GROUP ON EARTH OBSERVATIONS

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GEOGLAM CropWatch - a cloud platform enhancing the crop monitoring capacity for developing countries

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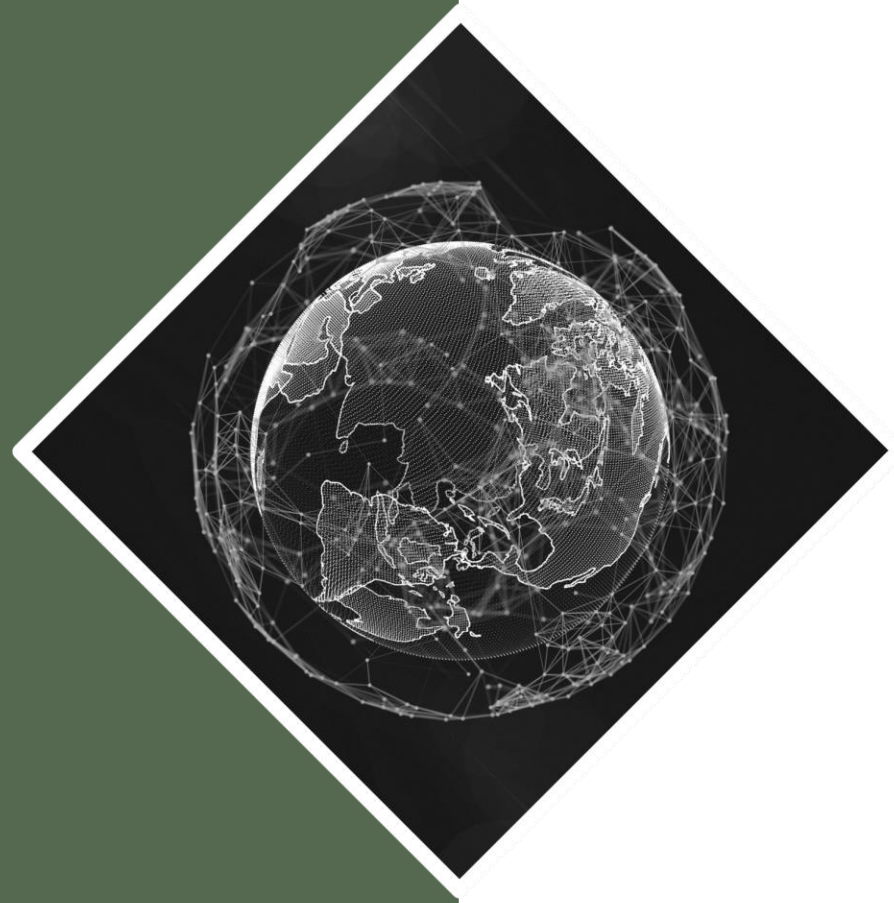
http://cloud.cropwatch.com.cn/

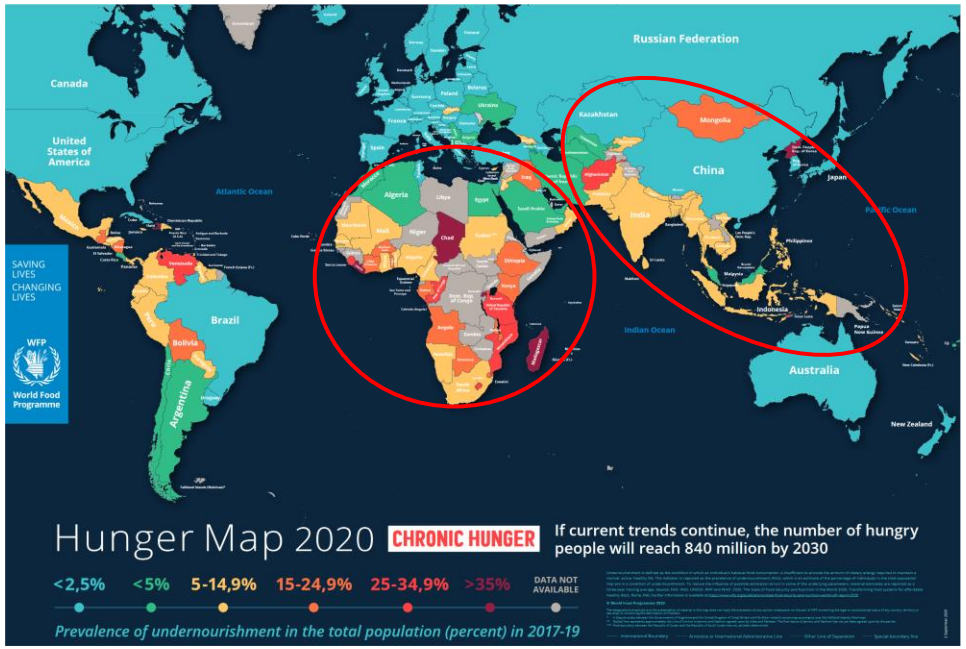
Outline

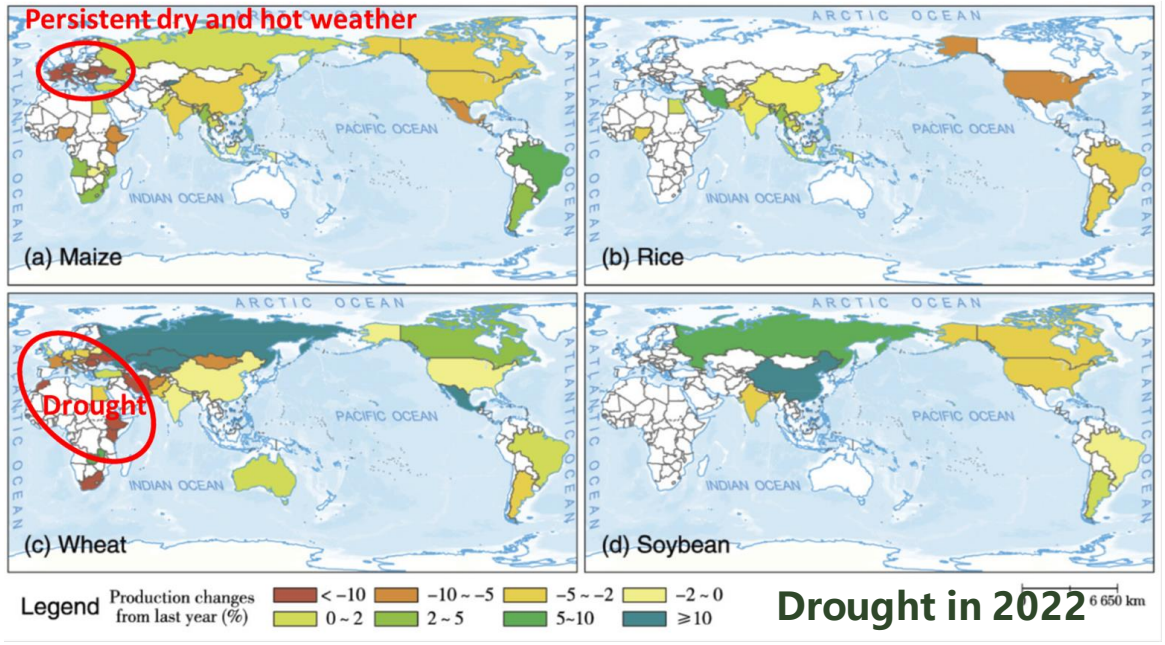


- Background
- CropWatch Cloud
- Data in CropWatch
- Capacity building and knowledge sharing

Issues for Food Security

- Food security is still a challenge issue over the world, in particular in Africa, south & southeast Asia. COVID-19, Desert Locust, drought, flooding, etc. further threaten food security.
- The paucity of adequate capacity in obtain and accessing up-to-date production information pose the danger of taking decisions based on delayed and on not easily verifiable information.





CropWatch Cloud

- CropWatch is a satellite-based crop monitoring platform, providing APIs access to all agro-climatic indicators, agronomic indicators, area, yield and production at different scales
- Release Quarterly and annually bulletins on global crop monitoring, covering 173 countries and regions down to provincial scales, with special focus on 43 key agricultural countries

CropWatch-Pro

- An online tool for people to produce crop monitoring products at any time and anywhere.

Cropwatch **Pro** — Enter

CropWatch-Explore

- An online interface for people to explore and analysis all the crop information data easily.

CropWatch **Explorer** — Enter

CropWatch-Project

- An online platform for people to create and write the crop bulletin.

Cropwatch **Project** — Enter

CropWatch-Bulletin

- An webpage for people to read CropWatch bulletin.

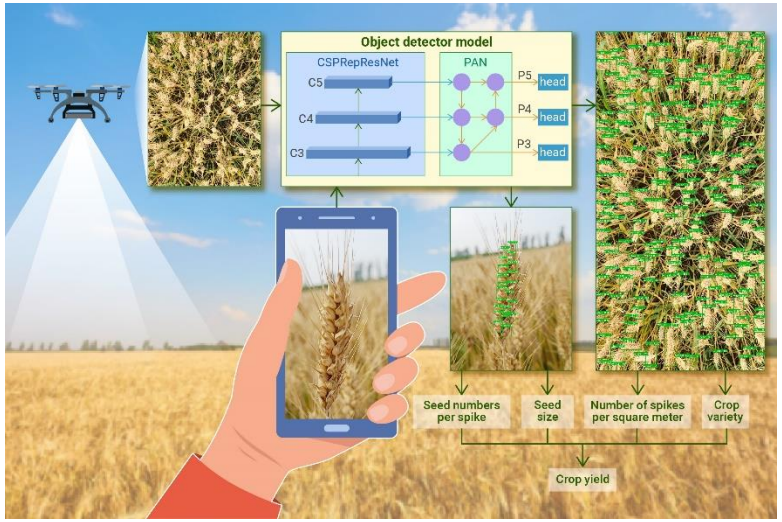
Cropwatch **Bulletin** — Enter

Rainfall index	Maximum VCI	Normalized Difference Vegetation Index	Crop Condition based on NDVI anomaly
Temperature Index	MinimumVegetation health Index	Leaf Area Index	Index Based Crop Development
Photosynthetic Active Radiation	Cropped Arable Land Classification	Fraction of Absorbed PAR	Crop condition clustering
Potential Biomass	Cropping intensity	Normalized Difference Water Index	Crop Condition Classification
Index Based Yield Model	CPTP Method for Area Estimation	Production Outlook Indicator	Evapotranspiration
Agro-Meteorological Yield Model	Planted Area Early Warning Indicator	Supply Situation Indicator	MinimumVegetation health Index(China)
Remote Sensing Based Production	Agro-Meteorological Suitability Index	Standardized Precipitation Index	Thematic Map
Trend Based Production for Minor Producers	Agro-Climatic Index Composite	Soil Moisture	Zonal Statistics

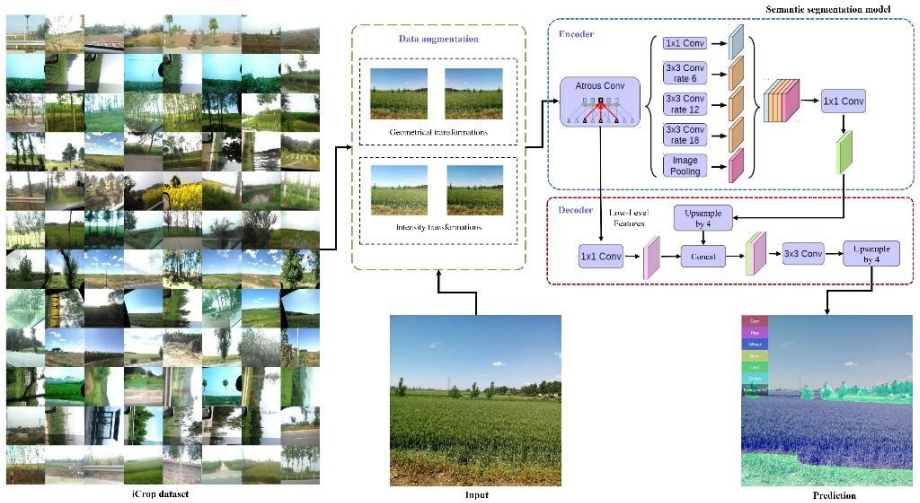
http://cloud.cropwatch.com.cn/

Tools for ground truth data collection

- The field data collection prevents most systems have crop area and yield components
  - *Cost, labor and time consuming*
- Two tools developed for free use
  - *GVG app for crop identification and FieldWatch for yield measurement with image recognition*



FieldWatch for yield data measurements



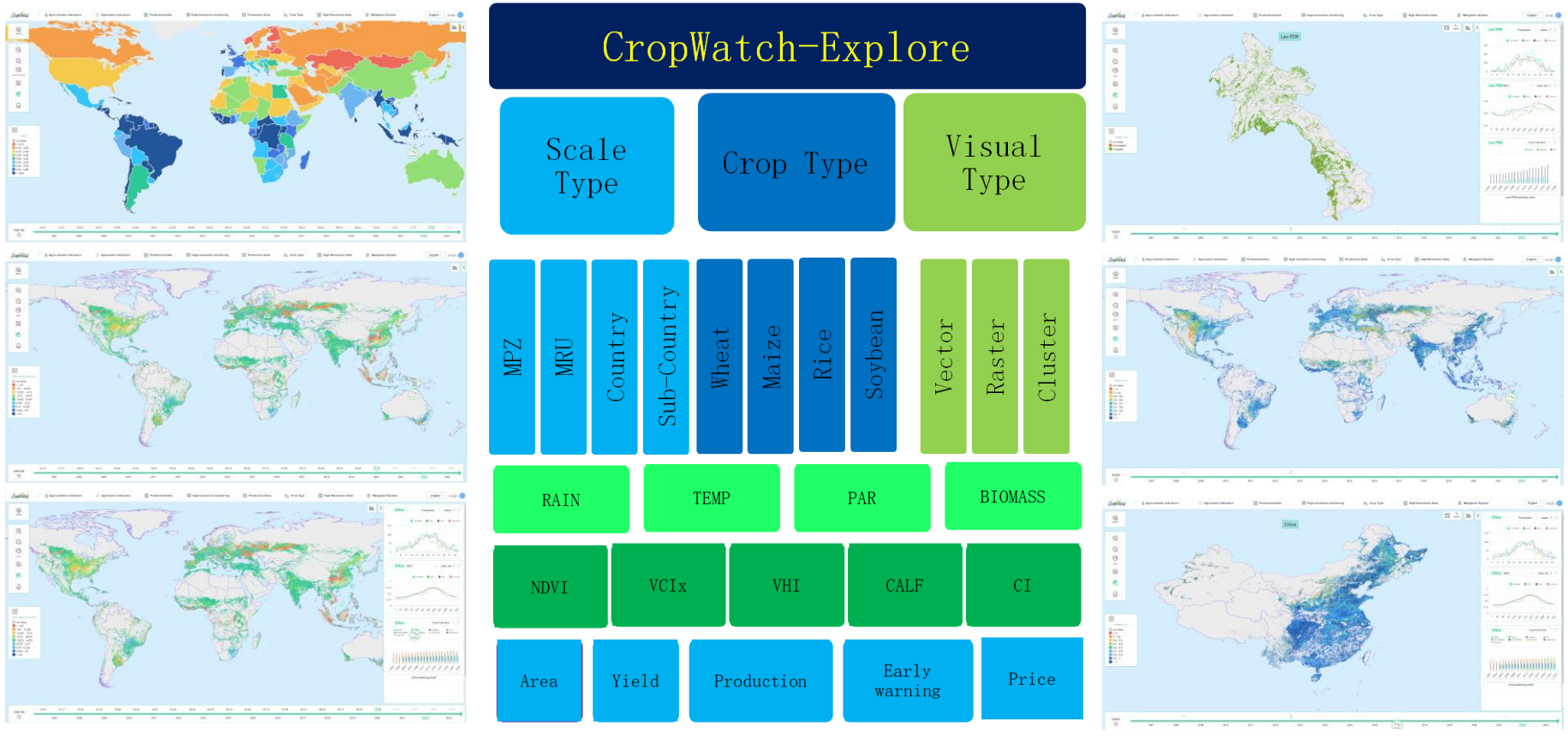
GVG Crop type identification from geo-tagged photos

Features of CropWatch Cloud

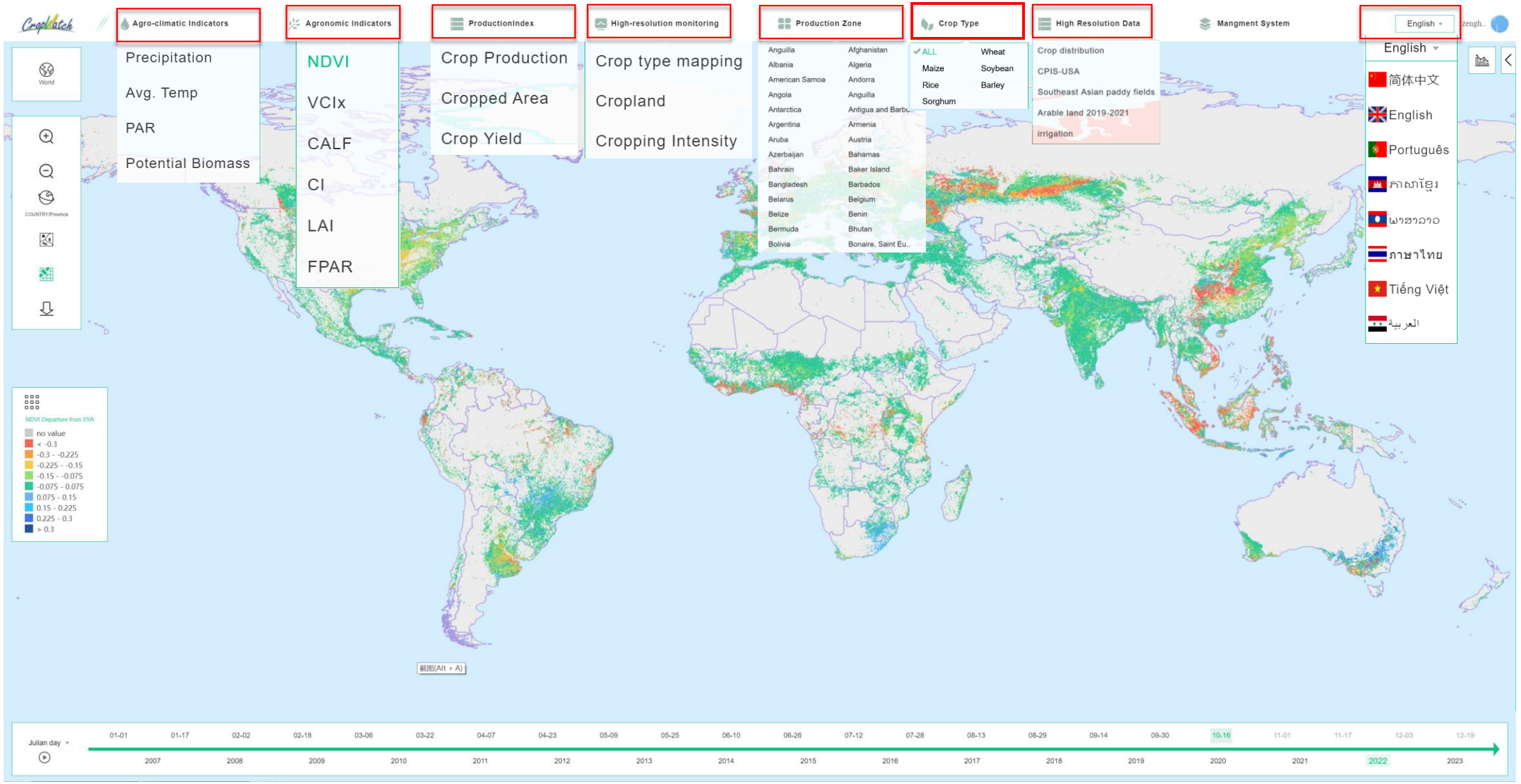
- Analysis-ready products
  - *Indicators ready in CropWatch Cloud considering commonly used indicators in existing system*
  - *Indicators customizable, easy to include new national or regional specific indicators*
- Promote ownership
  - *Cloud based system assessable from internet everywhere without investment on computing infrastructure, storage, etc*
  - *Customized according to the specific demand for each country and work as a national/regional system*
  - *After customization and training, countries will strengthen the agricultural monitoring capacity on your own*
- Inclusive, no preconditions, no investment needed for infrastructure

Data accessible in CropWatch-Explore

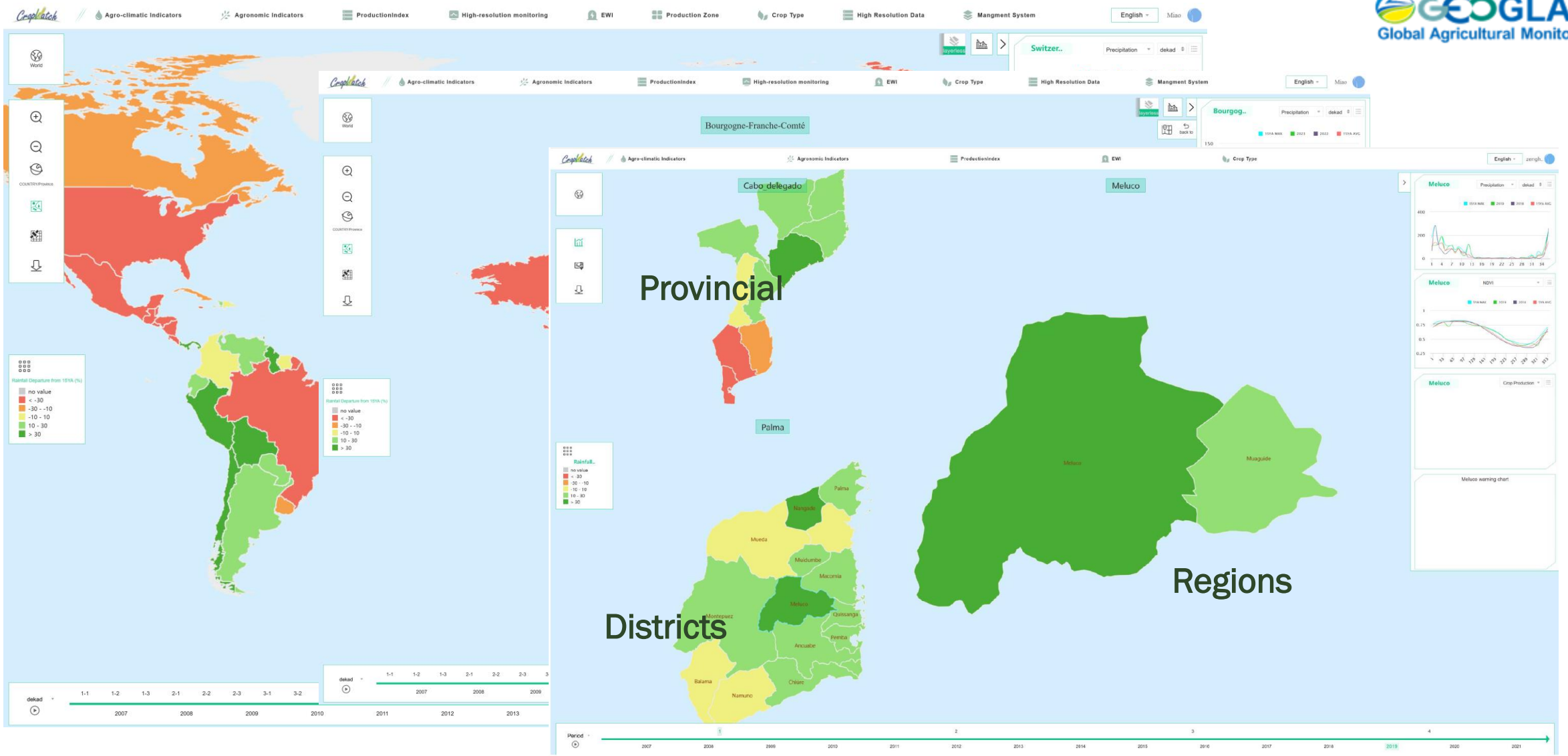
- Information categories: agri-climatic, agronomic, crop production
- Type of information visualization: regional statistical data, raster
- 4 spatial scale: major production zones, reporting unit, countries, sub-countries



Available information



National and sub-national indicators

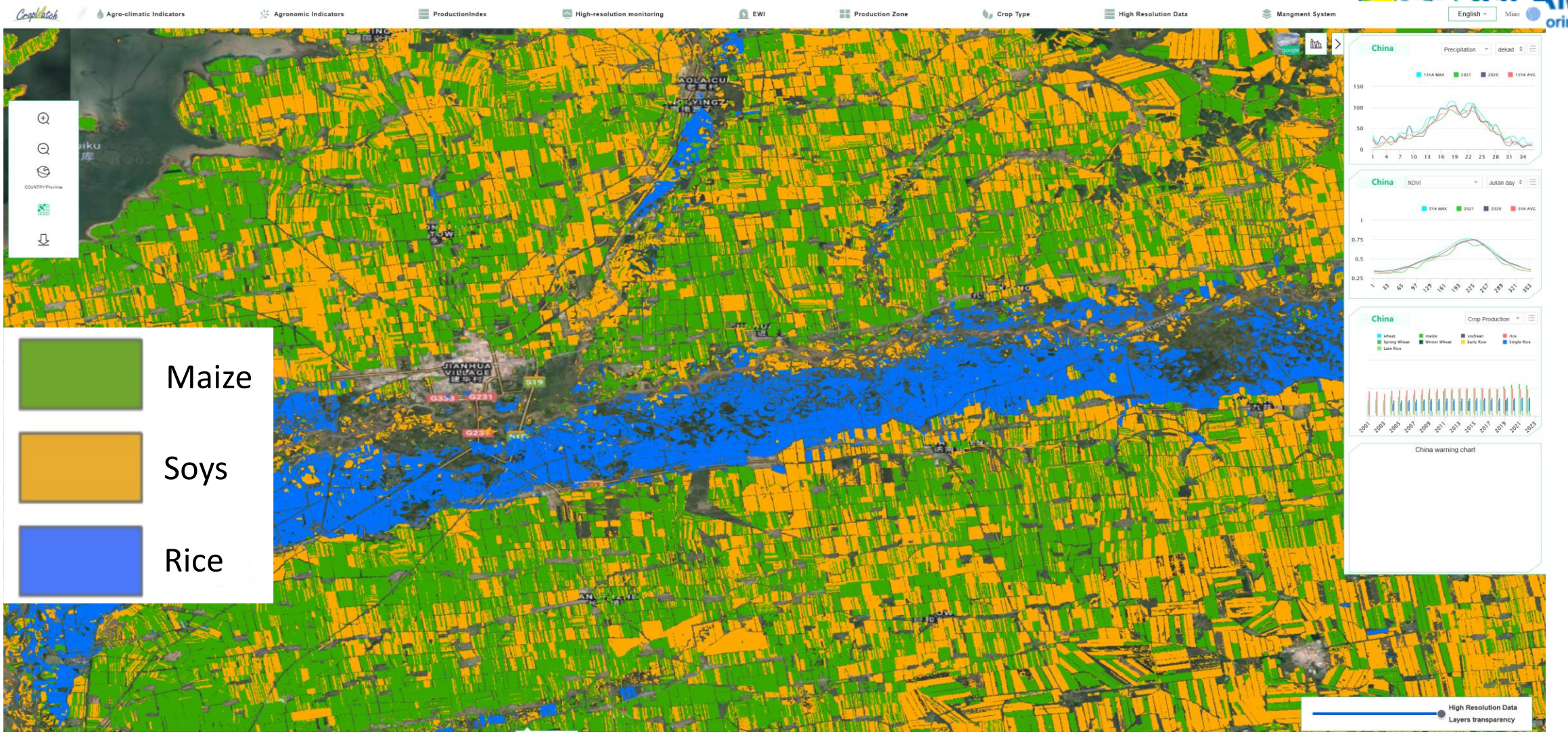


Dashboard to show info of AOI

Baseline data

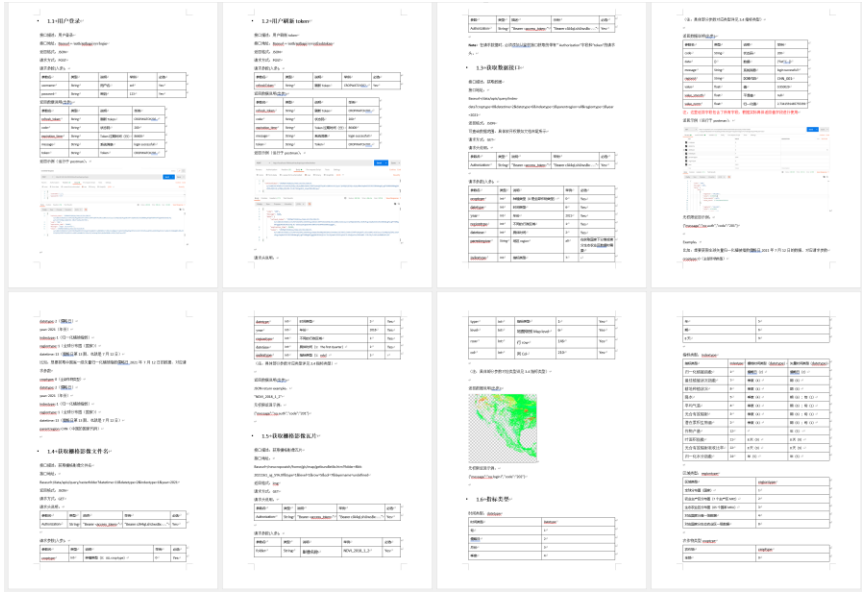
Zhang, Miao; Wu, Bingfang; et al, 2020, "GCI30: Global Cropping Intensity at 30m resolution", https://doi.org/10.7910/DVN/86M4P0, Harvard Dataverse, V2
Miao Zhang, Bingfang Wu. Global 30-m cropping intensity in 2020 (GCI30_2020), doi: 10.12237/casearth.62ff4caa819aec75a535cbe7
Miao Zhang, Bingfang Wu. Global 30-m spatial distribution of cropland in 2020 (GCL30_2020), doi: 10.12237/casearth.62ff4caa819aec75a535cbe6

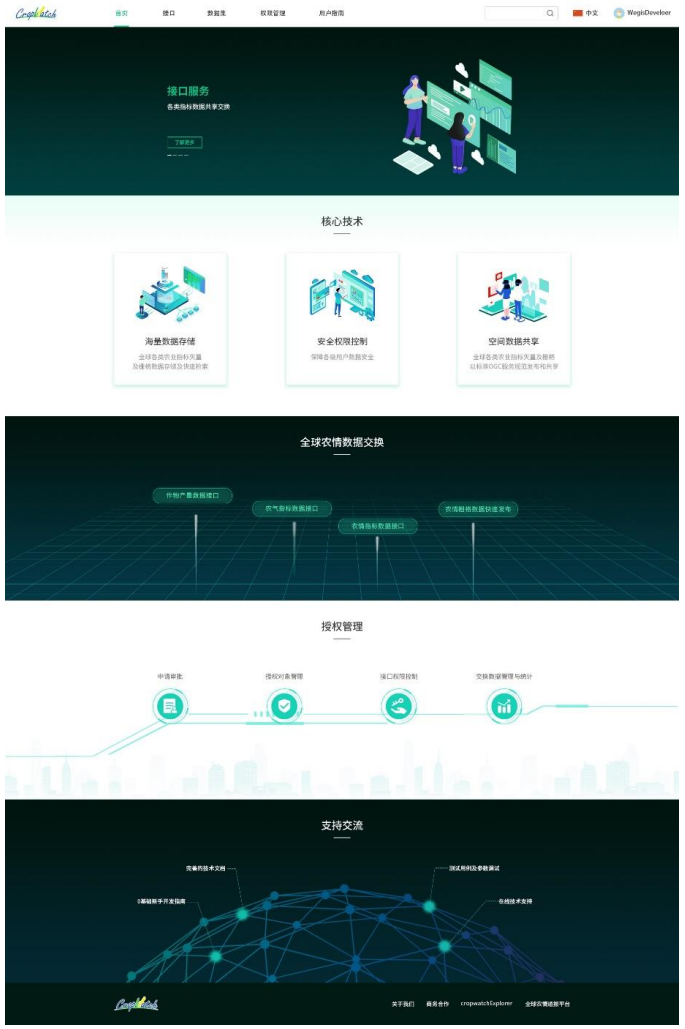
High resolution crop type mapping

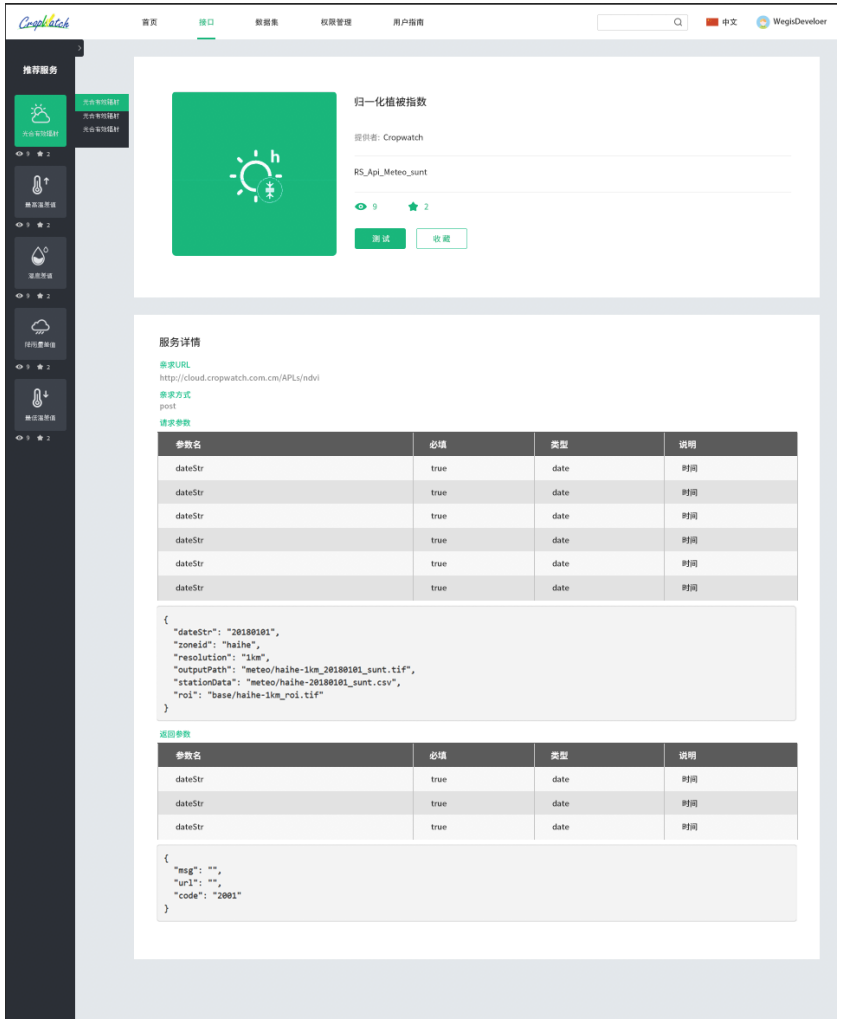


Data accessible via API portal

- Data Service Center
  - *Provide data access APIs*
  - *Provide data access description document*



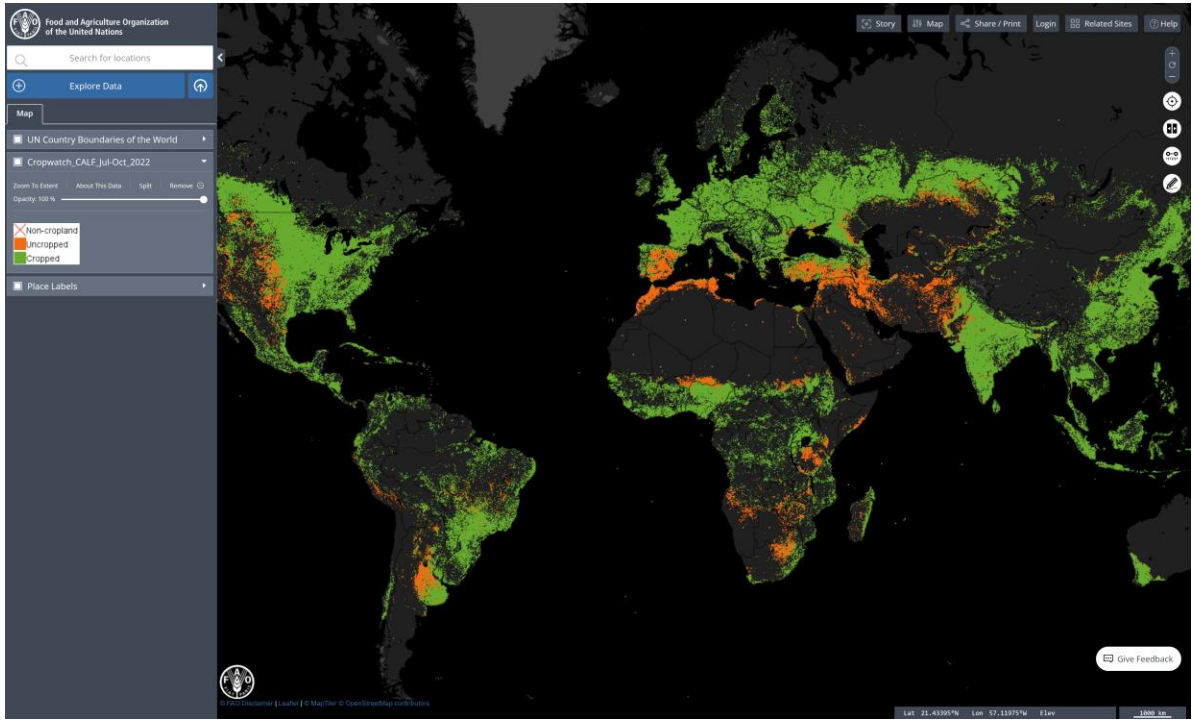




http://cropwatch.com.cn/cropwatchcenter/#/applyforauth

FAO hand-in-hand access CropWatch through APIs

- Through API data access portal, updated CropWatch indicators will be automatically synchronized to FAO Hand-in-Hand system at real-time



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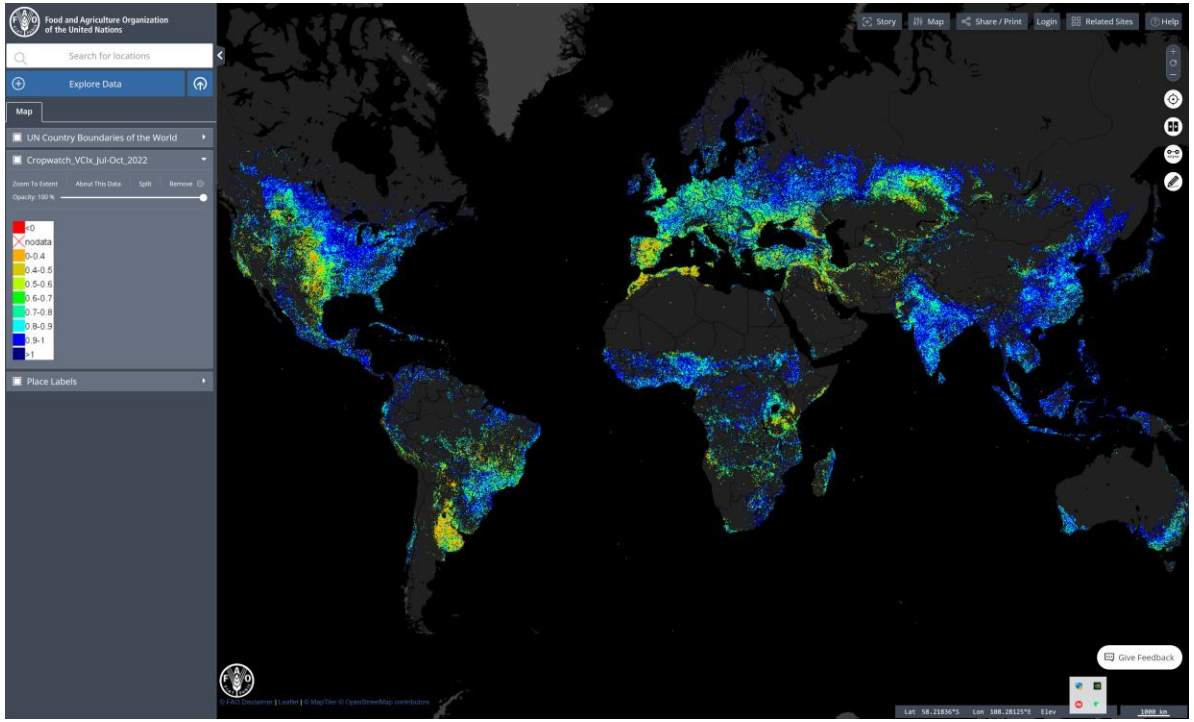
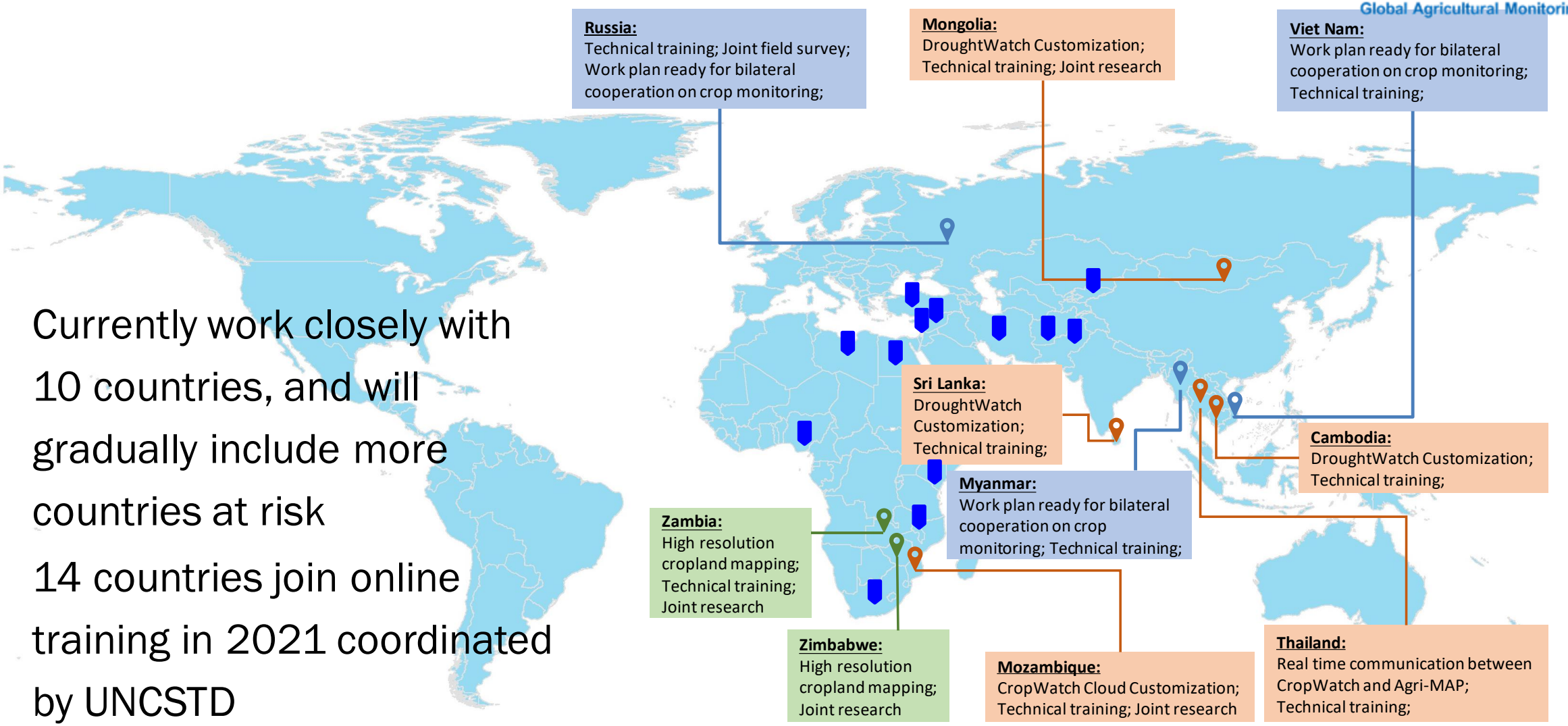


Maximum Vegetation Condition Inex

https://data.apps.fao.org/

Capacity building across the globe

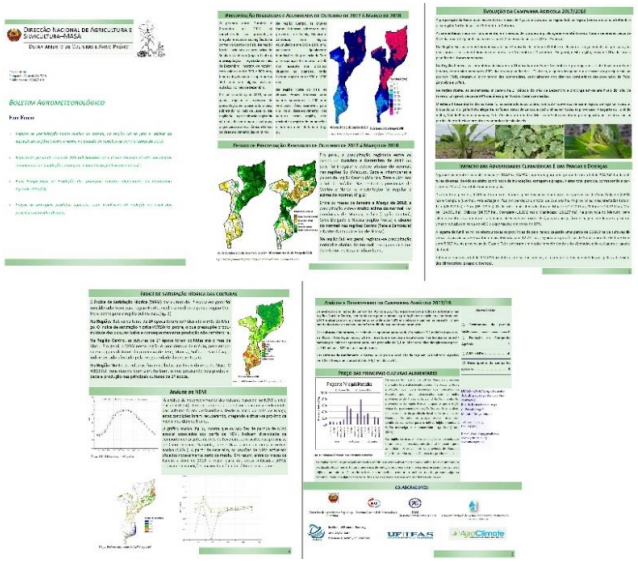
- Currently work closely with 10 countries, and will gradually include more countries at risk
- 14 countries join online training in 2021 coordinated by UNCSTD



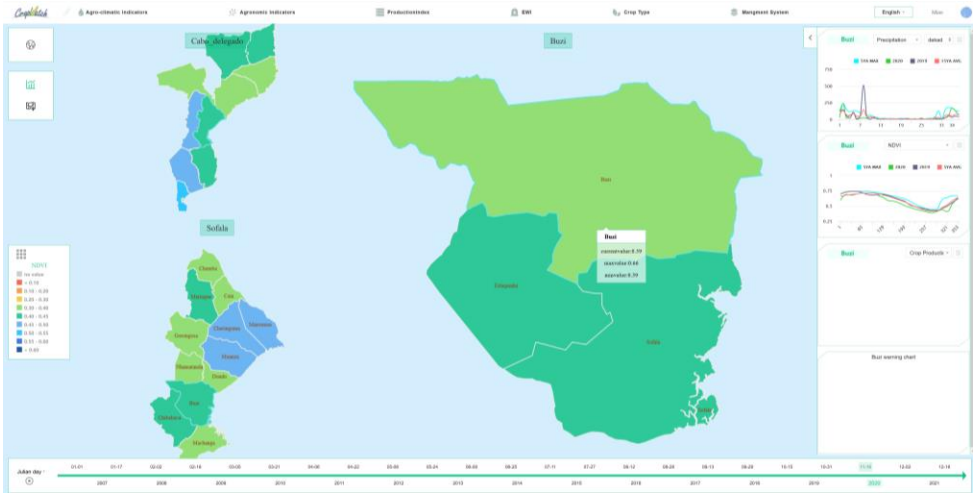
Technical training and national bulletin for Mozambique

- Sponsor by World Bank
- First CropWatch training for selected experts (3 persons)
- Extended CropWatch training (29 participants)
- In-situ data collection training
- National Meteorological Bulletin powered by CropWatch

Activities	Outputs
Requirement analysis	Detailed Requirement report
Discussion and finalize the **implementation plan**	Detailed implementation plan
Discussion and **joint field trip** in Mozambique	In situ data in Maputo and Nampula
First **technical training** of CropWatch in Beijing	Agricultural monitoring report done by MOZ experts using CropWatch
Second technical training of CropWatch in MOZ	CropWatch based crop condition monitoring included in MOZ national meteorological bulletin
Training for national and provincial office	Mozambicans get some knowledge about crop monitoring on their own
Customize the CropWatch system for Mozambique	Provide system in Portuguese; Include all provinces for MOZ; Yield model calibrated



CropWatch for Mozambique



CropWatch supports crop monitoring for food security in Mozambique

> "We use CropWatch mainly for crop production forecast. Our team has been applying the tool to generate monthly agriculture bulletin during the rain season, which informs policy making at national and provincial-level agriculture departments."
>
> Mr. Hilten, Department of Crops and Early Warning, Ministry of Agriculture and Rural Development, Mozambique

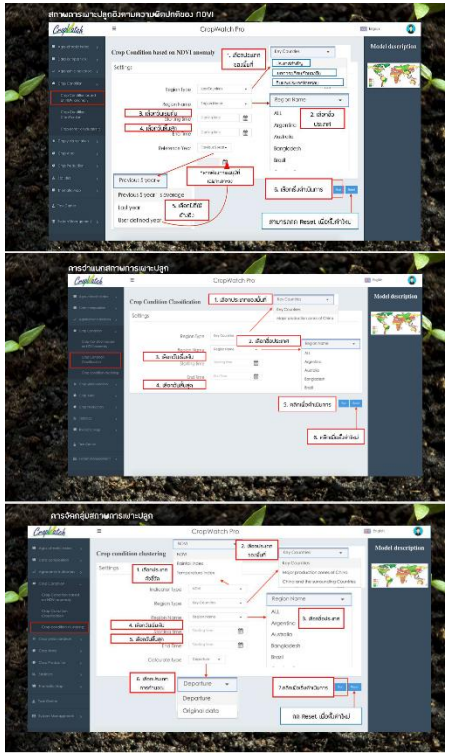
In 2019, CropWatch Cloud for Mozambique was selected as one of the **best "rural solutions"** by the **International Fund for Agricultural Development (IFAD)** due to its contributions in improving the capacities of Mozambique to access domestic and global agricultural information.

Collaborative **Crop conditions and Disaster's Updates** in **Portuguese language**

Powered by: CropWatch

User manual and training materials

Under the coordination from UNESCAP, CropWatch user manual and the training courses were translated into local language including English, Cambodian, Laos, Vietnamese, and Thai



Training video in Cambodian

https://www.unescap.org/kp/2021/cropwatch-pro-user-manual-english-cambodian-lao-thai-and-vietnamnese?fbclid=IwAR0xlyWu5fOL1XSftjAV8lMv7aG2SFFbBnosfkYpSNnEFlxNhqf0WdHqlBA

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