Policy Briefing

AgriApp – adapting ICTs for mobile agricultural information

The AgriTT programme is an innovative trilateral initiative between the UK Department for International Development (DFID), the Chinese Government, the Governments of Malawi and Uganda and the Forum for Agricultural Research in Africa (FARA). The programme facilitates the sharing of successful experiences in agricultural development with developing countries to improve agricultural productivity and food security.

The AgriTT Research Challenge Fund supported two year research projects to generate new thinking and practice on technology transfer and value chain development. Each project had a Chinese, UK, and African or South-East Asian research partner.

Agri TT
Agricultural Technology Transfer

Chinese experience supports Cambodia's focus on smartphone technologies

Information services play a critical role in modern agricultural production and rural development. Improved data flow enables farmers to make informed decisions at every link in the value chain. Timely information on new technologies and agricultural innovations can help increase productivity; and relevant and accurate market information can support farmers to make targeted pricing decisions and improve profits. Within Cambodian farming communities there is strong demand for better, more up-to-date agricultural and market information.

In 2015 over 94% of Cambodians reported owning their own cellphone and 40% owned at least one smartphone, a 52% increase from 2014 and almost a 100% increase from 2013. Some 34% of rural residents had at least one smartphone (32% of women and 47% of men). The steep upward trend in smartphone use suggests that advanced mobile internet technologies can play a vital role in improving agricultural production and market information flows**.**

This project aimed to develop an online agricultural information system for Cambodia, drawing on China's extensive knowledge in this field. Over recent years, China has accumulated rich experience in applying information and communication technologies (ICTs) in its agriculture sector. The project's trilateral research team reviewed contemporary Chinese approaches to ICT-based agricultural information dissemination; carried out field investigations on current Cambodian agricultural information systems; developed a prototype mobile internet-based platform and an Android app (AgriApp); piloted AgriApp in the field to improve its functionality; and provided training in its use. The technologies deployed include over-the-top (OTT) instant messaging; location-based services for automatic geolocation of users and mapping; a user-friendly relational database management system; and Cloud backup, all adapted from in-function Chinese models. Data held on the service platform are gathered from two sources: experts, including agricultural research institutions, extension services and marketplaces; and farmers uploading their latest agricultural experiences and supply-and-demand information. Through a training-of-trainers approach, with each trainer responsible for 10 key farmers or grassroots technicians, each of whom then supplies assistance to local farmers, 3,000 small-scale agricultural producers were reached.

AgriApp is an easy-to-use extension tool. It includes a searchable database, geographic information linked to queries, training tools, and a question-and-answer service and online feedback system. All these functions are useful for many areas of crop and livestock management: pest and disease management, variety/breed selection, market price information, weather and climate information, agricultural equipment and input supplier information.

Cambodia's MAFF is playing a pivotal role in the implementation of AgriApp. Tasks included overseeing the work and choosing the pilot area for AgriApp; organising local trainers from the pilot area; hosting the system; and selecting, inputting and issuing agricultural information. Within MAFF, engineers from the Cambodian Agricultural Information

and Documentation Center (AIDOC) participated in the system-deployment process to learn the protocols for testing, operation and maintenance. Both the Department of Planning Systems (DPS) and AIDOC have now taken ownership of the system management and are responsible for data input. A large number of data sources have already been digitalised by AIDOC and DPS, and staff have the capacity to update and expand the information repository in the future. Agricultural experts and extensionists in DPS and the Department of Agricultural Extension will be responsible for responding to user inquiries and providing feedback. Both ICT staff and extension technicians in MAFF have received comprehensive training in operation and management of the system.

The project encouraged the active involvement of young Cambodian ICT technicians, and of female extensionists and farmers. Most of the ICT technicians who have benefited from the training are young graduates, and about 25% of extensionists who participated in AgriApp training are female.
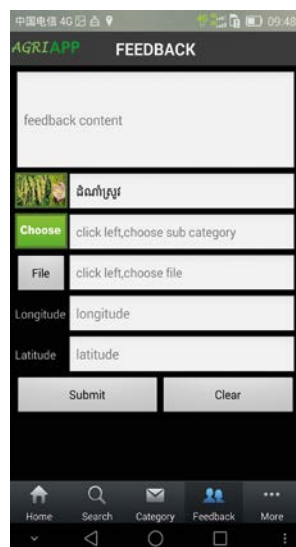
Policy recommendations

- **The AgriApp model has great potential for further scale-out in other provinces of Cambodia, throughout South-East Asia, and in other countries with comparable agricultural information needs.** This app, and the business model on which it is based, could be incorporated within ICT programmes of other bilateral/multilateral development partners such as the Food and Agriculture Organization (FAO). The Asia-Pacific Rural and Agricultural Credit Association (APRACA), for example, has shown interest in using ICTs in rural areas to disseminate information to farmers.

- **ICT services need long-term investment in digital agricultural information databases, supported by the public sector with development partners and/or through partnerships with the private sector.** In the case of AgriApp, the project has delivered essential equipment, management systems, the app tool and training guidance, enabling Cambodia's MAFF to take over ownership of its future improvement and extension. MAFF has developed an AgriApp sustainability development plan and is developing new proposals for funding, along with further extension activities.

- **ICT tools such as AgriApp are valuable to both public sector research and extension, and to private sector businesses such as product dealers, traders and enterprises.** For example, Guangxi Forword Agricultural Technology International Cooperation Co., Ltd, which is involved in the development of a Sino-Cambodian agricultural promotion centre in Cambodia, is using AgriApp as a new tool for promoting agricultural technology extension and training, and as a communication channel with MAFF and local agricultural departments. An app development strategy needs to explore the appropriate mix of public and private sector content and usage.

- **To build on AgriApp's success, further investigation on some key factors is needed**. These include the availability of affordable smartphones and low-cost, reliable 3G network/wifi access; the profile of the main clients (e.g. smallholders, larger commercial farmers, extensionists, etc.); and the development of a clear business model – free, fee-based, or a mixture; funded by advertisers, private-sector, or government-owned and/or managed.

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> **An eye-opening experience that offers new and innovative ways for disseminating agriculture information and addressing farmers' problems timely and effectively.**
>
> Local extensionist
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Partners

China
Foreign Economic Cooperation Center (FECC), Ministry of Agriculture, Beijing

SuperMap Software Co. (SMS), Beijing

Cambodia
Ministry of Agriculture, Forestry and Fisheries (MAFF), Phnom Penh

UK
University of Bedfordshire (UoB) Business School, Luton

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