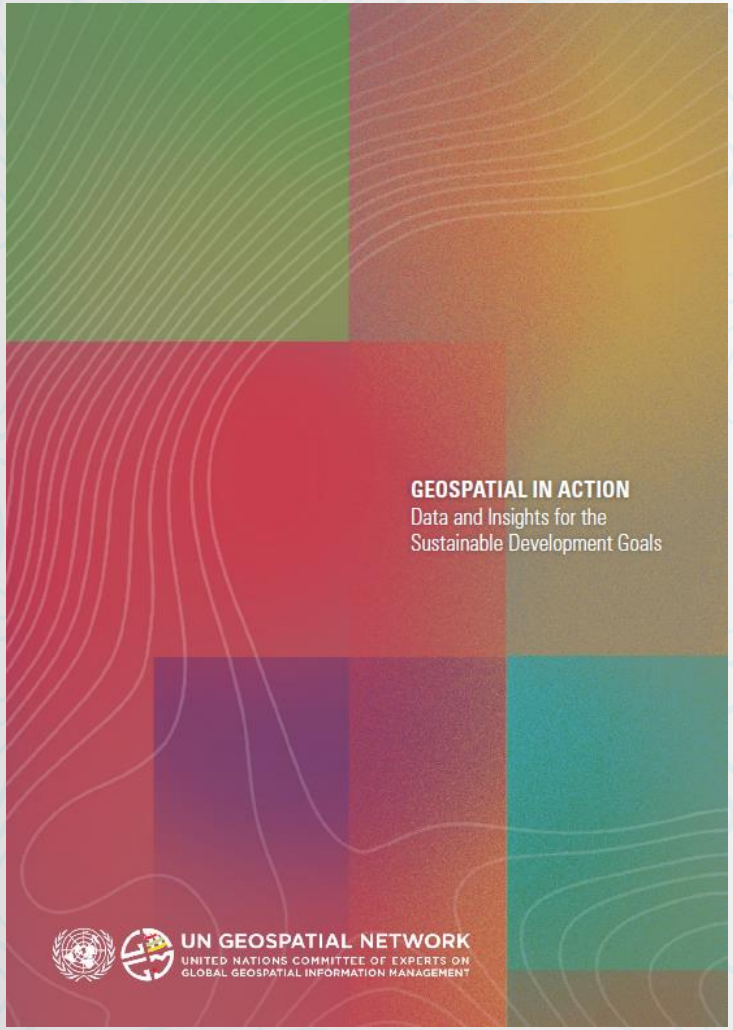
UN GEOSPATIAL NETWORK

UNITED NATIONS COMMITTEE OF EXPERTS ON GLOBAL GEOSPATIAL INFORMATION MANAGEMENT

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

Geospatial In Action: Data and Insights for the Sustainable Development Goals

GEOSPATIAL IN ACTION



3 main objectives

- Inventory of activities and projects on geospatial information management by the United Nations system
- Showcase the use and application of geospatial information management in the context of the Sustainable Development Goals
- Facilitate awareness and collaboration with UN-GGIM with the UN system

GEOSPATIAL IN ACTION

Address activities of the Blueprint:

- Promote demonstration projects to showcase best practices in the application and usage of geospatial data in the United Nations system
- Facilitate the establishment of partnerships by promoting the Network, its activities and activities of its Members in particular with other Networks
- Raise awareness on potential technical assistance to strengthen national capacities in geospatial information management
- Showcase the use and application of geospatial information management by the United Nations system
- Facilitate awareness and collaboration with UN-GGIM activities

End hunger, achieve food security and improved nutrition and promote sustainable agriculture

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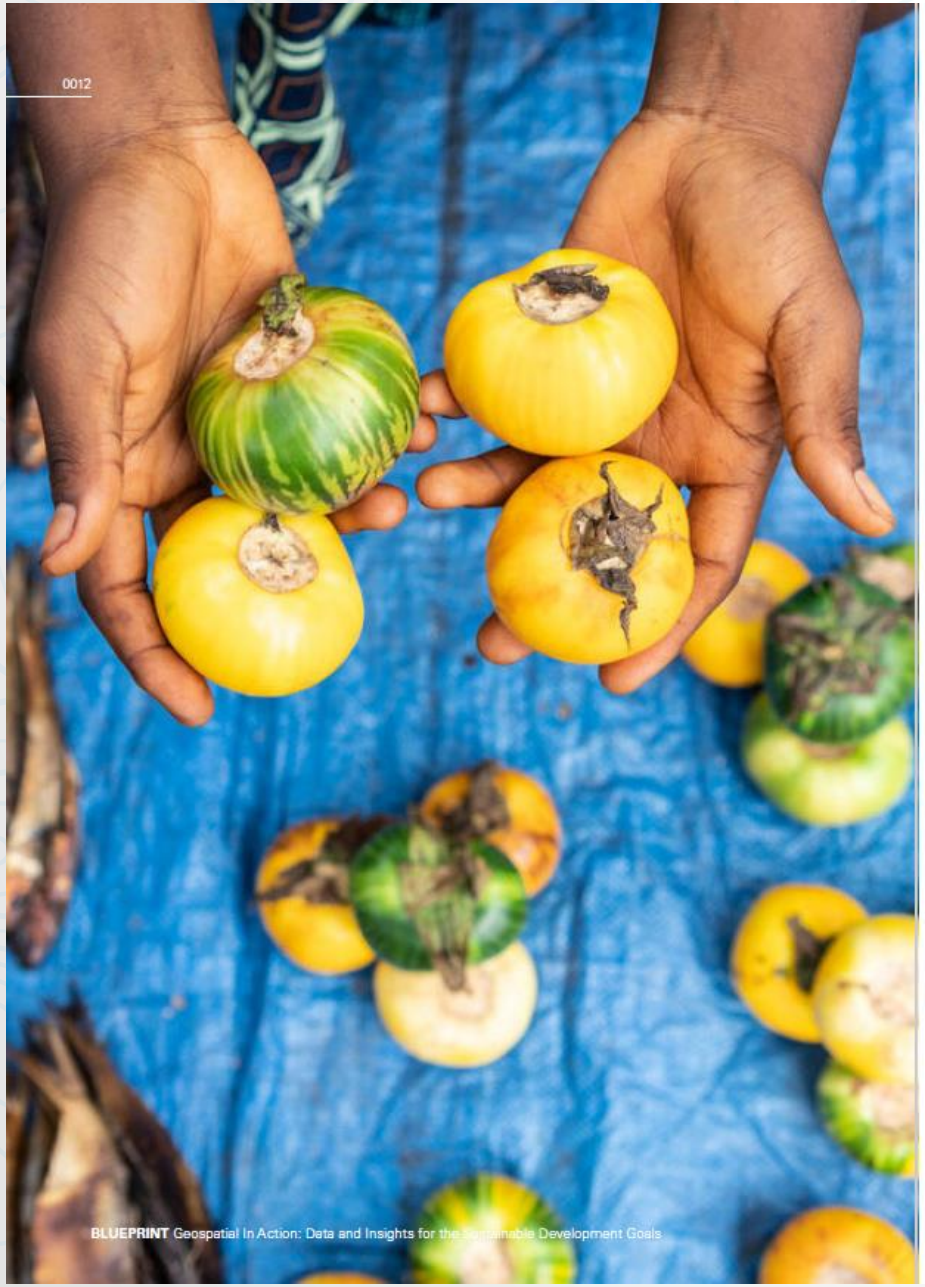
ZERO HUNGER

An estimated 25.9% of the world population – about 2 billion people – were affected by moderate or severe food insecurity in 2019, an increase from 22.4% in 2015. The fastest rise was in Latin America and the Caribbean, although the highest levels were found in sub-Saharan Africa. Millions of people around the world are teetering on the brink of starvation. These are men, women and children whose lives would be lost within days or weeks if the humanitarian community is not able to provide life-saving food assistance. The COVID-19 pandemic has intensified the vulnerabilities and inadequacies of global food systems, which could add hundreds of millions more people to the chronically undernourished, making the goal of ending hunger a more distant reach.

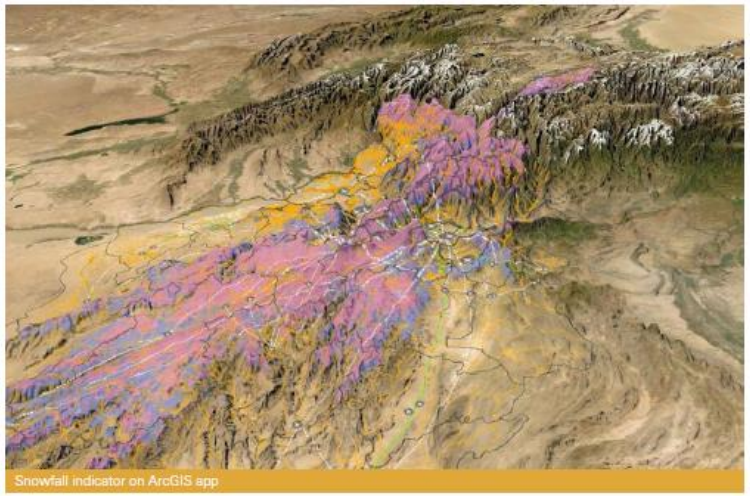
Geospatial information is critical in addressing the tremendous needs and challenges of feeding the world population. Geospatial information and Earth observation are key in providing insights to evaluate changes of crops conditions, to mitigate climate risks impact, to support farming operations and efficiencies, to monitor land degradation and to assess impact on livelihoods. The issue of world's hunger requires sound and timely evidence-based geospatial data for decision makers and farmers alike to create and maintain secure and sustainable food systems for feeding populations. Geospatial data, methods and tool by identifying and monitoring natural resource use and propose adequate information for policy and solutions support the elaboration of strategies and practices to provide food for all.

The Food and Agriculture Organization helps countries implement appropriate geospatial solutions, that can assist their efforts to create sustainable food systems. Geospatial information and Earth observation can help to support the generation of robust data and guide sustainable agricultural development, new quick and simple solutions are developed for improved disaggregated crop statistics for countries, using remote sensing and geospatial technologies. The Global Agro-Ecological Zones is both a methodology for assessing global land resources and a spatial database. The geospatial database covers five thematic areas: land and water resources; agro-climatic resources, suitability and potential yields for crops/land utilization; downscaled actual yields and production of main crop commodities; and yield and production gaps. This global methodology and resource is also supporting national capacity development.



Geospatial information and technology is critical for surge operations in bringing food supplies to population affected by disasters or crisis and for monitoring systems. The World Food Programme uses geospatial analytics for the design of new rural development such as in Yemen when on-sites visits are not possible. Combination of geospatial datasets help determine the social, environmental and climate vulnerabilities of over 4,000 villages and help identify intervention areas and preliminary intervention options to improve 26,000 poor households' livelihoods. The AIMS satellite programme of WFP monitors and evaluates changes in the landscape induced by the Food Assistance for Assets programmes and has, since its launch in 2017, monitored 1,500 assets across 18 countries. These programmes engages communities in the construction and rehabilitation of assets that stabilize and restore landscapes, reduce hardships on women and girls, reduce disaster risk, increase food production, and strengthen and diversify livelihoods directly contributing to many SGDs.

The International Fund for Agricultural Development uses geospatial methodologies, tools, and data to support decision making in the formulation of its country strategies and throughout its project investment cycle that aim to reduce poverty and hunger in rural areas. Geospatial analysis supports identifying vulnerable areas, targeting poor rural communities, analyzing climatic hazards and impacts as well as assessing the state of natural resources. The Fund relies on using freely available global and national datasets including population estimates, social-economic and nutritional data, accessibility to urban centers, environmental datasets, climate data on rainfall and temperature, land cover and land use maps, etc. The Fund also collects geospatial information from its funded projects (e.g. locations of beneficiary households, infrastructure locations, and/or areas under improved management) and uses it to evaluate impacts on food security and agricultural productivity.



Snowfall indicator on ArcGIS app

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

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INDUSTRY, INNOVATION AND INFRASTRUCTURE

The COVID-19 pandemic has hit the manufacturing and transport industries hard, causing job losses and declining incomes for workers in these sectors. Small-scale industries have been severely affected by the pandemic, and many continue to face existential challenges. Geospatial data and analysis allow to monitor infrastructure and support the planning of new investments as well as industrialization impacts.

The SDGs indicators and geospatial data visualization techniques can support the global understanding of the impact and challenges to "retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes" and the related CO2 (Figure X).

The rollout of mobile-broadband networks has been slowing down in 2020 but globally, almost 85% of the population was covered by a 4G network at the end of 2020. Data from 2018-2019 show, in the 25 countries in Africa, Asia, South America, Central Asia and the Middle East where the Rural Access Index was updated using a spatial method, almost 300 million out of 520 million rural dwellers still lack good access to roads. The indicator 9.1.1 on the "Proportion of the rural population who live within 2 km of an all-season road" is the quintessential example of the necessity and use of geospatial data and analysis in support of monitoring achievements on the Sustainable Development Goals. The indicator is related to road networks, which is one of the fundamental geospatial data themes and the geospatial calculations of proximity to these geographic objects.

The availability of a worldwide geospatial data network to calculate such indicators needs to be available and standardized worldwide, and defining agreeable methods and algorithms to perform these calculations consistently is required.

Technology advancements and innovation on Earth observation bring a new era of accessibility to satellite data, which are increasingly relevant for businesses, governments, and civil society. The availability of satellites and sensors combined with the technology to process the data, computer-aided analysis and Artificial Intelligence now provide insights on global-scale economic, social, environmental, and industrial processes. The democratization of these technologies is ongoing in the United Nations, yet the availability of data and insights from EO can be further amplified for operations and capacity development to be available to decision-makers and mandated activities. For example, radio systems are still of paramount importance for the whole world, and even more so for developing countries as broadcast radio goes where newer technologies do not. It is an extremely effective way of delivering information in rural and remote areas where information can educate and save lives in emergencies such as the current pandemic. FM Radio remains a key Information and Communications Technology service delivering immense social-economic value. Yet, in many countries, the expansion of FM radio is hampered by the lack of FM frequencies. International Telecommunication Union Radiocommunication Bureau, in cooperation with the African Telecommunication Union, is currently assisting 53 African countries in identifying new frequencies for FM broadcasting in Africa.

Software tools have been developed and deployed by the International Telecommunications Union to assist administrations of countries in identifying the most suitable frequency channels for each station to avoid interference. A web map application tool allows to plan and visualize using a path-general propagation model the location and FM stations that are compatible or generate unacceptable interference levels. Geospatial data is key to determine if some of the identified interference would be mitigated by favorable terrain or other physical factors. The application performs calculations on the fly and displays the correlation of the field strength and terrain data using atmospheric data (land/sea and atmospheric refractivity data sets) and terrain models (SRTM3). For any given country, the tool provides the current situation for frequencies with international rights to operate—the availability of better geospatial data for increased performance and results of the models.

The United Nations Environment Programme developed technical background document and remote sensing analysis technics to support national and regional artisanal and small-scale mining (ASGM). The programme contributes to evaluating the influence of mining on the aquatic environment and the benefits and challenges in using remote sensing technologies and in-situ environmental monitoring of mercury in water, sediment, and selected biota.

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