




Space for Food Security

Use of Copernicus satellite data serving governments, industry and consumers in SE Asia

Ruud Grim

TAIEX PI ASEAN Multi-Country Workshop on Space Applications (Topic 9).

September, 2018 (Bangkok)

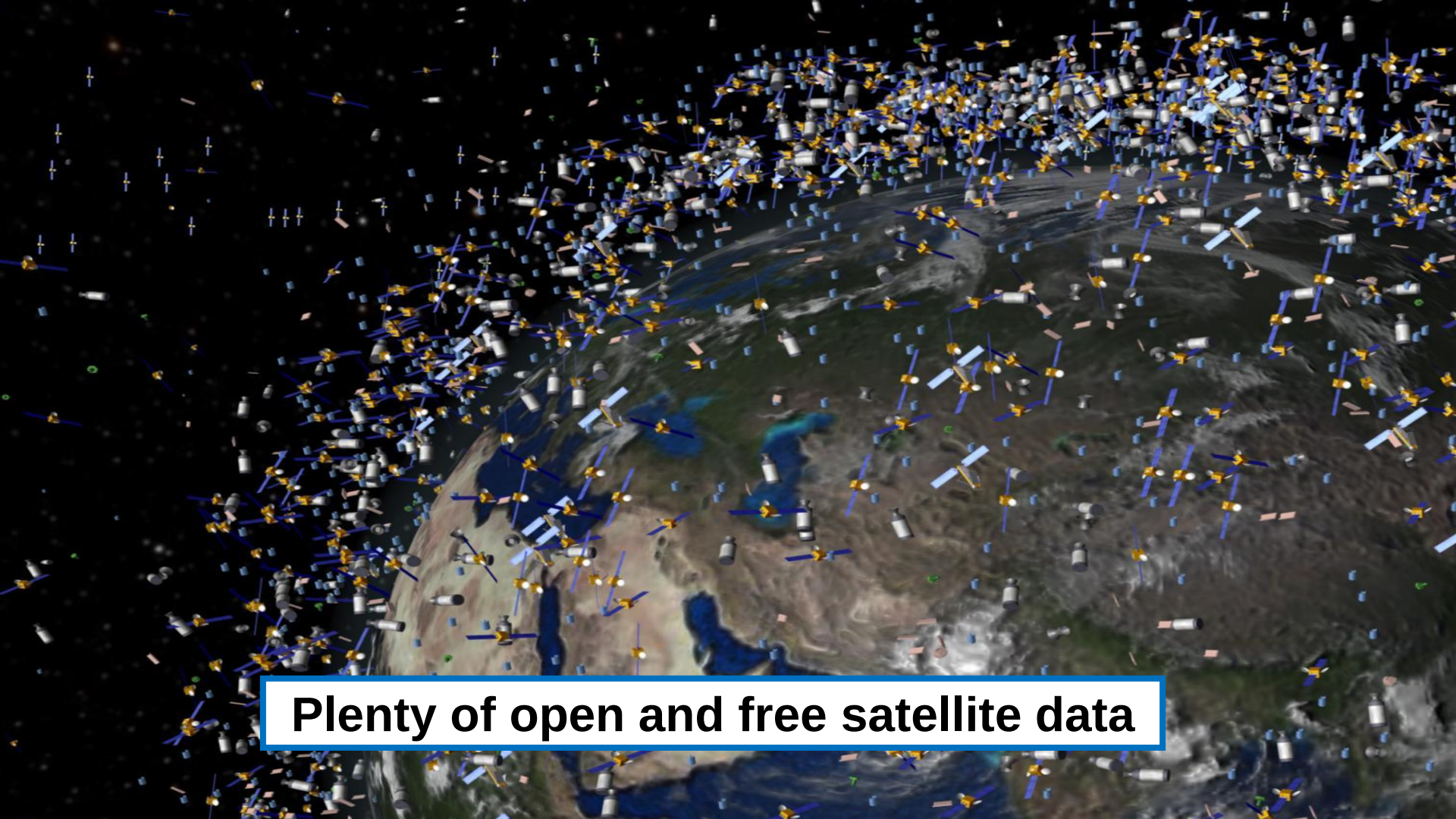
G4AW
GEODATA FOR AGRICULTURE AND WATER

Netherlands Space Office

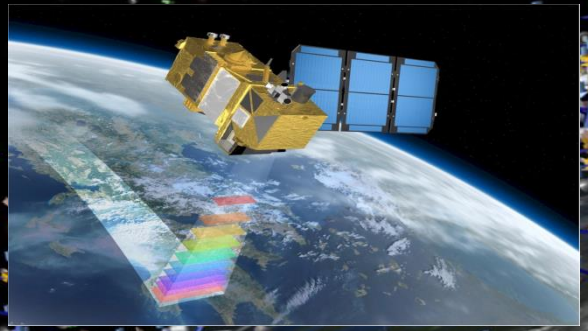
After this presentation you know more:

- Added value of open and free satellite data
- For food security

- Examples of use by:
  - Institutions
  - Smallholder farmers


Plenty of open and free satellite data

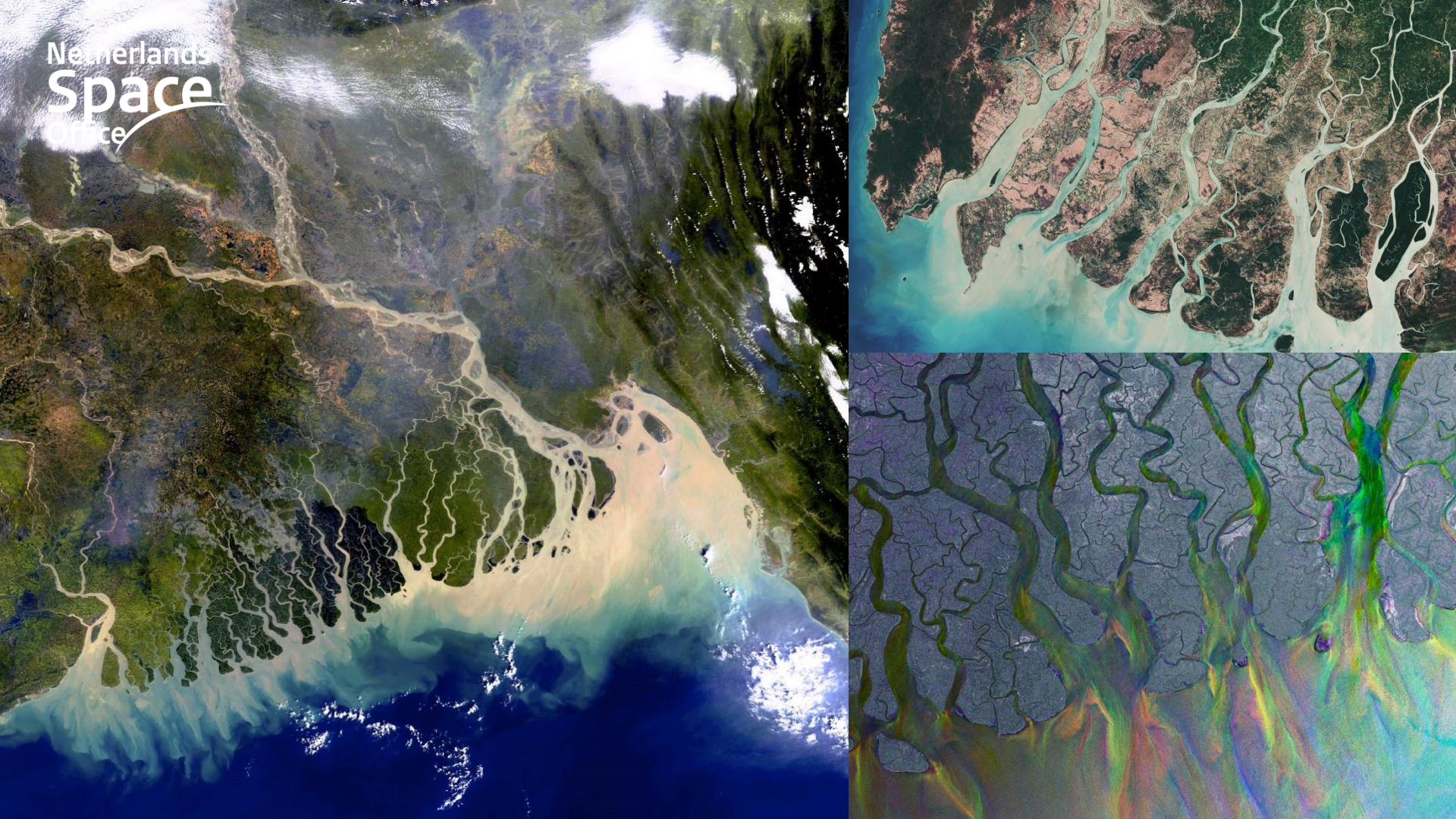
Sentinel-1



Sentinel-2

Sentinel-3

Copernicus for food security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Space
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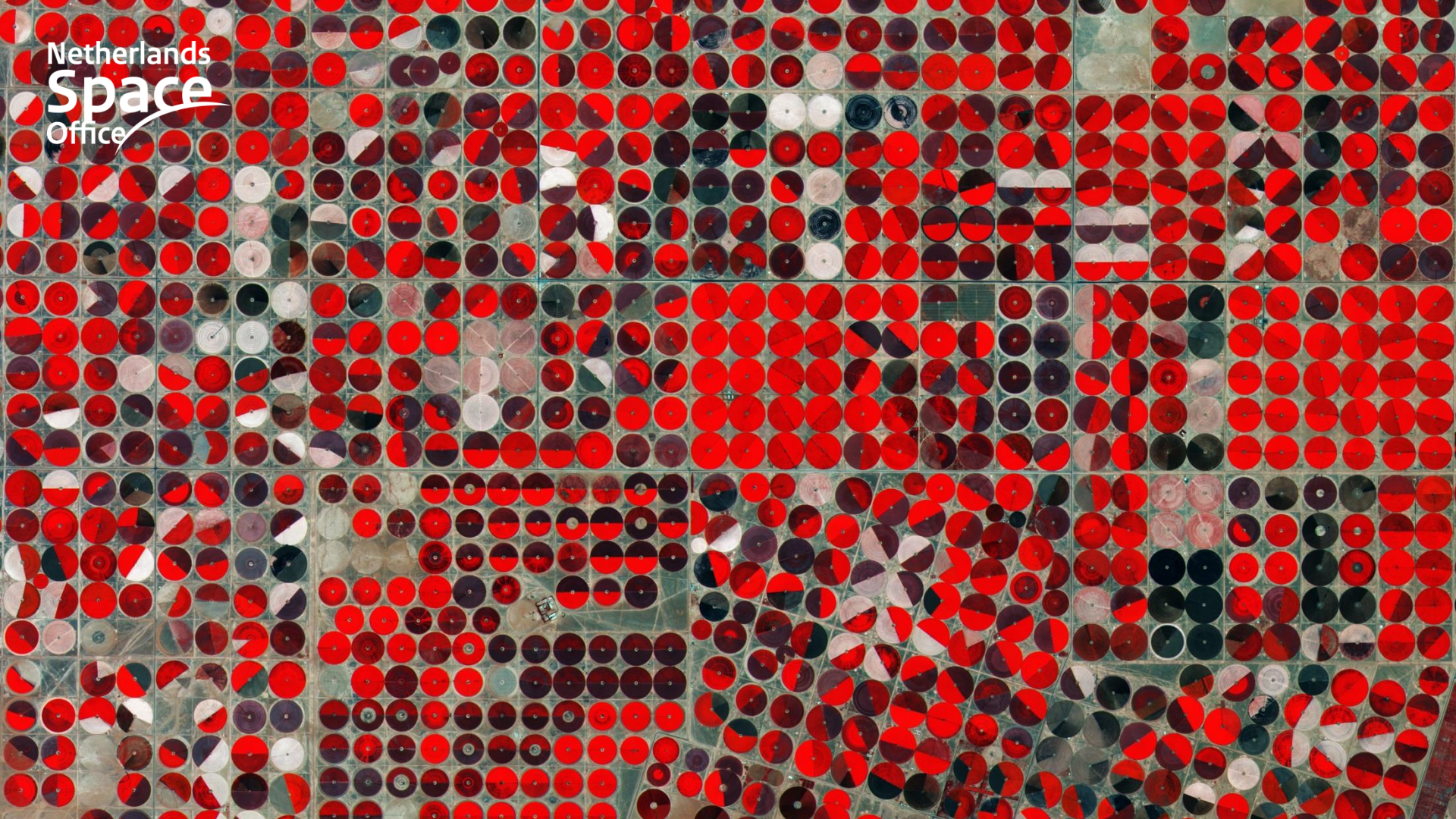
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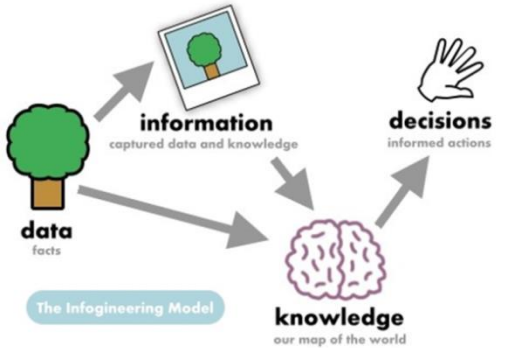
Space
Office

Challenge

- World population
- Food production
- Climate change

Need: better informed decisions at all levels, especially farmers



Use cases

- Government
- Research
- Agro-Industry
- Bank, insurance
- Food producers
  - Commercial
  - Emerging
  - Smallholders

Will there be food shortage, when, where?

Develop better growth, pest & disease models

How to allocate best my resources?

Compliance

What is the risk? Can we mitigate?

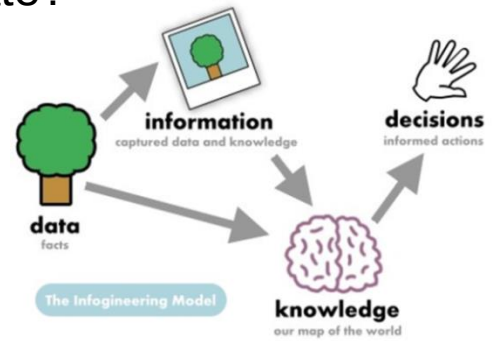
How much will be the harvest?

When to seed?

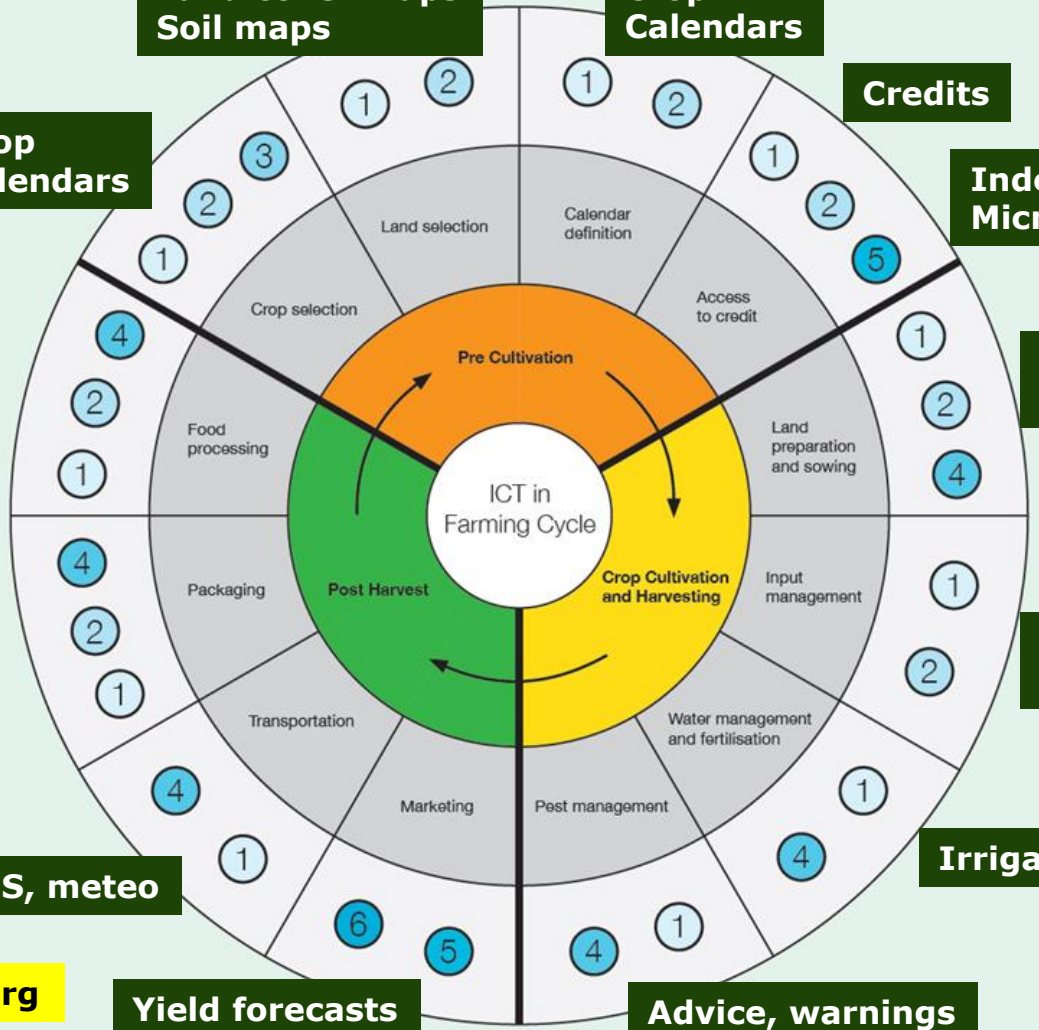
When to harvest?

When to irrigate?

I need credit



1. Information systems including DSS/MISS/GIS etc
2. ICT-enabled learning and knowledge exchange
3. Modelling solutions
4. Sensory and proximity devices
5. ICT-enabled networking solutions
6. Online commerce tools (eCommerce/mCommerce)



Land cover maps
Soil maps

Crop Calendars

Credits

Crop Calendars

Index based Micro insurance

Land cover maps
Soil maps

Crop growth monitoring

Irrigation advice

GPS, meteo

Yield forecasts

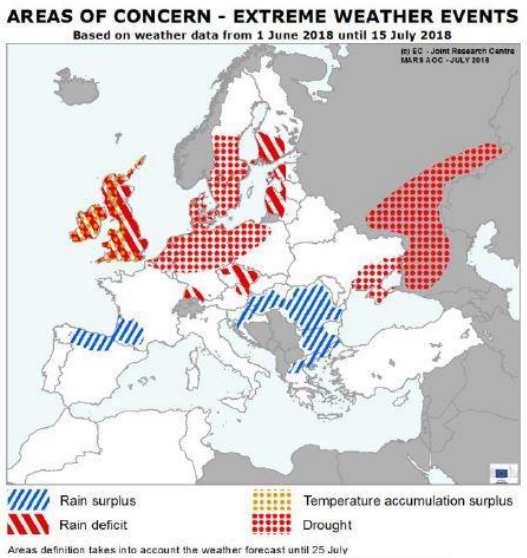
Advice, warnings

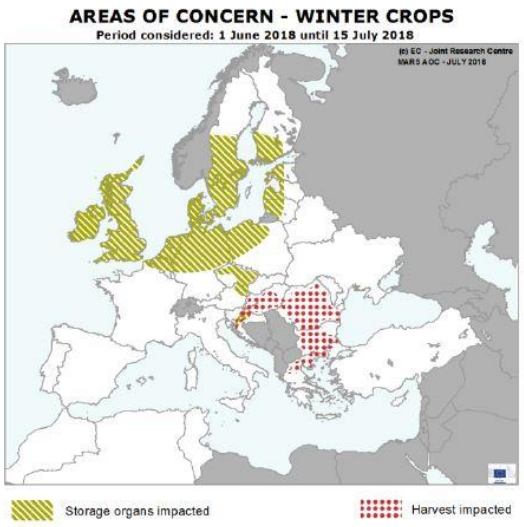
www.eTransformAfrica.org

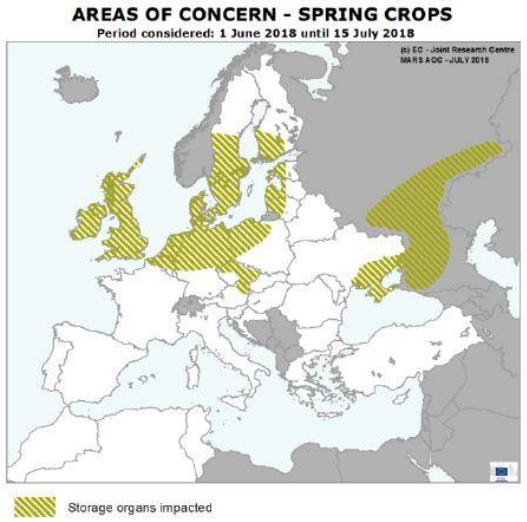
Monitoring Agricultural ResourceS (MARS) since 1993

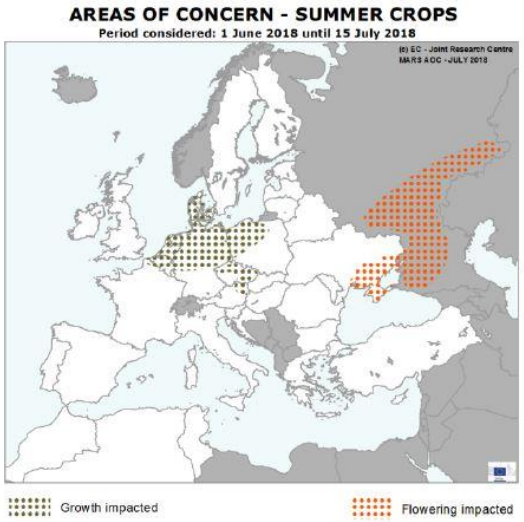
Use Case:
Crop monitoring and yield forecasting in Europe for statistics and to identify areas of concern for possible intervention.

Users, a.o.:
EC DG-AGRI
Government users
Statistical offices
Businesses
Researchers









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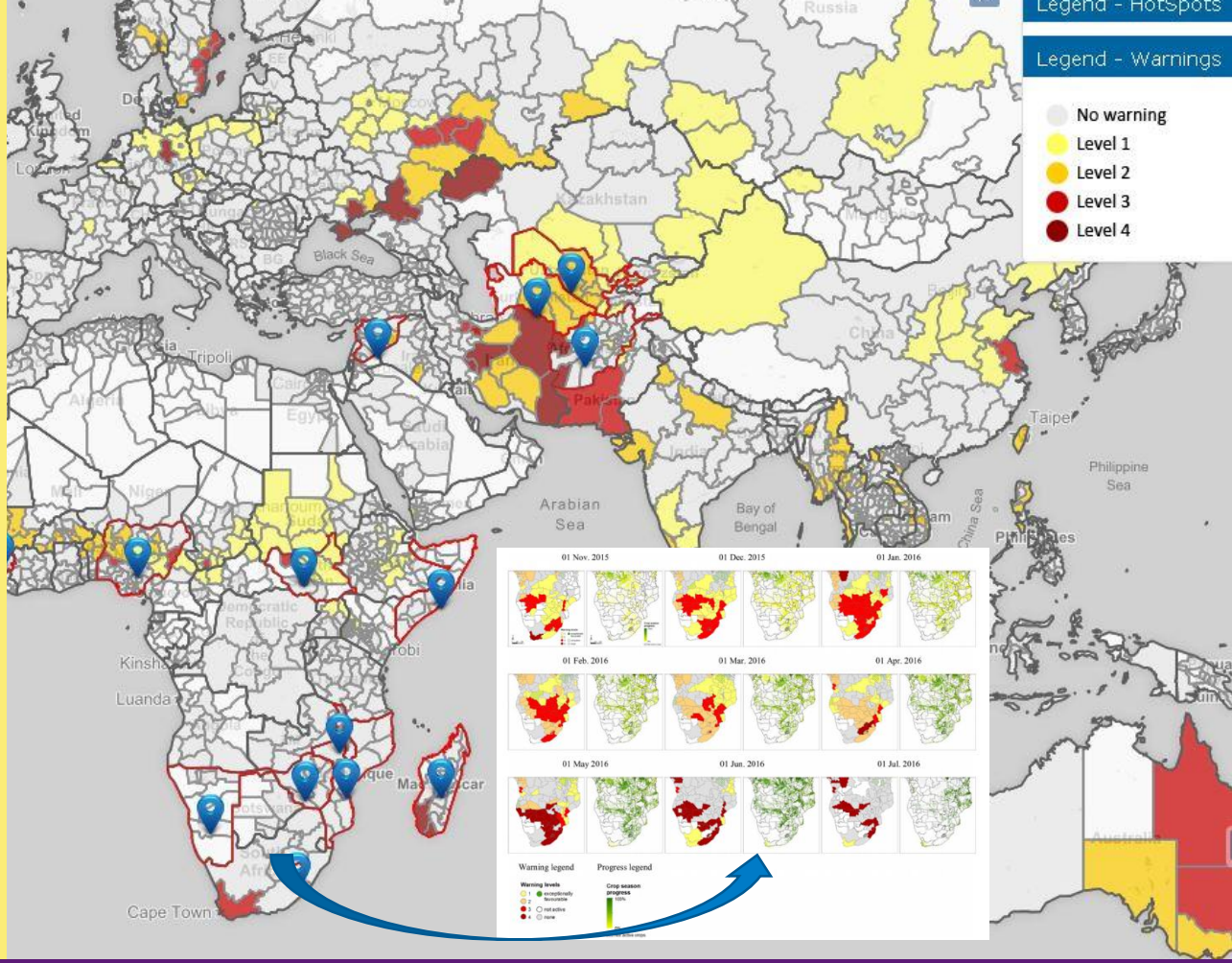
GEODATA FOR AGRICULTURE AND WATER

Netherlands Space Office

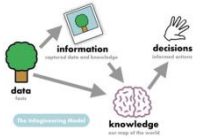
EC JRC Identify Anomaly Hotspots of Agricultural Production (ASAP)

Use case:
Early warning on food insecurity in 80 countries.
Cooperation in GEOGLAM project.

Users a.o.:
EC DEVCO
governments
Researchers



Government / research, a.o.



- Monitoring Agricultural ResourceS (MARS, EC)
- Anomaly Hotspots of Agricultural Production (ASAP, EC)
- Famine Early Warning System (FEWS, USAID)
- CropMonitor (GEOGLAM, GEO)
- African Risk View (ARC, AU)
- Remote sensing-based Information and Insurance for Crops in Emerging Economies (RIICE, GIZ), IRRI)

Smallholder food producers

- 800 million smallholders
  - 0,5-2 ha average
  - 1-2-3 harvests / year
  - Multicropping
  - No savings, need for credit
  - Facing effects of climate change
- Need better information and/or advice:
  - Traditional knowledge is less or not effective
  - No or few (outdated) other information

Smallholder food producers:

- 800 million smallholders
  - 0,5-2 ha average
  - 1-2-3 h

- nd/or advice:
  - ledge is less or not effective
  - or few (outdated) other information

However, the global and regional information systems are not (yet) supporting smallholders

Geodata for Agriculture and Water (G4AW) improves food security in developing countries by using satellite data.

- 3 Calls
- 60 mio €
- 2014-2021

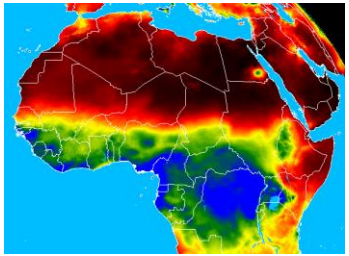
Netherlands Space Office (NSO) is executing this programme, commissioned by the Dutch Ministry of Foreign Affairs.

Major (technology) enablers




Satellite and other sensor systems

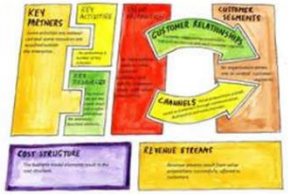

Operational infrastructure

Value adding services


Distribution channels


Business case - success factors



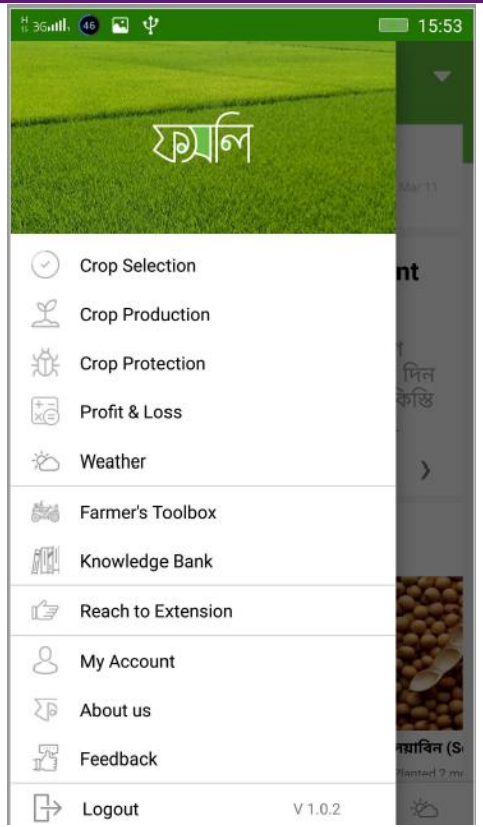
- **Business model:** Various models being deployed
- **Market:** Tackle a well-defined and specific problem
- **Solution:** Part of a portfolio of services, focus remains on a core offer with added value for client
- **Channel:** They build on already existing delivery mechanism(s)
- **License to operate:** embedding in the local context
- **Maturity:** a reproduction of an already (elsewhere) validated service

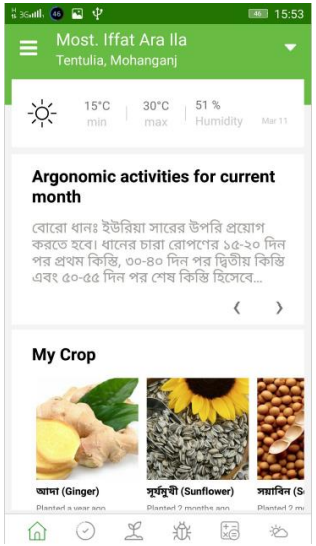
Download publication

Examples of services

- More localized weather forecasts
- Yield forecasts / growth stages
- Pest & disease warnings
- Drought and flood warnings
- Micro insurance
- Risk profiling supporting insurance and credits

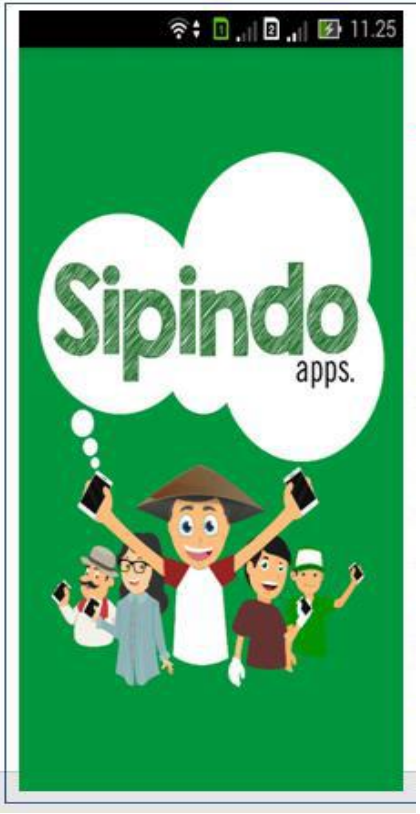
Intelligent Decision Support System (IDSS) for Farmers Bangladesh



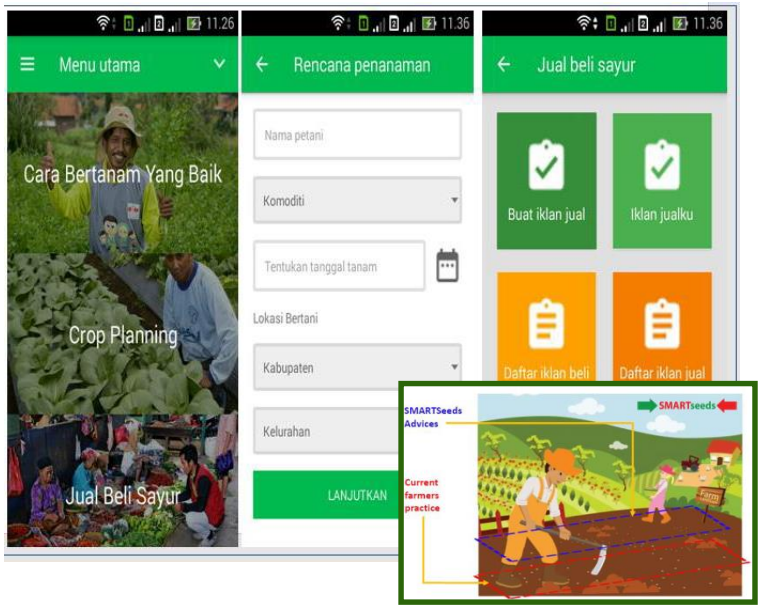


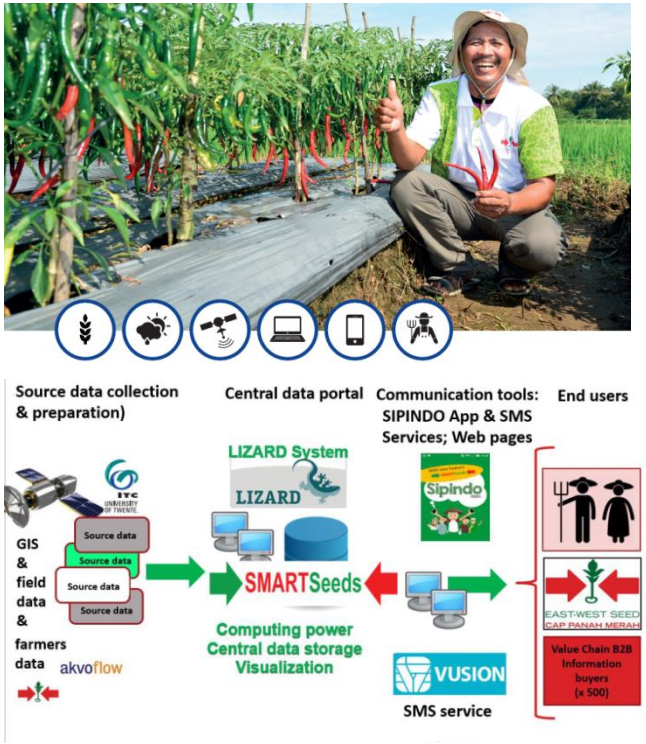
ফসলি

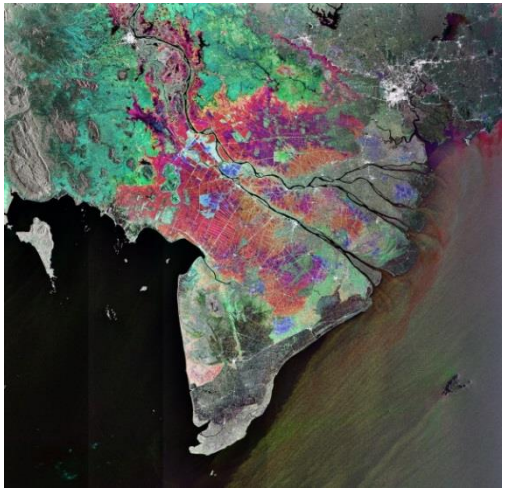
An Information Platform for Farming Community



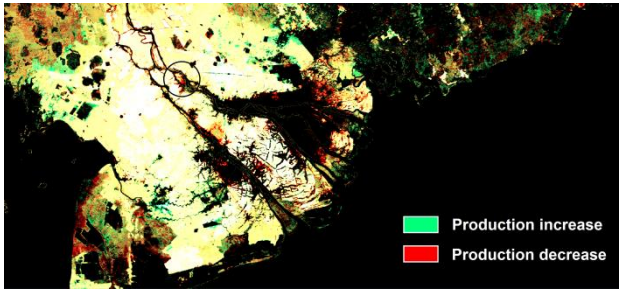
Information services for vegetable farmers (SmartSeeds), Indonesia

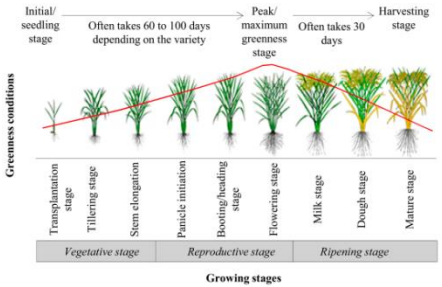


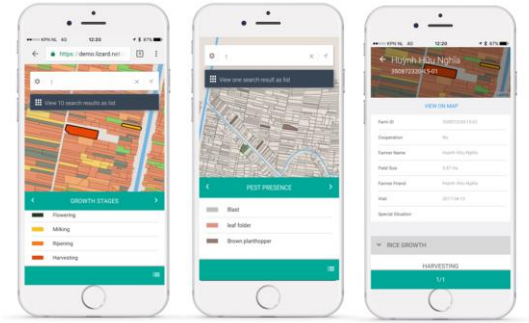


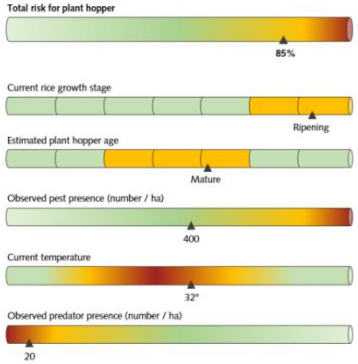


Satellite data for Rice (Sat4Rice) Vietnam







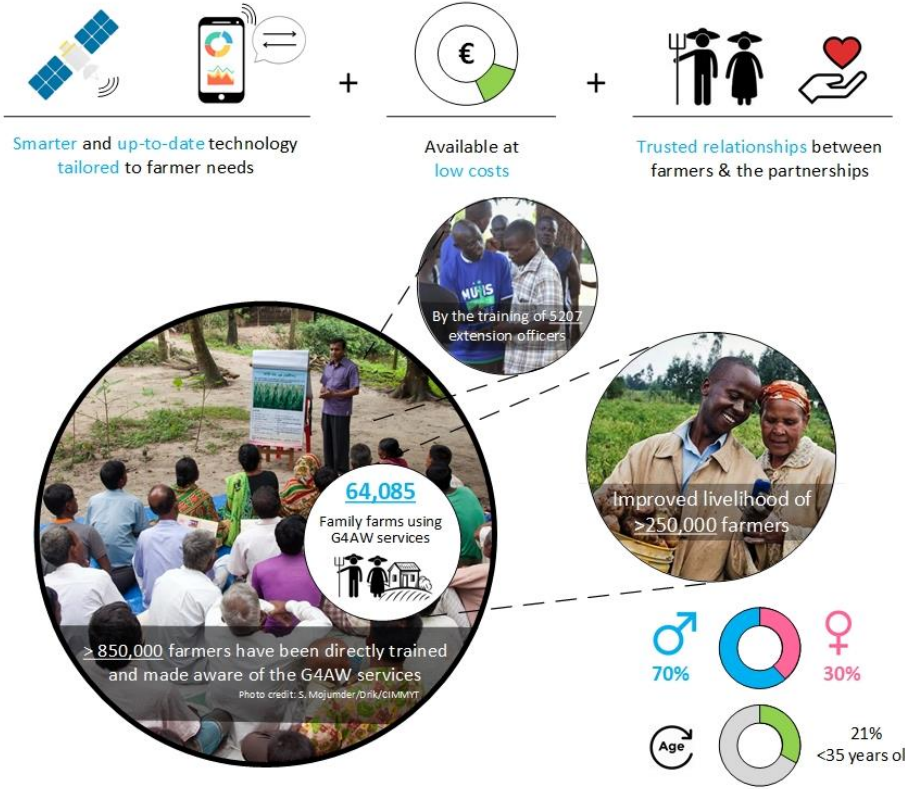


Services:
Weather information
Pests & diseases
GAP information
Market information
Available: Mar. 2018

Channels:
Extension officer
Computer/tablet
Smart Phone

Myanmar Mobile Value Added Services for Agriculture (MYVAS4AGRI), Myanmar

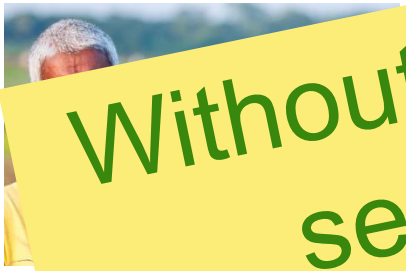
Results G4AW 2017



Results G4AW 2017

Without Copernicus no affordable services (agro-advisory, inclusive finance) for smallholders

Results G4AW 2017



Without Copernicus no affordable services for smallholders and no intelligence at government and industry level

Time to scale reaching 800 million smallholders

CLICK TO JOIN

Questions?

Thank you for your attention

G4AW is a programme commissioned by

Ministry of Foreign Affairs

Contact: g4aw@spaceoffice.nl

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Netherlands Space Office

Additional slides

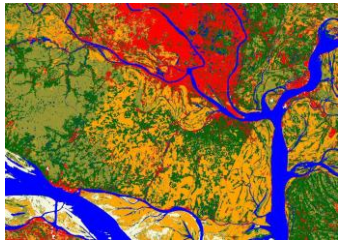
Want to know more about G4AW?

Website: https://g4aw.spaceoffice.nl/en/
LinkedIn: https://www.linkedin.com/groups/8509495
Publications: https://g4aw.spaceoffice.nl/en/about-g4aw/publications/
- Lessons learned from first G4AW calls and project progress (Feb. 2017)
- Geodata for Inclusive Finance and Food (NpM reports 2017, 2018)
Videos: https://g4aw.spaceoffice.nl/en/projects/g4aw-project-videos/
Leaflets: https://g4aw.spaceoffice.nl/en/projects/g4aw-project-leaflets/
Apps: https://g4aw.spaceoffice.nl/en/projects/g4aw-mobile-apps/

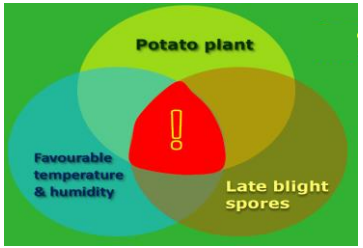
Locations:
Rangpur &
Munshigansj

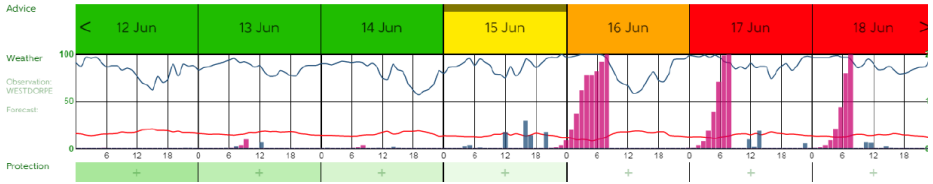
Services, a.o. :
Night Blind alerts
Spray advice

Geodata to control potato late blight
in Bangladesh
(GEOPOTATO)
Bangladesh

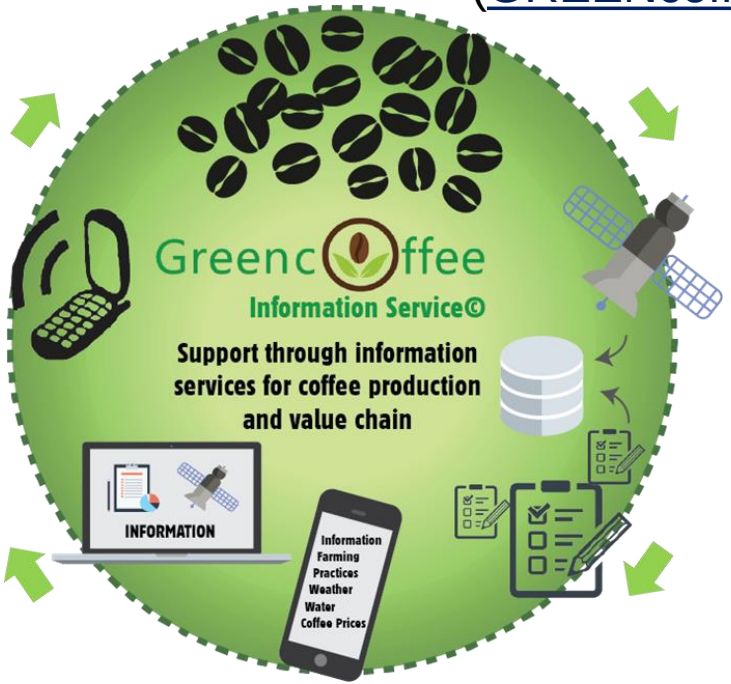


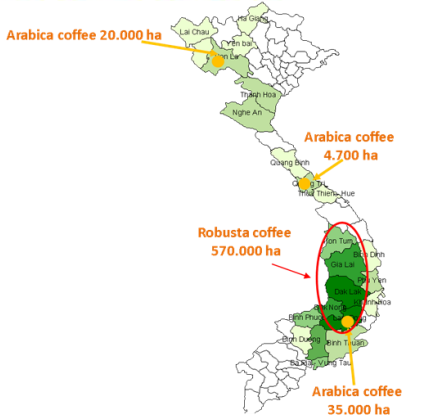
Red = urban
Orange = potato
Green = other veg.





Information services for coffee farmers (GREENcoffee), Vietnam

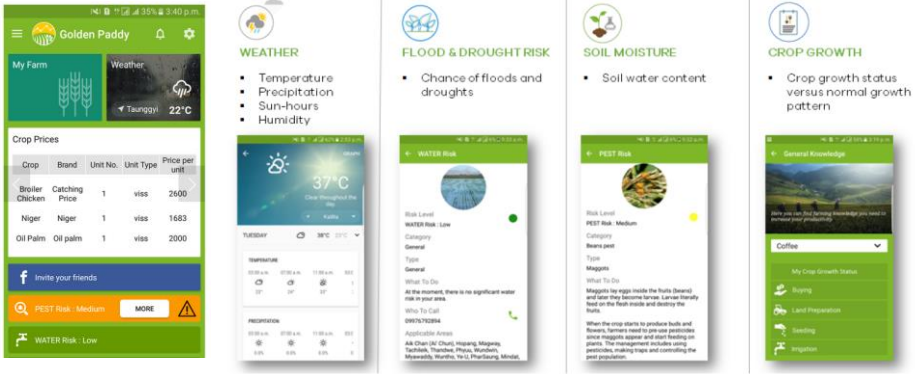




Smart Agriculture Myanmar (SAM), Myanmar

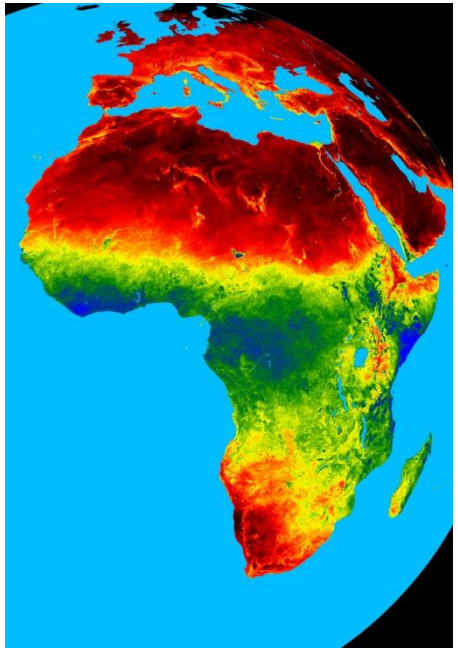
Services:
Weather information
Agronomic advices
Market information
Access to credit
Available: since 2017

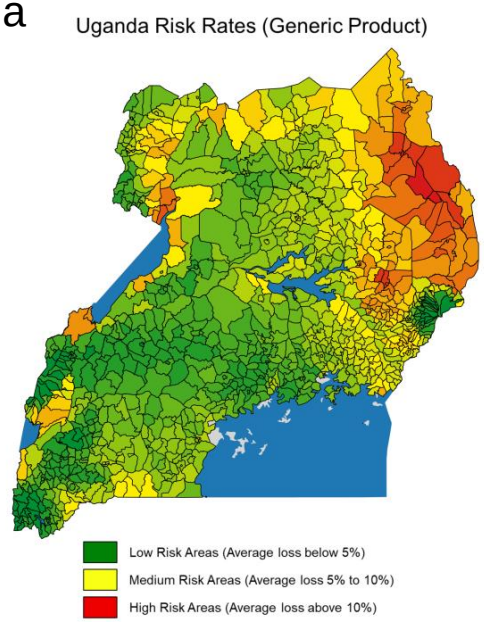
Channels:
Extension officer
Computer/tablet
Smart Phone
Facebook



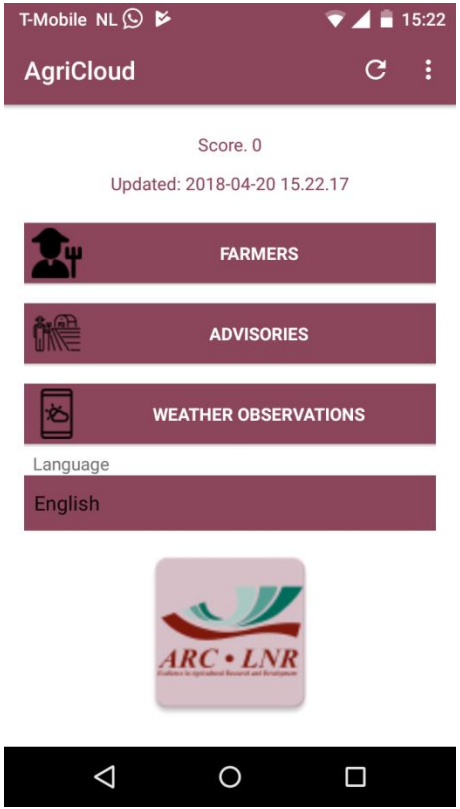
Micro insurance Risk profiling

SumAfrica & MUIIS, Mali & Uganda

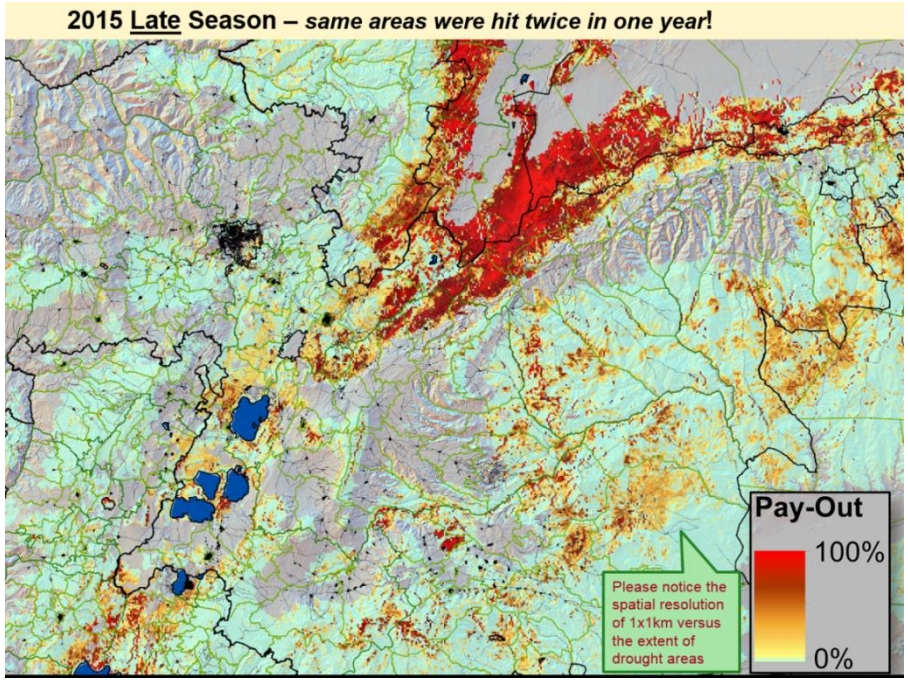


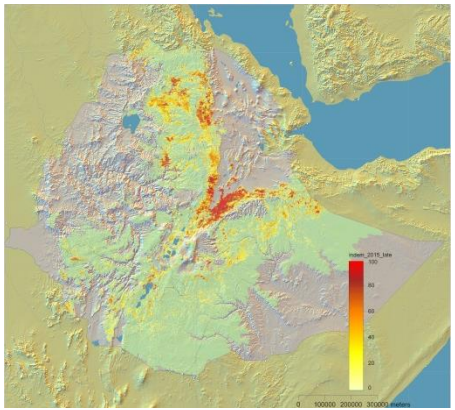


Rain for Africa (R4A) South Africa



Geodata for Innovative Agricultural Credit Insurance Schemes (GIACIS) Ethiopia

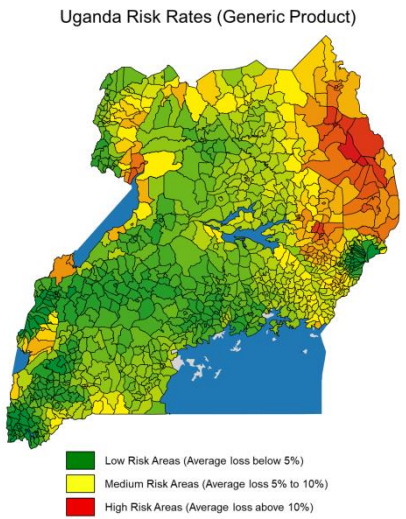




Geodata for Inclusive Finance & Food (G4IFF)

NEW!

Improve access to finance for the rural target groups



G4IFF is coordinated by Dutch Platform for Inclusive Finance.

Netherlands Space Office

- Space agency of the Netherlands government (established 2009)
- Reporting to:
  - Ministry of Economic Affairs
  - Ministry of Infrastructure and Environment
  - Ministry of Education, Culture and Science
  - Ministry of Foreign Affairs
  - Netherlands Organisation for Scientific Research (NWO)
- Task: to develop and implement Netherlands Space programme
- Outcome: space applications for science, economy and society