



# Doing business with satellite based apps and services for smallholder farmers and pastoralists

## *How 'Space for Food Security' works at the local level - A summary of lessons learned in the first years of the Geodata for Agriculture and Water (G4AW) Facility.*

The G4AW Facility promotes and supports private investments for large scale, demand-driven and satellite-based information services for smallholders in developing countries. The goal of the G4AW Facility is to reach at least three million food producers with services that increase income, agricultural production and productivity and/or provide more resilience by 2020.

Recently, a mid-term review of the G4AW Facility was carried out and it is now valuable to share experiences and lessons learned. This wider dissemination will help improve the design of future business initiatives for smallholder farmers in developing countries, or even in more developed countries. This publication gives a summary of the lessons learned, more detailed background information about this mid-term review can be found at G4AW website (see <http://g4aw.spaceoffice.nl/en/About-G4AW/Publications/>).

### Important features of 17 G4AW projects

#### Addressing food security

- Increase of the production volume, through the increase of the (locally) available food production and increase in smallholder farmers and pastoralists income; and
- Provision of a safety net for smallholder farmers through index insurance and decreased vulnerability to natural disasters.

#### Services offered to smallholder food producers

Advice on pests and diseases, advice on water use and drought warning, weather information, advice on fertilizer application, market information, index insurance, advice on sowing and planting, yield forecasts and others.

#### Satellite data used in services

Mainly weather satellites, MODIS, Landsat (8 and older) and Sentinel 2 and 1 (Copernicus) are being used. Data from the European Copernicus program facilitates the achievement of improved services, both in terms of finer spatial resolution and in more timely delivery. It is expected that Copernicus will give a boost to the (further) development of services to (smallholder) farmers and pastoralists.

#### Type of crops

Services can be general, but some services are directed at specific crops such as rice, coffee, potatoes and pasture (for livestock).

# Lessons learned

The findings of the review show that the G4AW Facility offers a new market for providing information services. The projects offer a wide range of business models that address a gap in the current global geodata services market by offering locally targeted advice to smallholder farmers and pastoralists, based on satellite information. The unique approach to encourage innovative Public-Private Partnerships (PPP) has led to a diverse set of consortia. These partnerships strengthen the main innovative aspect of the G4AW Facility: that it is feasible to use satellite information for commercial, or at least self-sustaining, products and services for smallholder farmers and pastoralists in developing countries. Although it is too early to draw firm conclusions, the outlook is positive: in some projects the uptake is likely to far surpass the originally envisaged number of clients.

## 1 Business case

There is no preferred business model. Depending on the local context and (business) insights, various types of business models are designed and deployed. Success factors for information service delivery are: tackle a well-defined and specific problem by offering a portfolio of services that builds on an already existing delivery mechanism and is embedded in the local context. The main bottlenecks encountered in G4AW projects are: acceptance by the end-users, fine-tuning of the solutions (real fit-for-purpose) and the license-to-operate.

## 2 Encouraging partnerships

Partnerships that are able to close the information chain from satellite data collection to smallholder farmers and pastoralists usage do cover most bases in a viable business model. This includes having a complementary set of partners that are locally embedded, ones that also build on an existing infrastructure, which is led by a strong business partner with a stake in taking the project results further into financially sustainable service provision. In response to the calls for proposals of the G4AW Facility new partnerships have been formed and consist of alliances between technology companies, mobile services providers, government, extension services, traders, companies that provide agricultural inputs, NGOs and farmers' organizations.

## 3 Reaching and understanding the smallholder farmers and pastoralists

Each project is encouraged to know their customer and the challenges they are facing, while taking the local context into consideration. This means gathering strong baseline data and applying a sound monitoring strategy to support the development and adaptation of the services and associated business model. G4AW projects emphasize building trust between their clients in order to accept the service/ product and to make the required investment. Although most projects have not reached the full implementation stage yet, there are sufficient indications that food producers will make effective use of information, advice and products due to use of the satellite data. To reach smallholders more effectively, there is a need for active advocacy and knowledge exchange and/or the creation of a knowledge base to share success stories and learn from mistakes.

### Ensuring food security in a broader context

#### Climate change adaptation

G4AW projects are directed at adaptation to climate change in the form of identifying grazing grounds and water availability for pastoralists, sustainable use of water, provision of index insurance, crop calendar advice, and local weather forecasting.

#### Sustainable water use

Better regulation, adoption of water accounting schemes and rewarding of sustainable water use through the introduction of certification mechanisms for agricultural products could strengthen the business case for satellite information for sustainable water use.

#### Gender

More than 50% of smallholder food producers are women. A proper understanding of the target group from a gender perspective is essential if the product or service is expected to be used by those actually benefiting from the data provided.

