

Closing data gaps and promoting evidence-informed decision-making for food security and nutrition

1 July 2021 | 3pm to 6pm CET



CFS

COMMITTEE ON
WORLD FOOD
SECURITY



Food and Agriculture
Organization of the
United Nations



Can decision-making on agriculture and food security be effective when data is scarce and unreliable?

Making the case for more and better (food security and nutrition) data

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Key Note Speech



Achieving food security and nutrition – What evidence do we need to improve decision-making?

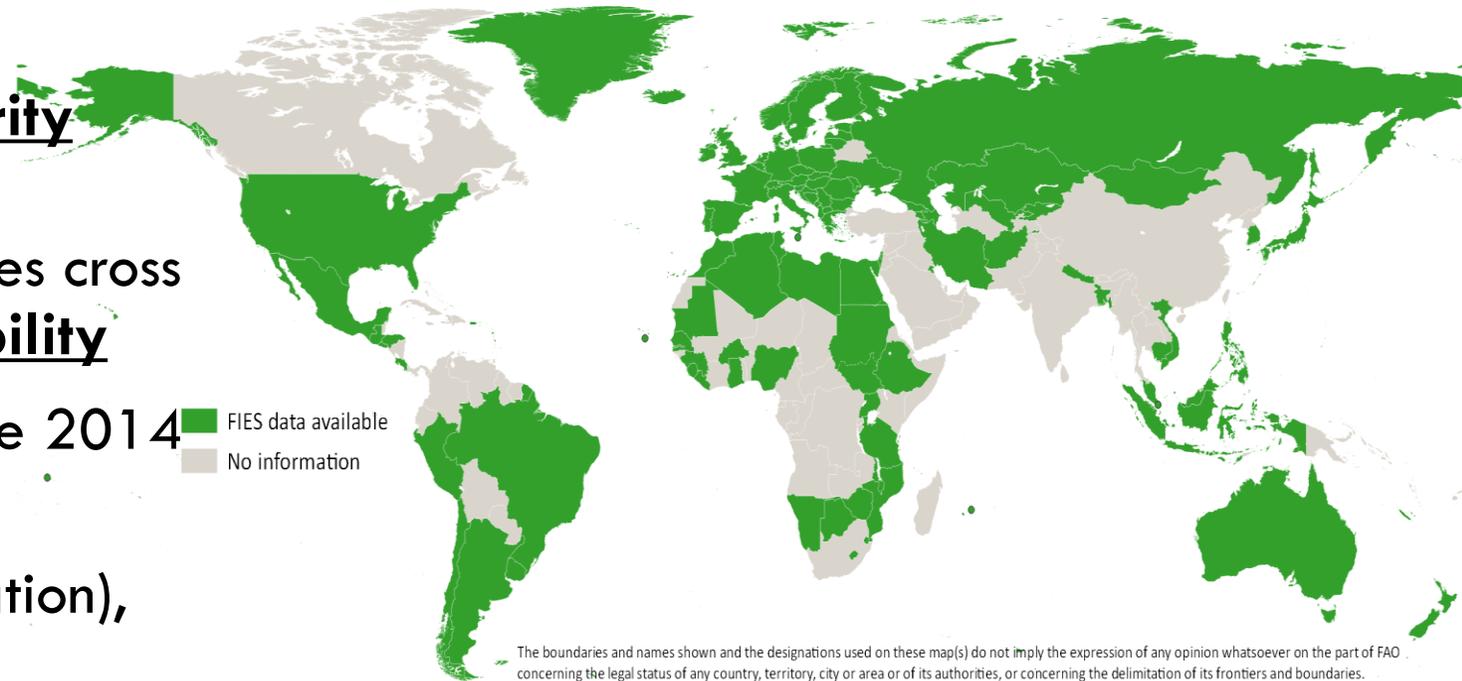
- **Key priorities in achieving food security and nutrition:**
 - Improve access to and consumption of safe and nutritious food
 - Build resilience of agri-food systems to vulnerability, shocks and stress
 - Transition to more equitable, productive, sustainable and responsible agri-food systems from Farm to Fork

- **What data is needed?**
 - High quality and granular data on:
 - Timely and granular data and statistics to prevent, maintain functionality during and more rapidly recover to a better-off state from crises, shocks and stress such as pandemics, pest, natural disasters, climate extreme, economic crises, political unrest, conflicts
 - More evidence on innovative value-chain solutions, their success factors and their impact to accelerate uptake
 - Macro-level coherent and comparable data to understand global trends and measure global, regional and national progress on international commitments and goals

Status of Food Security and Nutrition data and statistics

- **FIES is a theoretically sound and empirically valid** household or individual food security measurement system
- FIES data can:
 - Explore **a range of food insecurity severity levels**,
 - Be analyzed in a way that ensures cross country and over time **comparability**
- Data collected annually by FAO since 2014
- In total, data for 109 countries are published (46% of the world population), but only 25 countries produce data themselves

FIES data availability



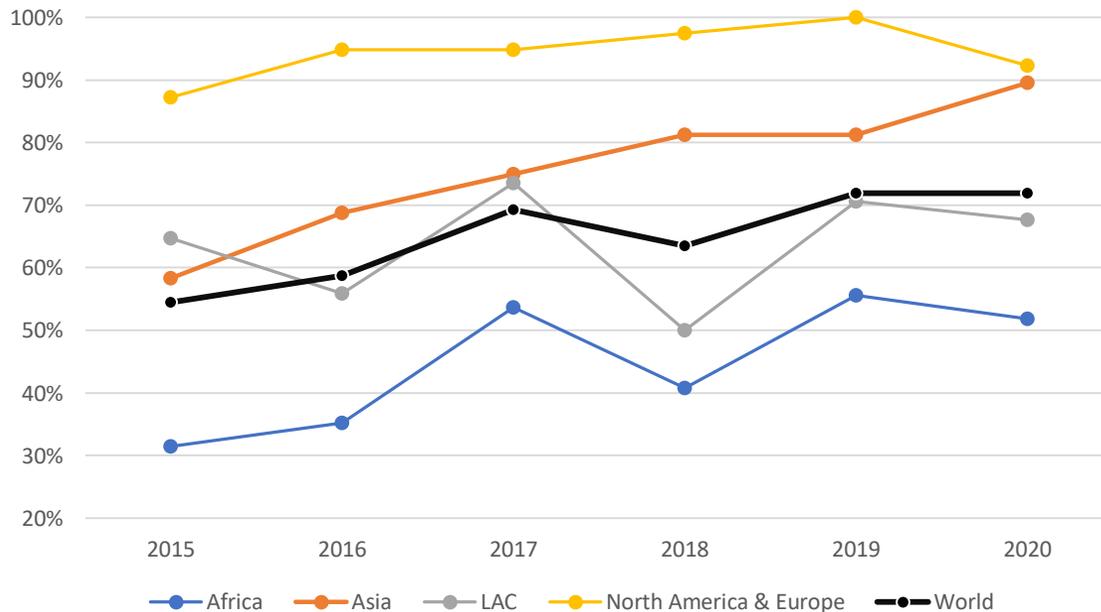
The boundaries and names shown and the designations used on these map(s) do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

Status of Food Security and Nutrition data and statistics

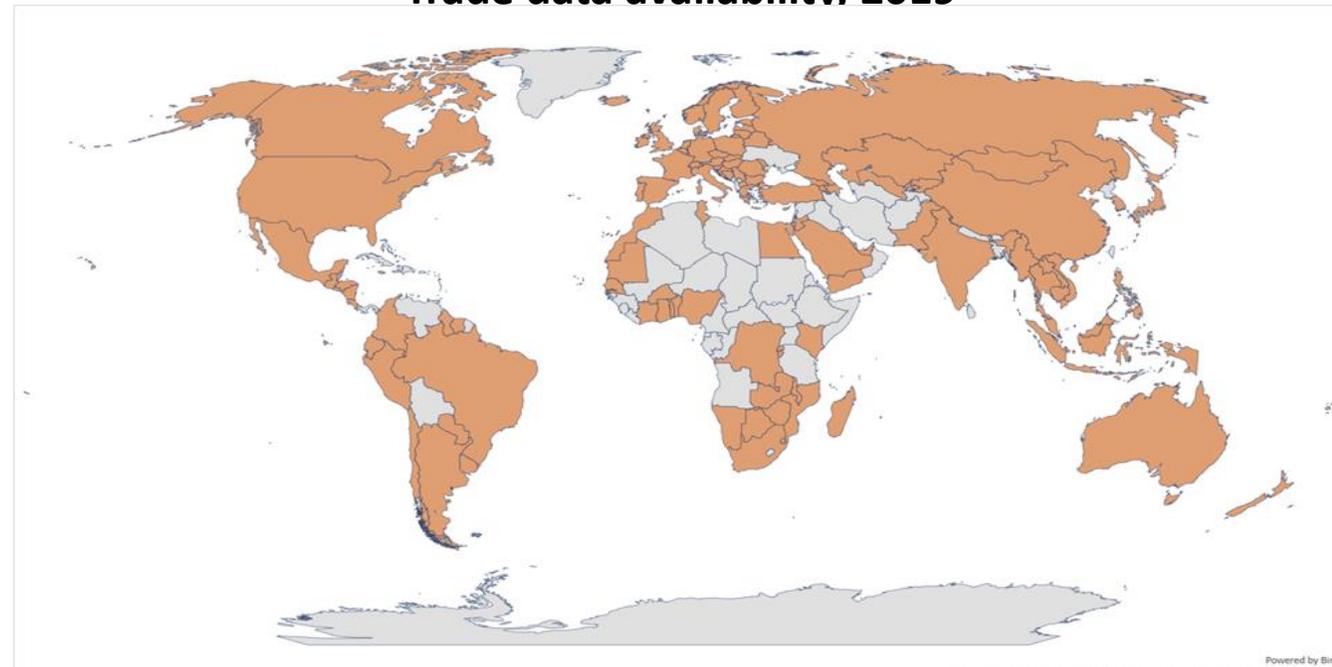
- Data on **agricultural production** is key to inform food availability, one determinant of food insecurity and nutrition.
- Globally, there is no data for around 30% of countries
- The data gaps are even higher in Africa

- Data of **trade** is essential to inform food availability and assess the resilience of markets to crises.
- Nevertheless the information that countries report is not timely (35% of countries did not report data for 2019).
- The reporting rate is deteriorating over time and is significantly lower in Africa and Western Asia

Trend of response rate: AG Production Questionnaires



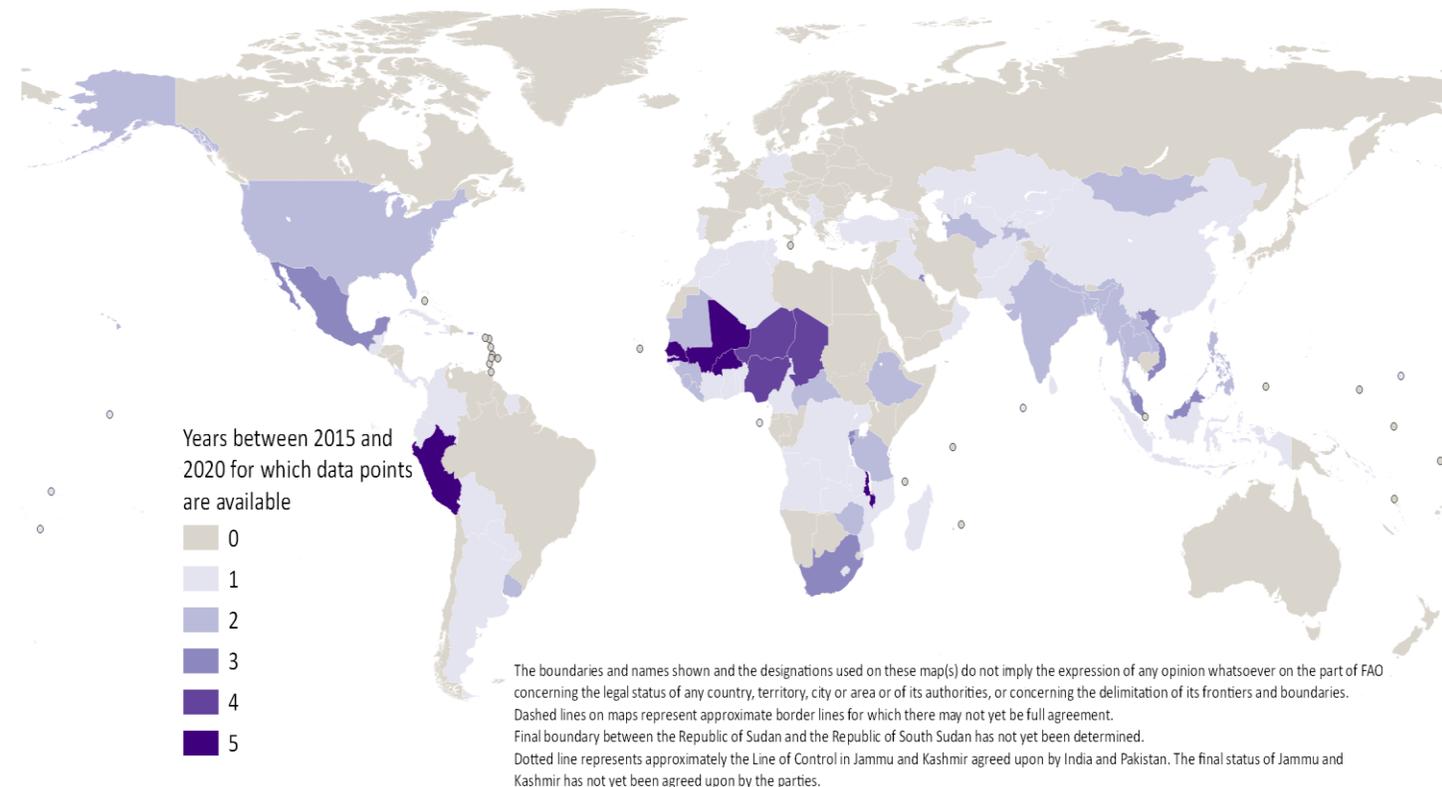
Trade data availability, 2019



Status of Food Security and Nutrition data and statistics

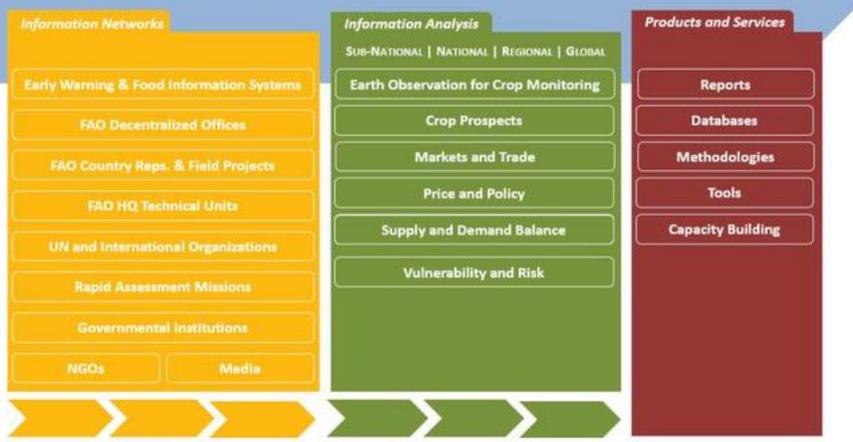
- Data on the status of nutrition (stunting, wasting and overweight) for children under 5 is key for effective policy making
- 54% of countries have not collected data on undernutrition for children under 5 in the period 2015-2020
- 28% of the countries have collected only one data point in the period 2015-2020
- The scenario is even worst for indicators such as adult obesity, breastfeeding and anaemia

Under 5 years old, undernutrition data availability



Status of data and statistics to build resilience to vulnerabilities, shocks and stress

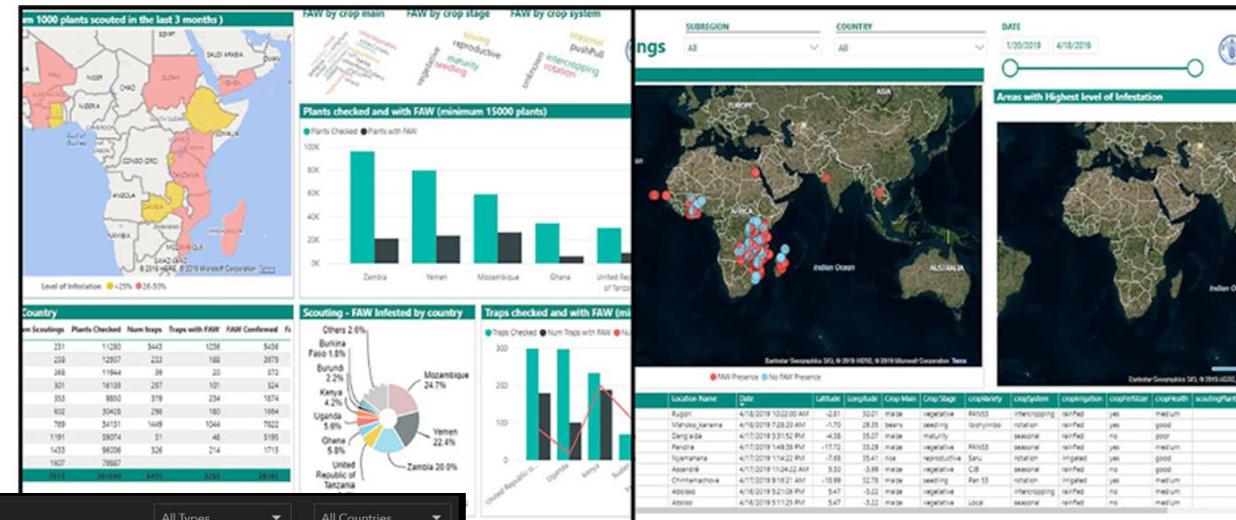
GIEWS Global Information and Early Warning System



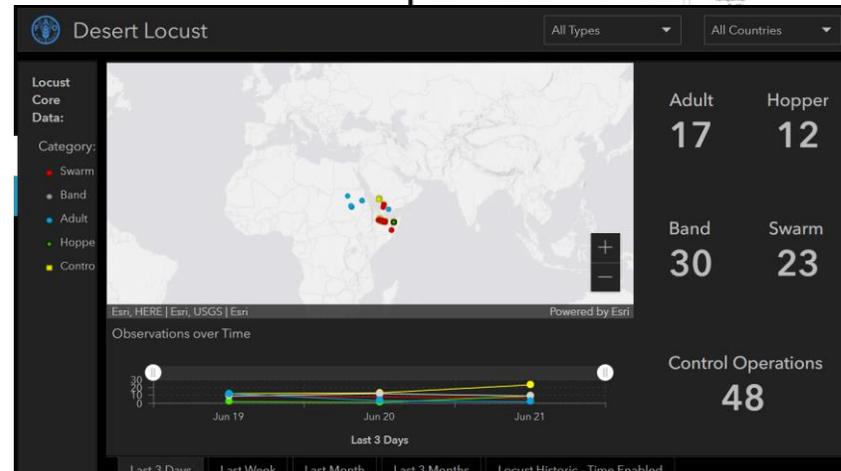
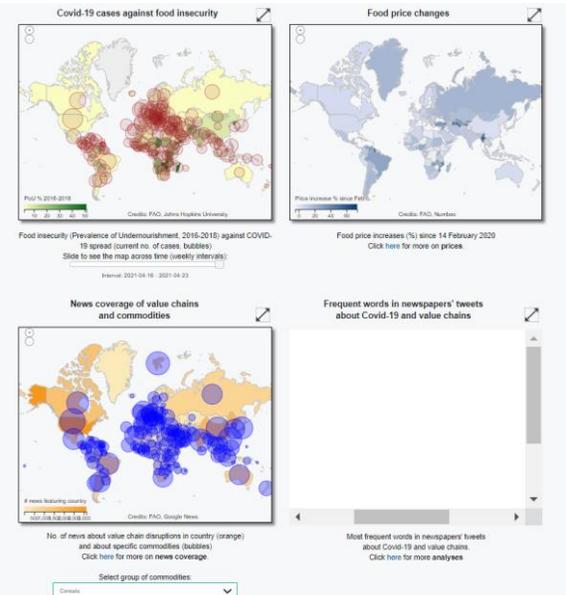
IPC Integrated Food Security Phase Classification

Evidence and Standards for Better Food Security and Nutrition Decisions

Fall Armyworm Monitoring and Early Warning System



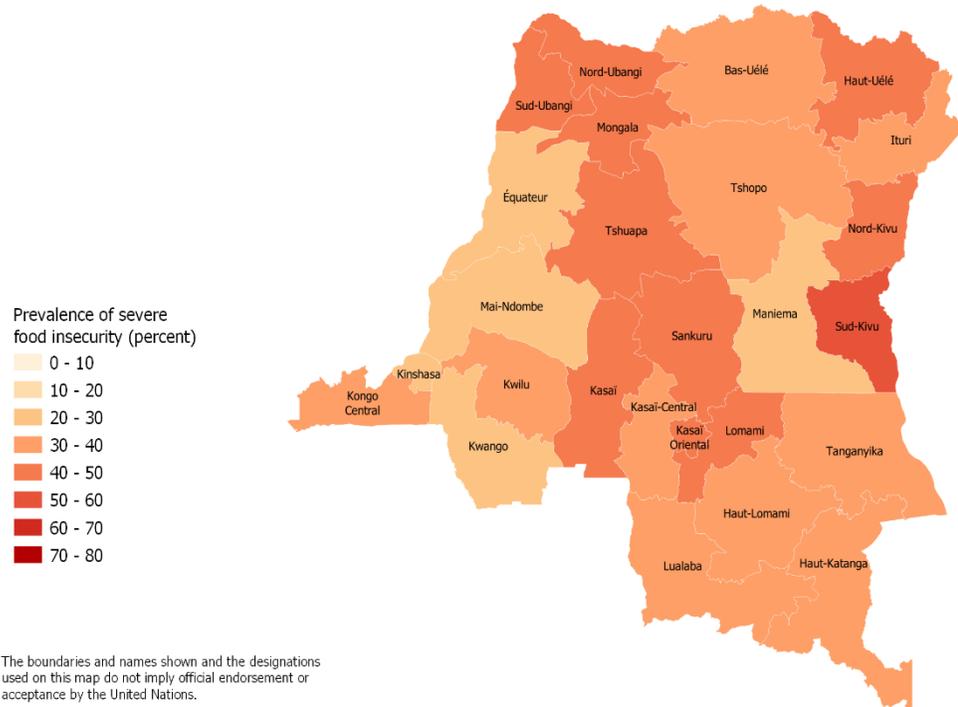
FAO Big Data tool on Covid-19 impact on food value chains



Status of data and statistics to build resilience to vulnerabilities, shocks and stress

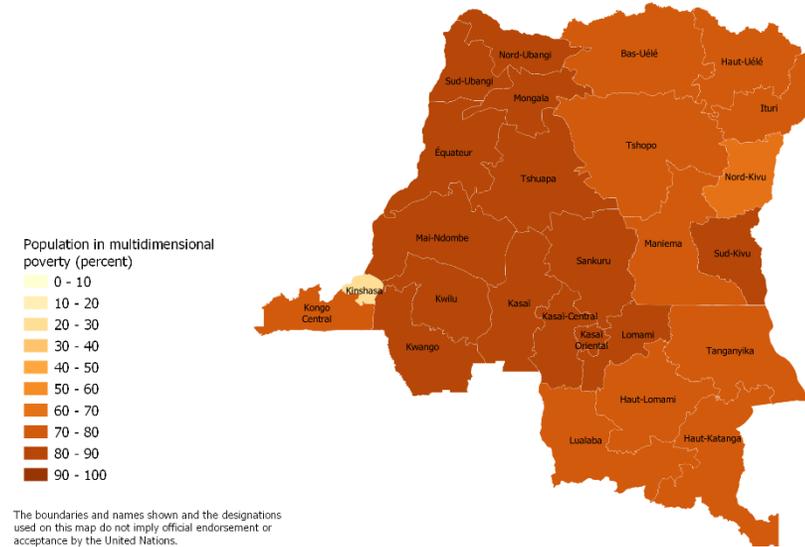
DEMOCRATIC REPUBLIC OF THE CONGO 2020

Severe Food Insecurity



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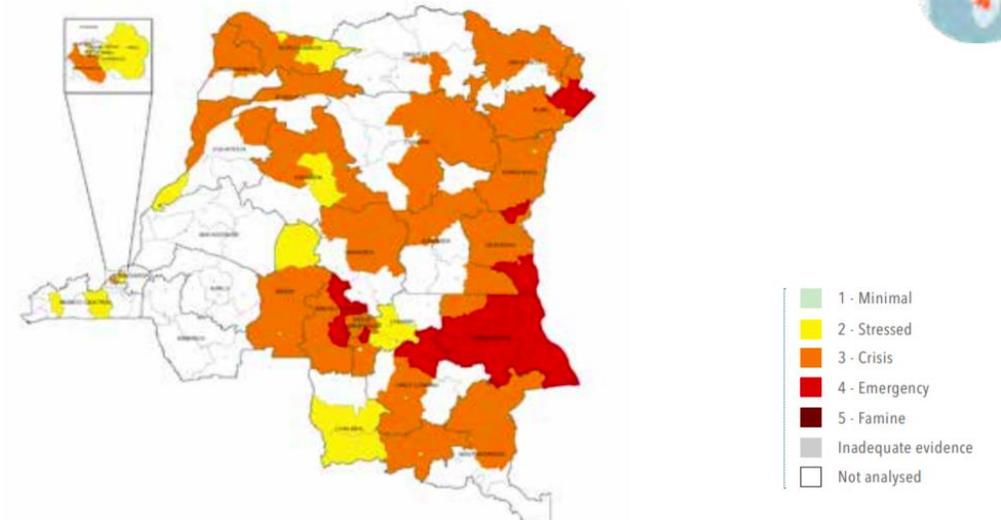
Multidimensional Poverty Index



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Food Emergency Areas

IPC acute food insecurity situation, July-December 2020



Status of agri-food systems data and statistics for food security and nutrition

Status of agri-food system data and statistics - Examples	% of Countries
Data source – Census of Agriculture	2006-15: 65% completed 2016-25: 32% planned; 39% completed/ongoing
Data source – Annual Agricultural Survey	60,5%*
Data availability – Land under productive and sustainable agriculture assessed against 11 sub-indicators (SDG 2.4.1)**	3.1% (9+ sub-indicators) 1.5% (6-8 sub-indicators) 7.1% (1-5 sub-indicators)
Data availability – Productivity of small-holders (SDG 2.3.1)	3.1%
Data availability – Income of small-holders (SDG 2.3.2)	3.6%
Data availability – Secure rights over agricultural land (SDG 5.a.1)	3.1%
Data availability – Food loss index (SDG 12.3.1 a)	0%
Data availability – Food waste index (SDG 12.3.1 b)	5.6%

*To use with caution ** Not yet published

Underlying causes of data scarcity

➤ low statistical capacities

- Limited number of staff, low technical and managerial skills, poor statistical infrastructures, poor coordination among data producers, weak regulatory framework
- low overall reporting rate of countries on the 21 SDG indicators under FAO custodianship, currently stands at 51.5%
- 2019 SDG Capacity Assessment: virtually all countries requested technical assistance on one or more SDG indicators

➤ poor funding on data and statistics

- official statistics attract only 0.34% of total ODA, only a fraction of it is allocated to food and agricultural statistics
- the limited funds are not put to best use through scattered projects

➤ weak data dissemination and use culture

- Limited analytical capacity of NSOs and ability to provide key messages to inform policy-decisions
- Limited statistical literacy of policy-makers and decision-makers
- A lot of the existing data are not disseminated (e.g. reluctance to disseminate microdata) or not available in shareable formats

Solutions to fill data gaps: Overview of capacity development interventions

➤ **Scale up and upgrade capacity development interventions**

- Support - technically and financially - large-scale data collection initiatives such as integrated agricultural surveys that are able to regularly produce data on multiple missing food and agriculture-related indicators
- Shift to demand-driven, tailored interventions to upgrade existing surveys, with an appropriate mix of training and technical assistance, delivered through a blend of various virtual and in-person modalities
- Training/ technical assistance targeting both technical, functional and managerial competencies
- Training/technical assistance focusing on new data-related skills, e.g. use of new data collection modes, the use of alternative data sources and data integration
- Training/technical assistance on quality assurance frameworks; open data policies (including data privacy and protection); preparing analytical reports

➤ **Invest in new/alternative data sources such as geospatial data, Big data**

- Despite their importance, alternative data sources are not a panacea: such sources cannot automatically replace traditional data sources, but should be integrated with them
- To leverage new/alternative data sources and technologies requires significant investments in R&D, technology, data acquisition, attracting talent and upgrading infrastructures and processes. Moreover, quality assurance frameworks should be developed to ensure the accuracy of the estimates
- Ways in which Big data can be harnessed include web scraping, text mining, artificial intelligence

Solutions to fill data gaps: 50x2030 Initiative (FAO, WB and IFAD)

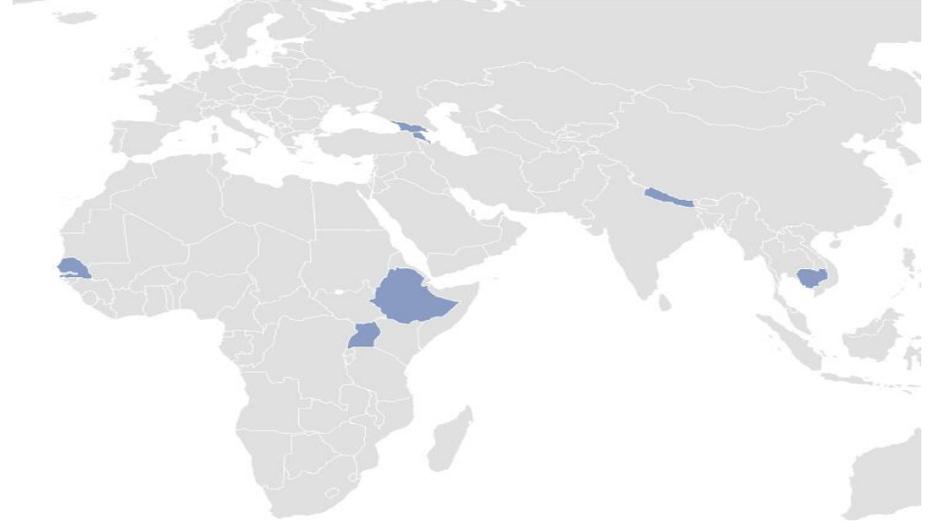
- **Goals:**

- Support **50 countries by 2030** to collect and disseminate agriculture and rural statistics
- Increased and sustained evidence-based decision-making by promoting the use of the data

- Based on a integrated agricultural survey programme

- **An annual core survey** on crop, livestock, aquaculture, fishery, and forestry production
- **Periodic rotational modules** on agricultural costs and income; labor and productivity; production practices and environment; use of machinery/equipment
- Possibility to link with a periodic survey on **household livelihoods in rural areas**

8 countries in 2021: Armenia, Cambodia, Ethiopia, Georgia, Nepal, Nigeria, Senegal, Uganda



15 additional countries in 2022-2023: Bhutan, Bolivia, Burkina, Burundi, El Salvador, Ghana, Guinea, Haïti, Indonesia, Kenya, Malawi, Mali, Mozambique, Myanmar, Palestine, Tanzania



Solutions to fill data gaps: Use of Big Data

2019

Crisis of traditional data collection systems

- Reduced **budgets**
- **Cultural changes**
- New **competitors** on the market

Data Gaps

Data Lab's **objective** is to **fill** such gaps

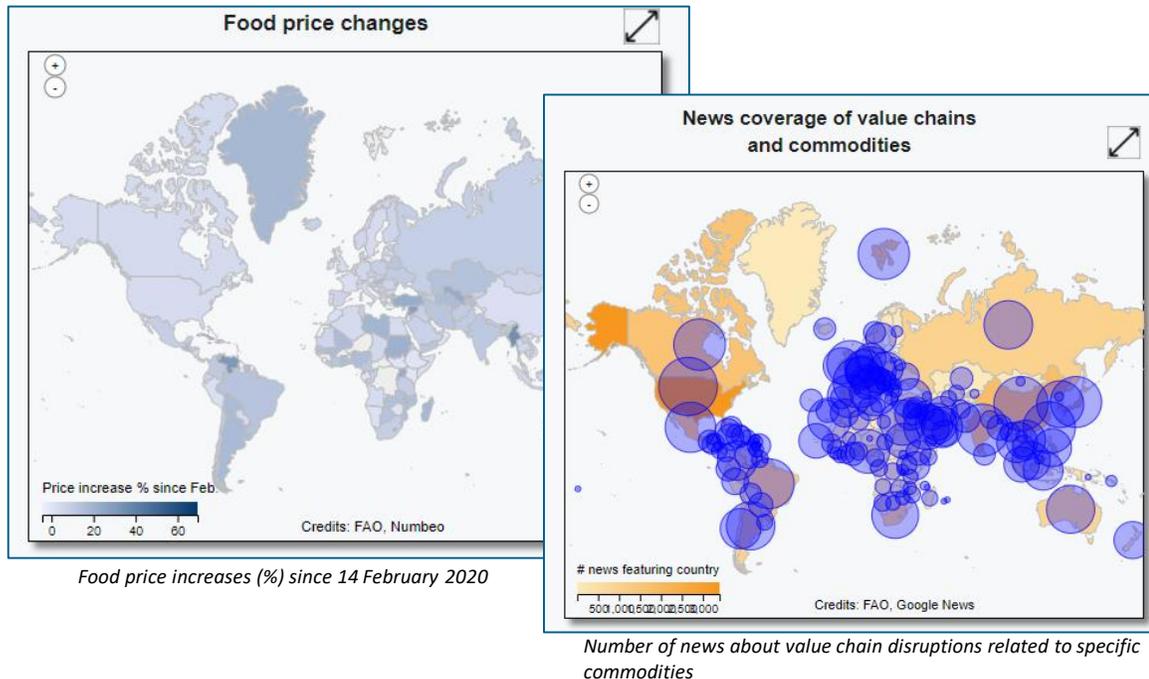
Improving **timeliness** and **granularity** of data collection

Producing **automated analysis**

Providing **early warning signals**

Through the use of:

- **New technologies** (web scraping, text mining, geo-spatial data, artificial intelligence)
- **Big data** (social media, online newspaper articles)



Solutions to fill data gaps: webscrapping and text mining

Text mining documents for the FLW database

- Publications / Reports **scraped** from the web
- Then **analyzed** through **natural language processing**

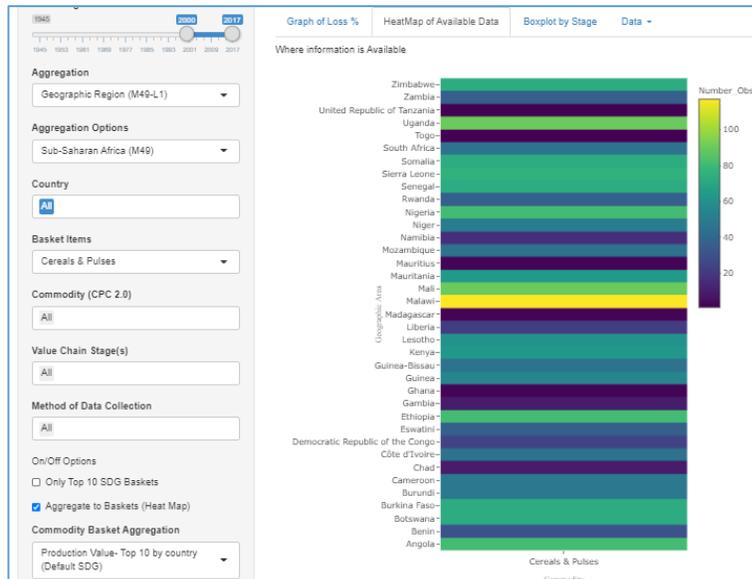


To identify specific patterns related to:

- **Geographic location**
- **Commodities**
- **Quantities**

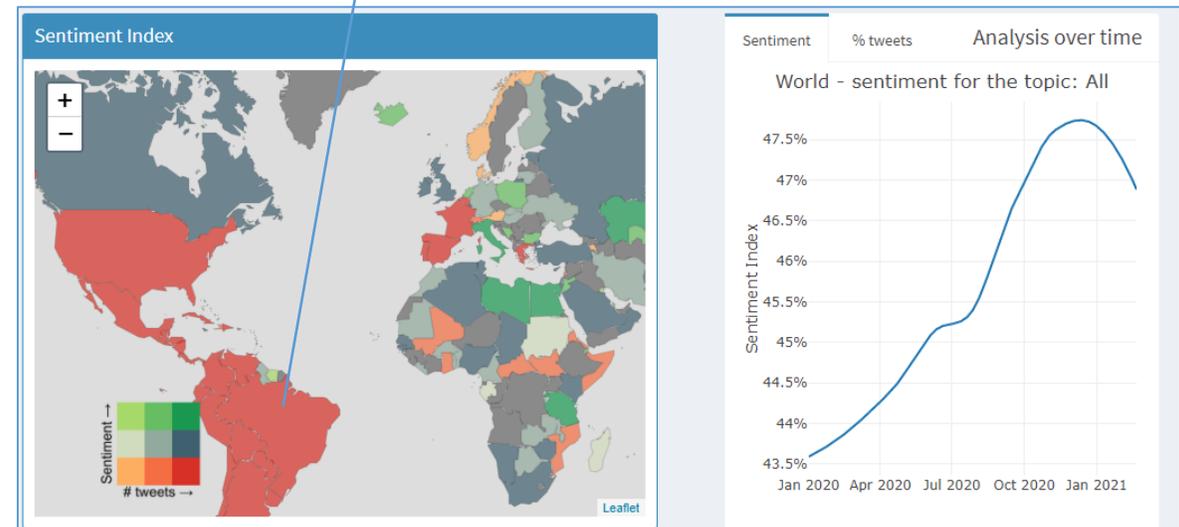
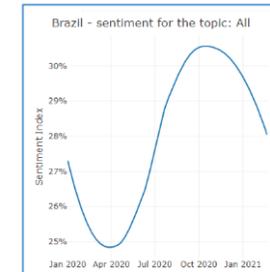
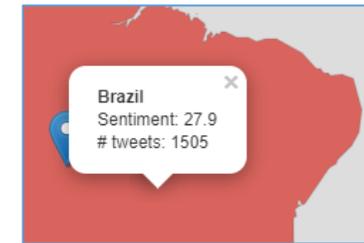
Then data are fed into the FAO's **Food Loss and Waste Database**

The FAO FLW Database (FLW data related to cereals and pulses in Sub-Saharan Africa between 2000 and 2017)



Sentiment analysis for the Social Unrest Analysis Tool

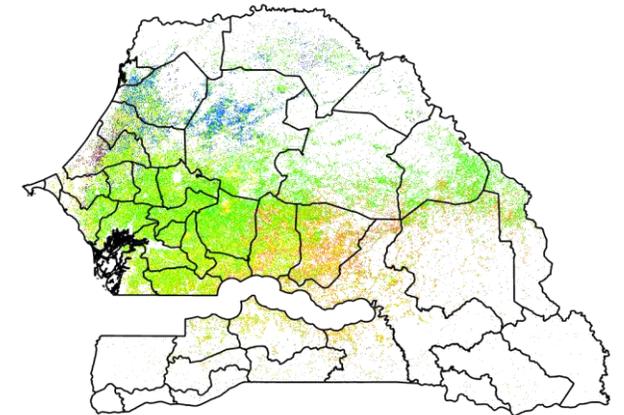
The Data Lab conducts **sentiment analysis** on the **tweets** published by newspapers' accounts from 150 countries, to identify **social mood trends**



The FAO Data Lab's Social Unrest Analysis Tool

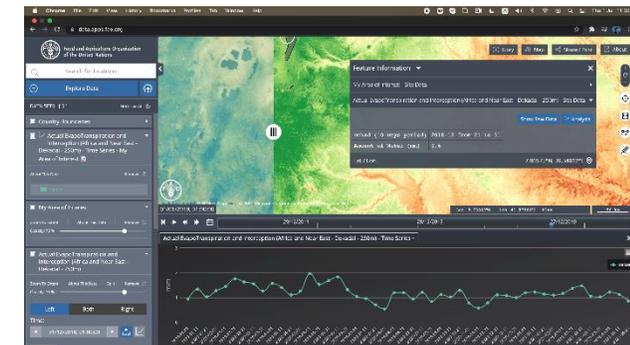
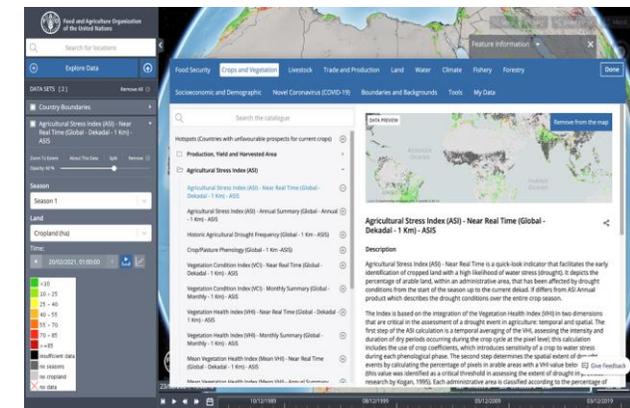
Solutions to fill data gaps: Key Applications of Earth Observation Data

- Statistics: Real time estimation of
 - Crop acreage
 - Crop yield
- Early Warning/Food security: monitoring and detection of
 - Drought
 - Plant Diseases
 - Invasive species
- Precision farming:
 - assessment of crop suitability
 - monitoring of water requirements
 - nutrient requirements, plant status
- Financial and environmental sustainability of agriculture:
 - Identification of marginal areas (low yield) and suitability analysis for the market of carbon credits (emerging in USA)
 - Land productivity analysis and farm profiling for insurance and access to credit



Data Integration and Federation Solution: HiH Geospatial Platform

- The Hand-in-Hand Geospatial Platform provides integrated data services, advanced geospatial modeling and analytics
- Integrates data from across the UN, NGOs, government institutions, academia and space agencies on Soil, Land, Water, Climate, Fisheries, Livestock, Crops, Forestry, Trade, Social and Economics and much more
- Supports Tabular (location+geocode) and Geospatial (raster+vector) in both multi-dimensional and attribute list data structures/formats
- Federation and ingestion integration and interoperability models for single data items and streams of data for near real-time and periodic data.
- Works with popular metadata and data standards and protocols.



Thank you