




Space for Food Security: The Geodata for Agriculture and Water programme (G4AW)

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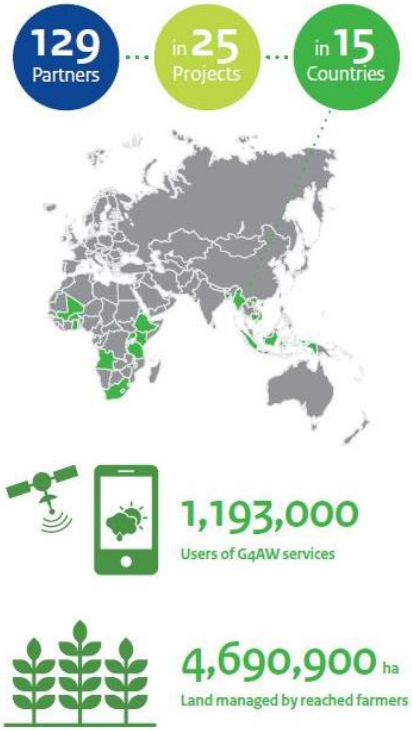
G4AW
GEODATA FOR AGRICULTURE AND WATER

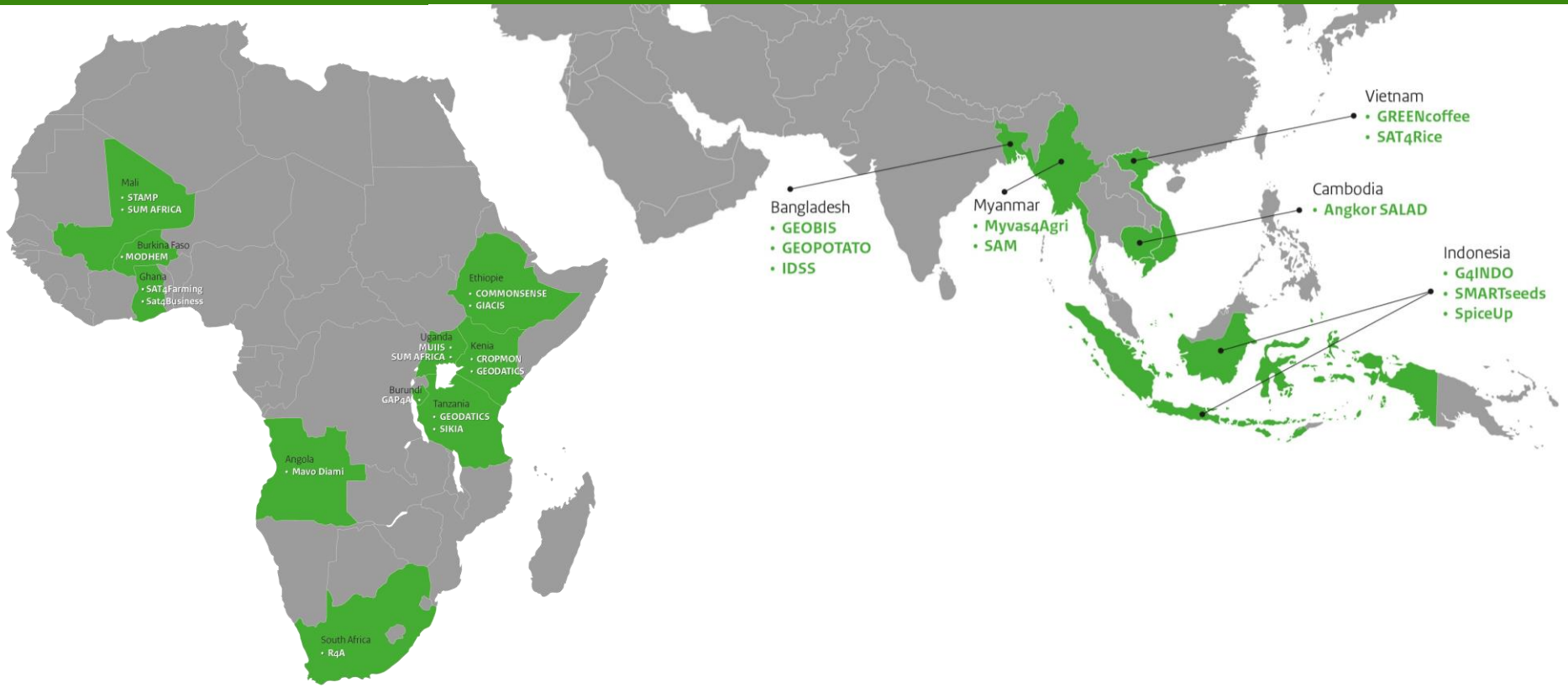
Netherlands Space Office

Ministry of Foreign Affairs

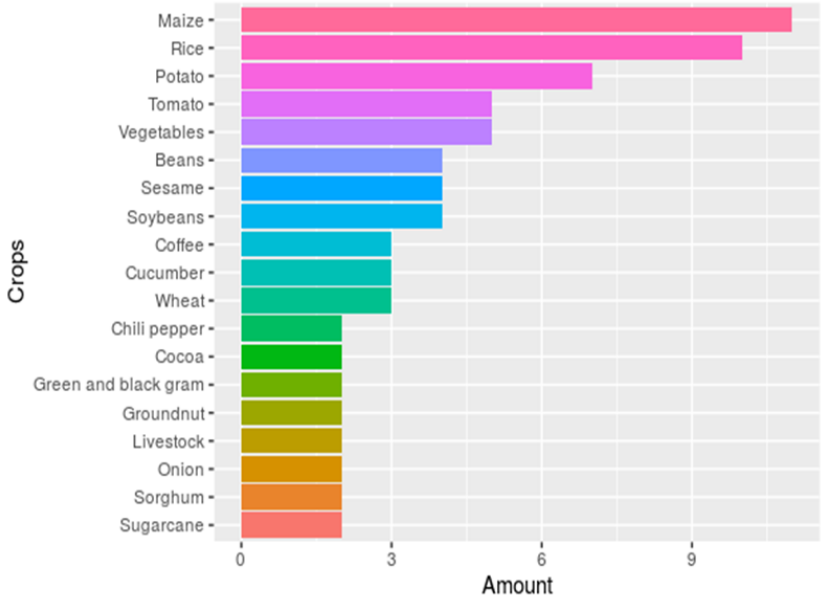
Since 2013, the Geodata for Agriculture and Water (G4AW) has improved food security in developing countries by promoting the creation of digital advisory and/or financial services based on use of satellite data.

- 4,5 mio farmers and (agro-)pastoralists farmers
- 25 projects & innovations
- 15 countries
- Commissioned by Netherlands Ministry of Foreign Affairs




Mali
• STAMP
• SUM AFRICA
Burkina Faso
• MODHEM
Ghana
• SAT4Farming
• Sat4Business
Ethiopie
• COMMONSENSE
• GIACIS
Uganda
MUIIS •
SUM AFRICA •
Kenia
• CROPMON
• GEODATICS
Burundi
GAP4A •
Tanzania
• GEODATICS
• SIKIA
Angola
• Mavo Diami
South Africa
• R4A
Bangladesh
• GEOBIS
• GEOPOTATO
• IDSS
Myanmar
• Myvas4Agri
• SAM
Vietnam
• GREENcoffee
• SAT4Rice
Cambodia
• Angkor SALAD
Indonesia
• G4INDO
• SMARTseeds
• SpiceUp

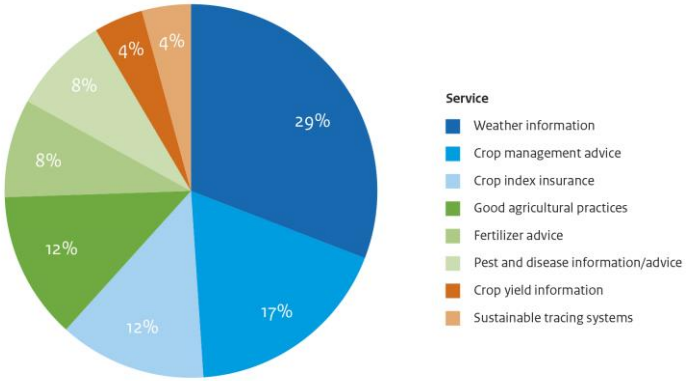
Crops & services



Type of service	Proposal	Realized
Crop management advice	21	19
Weather information	11	18
Good agricultural practices	10	18
Fertiliser advice	8	13
Market information	8	11
Pest and disease information/advice	8	16
Irrigation advice	6	8
Farmer profile information	4	10
Agricultural input loans	3	5
Crop index insurance	3	4
Crop selection advice	2	9
Crop yield information	1	10
Flood mitigation advice	1	2
Location information	1	8
Sustainable tracing systems	1	4

Examples of agtech/fintech services in G4AW

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



Satellite & geodata

- Weather satellites (EUMETSAT, NOAA, …)
- Satellite data (see right)
- Field plots (GNSS: GPS, GALILEO)
- In-situ data (GIS)
- Market information (GIS)

Supported by data platforms

Sensor type	Sensor name	Number in proposal	Number in operational service
Optical	MODIS	16	12
Optical	Landsat 7/8	14	5
Radar	Sentinel 1	14	11
Optical	Sentinel 2	14	14
Optical	SPOT-VGT / PROBA-V	4	2
Optical	VHR	4	3
Radar	SMAP	3	2
Radar	TerraSAR-X	3	1
Radar	ALOS PALSAR	2	-
Radar	AMSR	2	2
Various	Sentinel 3	2	-
Radar	SMOS	2	2
Optical	VIIRS	2	1

Services:
Routing of herds (avoiding agri zones)
Market information

Channels:
Call center (Orange)

Results:
STAMP (2019):
>75k pastoralists
MODHEM (2020):
>65k pastoralists

Scaling to Niger (since June 2021)

Impact STAMP
Lower mortality rates for cows (23.9%)
Less herd loss: 160 euro (saving)

SNV

HSS
Hoefsloot Spatial Solutions

STAMP (Mali) / MODHEM (Burkina Faso)

Services:
AgriCoach, Nutrition Coach, Online fertilizer and seeds savings, payment and credit, HealthCoach (Covid-19)

Channels:
G50 'Extension officers'
Mobile device app

Results:
~170,000 smallholder families in Burundi
2021: scaling to 400,000 (2.3 mio people)

Impact:

Farmers rating on AgriCoach
9.3 out of 10

227%
Bean productivity (double)

65%
increase in application of GAP's

AUXFIN

Weather Impact

eleaf
FEED THE WORLD

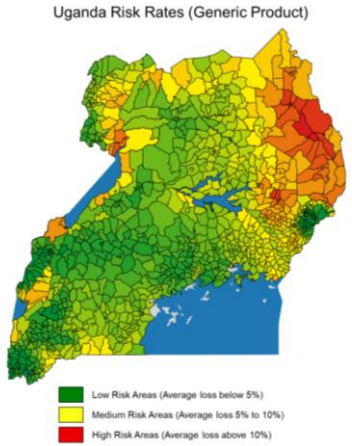
GAP4A (Burundi)

Services:
Drought insurance (localized)

Channels:
Local insurance companies
Farmers cooperatives
AIC, Planet Gaurantee

Results:
farmers insured
67,000 (2018)
289,000 (2021)

Insured versus Uninsured
Less selling assets at distress before drought windows (4% / 21%)
Leaving farm for other work (4% / 15%)
Lower own consumption (16% / 35%)



SumAfrica (Uganda, Mali)

Lessons Learned (AgTech)

- Innovation & scaling takes time
- Implement user-centered approach & digital inclusion using active M&E
- Bundling of services provide benefits (e.g. free advisory with buying inputs)
- Education & trust remain crucial success factor (e.g. farmers are more risk taking rather than to pay for insurance)

- Weather information and forecast crucial
- Better soil data needed for good fertilizer advice
- Develop service delivery to be flexible for adaptions and scaling

Lessons Learned (FinTech)

NpM Geodata for AgTech and FinTech; what have we learned?, March 2021

Geodata, a paradigm shift for inclusive finance!

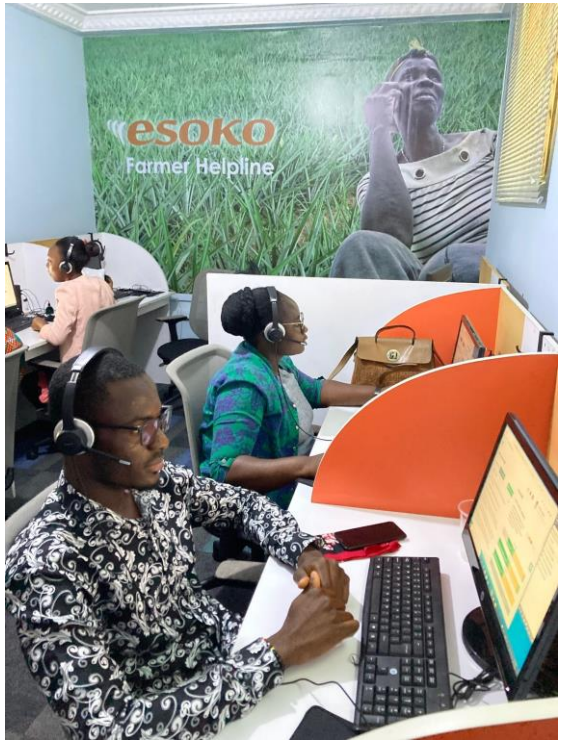
- Geodata for credit scoring improves the current business process.
  - Higher production, increased repayment rate, improved prediction of non-payment, reduced processing time, and reduced operational costs.
- The number of farmer customers is increasing, but revenue generated is still relatively low. Reaching scale is a condition to break even or make a profit.
  - High upfront costs of service development
  - More investment needed to reach scale

Value chain benefits (jobs)

Local job creation, e.g.

- Extension services, e.g. G50 and RSCs
- Call centers
- ICT service providers
- others

More transparency along the value chain



Future developments / benefits

- Digital services are useful from BoP (more inclusive) to commercial farmers (paying clients)
- Digital services can be bundled to fit food producer needs (better)
- Digital services are beneficial for all value chain actors (also for logistics)
- New (space) innovations may emerge (IoT, SatCom in rural areas with no good connectivity) for farmers, access to finance and logistics


SAVE THE DATE
Space for Food Security
G4AW Conference, 3-6 October 2022
Location: Utrecht, NL
G4AW
GEODATA FOR AGRICULTURE AND WATER
Netherlands Space Office
Rabo Foundation

Thank you for your attention

Let’s stay connected!

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