

GGBP Case Study Series

Mobile Phones and Agriculture in India

Related Chapter: [Public-private collaboration](#)

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Country: [India](#)

Sector(s): [agriculture, communications](#)

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Many factors may contribute to differences in national agricultural productivity levels, including small farm size, lack of access to credit to invest in more productive technologies, lack of insurance to manage weather risk, and lack of information on increasing crop productivity. An alternative to traditional agricultural extension services is to deliver agricultural information to farmers via low-cost information and communications technologies. Mobile phones are being used to deliver not only information but also a range of financial services such as payments, credits, insurance, and savings.

There are considerable opportunities for improved agricultural productivity. However, multiple levels of collaboration among the public and private sectors are needed to realize this potential.

Context

Over half of the Indian labor force is dependent on agriculture. Lack of access to credit, insurance, and information can be critical factors in limiting agricultural productivity.

There are an increasing number of examples using mobile-enabled solutions for food and agriculture (Accenture-Vodafone, 2011 and World Economic Forum, 2011):

- Financial services – payment systems, insurance, microlending;
- Information – information on prices, techniques, farmer helplines;
- Supply chain efficiency – smart logistics, traceability and tracking systems, mobile management of supplier and distribution networks;
- Access to markets – agricultural trading platforms, tendering platforms, bartering platforms.

The Government of India spent nearly USD 60 million on public agricultural extension programs from 2009 to 2010. The government has a huge research and development infrastructure in the form of institutions such as the Indian Council of Agricultural Research, state agricultural universities, and networks of public extension agents. However, fewer than 10 percent of farmers report receiving information about agricultural technologies from public extension agents. One potential alternative to costly individual extension agents going from village to village is to deliver agricultural information to farmers via low-cost information and communications technologies (ICT) like mobile phones (Cole, 2012).

Approach

The Development Support Centre piloted an approach that allows farmers to call a hotline, ask questions, and receive responses from agricultural scientists and local extension workers. Callers can also listen to answers to questions posed by other farmers and respond to questions themselves. The centre trained farmers to use the system, which uses local language prompts and touch-tone navigation

designed to overcome literacy barriers. Users also received weekly information and tips via automated voice message, including weather forecasts and pest planning strategies (Cole, 2012).

Outcomes

Results of other studies (reported in Mittal et al., 2010) highlight the positive economic impact of mobile phones for agricultural extension, providing easy, mobile, timely, and convenient access to customized content.

However, other factors also constrain farmers' yields and profitability:

- Insufficient availability of critical resources (reduces yield);
- Inadequate irrigation (reduces yield);
- Poor physical access to markets, including poor road infrastructure and lack of refrigerated transport (reduces realized prices);
- Inadequate crop storage facilities (reduces realized prices);
- Lack of access to credit at reasonable rates;
- Lack of capacity (and appetite) for risk-taking, such as adopting suggested new seed varieties.

Lessons

Successful features

- **Unleashing creative entrepreneurship:** Mobile ICT devices and services are rapidly

becoming available to rural agriculture communities worldwide, including the poorest. The availability of this 'tool' has opened a new world of ways to provide critical information and financial services. Private sector actors have embraced the new opportunities this brings them.

- **Public enabling, oversight and information provision:** While it is private actors that play the major roles in these public-private cooperation projects, the public sector is playing a crucial role as an enabler, regulator and public-good information provider. Private players such as telecommunications companies (telcos) and finance institutions need public agencies to ensure competition and that consumers are being provided with timely and trustworthy information and services.
- **Potential for rapid uptake:** Success stories seem to be scaleable and transferable across countries, as evidenced by the experiences in Africa and the adoption in India of mobile finance approaches first proven in Africa.

Limitations

- **Affordability and equity:** While services may be available, they may not be affordable to rural poor who may be further disadvantaged and left behind, creating social disruption. Addressing such potential equity gaps requires the attention of public agencies. Moreover, lack of access to affordable credit constrains the use of the information received through mobile-enhanced extension services.
- **Multiple collaboration and capacity needs:** In addition to collaborations with necessary public agencies (which seem to be generally possible), telcos and finance institutions also can need the collaboration

of non-governmental private partners in their service delivery models. This can be more challenging and requires enhanced stakeholder engagement and human capacity development.

- **Associated infrastructure needs:** ICT devices require electricity. In rural areas with non-existent or unreliable grid power it also becomes necessary to address affordable and reliable community energy service provision. Road transport infrastructure (including refrigerated trucking) and crop storage infrastructure is also needed.

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