Geospatial and Remote Sensing unit

EO in support of WFP emergency operations

Quick overview and use cases

2025 May

WFP
World Food Programme

SAVING LIVES
CHANGING LIVES

UN World Food Programme

- For millions of people worldwide, WFP's emergency relief during crises is the difference between life and death.
- When an emergency subsides, WFP helps rebuild lives and livelihoods by strengthening the resilience of people and communities.
- Our work to build resilience, adapt to climate change, promote good nutrition and improve food systems lays the foundations of a more prosperous future for millions.
- Two-thirds of our work is in conflict-affected countries, where people are three times more likely to be undernourished than those living in countries without conflict.

120+ Million
Beneficiaries

5
Regional Bureaux

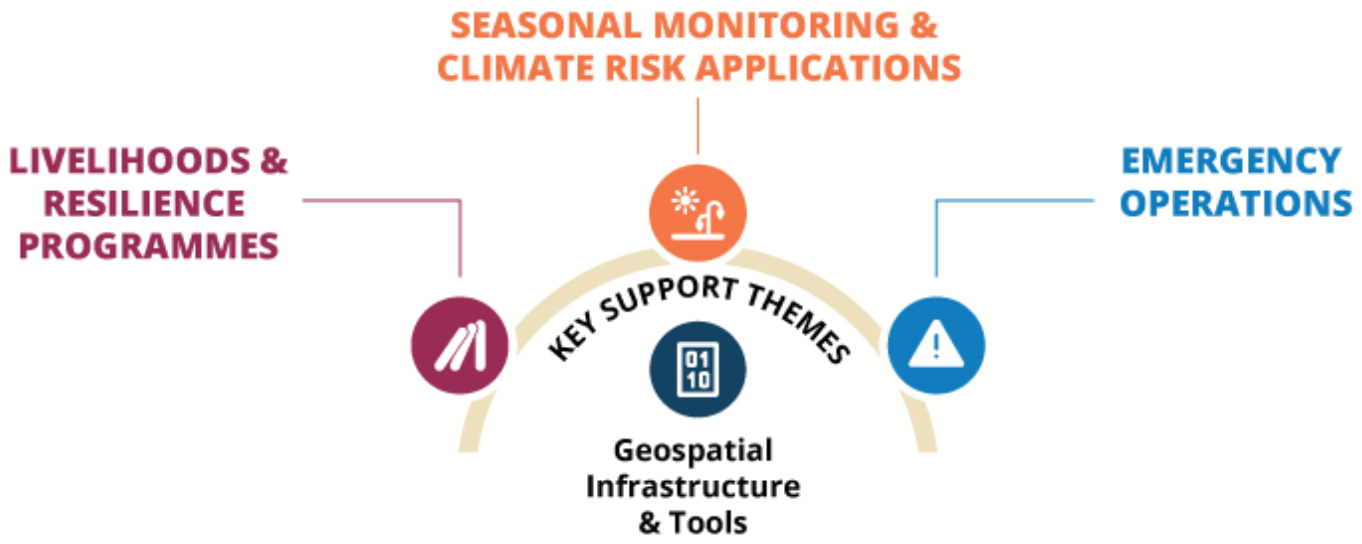
120
Country offices

80
Planes

5,000
Trucks

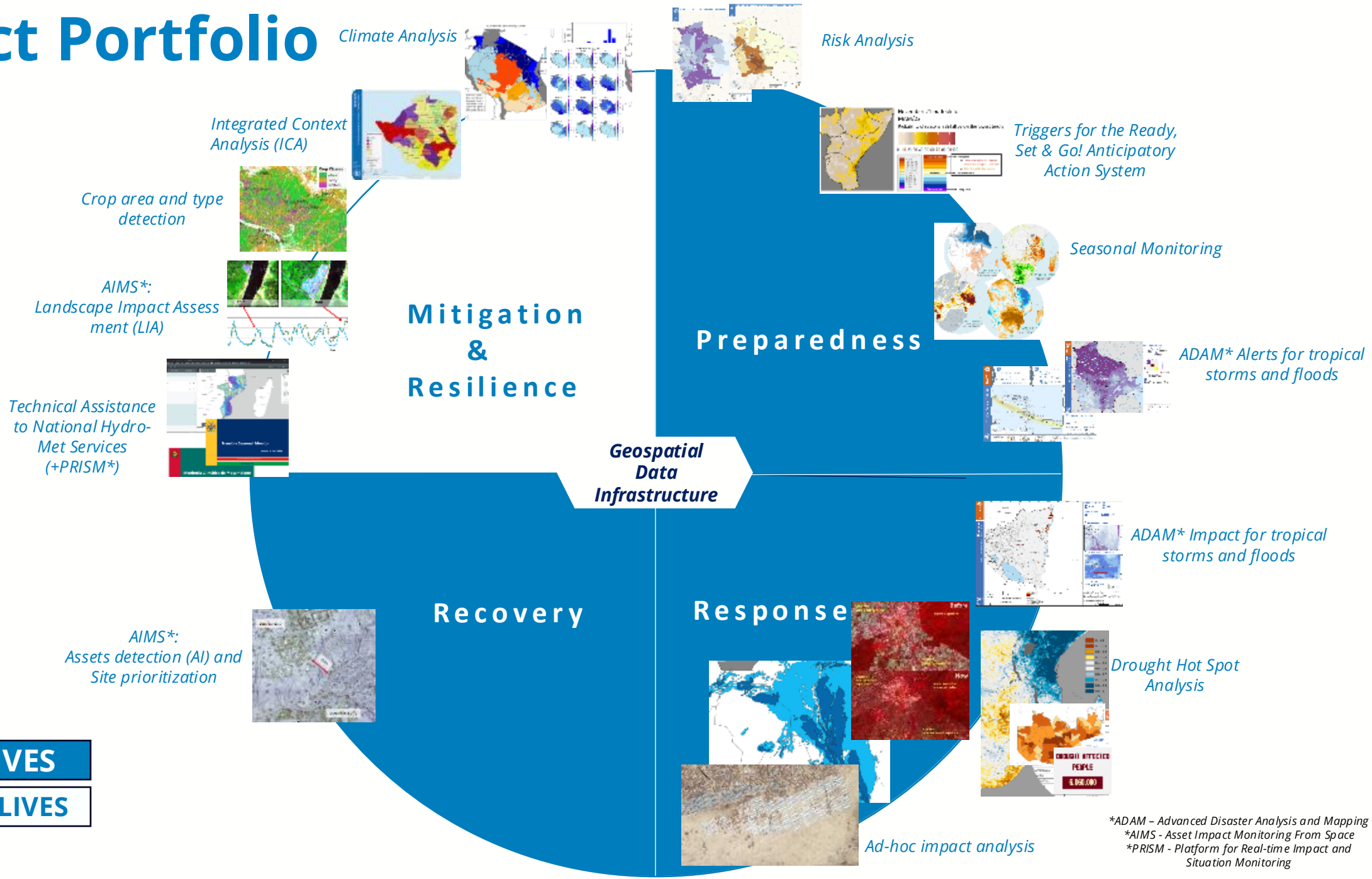
20
Ships

Geospatial and Remote Sensing Unit – WFP HQ



- We leverage Climate and Earth Observation (EO) data and geospatial tools to support the design, monitoring, and evaluation of resilience-building programmes, ensuring their effectiveness and impact.
- We enhance emergency preparedness and response through real-time geospatial analytics, impact assessments and mapping to guide humanitarian operations.
- We provide geospatial insights to help anticipate and mitigate the impact of climate hazards

Product Portfolio



SAVING LIVES

CHANGING LIVES

*ADAM – Advanced Disaster Analysis and Mapping
*AIMS - Asset Impact Monitoring From Space
*PRISM - Platform for Real-time Impact and Situation Monitoring

Emergency Analysis and Response

Support WFP emergencies with tailored analysis to highlight key operational factors and context (conflict, population movement, cropland abandonment, natural hazard impact, damage assessment)

Gathering a constellation of data sources into one central place for emergency coordination and operational planning.

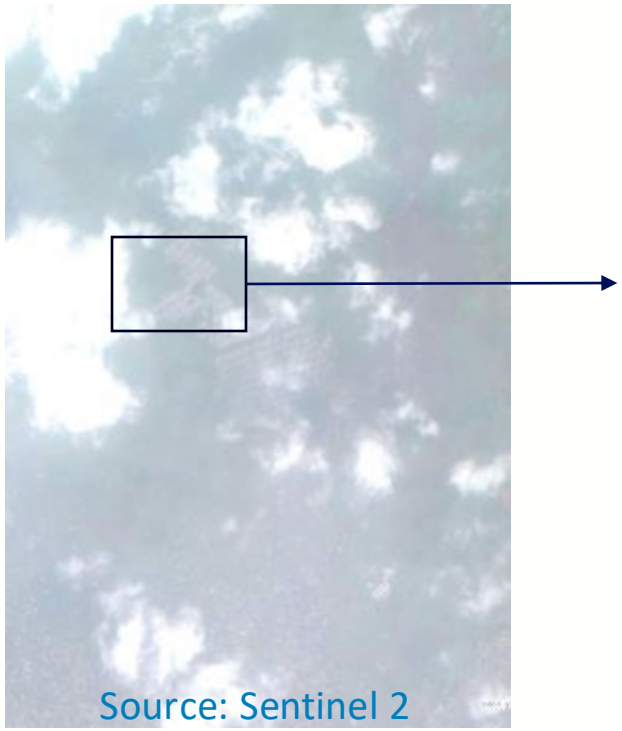
- Maps for operational response
- Geo-analytics with satellite data and ground information
- Interactive dashboard providing operational overview
- On-demand GIS Services

Population displacements

Monitor population movements after specific events

Use very-high resolution imagery for counting dwellings/tents

Used especially for inaccessible areas



Source: Sentinel 2

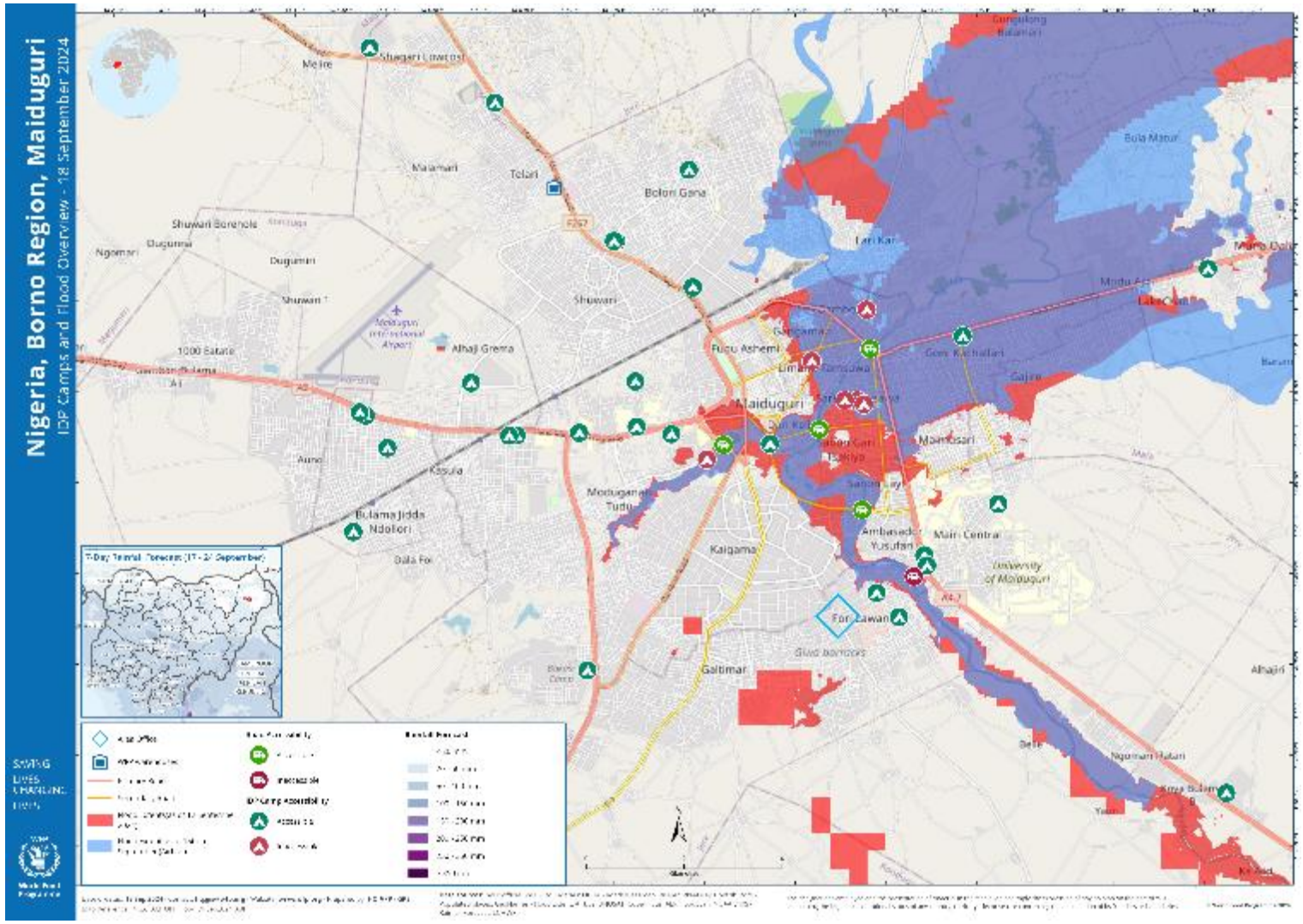
PRE

POST

Localized flood impact

Detection of floods in urban areas.

Example of Maiduguri, Nigeria in September 2024

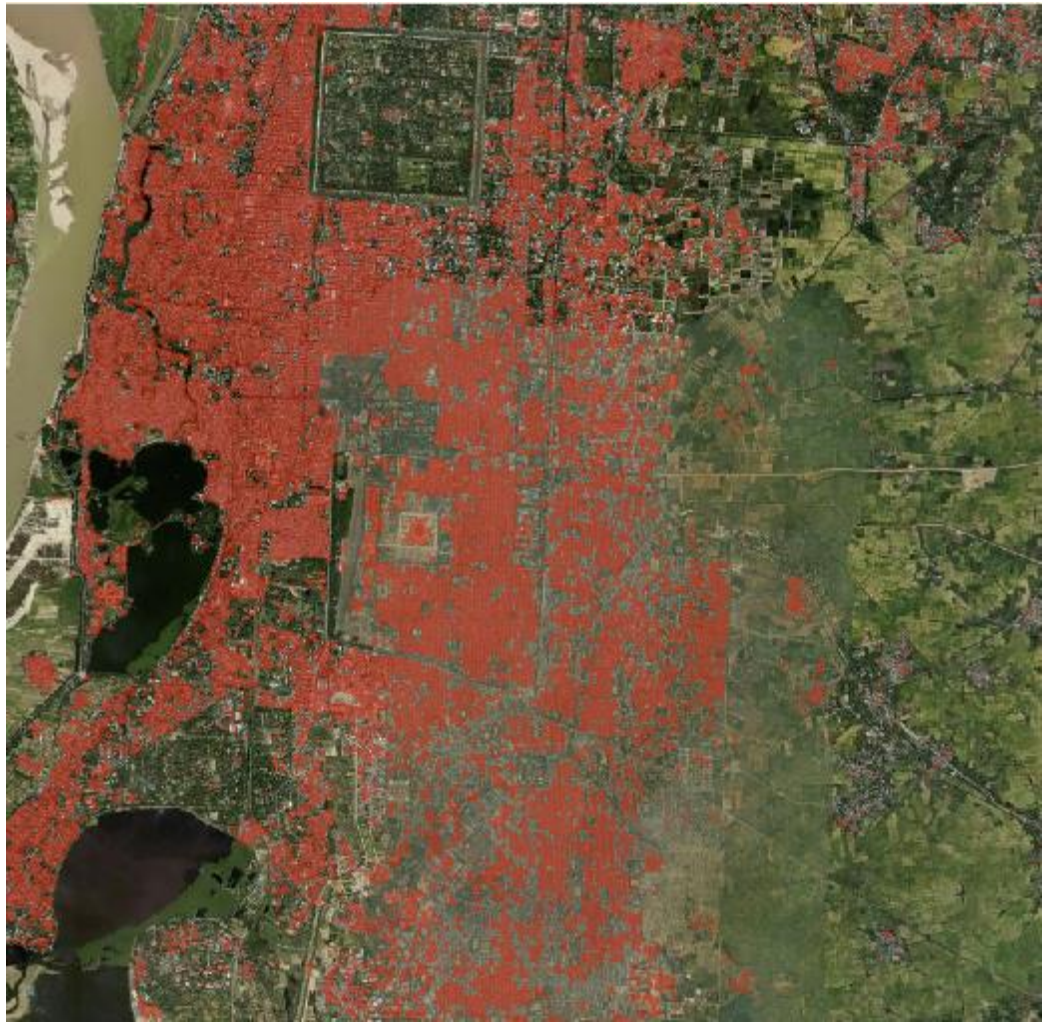


Damage assessment with SAR

- Can see through clouds and night
- Can cover large areas in only few scenes
- Event-agnostic (can cover a variety of disasters, including conflict)
- Can see change that optical data can’t

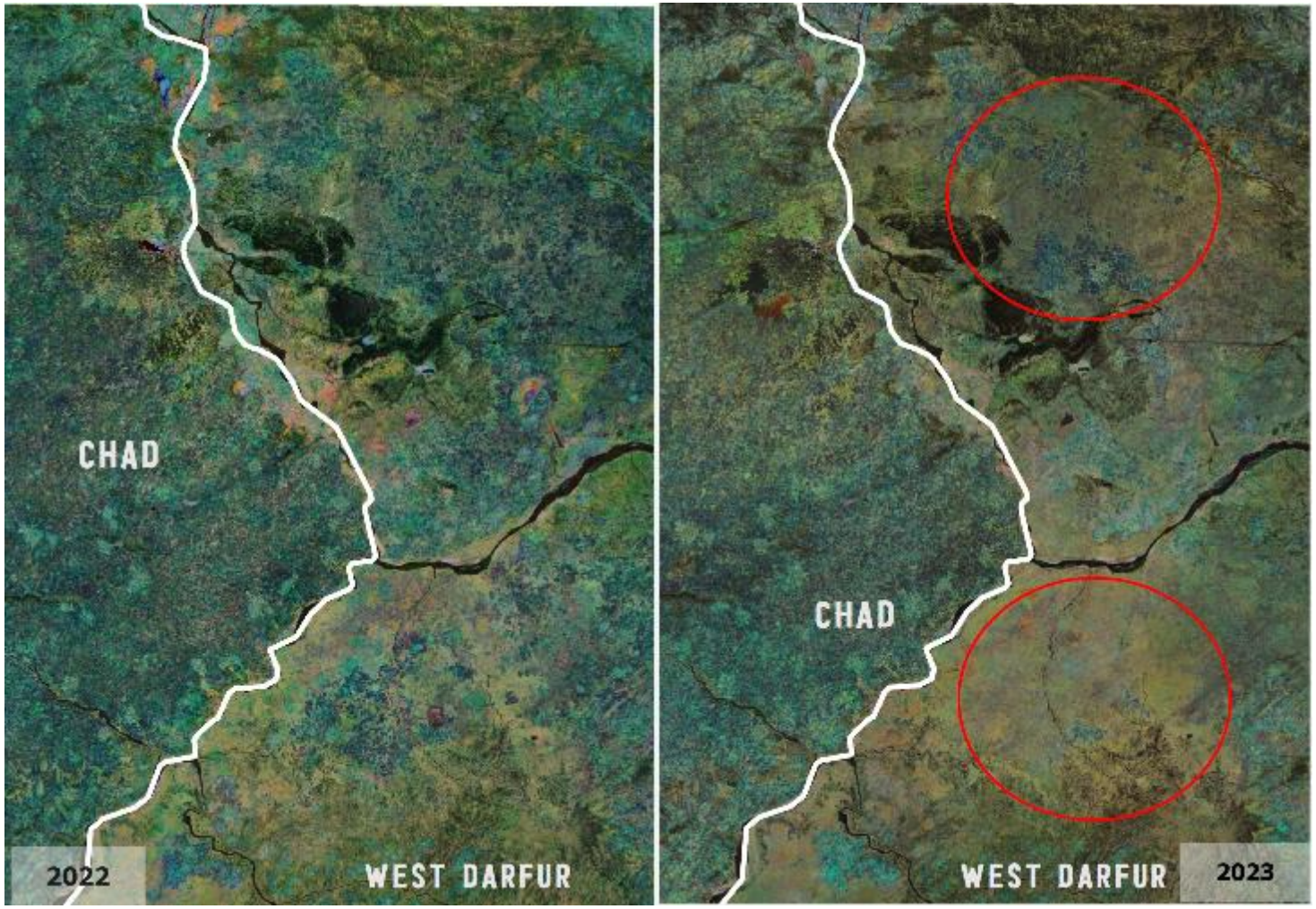
Current limitations:

- Still testing and research required to transform SAR change detection into damage detection
- Revisit time up to 12 days in some areas



Cropland abandonment

- Detect cropland abandonment patterns and changes in crops seasonality
- Using Sentinel-2 imagery together with Very-High resolution images
- Compile comprehensive analytical reports for WFP country office



WORKING TOGETHER

Capacities exist but not enough to reply to fast growing needs

Better/Innovative use of new EO data and emerging technologies