



UN GEOSPATIAL NETWORK

UNITED NATIONS COMMITTEE OF EXPERTS ON
GLOBAL GEOSPATIAL INFORMATION MANAGEMENT

**Side Event of the UN Geospatial Network at the
Eleventh Session of UN-GGIM**

The Global Agro-Ecological Zones and Hand-In-Hand initiative

FAO Geospatial Unit (NSL)

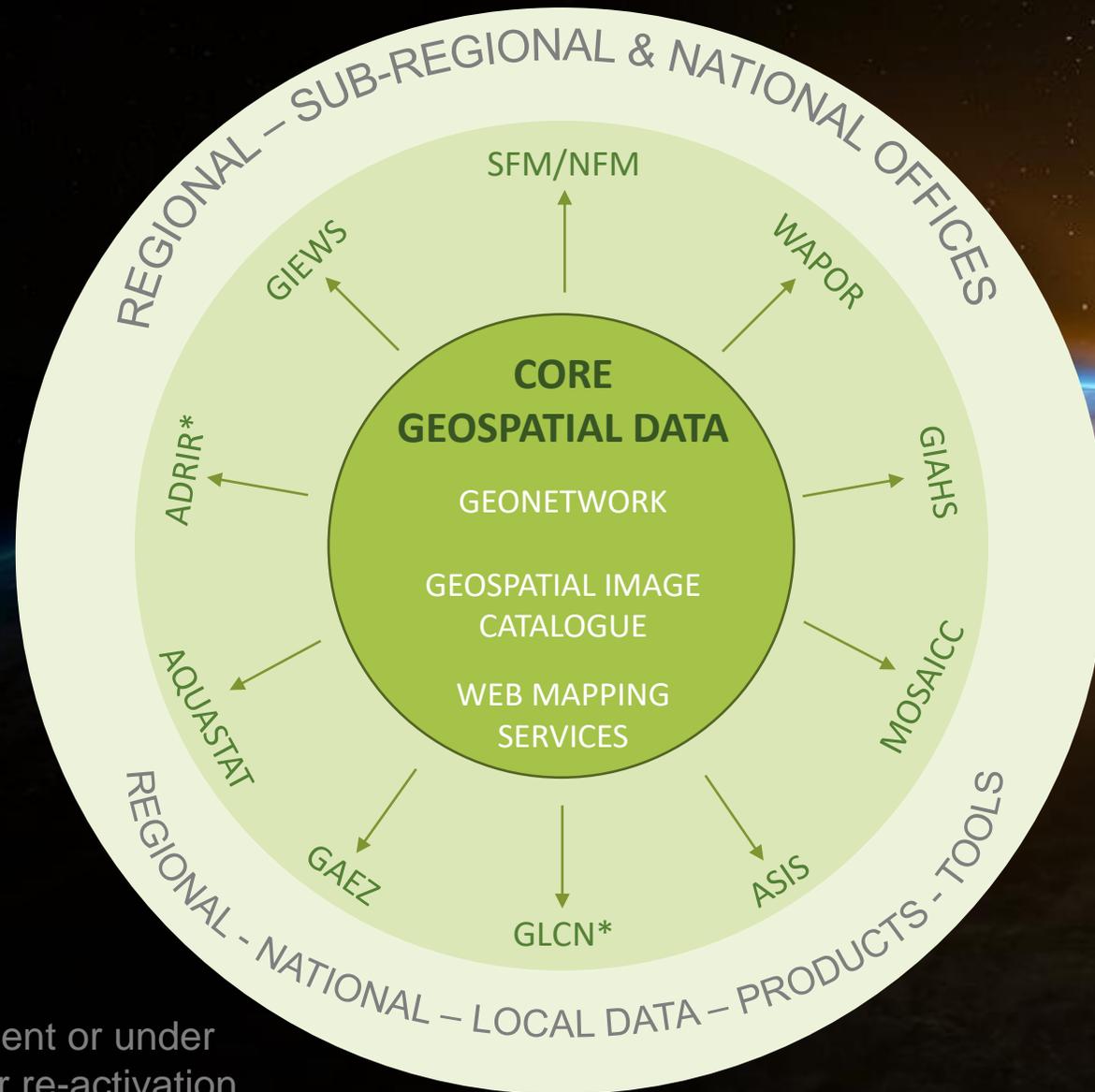
before NRCE, CBDS

- Since its establishment, FAO has been involved in provision of geospatial data, information and services;
- FAO NSL Geospatial Unit plays a fundamental supporting role in support to food security and monitoring natural resource use and propose adequate information for policy relevant solutions;
- Through remote sensing, we define:
 - standards and indicators for the regular monitoring,
 - qualitative and quantitative assessment of natural resources
 - methodologies and tools that support governments and institutions
- Our work supports development plans, growth strategies and decision-making processes in many countries.

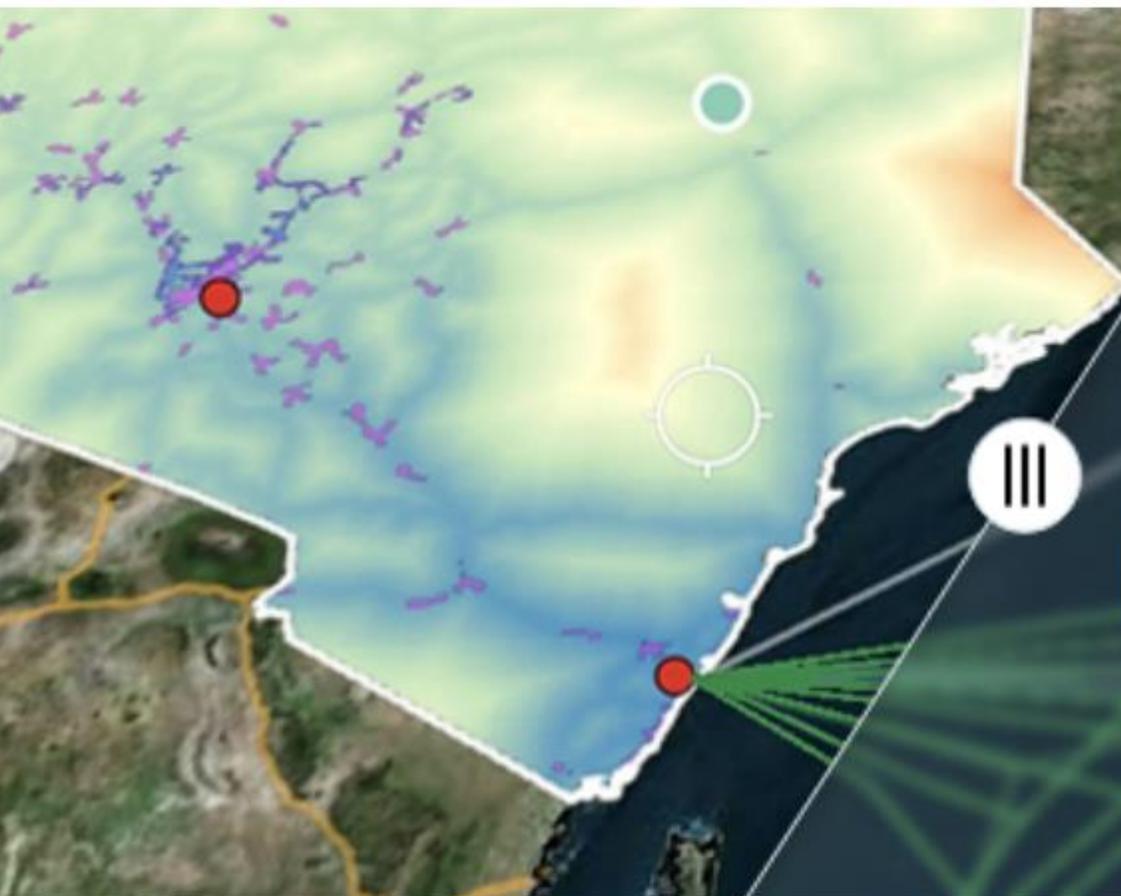
<http://www.fao.org/geospatial/en/>



GEOSPATIAL PLATFORMS, TOOLS & DATA



* Under development or under consideration for re-activation



A GIS data platform supports all stakeholders with rich, shareable data (agro-ecology, water, land, soils, GHG, etc.), respecting the proper protocols of data confidentiality. The platform also includes a subnational system of donor information developed by FAO and its partners.

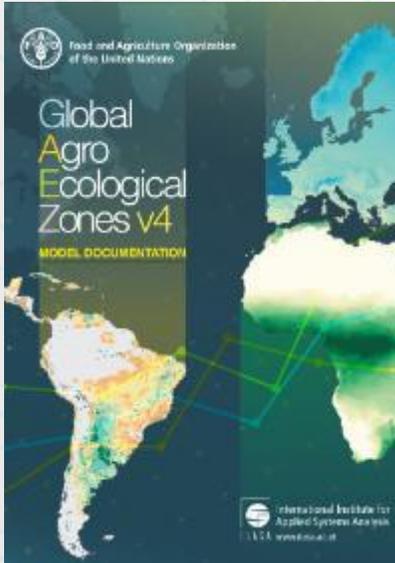
[LAUNCH APPLICATION >](#)

Welcome to FAO Hand-In-Hand Geospatial Platform

The **Hand-in-Hand Geospatial Platform** is a supporting tool for the Hand-in-Hand (HiH) Initiative, an evidence-based, country-led and country-owned initiative to accelerate the Sustainable Development Goals (SDGs), SDG1 and SDG 2, using the most sophisticated tools available, including advanced geo-spatial modeling and analytics to identify the biggest opportunities to raise the incomes and reduce the inequities and vulnerabilities of rural populations, who constitute the vast majority of the world's poor.

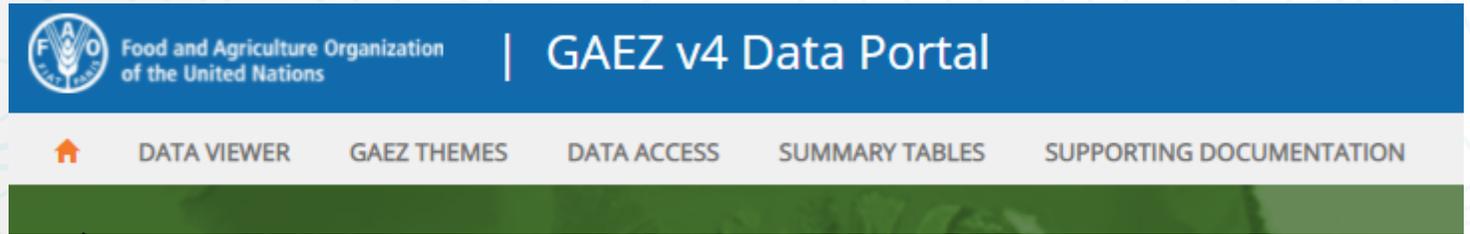
The platform brings together over 20 technical units from multiple domains across FAO, from Animal Health to Trade and Markets, integrating

GAEZ V4



Global Agro-Ecological Zones Version 4 Launched June 2021

<https://gaez.fao.org/>



BACKGROUND: DATA



The GAEZ v4 data was developed in **collaboration between FAO and IIASA**, through models developed over the past three decades



Global, gridded **raster outputs** across hundreds of different data variables, climate models, time frames, and crops – 600,000+ raster files



Varying **data types** – classes, integers, floating points, etc.

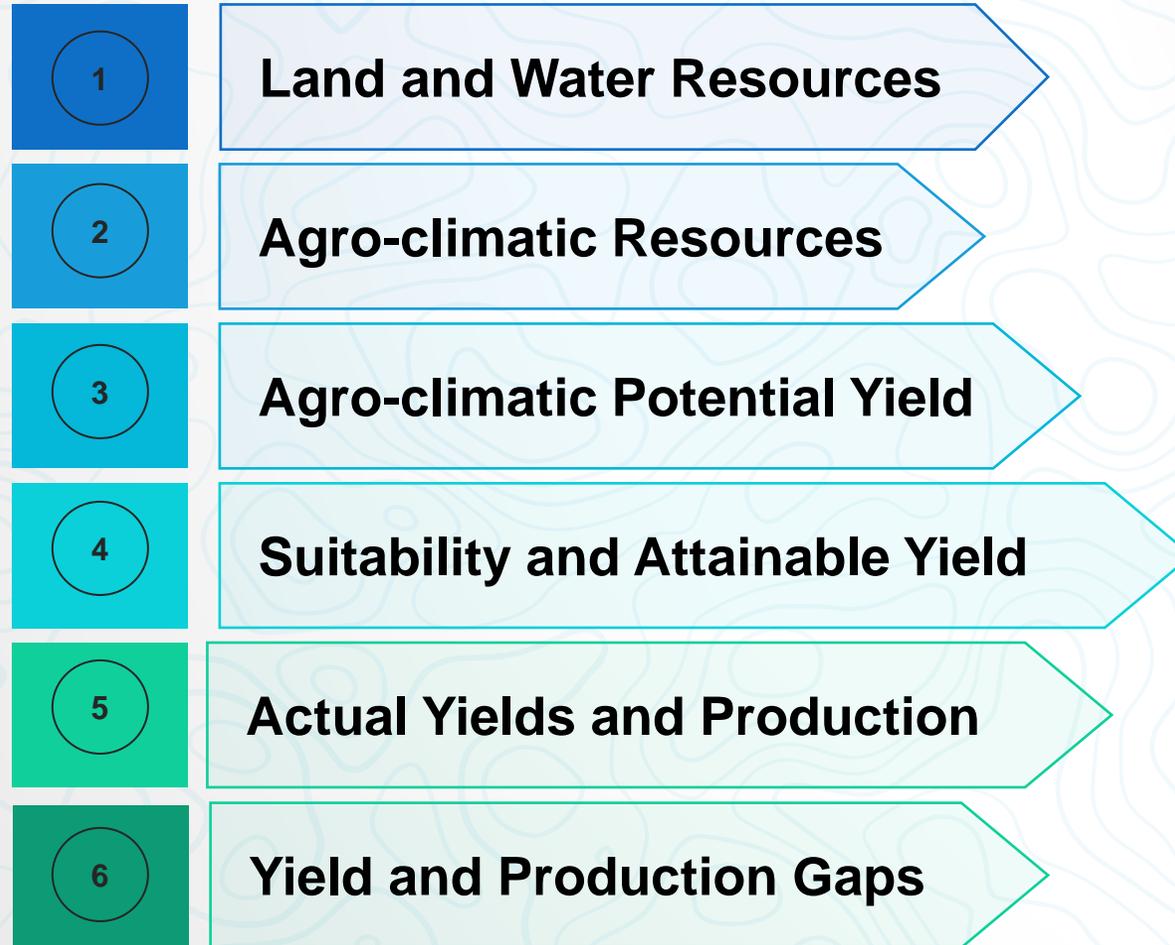


Stored on various hard drives, available **on request**, too big to easily move around



Users need guidance to know which **data is relevant**, and **how to get it**, as well as how to incorporate it into their own research

GAEZ THEMES



TECHNICAL APPROACH

1 Open Data Site

GAEZ data should be open, with clear model documentation, helpful guidance and community feedback

2 Web Services

Data should be easy to integrate into other systems, and should be displayed intelligently (not just an FTP site)

3 Ease of Use, Filtering and Visualization

Users should be able to investigate the data, find themes of interest, intelligently filter, and display the data as designed

ArcGIS Online

Hub Sites
Experience Builder
Web AppBuilder

ArcGIS Image Server

Mosaic Datasets
Image Services
WCS/WMS
Query + Render

Data Storage in AWS S3

Direct Download Links
Batch Link Export -> Download

Infrastructure

1 VM at FAO
1 AWS Bucket

Sites, Pages, Apps in FAO's ArcGIS Online organization

GAEZ VIEWER

Switch Themes

Filter Rasters

Change Renderer

Description

1 - Land and Water Resources
2 - Agro-climatic Resources
3 - Agro-climatic Potential Yield
4 - Suitability and Attainable Yield
5 - Actual Yields & Production
6 - Yield and Production Gaps

Filter Rasters

Yield and Production Gaps

Sub-Theme Name is
- empty -

Variable Name is
- empty -

Time Period is

Change Renderer for Image

Current Theme: Yield and Production Gaps

Yield and Production Gaps Symbology Apply

About this Data

Yield and Production Gaps theme
Use the filters above to navigate through the Yield and Production Gaps theme of the GAEZv4 database.

To visualize the layer with the correct symbology, select the corresponding renderer from the drop-down list of the Renderer/Palette panel. The recommended Renderer is also listed in the pop-up window that is shown by clicking on the map, each raster provides guidance on which renderer is appropriate for the data. Click on the map to return a pixel value.

Yield and Production Gaps

Options Filter by map extent Zoom to Clear selection Refresh

Name	Path to File	Sub-Theme Name	Variable Name	Description	Time Period	Crop	Water Supply	Data Units	Recommended Renderer	Download URL	File Identifier
cot_2000_gga	res071\2000\cot_2000_gg	Production Gap	Cropwise Apparent Production Gap	Cropwise Apparent Production Gap for the year 2000, for Cotton under Irrigated water supply conditions	2000	Cotton	Irrigated	1000 t	Production Gap	https://s3.eu-west-1.amazonaws.com/data.ga	000777274

12 features 0 selected

Open in Full Screen

Table of Rasters

IMAGE SERVICES AND CLIENTS

Public, RESTful Web Services

Fully documented, used by thousands of deployments

Capabilities

Export Images

Mosaic together rasters

Query attributes, filter and select

Generate raster statistics over areas of interest

Support dynamic image export + download

Summary Tables

Summarized Yield and Production data by geographic area:
Region, watershed, country, etc.

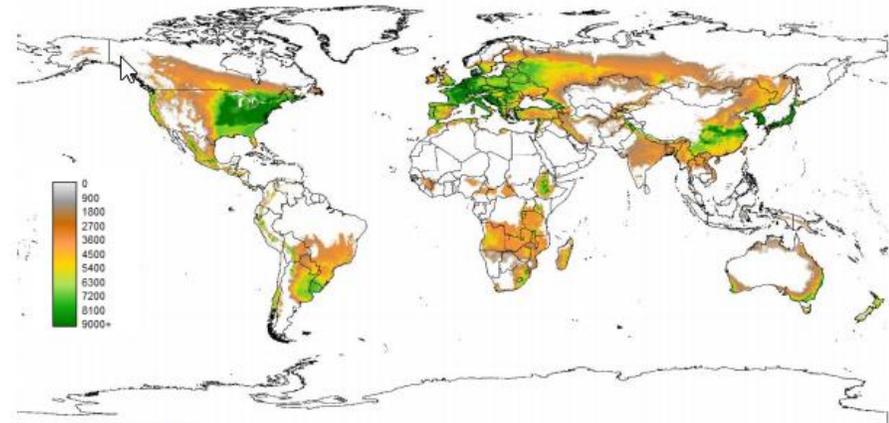
Access from Other Clients

Desktop GIS tools

Mobile/Web apps

Python Notebooks + tools

Figure 4-4 Agro-climatic potential yield (kg DW/ha) of rain-fed wheat, high inputs, climate of 1981–2010



Source: FAO and IIASA, 2021

NEXT?

Broad launch in June of 2021
Data also shared through FAO
Hand in Hand site

Upcoming: GAEZ v5

Increased National Capacity
Establish community of practice
Update source datasets and parameters
Additional crops

<https://gaez.fao.org>

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





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