



# Enhancing the use of data for agriculture

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CTA Policy Brief

**In recent years, the use of data for agriculture has increased with the development of new information and communication technologies (ICT). However, these new technologies have been insufficiently applied to fulfil the agricultural potential of the African, Caribbean and Pacific (ACP) countries. More actions are needed to strengthen the use of data to fight poverty and hunger in ACP regions.**

## Policy action needed

- Promote legislation to make open data readily available for agriculture and smallholder farmers
- Facilitate the development of key infrastructure to support availability of data for smallholder farmers at all levels
- Promote Electronic Membership Management Systems (EMMS) for farmers' organisations and cooperatives
- Promote legal and capacity frameworks that ensures timely release of usable agricultural data for smallholder farmers

## What is the problem?

Agriculture, a principal source of livelihood for communities in the ACP regions, will be increasingly driven by information in the future. ICT, including connectivity and data processing technologies, are already developing rapidly in the farming sector. This development of ICT provides a means for farmers to make the right decisions much more easily than in the past. However, in ACP regions these technologies remain underutilized to reduce food insecurity and build agri-sector wealth. Farmers still lack information on seeds, water, weather, nutrients and plant protection, some of the basic factors of successful farming.

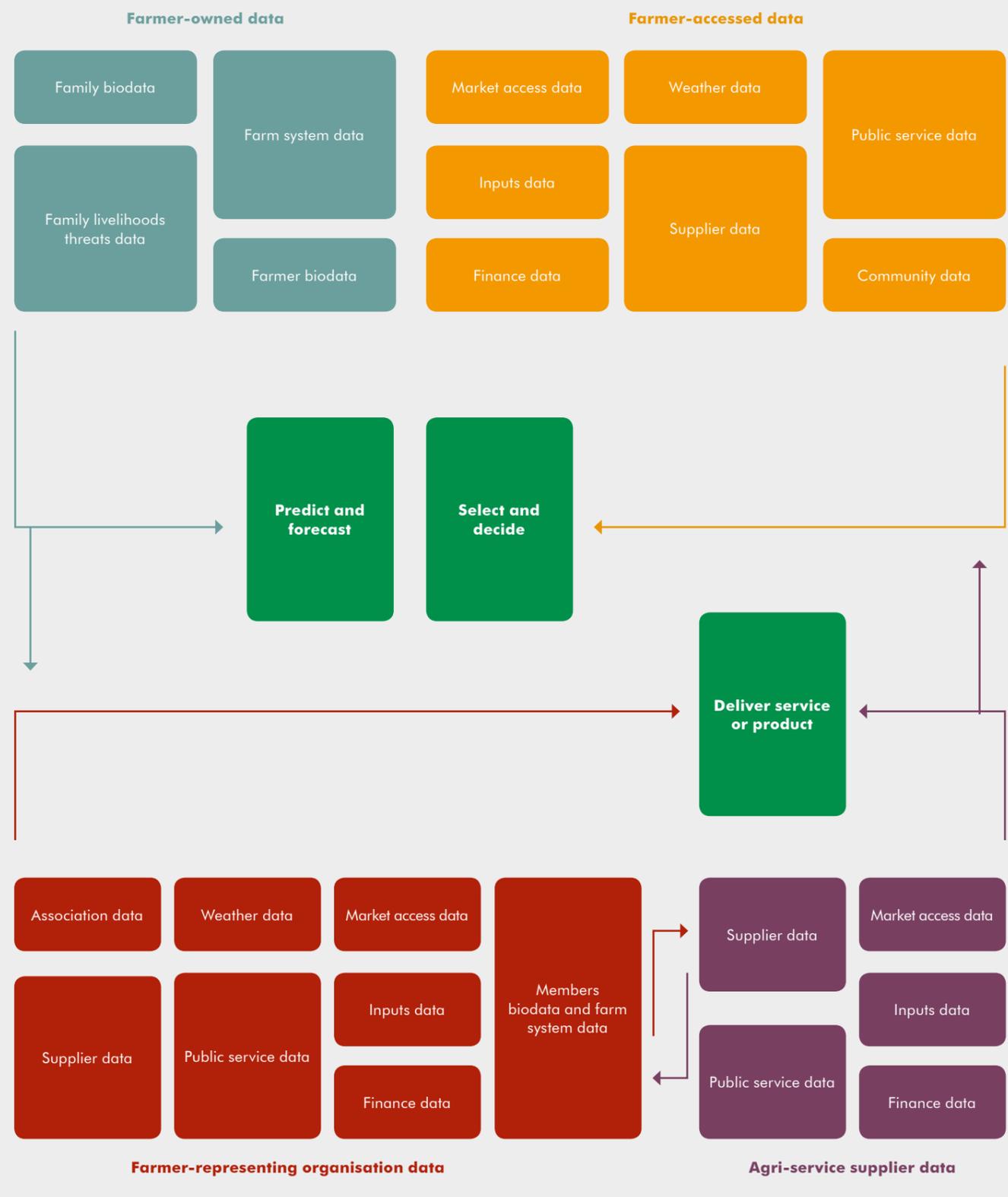
Consequently, these farmers could benefit greatly from taking advantage of ICT and information services that are important for the management of agricultural production.

The role of farmers' organisations in promoting and protecting the interests of farmers is also expanding. Nevertheless, many farmers' organisations have limited information on their membership in digital forms which can be a basis for more efficient delivery of information. Meanwhile, there is a need to provide technical assistance to government agencies and policy-makers for the creation and adoption of open agriculture data policies.

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Figure 1: Schematic view of data types and flows



Source: Peter Ballantyne

## Open data for agriculture and nutrition

### Improving data readiness for smallholder farmers

The smallholder ecosystem consists of many value-chain actors: smallholders, cooperatives, input providers, traders, processors, exporters, wholesalers and global businesses. Each of these actors is interested in information about production, the functioning of the value chain, the availability of services and governance.

The more information that is available about the ecosystem and its functioning, the better the different actors can fulfil their role, ultimately strengthening the food and nutrition security of smallholder farmers. It is thus important to connect open data to these end users in the specific context of the ACP regions to boost agricultural production. One example of this is the Global Open Data for Agriculture and Nutrition (GODAN) initiative, which supports the proactive sharing of open data to make information about agriculture and nutrition available, accessible and usable to deal with the urgent challenge of ensuring world food security. In order to improve data readiness in agriculture for smallholder farmers, policy-makers need to support open data infrastructure development and help bring about the wider use of data in agriculture.

### Enhancing the use of data for agriculture

The potential impacts of open data on government, services, agricultural production and value chains are enormous. Accessing information on agriculture will help smallholder farmers to become more knowledgeable, and as a result to make more informed decisions. When smallholder farmers access reliable data this can lead to higher productivity, greater access to markets and better nutrition. Precision farming is one successful example of data use in agriculture. Satellites or drones can be used to generate high-resolution data that can be transformed into agricultural information for smallholder farmers. With data-based farming, farmers can better leverage agricultural production to avert poverty and hunger.

In just the last few years, many projects have been developed in ACP countries using satellite- and drone-based data to deliver extension and advisory services to smallholder farmers through mobile phones. Policy-makers should address the need to establish structures that will ensure the availability of the data demanded by smallholder farmers in formats and platforms that are accessible to them.

### Capacity building and platforms to support data for agriculture

Capacity development will be the key action to strengthen the use of data in agriculture in order to boost production and marketing of farm products. Policies must address the need for developing states' and organisations' capabilities to have and use data in the agricultural sector.

In East Africa, the Southern African Confederation of Agricultural Unions (SACAU) is facilitating the construction of SMS-based membership data systems for farmers' organisations. As consequence, farmers can benefit from better service delivery and communication through their organisations. Policy-makers should address the use of data in the agri-business sector through legislation, and should invest in research to scale up existing agricultural knowledge and develop new knowledge to face the challenges of climate change through widespread ICT.

## Conclusion

The impacts of data for agriculture in developing countries are revealing possibilities to boost agricultural production in ACP regions. By combining ready data with connections to smallholder farmers and better policy support, agriculture can become more productive for smallholders.

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## Further reading

Allemang, D. and Teegarden, B. (2016). *A global data ecosystem for agriculture and food*. Global Open Data for Agriculture and Nutrition (GODAN), United Kingdom. <http://bit.ly/2rU7jV>

Chiliswa, Z. and Mutuku, L. (2015). *Building open data infrastructure and strategies for effective citizen engagement*. Open Data Research Symposium, 27 May 2015, Ottawa, Canada. <http://bit.ly/2sdlwH>

Jellema, A., Meijninger, W. and Addison, C. (2015). *Open data and smallholder food and nutritional security*. CTA, Wageningen, Netherlands. <http://bit.ly/2rDJvzZ>

McNaughton, M. and Soutar, D. (2015). *Agricultural open data in the Caribbean*. CTA, Wageningen, Netherlands. <http://bit.ly/2rEpxVU>

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CTA Policy Briefs provide a concise summary of a particular issue of relevance to the Centre's activities, the policy options to deal with it, and some recommendations on the best option. They are aimed at policy-makers and their technical advisors, academics and educators working in the policy field and others who are interested in formulating or influencing policy.

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