



Navigating Food Security Challenges in the Global South: The Essential Role of Earth Observation

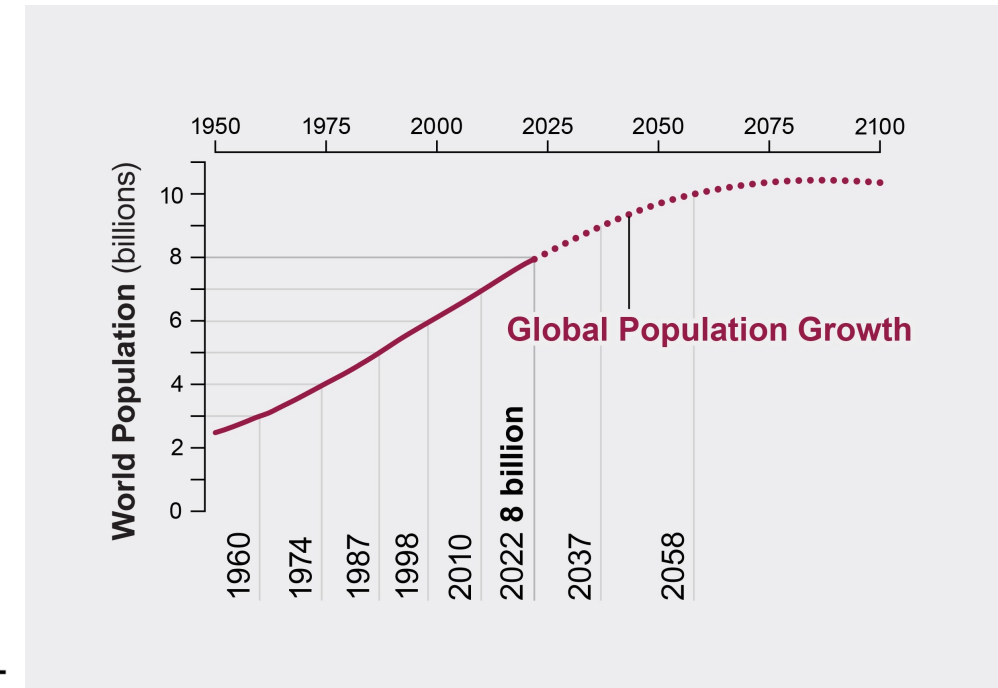
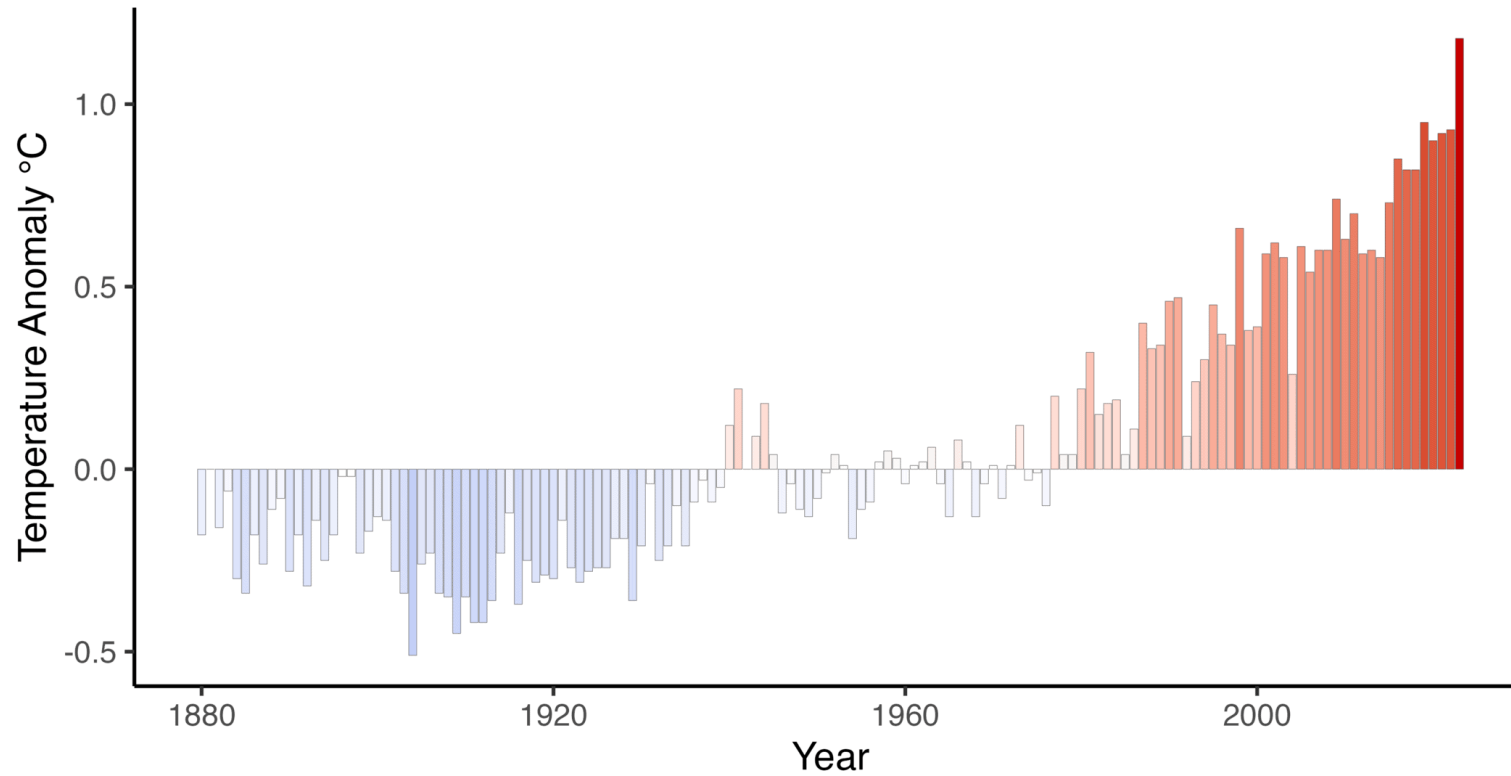
Jesús Ortuño-Castillo





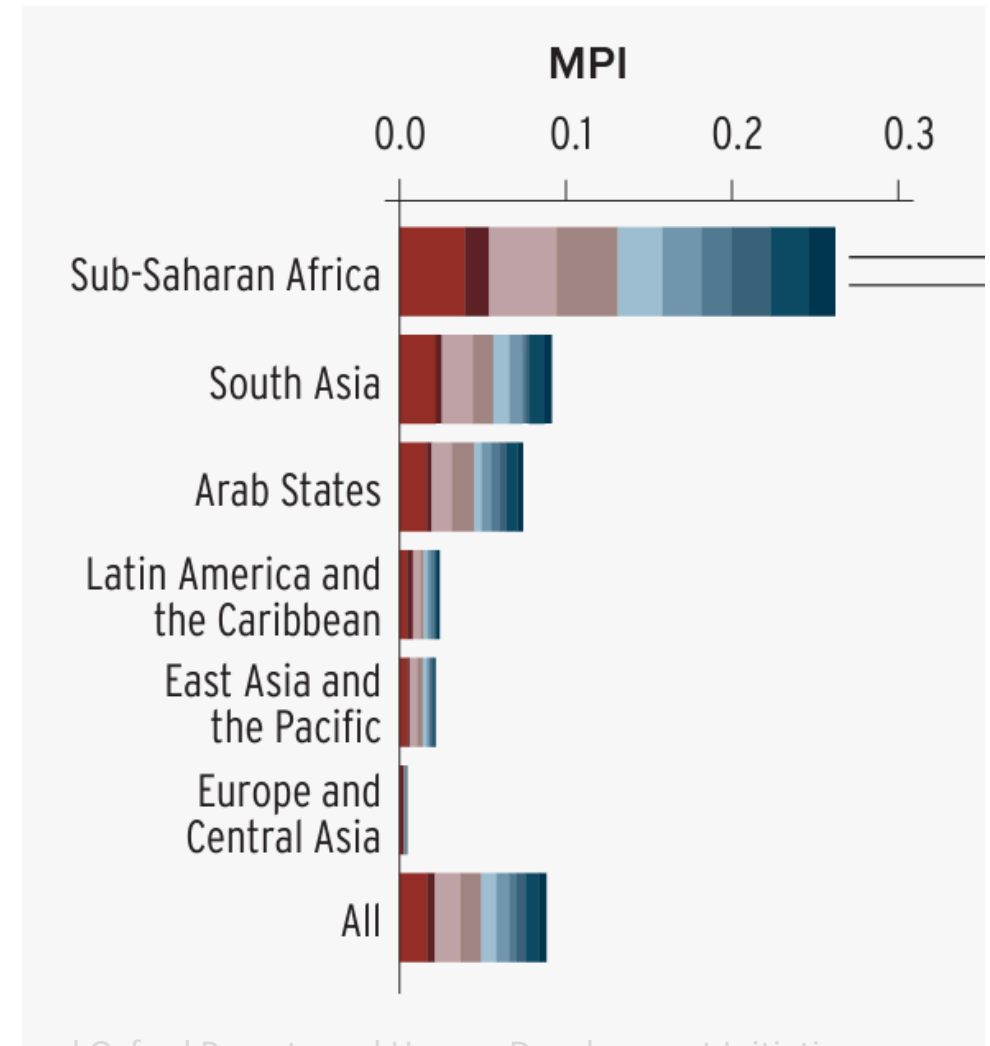
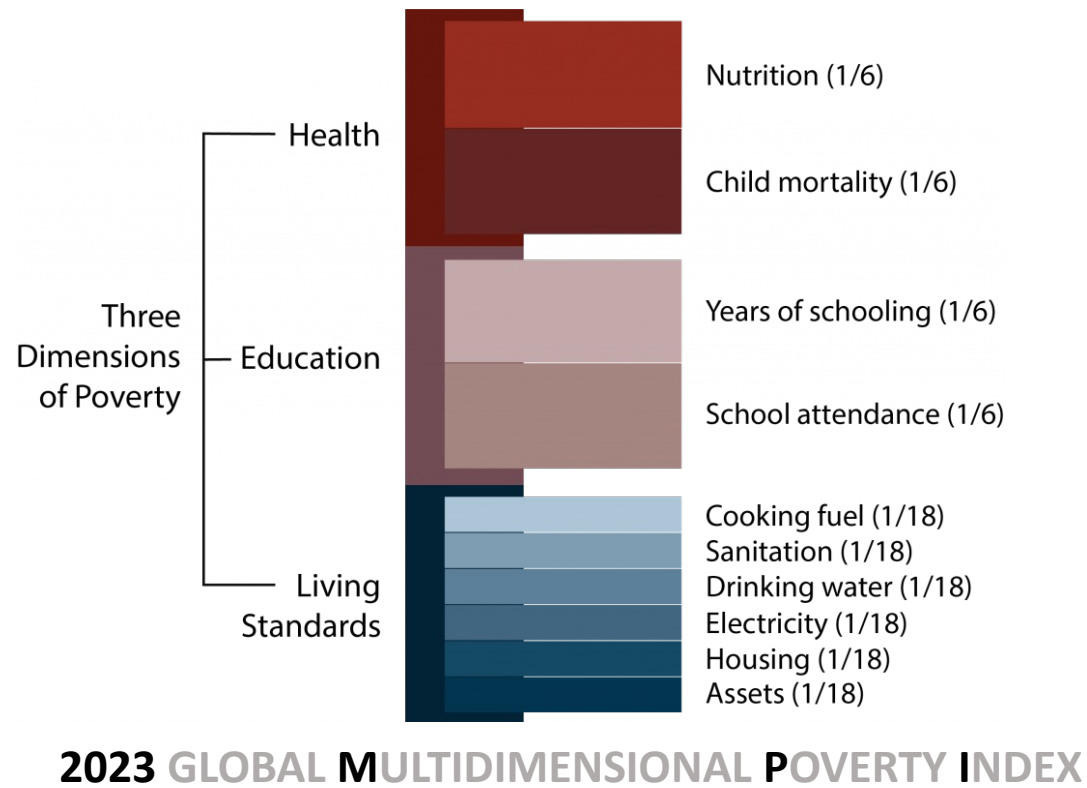
Challenges (context)

NASA July 2023 Global Temperature





Challenges (context)



SOURCE: 2023 by the United Nations Development Programme and Oxford Poverty and Human Development Initiative



FOOD INSECURITY

 **97.9 M in Africa**

 **45 M in the Middle East and Asia**

 **11.8 M in Central America and Haiti**

 **0.6 M in Eastern Europe**

155 M Number of people across 55 countries that experience acute food insecurity in 2020

750M

People exposed to severe food insecurity levels in 2019

2B

People did not have access to safe, nutritious and sufficient food



EO - DERIVED PRODUCTS FOR FOOD SECURITY



AGRICULTURAL
MONITORING
SYSTEMS



COMPUTING
PLATFORMS AND
TOOLS FOR DATA
PRODUCTION

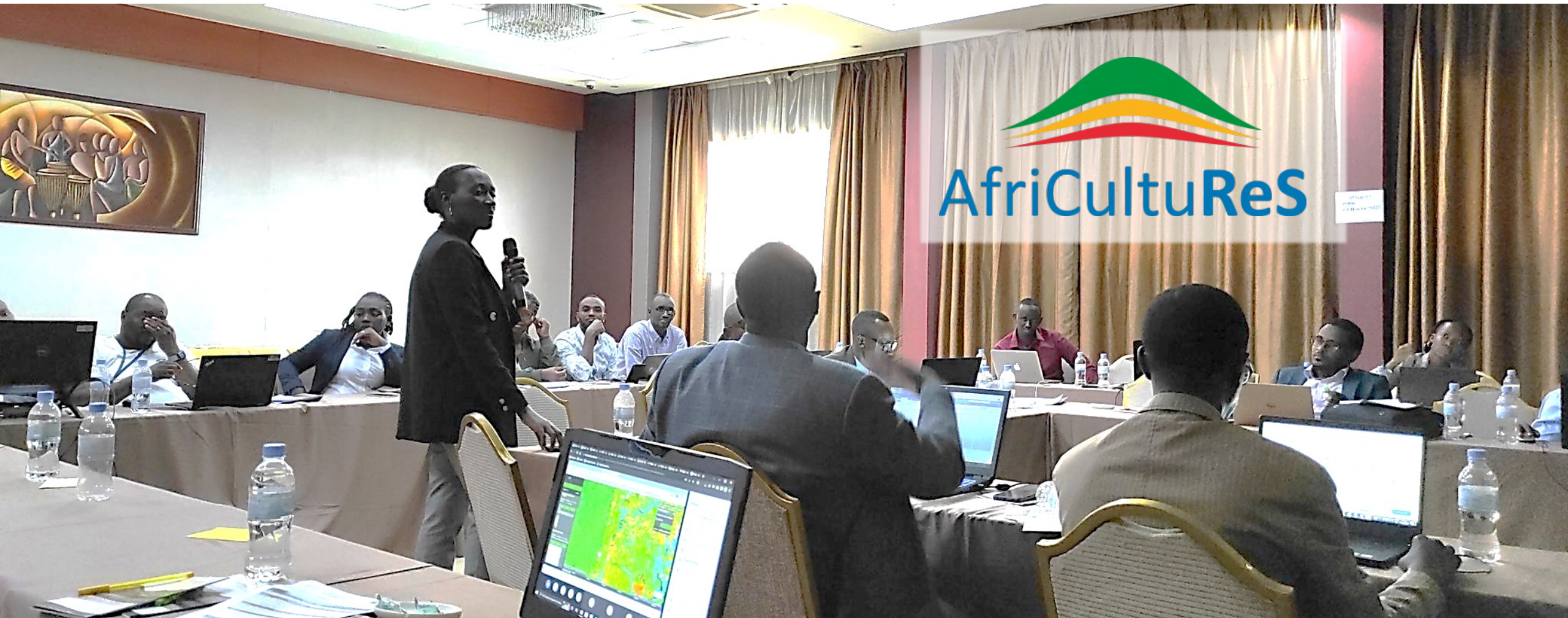


SUPPORT FOOD
SECURITY
ASSESSMENTS

EUROGEO WORKSHOP 2023



Success Stories: Africultures EU project



BOLZANO 2-4 OCTOBER 2023



AfriCultuReS



Funded by the Horizon 2020
Framework Programme of the
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GOAL



Enhance Food Security in African Agricultural systems

- **Earth Observation**
- **Climate Services**
- **Geospatial Analytics**





AfriCultuReS

Earth Observation (EO) evidence-based decision-making services

Co-designed and co-developed with users, AfriCultuReS addresses real-life challenges

AfriCultuReS raised awareness about EO for Food Security and built capacity

AfriCultuReS has attracted the interest and paved the way for scaling up

EUROGEO WORKSHOP 2023



Climate predictions
Seasonal forecast
Climate adaptation



Crop type mapping
Crop condition
Yield forecasts



Drought early warning
Drought forecasts
Impact assessment



LULC Mapping
Land degradation
Soil condition assessment



Grazing and rangeland monitoring
Browsing capacity assessment
Identification of water sources for livestock



Monitoring of water availability & quality
Crop water requirements
Soil moisture monitoring



Local weather forecast
Extreme weather
events early warning



Theory of Change Impact

CHANGE Through USERS INVOLVEMENT

- CO-DESIGN
- CO-DEVELOPMENT
- CO-CREATE



EARTH OBSERVATION AND CLIMATE SERVICES

*Evidence-based
decision making*



USERS DRIVEN USE CASES

- Genuine interest
- Support awareness raising
- Capacity development



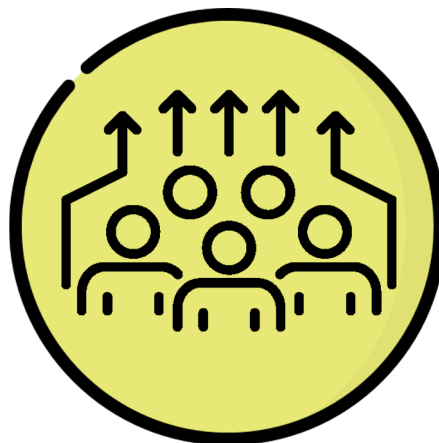
- *ENHANCED agricultural and land use planning*
- *ENHANCED agricultural policy environment*
- *ENHANCED Evidence based policy formulation*
- *ENHANCED Stakeholders engagement*
- *ENHANCED Resilience and adaptation to climate*
- *ENHANCED Livelihoods of smallholder's farmers and herders*
- *IMPROVED market access*
- *INCREASED productivity*



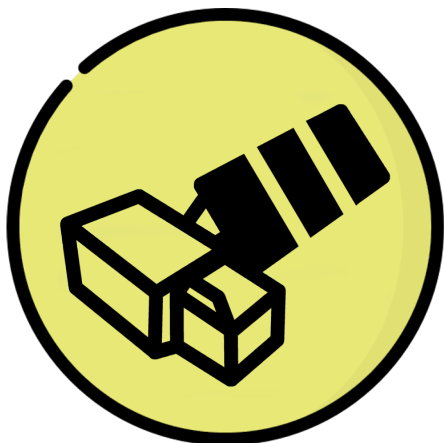
AND... WHAT'S NEXT ?

TECHNOLOGIES

AI, MACHINE LEARNING...

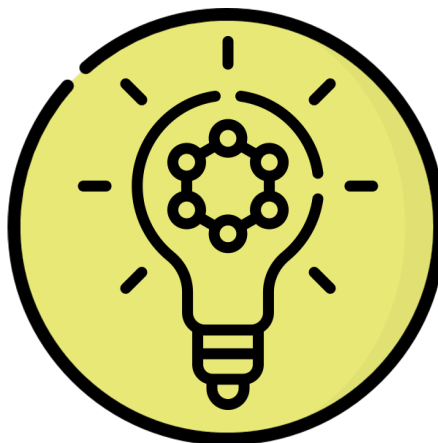


CAPACITY BUILDING
DEVELOPMENT OF SKILLS,
LOCAL AND SMALL
FARMERS IN DEVELOPING
COUNTRIES



MORE DATA

HIGHER
SPATIOTEMPORAL
DATA THROUGH
SENTINEL 2,...ETC



NEW APPLICATIONS
EO FOR LAND REGISTRATION,
AGROFORESTRY,
AGROECOLOGY,
BIODIVERSITY...ETC.



Thank you

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