The geospatial context for the SDGs and Indicators

Joint UN-GGIM: Europe – ESS meeting on the integration of statistical and geospatial information

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Geospatial in the 2030 outcome document

(g) **They will be rigorous and based on evidence**, informed by country-led evaluations and **data which is high-quality, accessible, timely, reliable and disaggregated by** income, sex, age, race, ethnicity, migration status, disability **and geographic location** and other characteristics relevant in national contexts.

UNSC Indicators discussion

- Selected statements:
  - *Initial indicators being the basis for preliminary action by national statistical offices and the United Nations*
  - *IAEG-SDGs to build flexibility into its working methods, to ensure it can improve its proposed indicator set in the years ahead*
  - *Support for "non-official" or "third-party" data sources to support SDG measurement and monitoring at all levels*
  - *As noted by the IAEG-SDG, the indicators proposed are intended for global reviews!*
- Many interventions, but is moving towards agreement in the UNSC to endorse the proposed indicators
- Expected endorsement 11. March -> Work plan for IAEG-SDG

UN-GGIM Task Team on 2030 Sustainable Development Goal Indicators

Objective: To support the IAEG-SDGs in the development of a global indicator framework
Members: Burkina Faso, Mexico, State of Palestine, Ethiopia, Côte d'Ivoire, Brazil, USA, Togo, China, Egypt, Belgium, Australia, Denmark) + ESRI and GSDI

- Work focus:
  - Identify specific geospatial inputs to the further definition of the indicators – methods applied and data sources
  - Focus on tangible results that can conveyed to the IAEG-SDG in a practical manner for the purpose to develop the so-called metadata for the indicators

Target	Indicator	Addresses	Administrative units	Built-up area polygons	Cadastral parcels	Geographical names	Habitats and biotopes	Transport networks	.....	Additional geometry
Goal 1 End poverty in all its forms everywhere										
1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day	1.1.1 Proportion of population below the international poverty line, by sex, age , employment status and geographical location (urban/rural)	✓	✓	✓						
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation										
9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all	9.1.1 Proportion of the rural population who live within 2 km of an all-season road	✓	✓	✓				✓		
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable										
11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities	✓	✓							**Open space Poly-gons**

"One pager" - template

2030 A… Sustainable Development Goals

Goal: 15: Protect, r… manage forests, com… biodiversity loss

Target: 15.1: By 20… and inland freshwate… and drylands, in line…

Indicator: 15.1.1:…

Definition of the i…

trees higher than 5 me… thresholds in situ. It d…

Indicator disaggre…

Current suggested…

are asked to assign a… reporting (where Tier… recent data (i.e., less… with ground validation… more than 10 years) f… including expert estim…

Suggested geospatial data integration

GAP analysis: *"Reliable methods for estimating emissions from forest degradation are still lacking. We suggest using a common input source (Sentinel 2) to monitor the world's forest, thus eliminating the need for a Tier system. This will also standardize reporting methods and create enhanced transparency – building on a close partnership with national forest authorities".*

List required geospatial data: *"Need for high-resolution multispectral imagery (including NIR) for detailed images of land and vegetation, with frequent revisit times to provide frequent images".*

Data quality requirements: *"This indicator requires high repetition rates to acquire large data coverage in short time periods (short repetition cycle), high spatial resolution (10-20m) to assess also forest stands with low canopy closure, 10, 20 and 60m, and high spectral resolution to discriminate between forest and spectrally similar vegetation types".*

Data availability: *"Sentinel data are globally available, downloadable from ESA. Access to Sentinel data is free, full and open for the broad Regional, National, European and International user community. User registration is based on a user account pre-registration, with a dedicated single account per Agreement".*

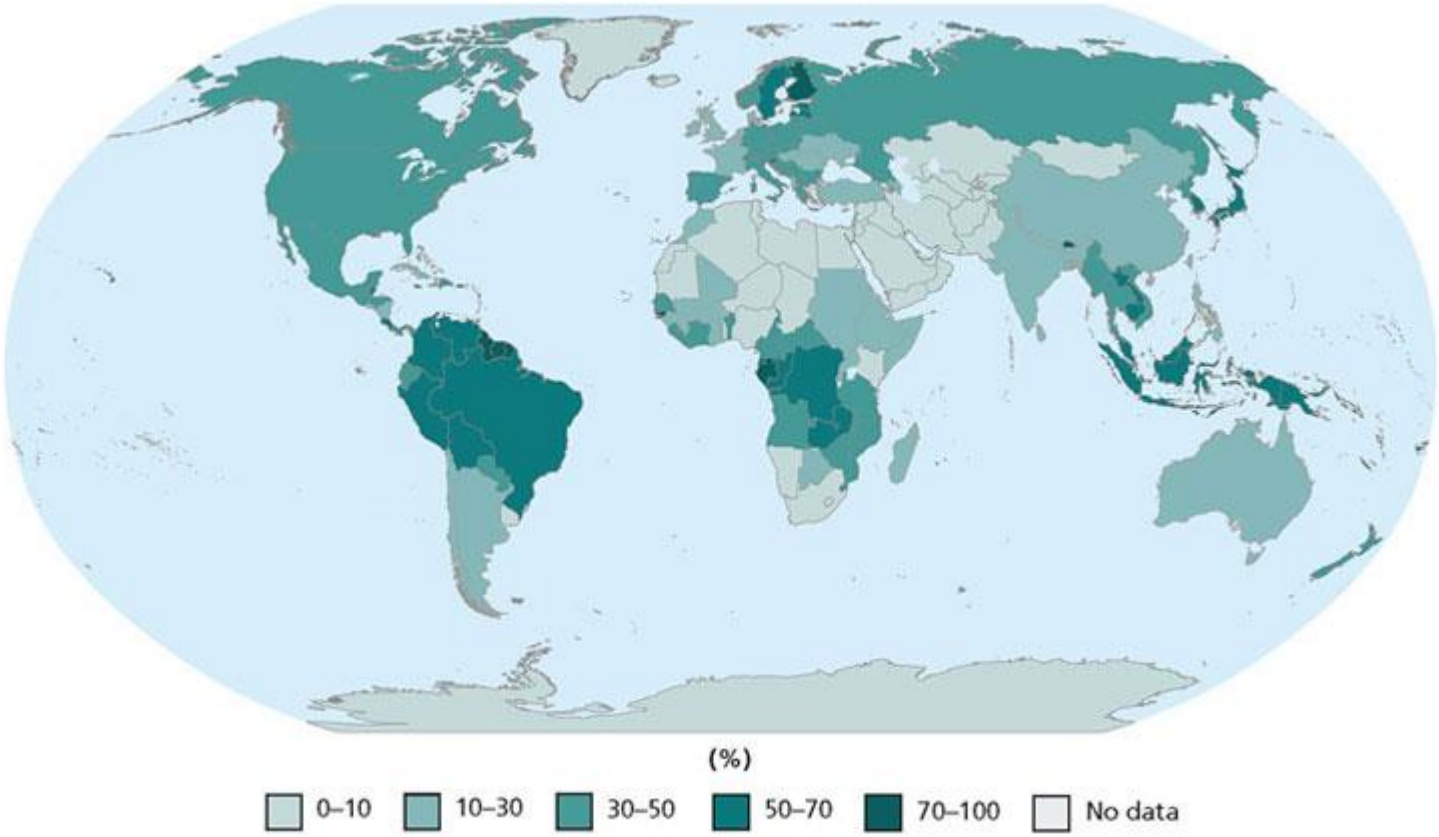
Data collection: *"Sentinel data access infrastructure for International Agreements (International Agreements Data Hub), can provide access to a rolling on-line archive covering the last month(s) of Sentinels core products, available within their specific timeliness. Furthermore, access to off-line archived data is available on-request".*

Data interpretation: *"Forest cover change assessment procedure: Acquire EO data, site image control and pre-processing, preliminary labeling of objects and changes, verification and adjustments of labels, validation and adding forest and land use dimension".*

Method of integration: *"1) A governance structure is agreed nationally and internationally, 2) A global reference data set is created, 3) Monitoring cycles are agreed, 4) Methods for change detection are developed, and the centrally established dataset is revised, 5) An online portal like the Forest Resources Information Management System "FRIMS" is used as channel for interaction between FAO and each national authority".*

Earth observation:
Target 15.1 indicator example

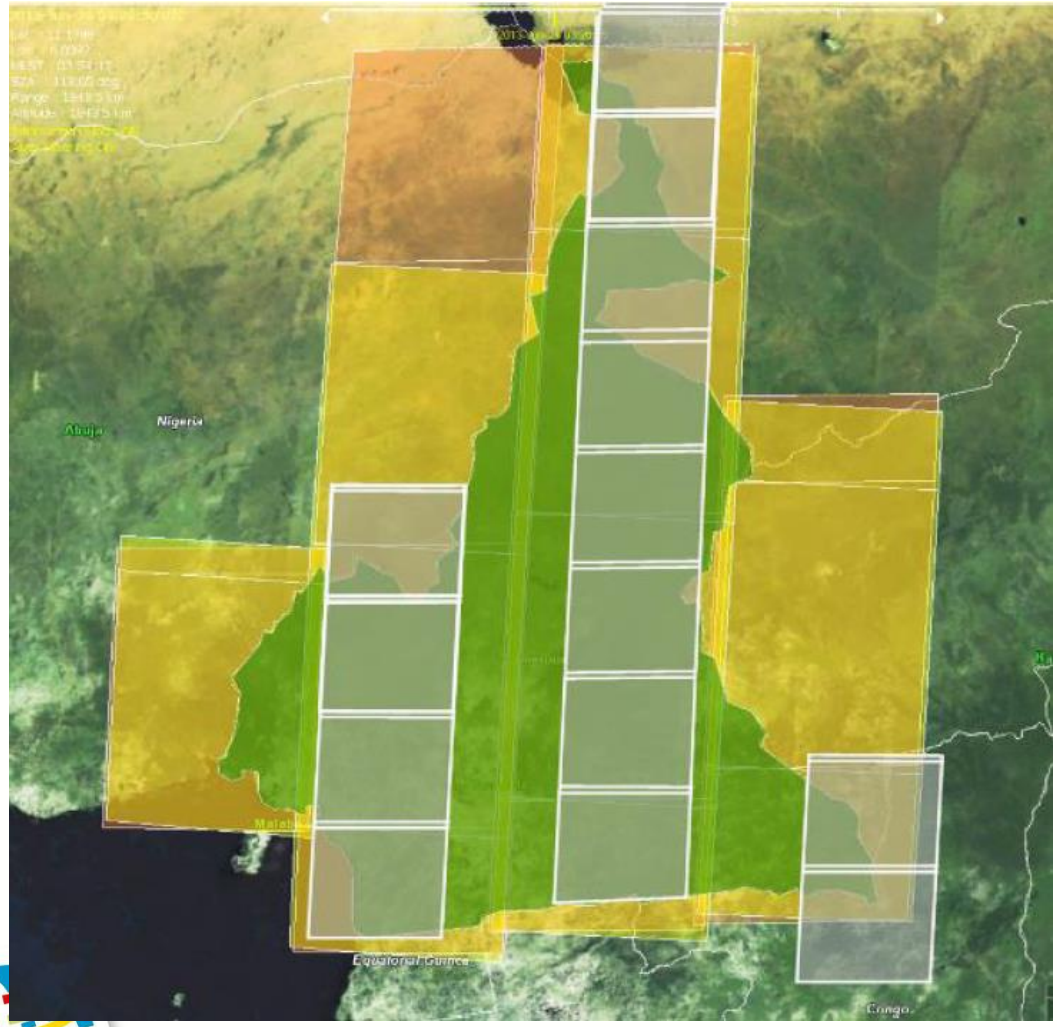
FIGURE 2 **Forest area as a percentage of total land area by country, 2010**



Sentinel-2

- Sentinel-2 will fulfill key requirements for forest monitoring and REDD+:
  - **High repetition rates** to acquire large data coverage in short time periods, which will lead to improved consistency, accuracy, timeliness and thematic detail of forest maps for e.g NFI, GHG, illegal logging
  - **High spatial resolution** to assess also forest stands with low canopy closure and map small disturbances of forests and forest degradation (MMU < 1 ha)
  - **High spectral resolution** with dedicated bands (red–edge) to discriminate between forest and spectrally similar vegetation types

New earth observation capabilities



Picture: Courtesy ESA

Landsat / Sentinel-2 coverages (10 days simulation) – covering Camaroon

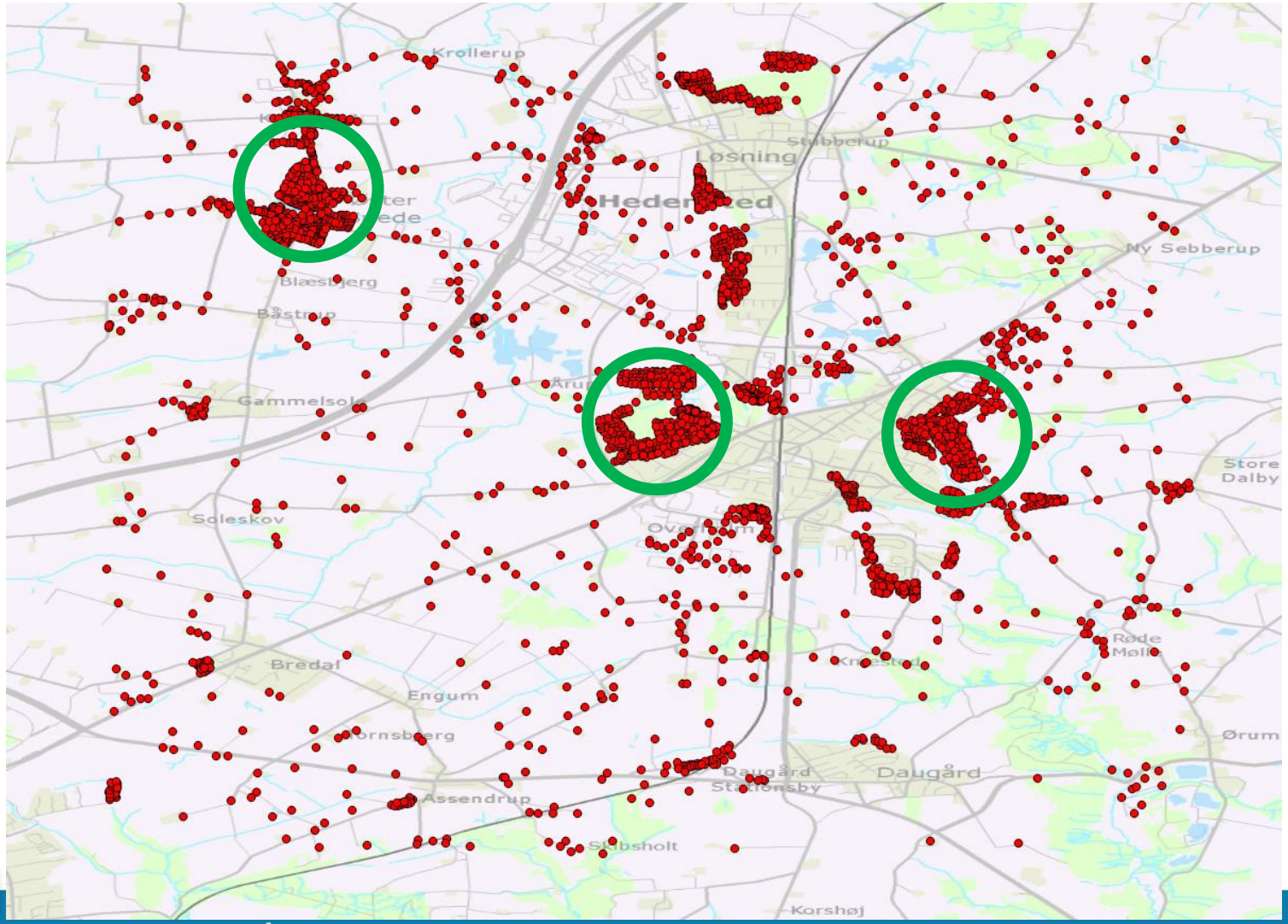
Geospatial analysis
Target 11.2 indicator example

” Proportion of the population that has convenient access to public transport…”

Data sources needed:

- Population distribution (grid/addresses)
  - include data on a spatially detailed distribution of residential population inside the cities or regions.
- Road network
  - The road segments should include attributes allowing for a selection of streets accessible by pedestrians.
- Public transport data
  - the location of stops and stations (frequency of departures at these stops).

Geospatial analysis: 11.2.1 Proportion of the population that has convenient access to public transport



47th Session of the United Nations Statistical Commission
Statistical-Geospatial Integration Forum
Geospatial Information and Earth Observations:
Supporting Official Statistics in Monitoring the SDGs
Monday 7 March 2016
10:00am – 1:00pm,
Conference Room 4 (CB), United Nations, New York

The 2030 Agenda for Sustainable Development will guide how we collectively manage and transform the social, economic and environmental dimensions of humanity and our planet over the next 15 years. Anchored by 17 Sustainable Development Goals (SDGs), 169 targets and a global indicator framework, the 2030 Agenda specifically demands the need for new data acquisition and integration approaches to improve the availability, quality, timeliness and disaggregation of data to support implementation at all levels – including to exploit the contribution to be made by a wide range of data, including Earth observations and geospatial information.

This side event will:

- Provide insight on how geographic information and Earth Observations helps to measure, monitor and manage sustainable development in a consistent way over time, by contributing to the array of input sources for monitoring the indicators of the SDGs.
- Demonstrate how such data could be part of a comprehensive and coordinated national statistical system to monitor the state of the Earth, and to deliver timely information necessary to citizens, organizations and governments to build accountability and make evidenced-based decisions.
- Finally, through Member State case studies, experts will highlight good practices and success stories that can lead us in the right direction for a coordinated and integrated approach over the coming years.

1. **Introduction and Context** (15 minutes)
   - Permanent Mission of Denmark
   - Permanent Mission of Mexico
   - Co-Chair of IAEG-SDGs

2. **Integrating Statistical and Geospatial Information** (30 minutes)
   - Mr. David Kalisch, Australian Statistician, ABS, Australia
   - Mr. Rolando Ocampo, Vice President, INEGI, Mexico

3. **Geospatial and Earth Observations Data as Inputs to the Indicators** (35 minutes)
   - Mr. Morten Møller, UN-GGIM Task Team on SDGs, Denmark
   - Mr. Lawrence Friedl, GEO GI-18 SDG Implementation, USA
   - Mr. Rifat Hossain, World Health Organization, Geneva

4. **Discussion Panel on National Applications** (70 minutes)
   - Panelists:
     - Mr. Jørgen Elmeskov, Director General, Statistics Denmark
     - Mr. Pali Lehohla, Statistician-General, Statistics South Africa
     - Mr. Tim Trainor, Chief Geographer, US Census Bureau, USA
     - Ms. Lisa Bersales, National Statistician, Philippines
     - Mr. Rolando Ocampo, Vice President, INEGI, Mexico
     - Mr. David Kalisch, Australian Statistician, Australia

5. **Summary** (10min)
   - Summary by Moderator to conclude

Moderator: Mr. Greg Scott, UNSD

How Geospatial data can contribute to monitoring of the 2030 Agenda

- As data in itself – geospatial data is used directly for the indicator construction (geospatial data = indicator)
  - indicator 15.1.1: Forest area as a percentage of total land area
- Support statistical data – geospatial data is used in combination with other data to estimate an indicator (geospatial and other data -> indicator)
  - indicator 11.2.1: Proportion of the population that has convenient access to public transport, by age, sex and persons with disabilities
- Enrich statistical data – geospatial data is used to enrich the indicators, although the indicator does not require a geospatial breakdown (analysis, enrichment of the indicators)
  - Indicator 6.3.2: Percentage of water bodies with good ambient water quality
- Geospatial data can help in communication and gives possibilities for geographical disaggregation of data – contribution to and compliance with 'no one left behind'

Source: J. Elmeskov, Danmarks Statistik

Proposed steps for the provision of potential geospatial data inputs

In the short term:

- Provide a tangible means to look at and review alternative data sources to provide geospatial inputs into the metadata for the agreed global indicators;
- Work our way through the indicators to disclose where geospatial information could support the monitoring setup;
- To seek to support the IAEG-SDGs in the process of defining the metadata for the indicators, by providing detailed suggestions for the use of geospatial and Earth observations data and methods – guided by the template format for indictor analysis; and
- To provide the first examples of the geospatial data inputs to the IAEG-SDGs at its next meeting in Mexico, 30 march – 1 April 2016
- We are still looking for a "champion" to present 1-2 "one pagers" at the IAEG-SDG meeting…

Proposed steps for the provision of potential geospatial data inputs

In the longer term:

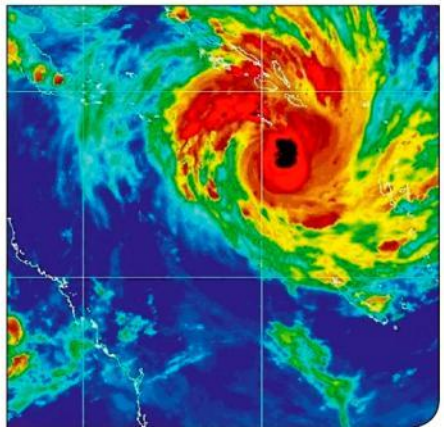
- We will need to build capacity and capability, and need collaboration between the statistical, the geospatial and the thematic communities; and

- Identify entities responsible for compiling geospatial data for global reporting on individual indicators and discussing data flow from the national to the global level in line with the agreed procedures for the methodological review of the indicators

Unleashing the power of ‘Where’ ….





… to make the world a better place