to collect field data directly via tablets or smartphones. Complementing this are SMS Alert Services on pest management, a 24/7 helpline to promote better agronomy practices, use of social media messaging including WhatsApp, Facebook and YouTube channels to deliver and reinforce messaging.

Better Grain's Smart Digital Cards are bar-coded, allowing farmers rapid access to a range of concessionary discounts on goods and services as part of SRP participation. These include farm inputs, loans, medical services, agricultural machinery, soil and water analysis reports.

Rishikesh Sapre (Director, Mantle Labs) discussed the challenge of unlocking agronomy, financial services and carbon markets for smallholders. He explained how ICTs can drive financial inclusion, which has hitherto been largely ignored in rice by mainstream actors. With newer carbon markets only available in the Americas and Europe, the vast majority of small farmers around the world have no cost-effective access to financial services such as farm credit or crop insurance. He introduced the Mantle Labs Geobotanics platform- an AI-powered GIS solution serving the entire agri value chain, with special focus on financial and risk models, and a free farm management system for farmers. The Geomatics Crop Loss Index also offers a cutting-edge index insurance product, requiring no calibration or ground-truthing. The platform manages around USD 20 billion in client portfolios, processing around 500 m hectares daily.

Finally, Geomatics uses the latest remote sensing innovation and carbon market expertise to monitor practices such as tilling, cover crops, flooding analysis and temporal evolution of biomass. These data are then used to model net sequestration at a high level of detail.

This was followed by a presentation on developing a digital knowledge management and adaptive learning system for sustainable rice landscapes, delivered by **Beau Damen (Natural Resources Officer - Climate Change and Bioenergy, FAO)** and **Satish Nagaraji (Senior Manager – Digital Agriculture (M&E & Tools, ICRISAT))**.

The Sustainable Rice Landscapes Initiative (SRLI) is a consortium of 6 organizations (FAO, UNEP, SRP, IRRI, GIZ and the World Business Council For Sustainable Development), dedicated to upscaling adoption of climate-smart sustainable best practice in rice through a landscape-based approach. The key elements of SRLI are sustainable management



practices in rice-based production systems, market-based instruments and landscape management to optimize ecosystem services. So far, SFLI has mobilized \$58.4m in grant financing under GEF-7, with \$668m committed in co-financing by project partners.

FAO is currently developing a digital knowledge management and adaptive learning system for sustainable rice landscapes projects funded by GEF/GCF. This Knowledge Management system (KMS) should be designed to demonstrate accountability and promote organizational learning for the benefit of the overall program and to provide an evidence base that supports investment.

Key questions related to the SRLI projects include integration of value chains within landscapes, and the use of ICT tools to create new services that drive market demand for SRP rice?

Continuing, Satish Nagaraji then summarized the ICRISAT MEASURE system, a digital M&E system that can collect and organize reporting data from multiple stakeholders at multiple levels of aggregation, and that is already functioning with a large user base. MEASURE also incorporates a beneficiary management system.

Kazuki Saito (Sustainable Farming Systems Flagship project leader, AfricaRice) introduced AfricaRice's new smartphone-based tools for M&E and performance assessment relevant to the rice sector and SRP in particular. This includes a yield prediction tool and a digital data collection and decision support tool for farmers based on the SRP Standard and Performance Indicators. The tools have the advantage of offline functionality, availability in multiple languages, and immediate calculation of SRP Standard scores and Performance Indicators. This allows advice to be tailored to individual farmer needs, on the spot. The tool has been used for M&E in 3 countries in Africa, with over 1,200 farmers interviewed to date.

The 'Rice SCOUTER' rice yield estimator offers a rapid, low-cost and labour-saving approach to estimate rice yield as well as above-ground biomass using RGB images and machine learning. The Android-based application is currently undergoing testing under diverse growing conditions with JICA, GIZ-CARI before release.

Discussion

In the panel discussion "Assessing ICT schemes for M&E purposes" moderated by Keith Jones (SRP M&E Committee), panelists Beau Damen, Kazuki Saito and Rakesh Munankami discussed several questions posed by the moderator. The first question examined current SRP M&E requirements: what kind of data are needed, how and by whom are they to be collected? Incentives are essential where data are to be collected by farmers (e. g. via smartphone-apps). Farmers need to understand and value the benefits of sharing their farm data. Though access to ICT tools and internet coverage/cost in rural areas represent barriers



to adoption. Internet penetration and smartphone ownership are both accelerating rapidly even among low-income groups in rural areas.,

As many data platforms are funded under development projects, post-project sustainability of ICT data systems is a second key question. Participants commented that involvement of the private sector as well as development of self-sustaining business models are important considerations in this regard.

Finally, panelists agreed that it was of fundamental importance to generate a stronger body of evidence linking adoption of best practices under the SRP Standard with field impacts of adoption, as measured by the SRP Performance Indicators.

Wyn Ellis wrapped up the workshop, thanking speakers and participants for a rich and valuable exchange. He reminded the workshop that gender empowerment had not received due attention in this workshop, but is a crucial lens for designing ICT systems. He also noted that many of the schemes presented during the workshop are funded via projects, raising the question of post-project maintenance? Can we design best business models to ensure that systems are self-sustaining?

Links

Rewatch the workshop on SRP's YouTube Channel: [Day 1](#) and [Day 2](#).

Speaker presentations are available at www.sustainablerice.org/ict-workshop-presentations.