GROUP ON EARTH OBSERVATIONS

# OPEN DATA & OPEN KNOWLEDGE Workshop

## How Young Generation is Benefiting from Learning CropWatch Applications and Using it in the Field Operation

The youth can feed the world

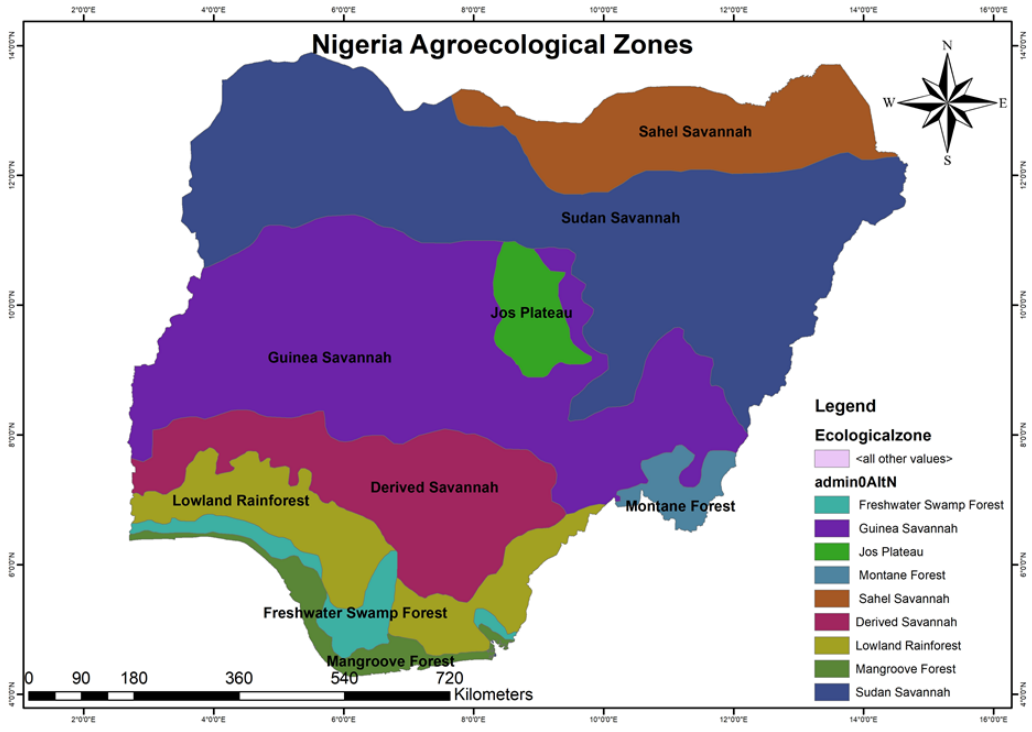
# The Youth Force

- The population of youths in the world is estimated to be about 1.2 billion and it is projected to increase to 1.3 billion by 2030.
- Africa has the highest population of youth globally



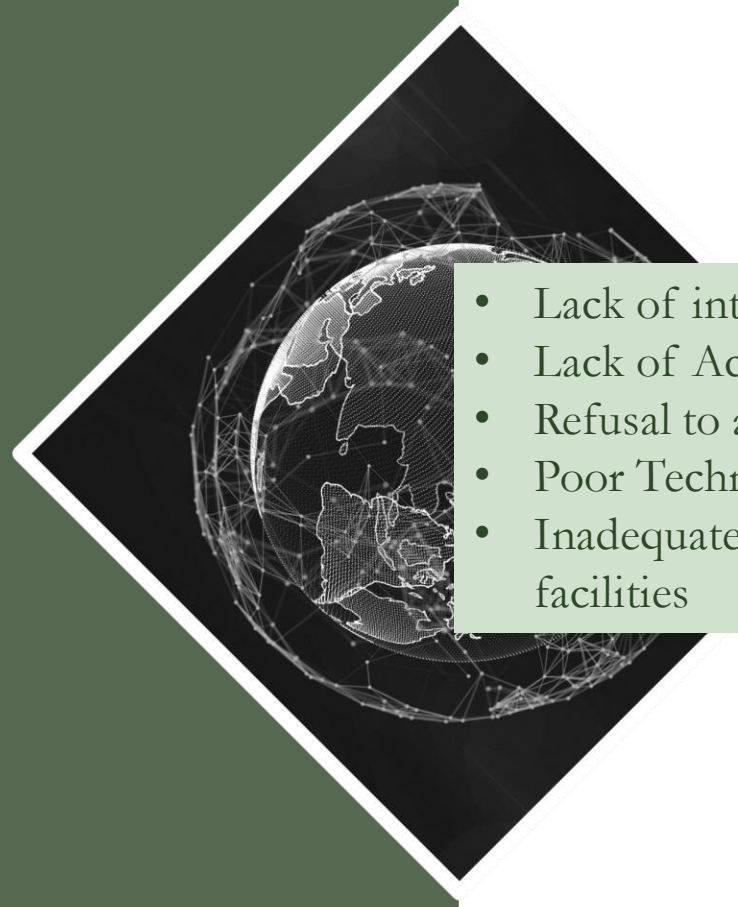
Nigeria's population is estimated at 221,028,091 people currently and about **70%** of its population is made up of youth.

# Nigeria's Agricultural Potentials



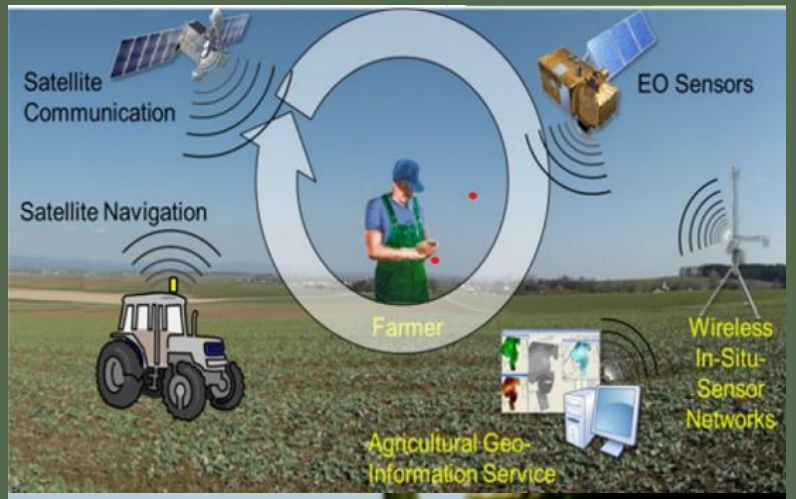

- Nigeria is blessed with a **wide range of agroecological zones** which allows for the **diversity of crop production** activities.
- An arable land area of 34 million hectares
- The sector is still **largely subsistence, primitive, and undeveloped**.

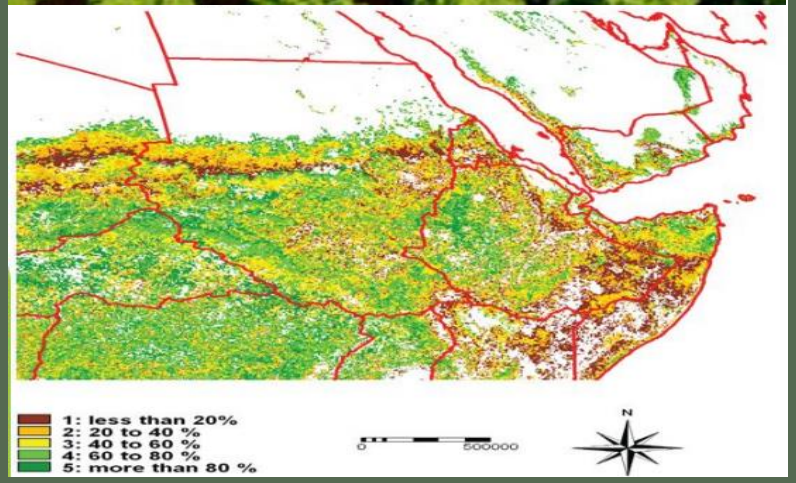
# Challenges Faced by Youths in Agriculture



- Lack of interest in agriculture
- Lack of Access to information and training
- Refusal to adopt new technology
- Poor Technical know-how
- Inadequate financing and agricultural credit facilities

VS

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# Importance of Earth Observation and Open Data/Knowledge in Agriculture

## Data and Information

- Crop Yield
- Crop Planting Area
- Growth Vigour
- Land Drought Monitoring
- Production Estimation
- Capacity Building/Training
- Knowledge Integration and Translation into Practice

# National Space Research And Development Agency (NASRDA)

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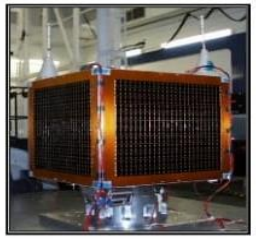
## National Space Research And Development Agency (NASRDA)

- The National Space Research and Development Agency was established in 1999 and is mandated to vigorously pursue the attainment of space capabilities as an essential tool for its socio-economic development and the enhancement of the quality of life of its people.
- The Agency is to achieve this mandate through:
  - research ,
  - rigorous education,
  - engineering development,
  - design and manufacture of appropriate hardware and software in space technology.

## SATELLITE TECHNOLOGY DEVELOPMENT

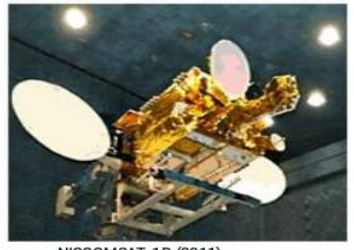
The Agency has launched a total of 6 satellites namely:


Nigeriasat-1 (2003)


NigComSat (2007)


Nigeriasat-2 (2011)

NigeriaSAT-X (2011)


NIGCOMSAT-1R (2011)


Nigeria EduSat-1 (2017)


## NASRDA & AIRCAS Collaboration (2021)

**AIM:**

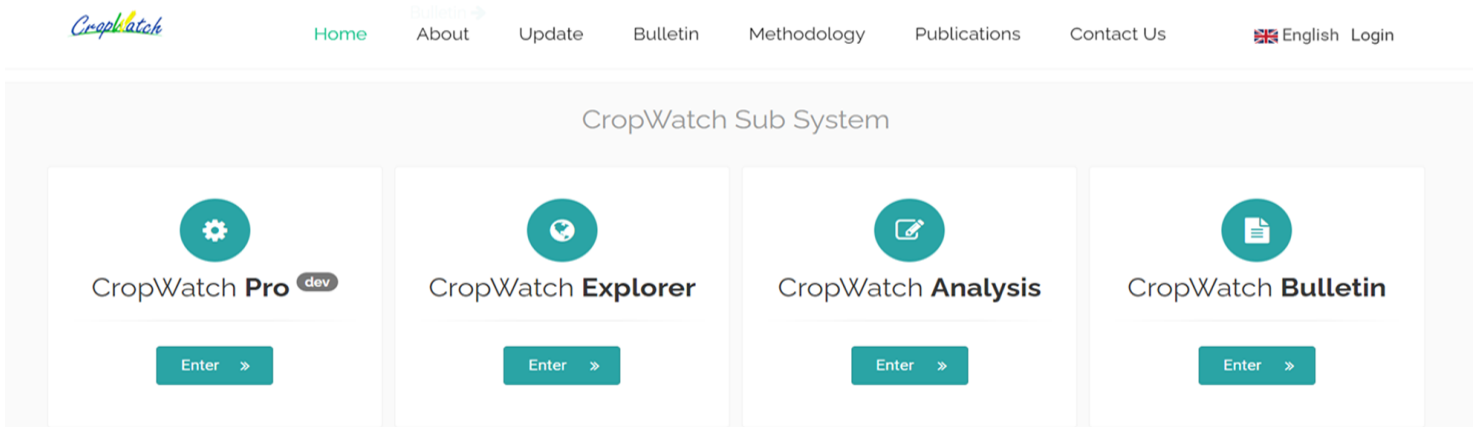
The Nigerian customized CropWatch cloud service platform is to effectively monitor crops based on accurate, reliable, and timely availability of information for appropriate decision making to improve crop yield.

# CropWatch

## Aerospace Information Research – Chinese Academy of Sciences (AIR-CAS)

### CROPWATCH

- The China CropWatch System (CCWS) has served as China's leading crop monitoring system since 1998. The China CropWatch research team, part of the Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, assesses national and global crop production and related information using remote sensing and ground-based indicators. Each quarter, the group's findings are published in the CropWatch bulletin, which is issued in both English and Chinese. This project is supported by United Nations Conference on Trade and Development (UNCTAD) and Alliance of International Science Organizations (ANSO) and Group on Earth Observations Global Agricultural Monitoring (GEOGLAM).




## INDICATORS

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# CropWatch Deliverables

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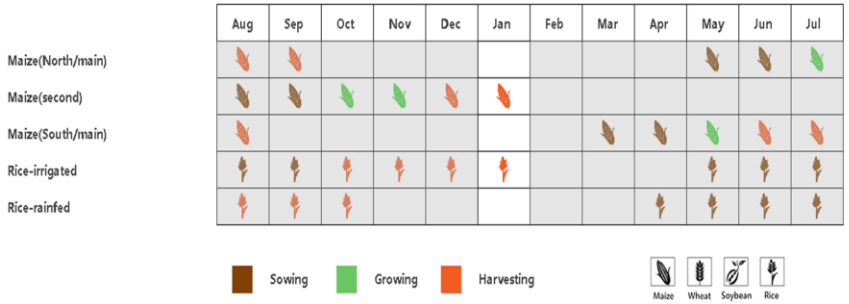
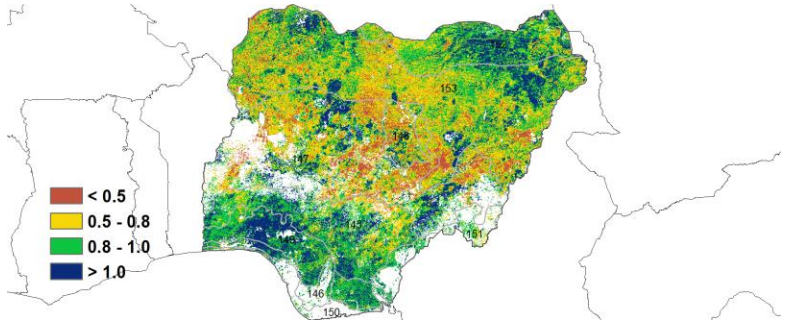
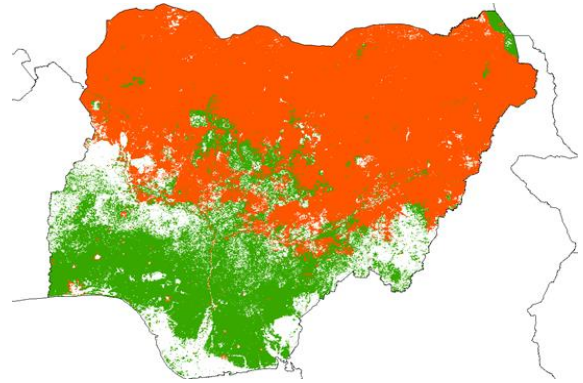
## Phenology



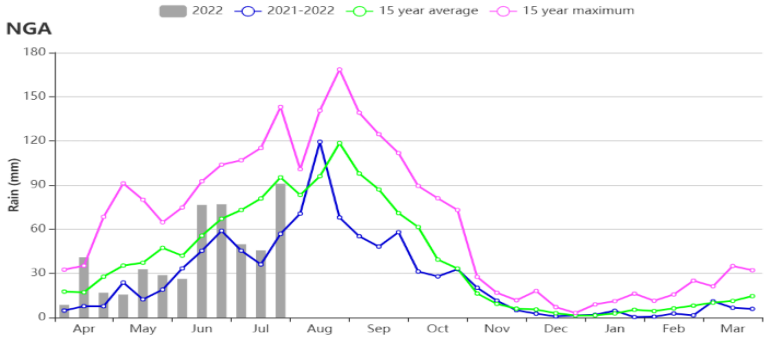

## Maximum Vegetation Cover Index



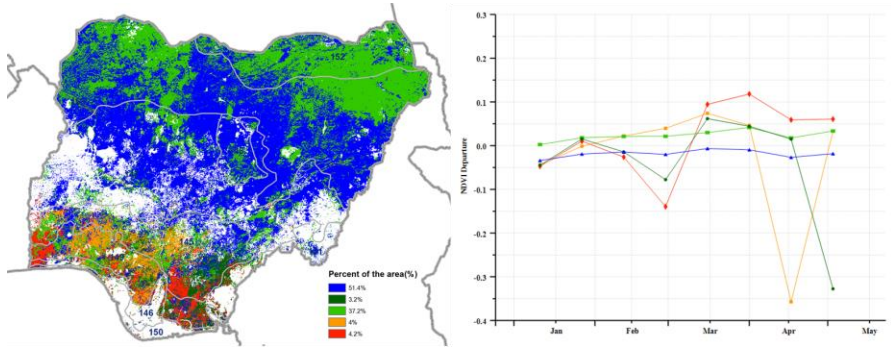

## Arable Cropland



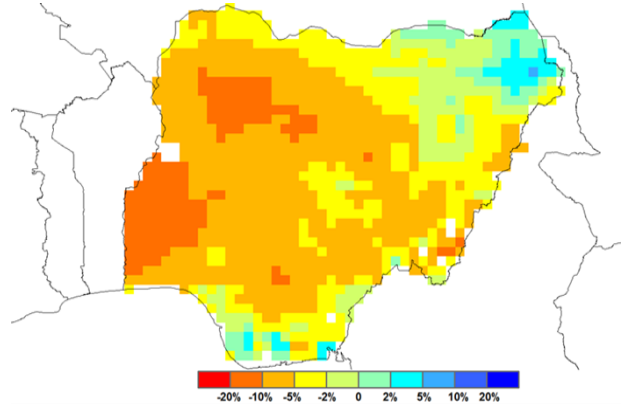
## Rainfall Profile




## NDVI Departure Clustering




## Biomass



# Bulletin

**May 2022 CropWatch Bulletin (Vol.22, No.2)**

May 2022 CropWatch Bulletin is based mainly on current remote sensing inputs in addition to detailed and spatially accurate reference data about crops and their management. Focusing on the months of January to April 2022, chapters cover global, national, and regional level agroclimatic conditions and the condition of crops that were growing during this time. For China, the bulletin presents crop conditions for each of seven key agro-ecological zones, an updated estimate of trade prospects (import/export) of major crops. The focus section reports on the estimate by CropWatch for maize, rice, wheat and soybeans production in 2022, recent disaster events with an impact on agriculture, the possibility of an El Niño event and the impact of Russia Ukraine conflict on world food supply.

**February 2022 CropWatch Bulletin (Vol.22, No.1)**

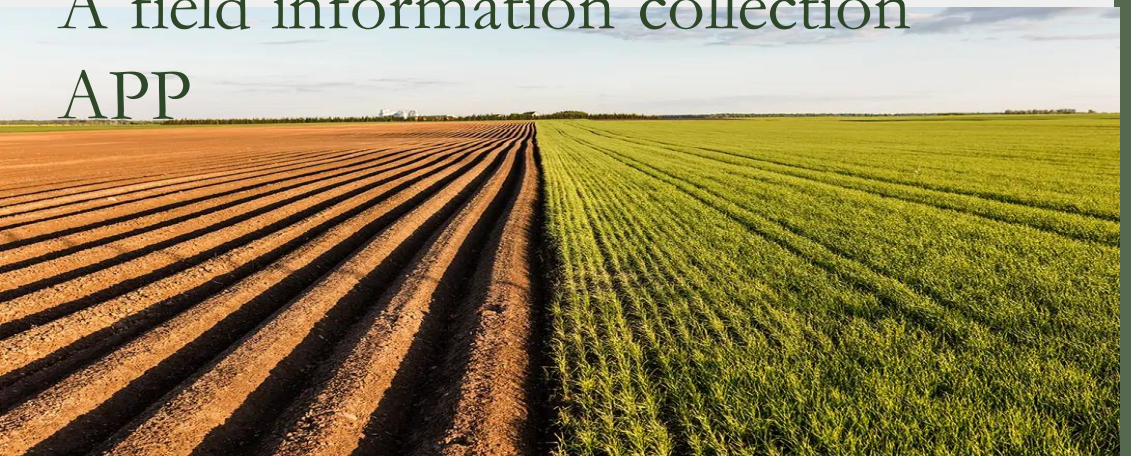
February 2022 CropWatch Bulletin is based mainly on current remote sensing inputs in addition to detailed and spatially accurate reference data about crops and their management. Focusing on the months of October 2021 to January 2022, chapters cover global, national, and regional level agroclimatic conditions and the condition of crops that were growing during this time. For China, the bulletin presents crop conditions for each of seven key agro-ecological zones, an updated estimate of trade prospects (import/export) of major crops. The focus section reports on the production outlook of major cereal and oil crops countries in the Southern Hemisphere and some tropical and sub-tropical countries, recent disaster events and an update on El Niño or La Niña.

**November 2021 CropWatch Bulletin (Vol.21, No.4)**

November 2021 CropWatch Bulletin is based mainly on current remote sensing inputs in addition to detailed and spatially accurate reference data about crops and their management. Focusing on the months of July to October 2021, chapters cover global, national, and regional level agroclimatic conditions and the condition of crops that were growing during this time. For China, the bulletin presents crop conditions for each of seven key agro-ecological zones, an updated estimate of trade prospects (import/export) of major crops. The focus section reports on the estimate by CropWatch for maize, rice, wheat and soybeans production in 2021, recent disaster events with an impact on agriculture, and the possibility of an El Niño event.

# **GVG** (GPS, Video, and GIS)

## A field information collection APP



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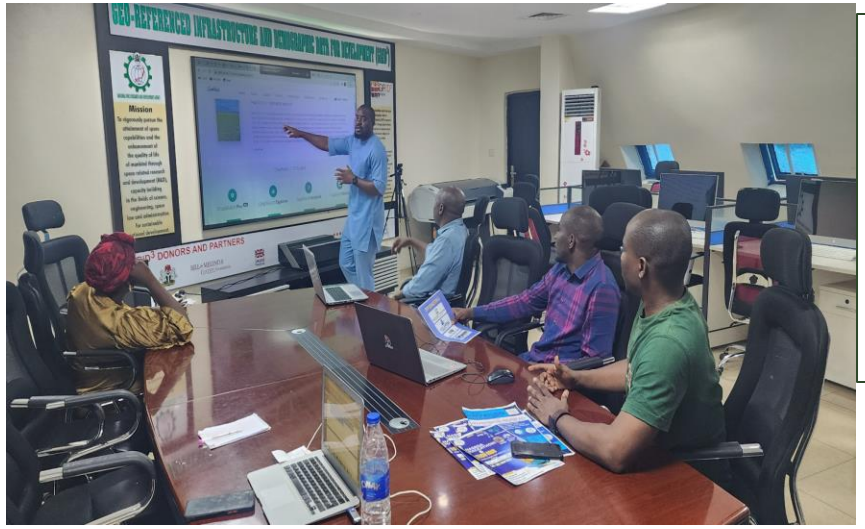
# Impact of the collaboration

## Capacity Building & Stakeholders Workshop



- Training of staff and Interns on CropWatch platform
- Stakeholder workshop: called to sensitize all relevant stakeholders on the gains of CropWatch.

- Establish a 2.5-hectare R&D farm on NASRDA premises for research, continuous monitoring of crops and demonstration of various agricultural techniques using EO.

## NASRDA Demonstration Farm

# Recommendation

Making agriculture attractive to the youths by:

- Proper dissemination of agricultural information and gains on the social media space, e.g. by linking CropWatch platform to youth group platforms such as the Nigeria Young Farmers' Network https://youngfarmer.org.ng/
- Partnership with relevant organisations, both those that are on-ground and those that are contributing remotely to engage more with the youth.
- Intergovernmental/financial institutions to facilitate youth farmers' access to credit, technology and geospatial data.
- Encouraging Government Policies that will improve and sustain funding in agricultural sector to the youth at (Federal & State and local level).
- Capacity Building, Training and workshops as well as continuous sensitization of the youths to take advantage of available and reliable data/information such as crop watch information.
- Encouraging the youths to engage in Agricultural Extension Services, using the data/information acquired from CropWatch to assist farmers.

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