Strengthening Agricultural Extension: the Role of the Private Sector and ICT

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Challenge & opportunity I: Expanded role of extension

Policy and institutional environment

Productivity challenges
- R&D
- Supplies
- Farmers
- Collection / Processing

Market challenges
- Distribution
- Wholesale
- Retail

Natural resources and environmental sustainability

- Food grains
- Vegetables/fruits
- Livestock, fishery...

Extension is expected to fulfill a variety of functions!
Challenge & opportunity II: Multiple service providers

Example: Extension providers in India

Public:
- ATMA
- DoA
- ICAR, SAU
- FBO/SHG
- Extension workers
- KVKs
- Agri-clinics

Private:
- Input dealers
- Output buyers
- Rural retail hubs
- Mobile applications, ICT, Media
- E-Choupal

Information exchange between extension and farmers

Source: Adapted from Glendenning et al., 2010
About 40% of farmers are accessing information. Most get it from input dealers (directly or via progressive farmers) and mass media.

How to reach the remaining 60%?

**Percentage of farm households accessing Information on modern ag technologies**

<table>
<thead>
<tr>
<th>Source: NSSO, 2005/7</th>
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<tbody>
<tr>
<td>% of households</td>
</tr>
<tr>
<td>Other progressive farmers</td>
</tr>
<tr>
<td>Input dealer</td>
</tr>
<tr>
<td>Radio</td>
</tr>
<tr>
<td>Television</td>
</tr>
<tr>
<td>Newspaper</td>
</tr>
<tr>
<td>Extension worker</td>
</tr>
<tr>
<td>Primary cooperative society</td>
</tr>
<tr>
<td>Output buyers/ food processor</td>
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<tr>
<td>Government demonstration</td>
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</tbody>
</table>

**Gross Fixed Capital Formation in Agriculture as a Share of Ag GDP at Current Prices (%)**

Source: Chand and Parappurathu, 2012
Business model I: ‘input supplier’ as source of extension

Market solution 1: Input suppliers

- Examples:
  - The fertilizer, seeds, crop protection industry
  - Rural businesses like Hariyali Kisaan Bazaar; Godrej Agrovet Ltd, MKV

- Extension advanced through networks involving:
  - Distributors, Retailers
  - NGOs, Technical personnel
  - Lead farmers, Farmer organizations, Women’s groups

- Input suppliers increasingly understand that they sell effects, not just products. This necessarily requires knowledge transfer to go along with the sale of products.

- Potential concerns:
  - Advice may be limited to the product(s) sold
  - Stewardship and training on product application may not be guaranteed
  - Limited incentive to reach out to remote and marginal farms
Market solution 2: Buyers of produce

- **Examples:**
  - Processors (mills, canners) and exporters
  - Supermarkets
  - Food/beverage industry (Nestle, Mother Dairy, Hindustan Lever, Pepsico)

- **Extension advanced through networks involving:**
  - Collectors, Traders/middlemen, Processors/millers
  - Food and beverage manufacturers
  - Packaging firms
  - Food retailers

- **Buyers of output** are increasingly organizing themselves vertically, noting the need for extension. Contract farming holds promise, but mixed record of success

- **Potential concerns:**
  - Only provide support to specific crops
  - Food quality and safety issues
  - Contract enforcement
Extension model of Beijing DaBeiNong Technology Group Co.

- Product promotion
- Provision of technical services
- Case demonstration and field days
- Training and seminars
- Farm visits

**DBN Technology extension system**

- Headquarters
- > 40 production bases
- 62 subsidiaries
- 500 franchised stores
- > 1000 service stations at county level

Source: Zhao, 2012
Mobile applications in agriculture (1/3)

- Have the potential to revolutionize the linkages and transactions between farmers and service providers of many kinds
- ‘mAgriculture’ vs. ‘eAgriculture’

![Diagram of a simple mobile application](image1)

![Business processes offering opportunities in mobile apps](image2)
Mobile phones and ‘mAgriculture’/‘eAgriculture’ can raise productivity and farm incomes when the information is of good quality and timely, and farmers believe they can trust the advisory relationship (Mittal et al., 2010).

### Examples in India (2011)

<table>
<thead>
<tr>
<th>Extension</th>
<th>Business model</th>
<th>Medium</th>
<th>Complexity</th>
<th>Info flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>aAqua [<a href="http://www.aqua.org">www.aqua.org</a>]</td>
<td>Non-profit</td>
<td>Internet/text</td>
<td>Low</td>
<td>Interactive</td>
</tr>
<tr>
<td>Avaaj Otalo (<a href="http://www.hci.stanford.edu/research/voiceforall">www.hci.stanford.edu/research/voiceforall</a>)</td>
<td>Non-profit</td>
<td>Voice</td>
<td>Medium</td>
<td>Interactive</td>
</tr>
<tr>
<td>Digital Green [<a href="http://www.digitalgreen.org">www.digitalgreen.org</a>]</td>
<td>Non-profit</td>
<td>Video</td>
<td>Medium</td>
<td>One-way</td>
</tr>
<tr>
<td>Nokia Life Tools (NLT) [<a href="http://www.nokia.com">www.nokia.com</a>]</td>
<td>Commercial</td>
<td>Text</td>
<td>Low</td>
<td>One-way</td>
</tr>
<tr>
<td>IFFCO Kisan Sanchar Ltd (IKSL) [<a href="http://www.iksl.in">www.iksl.in</a>]</td>
<td>Commercial</td>
<td>Medium</td>
<td>Low</td>
<td>One-way + helpline</td>
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**Market facilitation**
- Reuters Market Light (RML) [www.thomsonreuters.com]
- e-Choupal [www.echoupal.com]
Future development

- From generic messages to customized advice
- Integration of technologies and information towards location-based data
- Human interactions with farmers continues to be important
- Television/radio remain relevant
- Supply chain management tools

mKrishi action plan
Farmforce is a mobile platform designed to support the integration of smallholder farmers into formal agro-value chains. Its strategic value proposition includes reducing transaction costs for contract farming, ensuring compliance with food standards, enhancing traceability from the field to the market, and improving agronomy at scale. To achieve these goals, the platform aims to link more farmers to markets.

**Current state** of Farmforce is under development and currently undergoing field testing in India and Kenya. The **outlook** for the platform is that it will go live in the fourth quarter of 2012.
Sourcing from smallholder farmers

Barriers:
- high number of small producers
- access to inputs, credit, technology
- high transaction cost for buyers:
- manual & paper-based processes (mistakes, time)
- high TA support levels required / difficult quality monitoring
- delayed or lacking management information

The ‘last mile’ problem limits the outreach and effectiveness of farmer interaction.
Conclusions

- The private sector can and should play a greater role in extension delivery, supported by recent evidence
- Mobile applications a bright spot in extension, having potential to reach scale
- Complementarity between public & private extension: adoption of more open policies, public & NGOs focusing on less well-endowed areas.
- Key success factors: right services, right delivery model, trust between service providers and farmers, value addition, win-win situation, public-private collaboration
- Extension calls for a pluralistic mix of actors in given settings – government, commercial, academic, NGOs, as well as their collaborations are all needed to get extension right and reach all categories of farmers
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Thank you