Geospatial Information and the 2030 Agenda for Sustainable Development

Technical Assistance of ECLAC to the Management Institute for Land Registration and Land Information System - MI-GLIS

Paramaribo, Suriname, 04 to 07 December, 2018

Outline

- ✓ Background
  - Importance of the geographic component in decision making
  - Importance of geospatial information in decision making
  - Support from geospatial information to the 2030 Agenda
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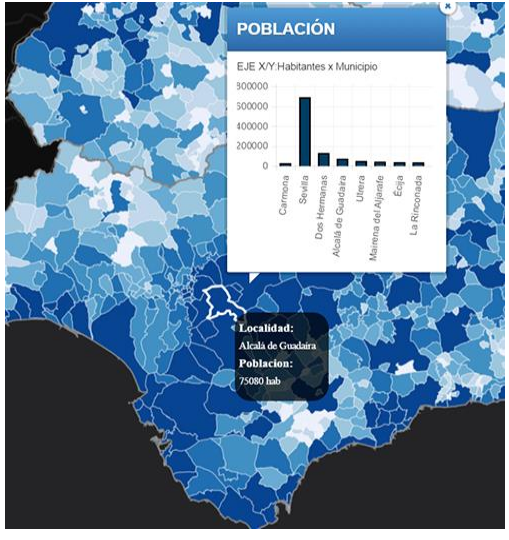
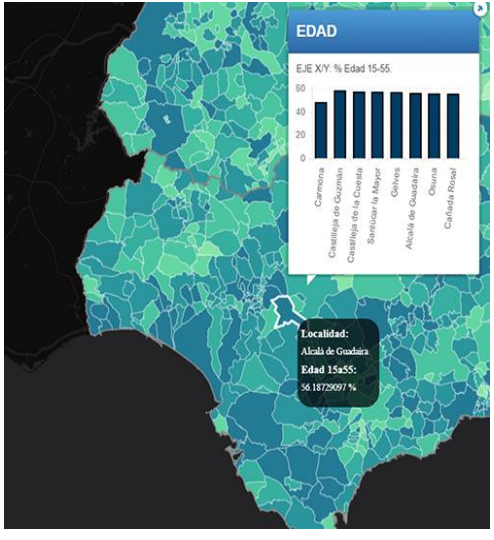
- ✓ Contribution of Geospatial Information in the management of SDGs
- ✓ How to strengthen the use of Geography in the management of SDGs
- ✓ Geospatial information on the production and dissemination of SDG indicators

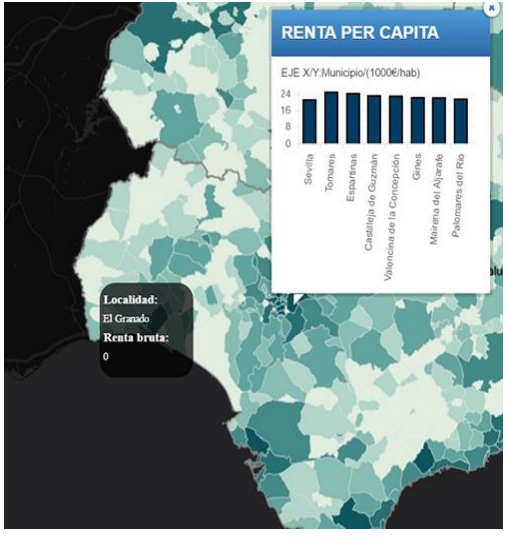
Importance of the geographic component in decision making

Allows to differentiate and adjust the solutions to the same problem in different geographical contexts

Importance of geospatial information in decision making



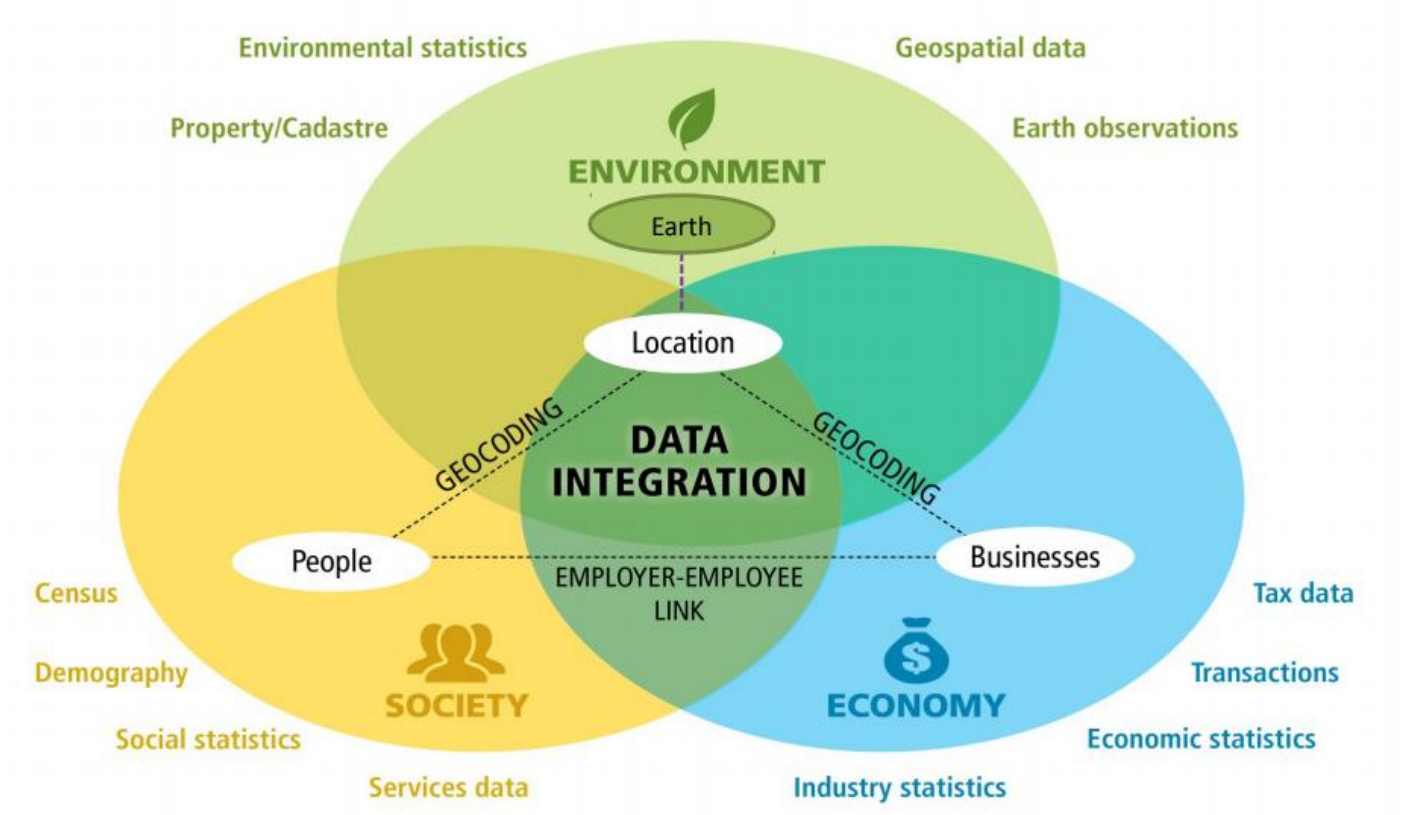




Source: Portal Web Grupo afronta

Allows the disaggregation of correlated variables in the territory, beyond "averages"

Support from geospatial information to the 2030 Agenda

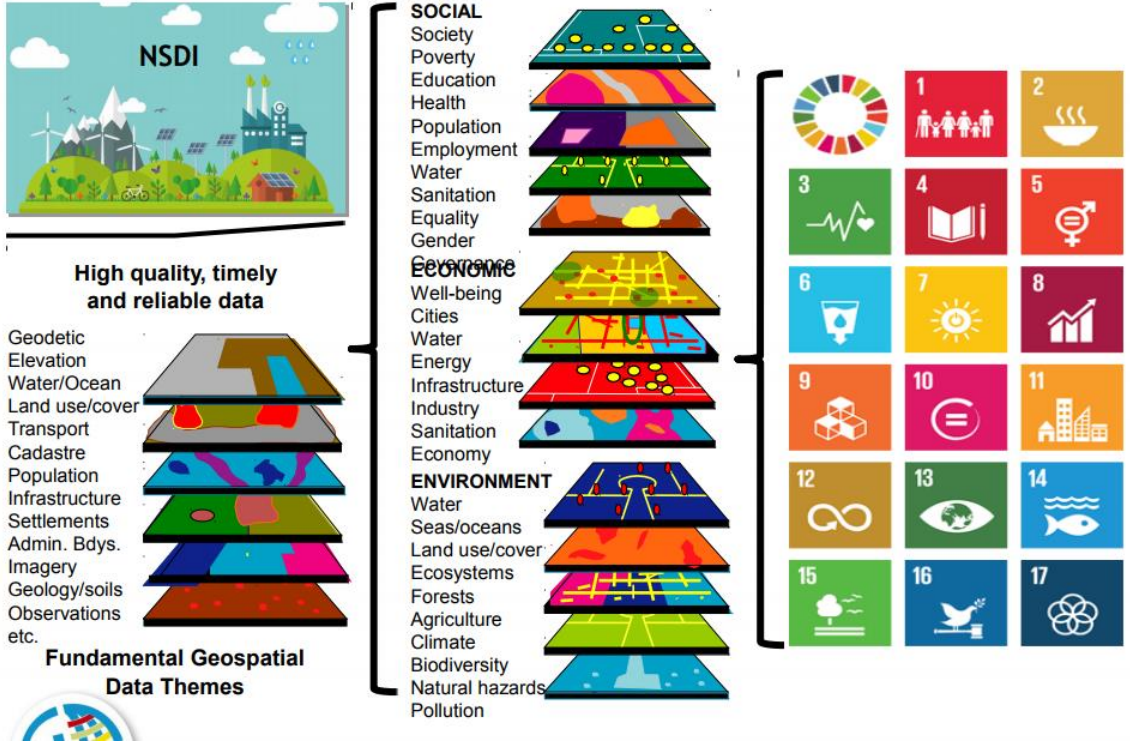


Source: UN-GGIM Global Statistical Geospatial Framework

Support from geospatial information to the 2030 Agenda

Now is an important time for Member States to have guidance on how to integrate statistical and geospatial information

Support from geospatial information to the 2030 Agenda



Working Group on Geospatial Information of the IAEG-SDGs

Co-Chair:	Sweden	Co-Chair:	Mexico		
Members:	Botswana	*Members:*	Brazil	*Members:*	UN-GGIM: Africa (Ethiopia)
	Cabo Verde		Colombia		UN-GGIM: Americas (USA)
	France		Germany		UN-GGIM: Arab States (tba)
	Jamaica		Uganda		UN-GGIM-Asia Pacific (China)
	Denmark		GWG-Big Data (tba)		UN-GGIM: Europe (Germany)
	WHO		UN-GGIM EG-ISGI (United Kingdom)		UN-GGIM: Europe (Italy)
	EuroStat		OECD		GEO

Source: UN-GGIM Working Group on Geospatial Information, IAEG-SDG

Working Group on Geospatial Information of the IAEG-SDGs

Two main challenges:

✓Development of **methodologies to produce indicators** considering that approximately 35% of the global indicator framework are Tier III indicators;

✓Gaps in the data. Many developing countries have, according to one estimate, **less than one third** of the data needed.

The geospatial information could definitely **contribute in the validation** visualization of statistical data in the production of indicators.

Source: UN-GGIM Working Group on Geospatial Information, IAEG-SDG

Working Group on Geospatial Information of the IAEG-SDGs

Main activities (1):

a) Review the agreed global indicators through a **lens of 'geographical location'**

b) **Review the compiled metadata** for global indicators through a lens of 'geographic location'

c) Consider and **revise the classifications of levels for the agreed global indicator**, its level of "maturity" and its adaptation from a lens of "geographical location"

Source: UN-GGIM Working Group on Geospatial Information, IAEG-SDG

Working Group on Geospatial Information of the IAEG-SDGs

Main activities (2):

d) **Identify gaps** in existing geospatial data, geospatial methodologies and measurement problems;

e) Consider **how geospatial information can contribute** to indicators and metadata;

f) Prepare the report to IAEG-SDG for review and analysis

g) Propose **means to address gaps** and data problems.

Source: UN-GGIM Working Group on Geospatial Information, IAEG-SDG

Working Group on Geospatial Information of the IAEG-SDGs

The global indicator framework (together with its compiled metadata) for the Objectives and goals of the 2030 Agenda was reviewed through a **lens of "geographic location"**.

There was consensus around an initial brief list composed of **15 indicators (4 Tier I, 4 Tier II, 7 Tier III)** where geospatial information and Earth observations, together with statistical data, **can directly contribute to the production** of these indicators.

An additional short list of **9 indicators was identified (1 in Tier I, 4 in Tier II and 3 in Tier III** and another that has multiple classifications for its subindex) where geospatial information and Earth observations can significantly support the production of these indicators.

Source: UN-GGIM Working Group on Geospatial Information, IAEG-SDG

Working Group on Geospatial Information of the IAEG-SDGs

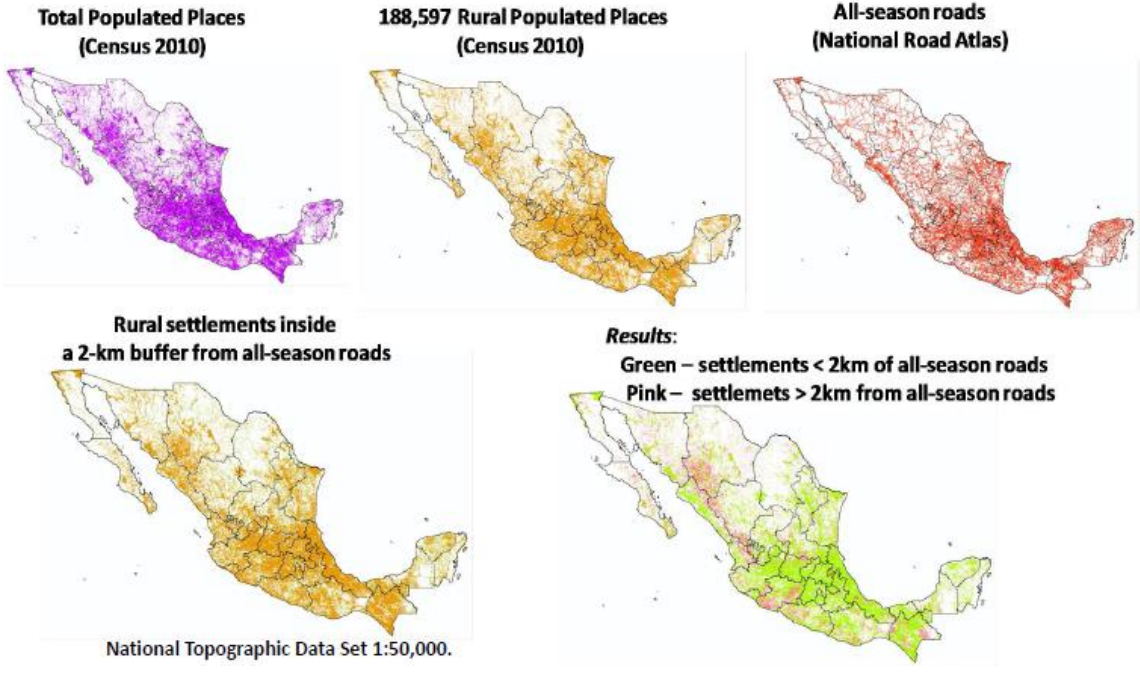
Goal	Target	Indicator	Tier	Data Availability	Methodology	Disaggregation	Observation #1	Remark #2
	2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.	2.4.1: Proportion of agricultural area under productive and sustainable agriculture	Tier III	Data from farm surveys can be supplemented with information from other sources, including geospatial data/remote sensing or other techniques to capture environmental data. Data collection or data sharing may be difficult in some countries	*Proposed Tiers:* There is a suggested methodology that has not been tested and an agreed international standard. *IAEG-SDGs:* It is expected that land-based measurements will be integrated and complemented by earth observation technologies, either by or under the overall supervision of national statistical agencies	As long as farm or household level data are available, the indicator can be computed for specific population groups and geographical areas. The level of disaggregation depends on the sample design and sample size in each specific country, but, in general, data can be tabulated by geographical area, size of the farm, gender and age of the enterprise manager	IAEG-SDGs: Agricultural area = arable land + permanent crops + permanent meadows and pastures, is a well-known and established indicator that are collected by statistical bodies in countries and compiled internationally via a questionnaire by FAO. These data are available in FAO's database FAOSTAT Data for global and regional monitoring will be obtained from aggregation of national data. They can be complemented or enhanced by the use of well selected earth observation data Possible custodian agency: FAO Other involved Agency: UNEP	

Source: UN-GGIM Working Group on Geospatial Information, IAEG-SDG

Contribution of Geospatial Information in the management of SDGs

It directly **contributes to the production** of an indicator

Use of geospatial information for the calculation of the indicator 9.1.1 "Percentage of rural population living less than 2 km. of a road passable all the year "



Source: INEGI, México

Contribution of Geospatial Information in the management of SDGs

Increase the availability of statistical data on the phenomena associated with the foci of the Agenda

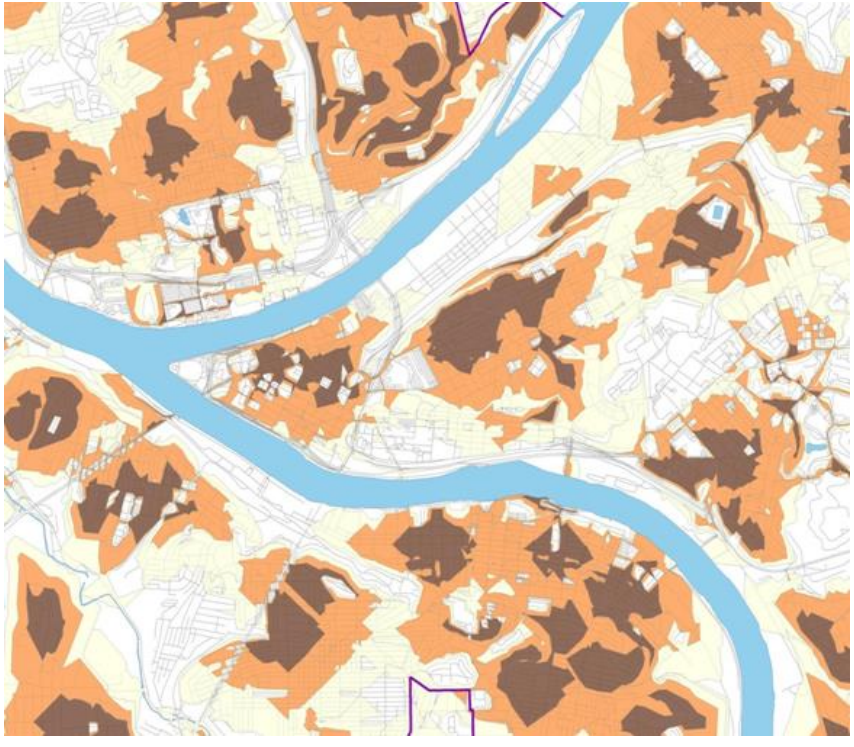
I.*E., geospatial information referred to territory grids, generating population data.*

Source: Strategy, Data & Analytics Bill & Melinda Gates Foundation

Contribution of Geospatial Information in the management of SDGs

Visualize and communicate the dimensions and geographical context of the indicators

I.E., Geographic context of indicator 11.7.1: "Average participation of urbanized areas of cities in open spaces owned and used by the public."

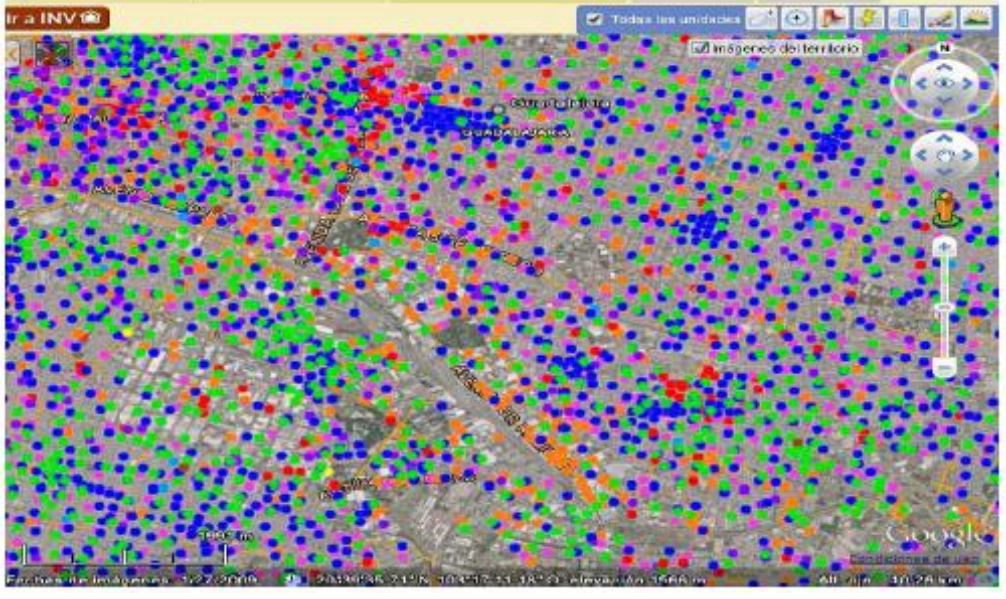


Source: UN-GGIM

Contribution of Geospatial Information in the management of SDGs

Granularity and **disaggregation** to the data

Geospatial information for Indicator 8.3.1 "Proportion of informal employment in the non-agricultural sector, disaggregated by gender"

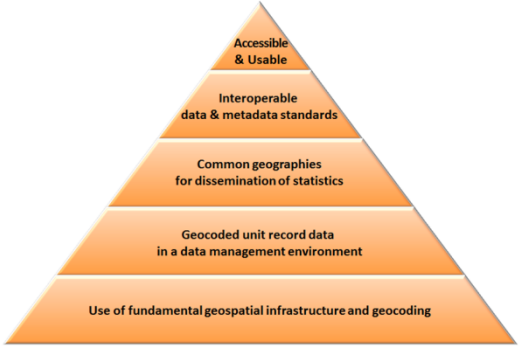


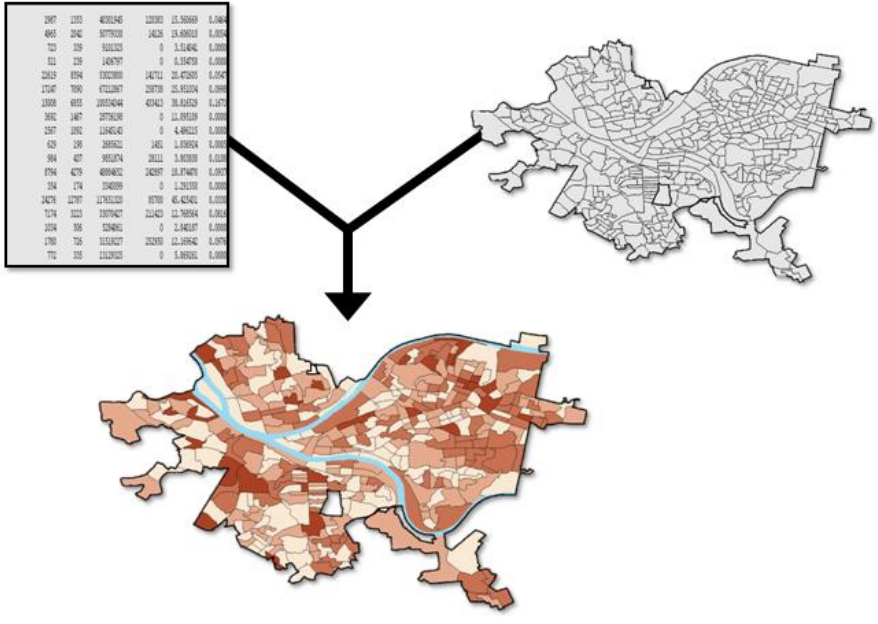
Source: Estudio Nacional de Empleo visualizado en el Mapa Digital de México - INEGI

How to strengthen the use of Geography in the management of SDGs

Establishing national frameworks for the **integration of statistical and geospatial information**

Implementation at the national level of the five principles of the Global Framework

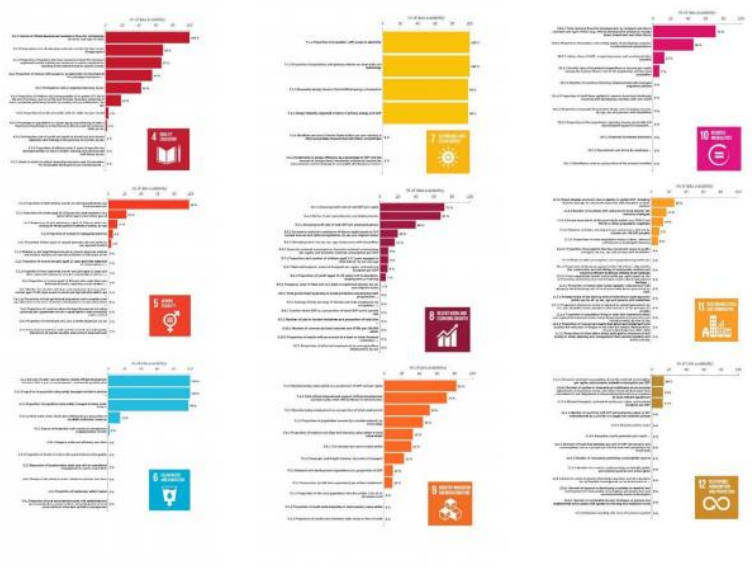




How to strengthen the use of Geography in the management of SDGs

Implementing **national plans for the generation of geospatial information**, considering the requirements of the 2030 Agenda

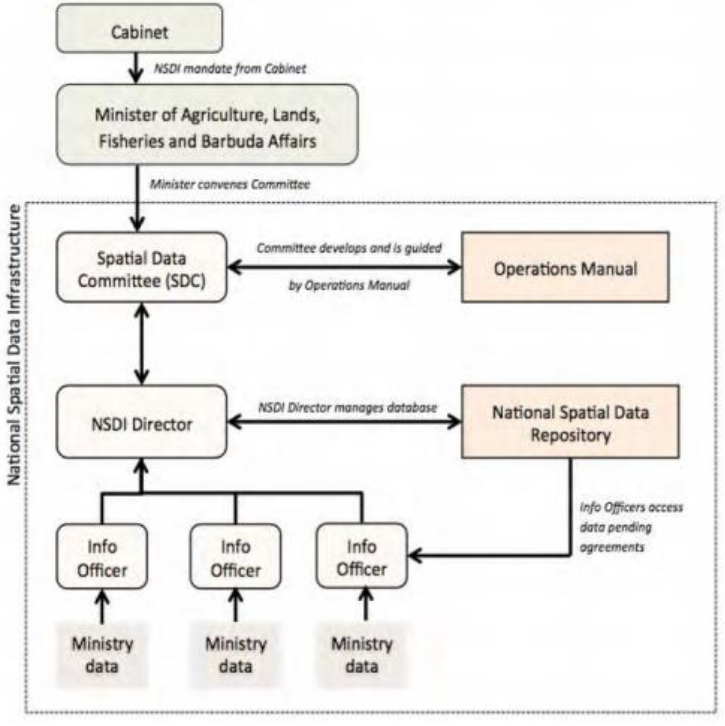
Based on the evaluation of the gaps and considering the national emphasis of sustainable development, establish strategies and plans to produce the necessary information



How to strengthen the use of Geography in the management of SDGs

Seeking **support in structures of transversal organization** that propitiate the coordination of geospatial information at the national level.

SDI



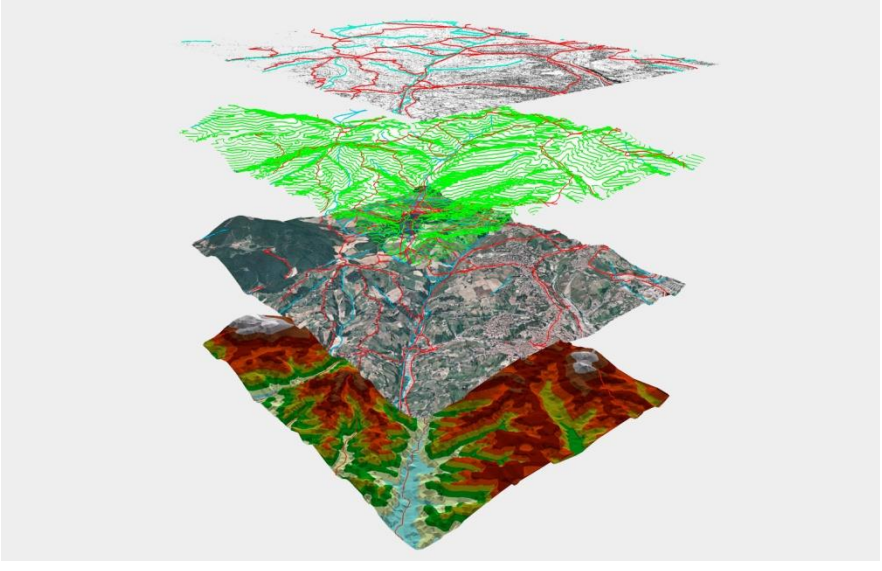
How to strengthen the use of Geography in the management of SDGs

Promoting collaborative work initiatives between government, academia and civil society.

How to strengthen the use of Geography in the management of SDGs

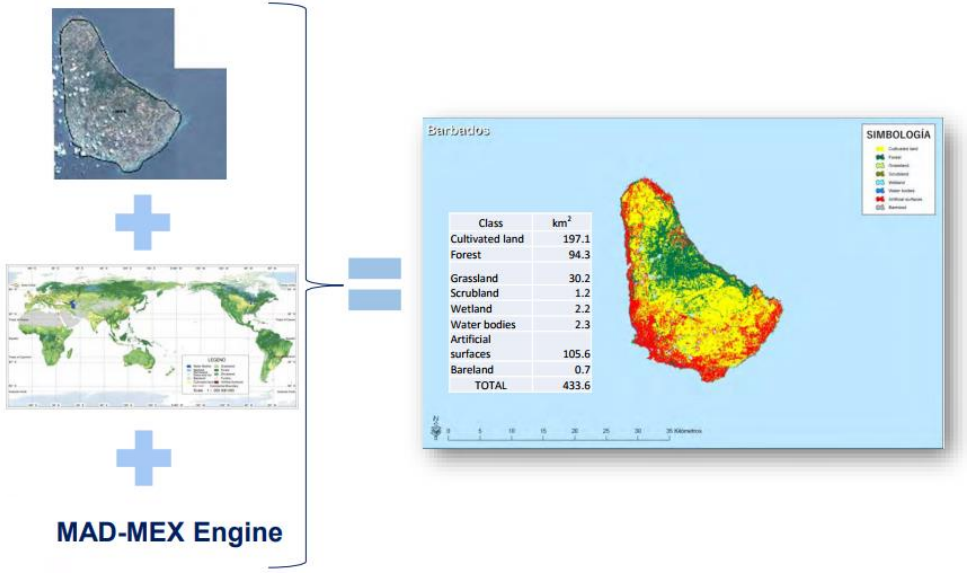
Improving capacities in the use of technology and standardized methods

A fundamental requirement to enhance the use of geography and the "where of things" in the implementation of SDGs is to ***strengthen technical capacities*** *for integration and analysis of geospatial information*



How to strengthen the use of Geography in the management of SDGs

Installing in the countries the practice of **documentation of experiences and use cases** related to the use of geospatial information for the implementation of the SDGs, in any of its modalities



Geospatial information on the production and dissemination of SDG indicators

Goal 9.1

Develop reliable, sustainable, resilient and quality infrastructures, including regional and cross-border infrastructures, to support economic development and human well-being, with special emphasis on affordable and equitable access for all.

Indicator 9.1.1

Proportion of the rural population living less than 2km from a road that can be transited all year

Source: INEGI, México

Geospatial information on the production and dissemination of SDG indicators

Statistical data used

Population Census (ITER 2010) for each inhabited place, total population and other variables, including longitude and latitude (192,244 localities).

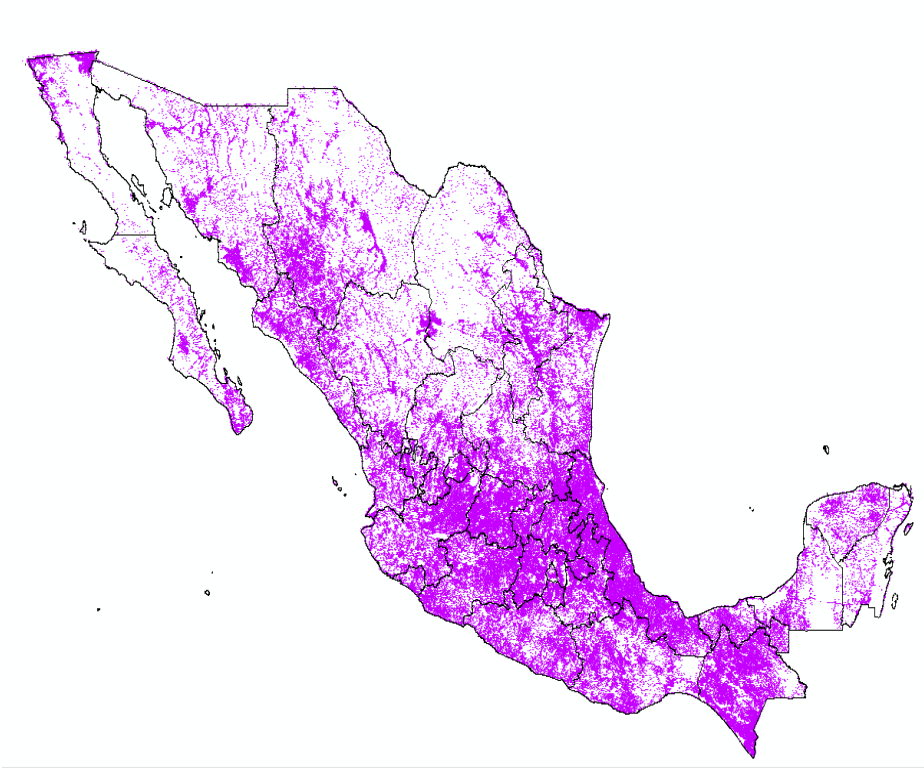
Geospatial data used

✓Topographic data scale 1: 50,000
✓Transport layer
✓Paved roads and dirt roads (gravel roads) as roads that can be crossed all year round

Source: INEGI, México

Geospatial information on the production and dissemination of SDG indicators

Locations (ITER 2010)



Source: INEGI, México

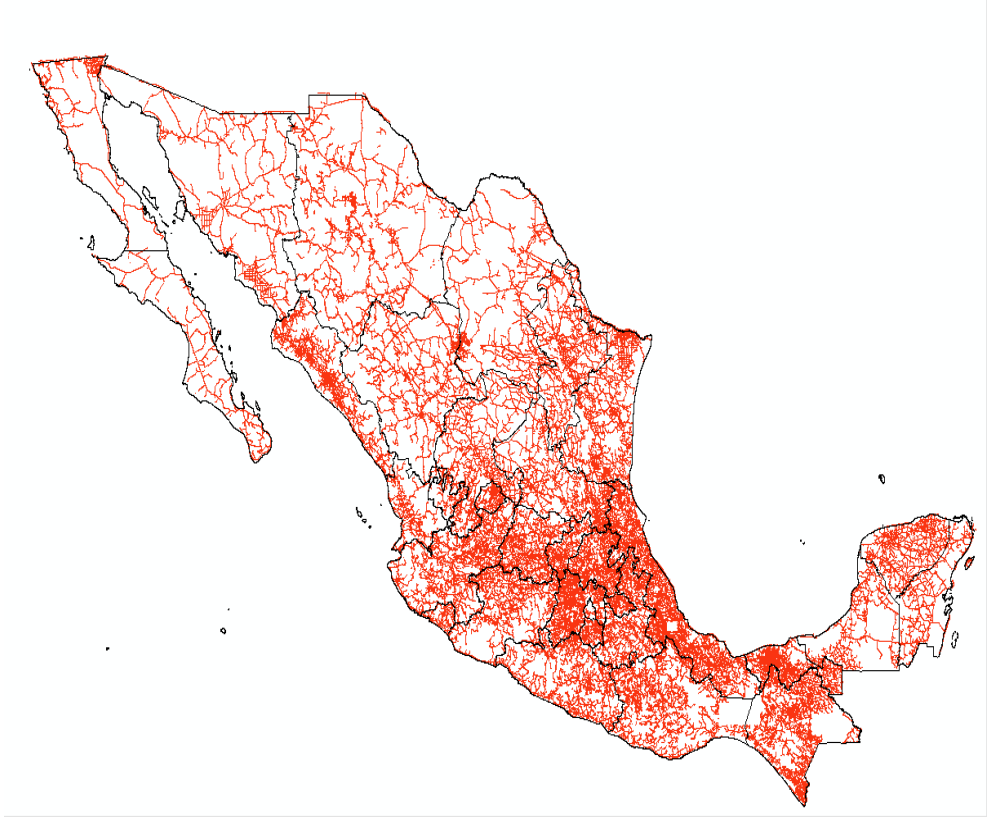
Geospatial information on the production and dissemination of SDG indicators

188,597 Rural Locations (ITER 2010)

Source: INEGI, México

Geospatial information on the production and dissemination of SDG indicators

Transitable roads throughout the year



Source: INEGI, México

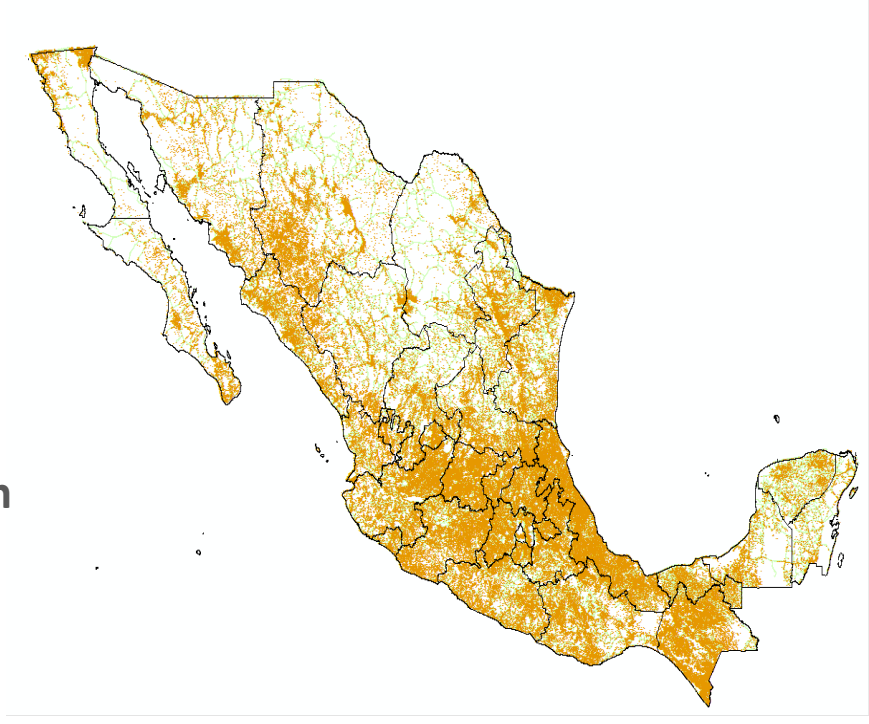
Geospatial information on the production and dissemination of SDG indicators

Buffer 2 km around roads

Source: INEGI, México

Geospatial information on the production and dissemination of SDG indicators

Rural locations within the 2km buffer

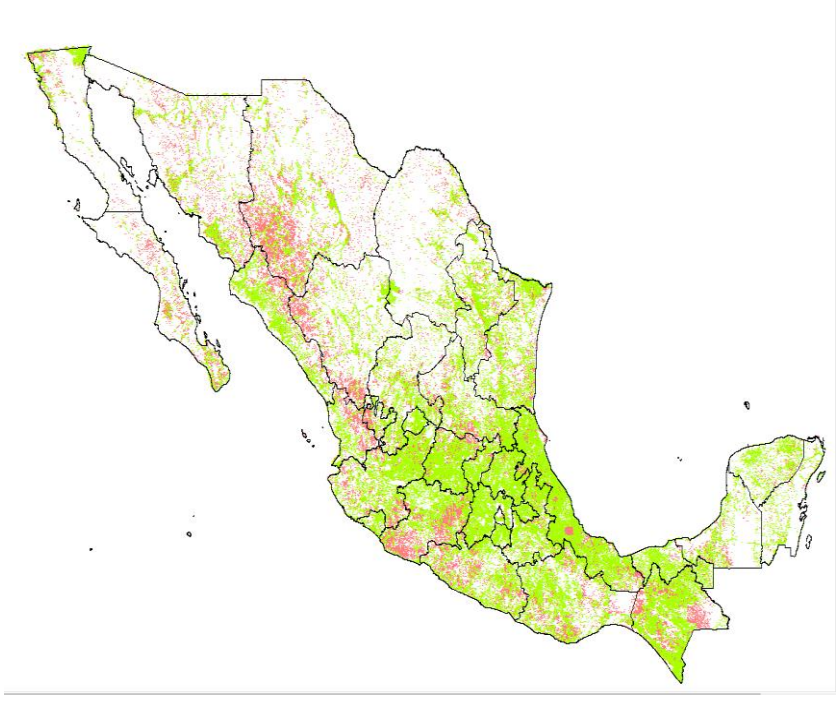


Source: INEGI, México

Geospatial information on the production and dissemination of SDG indicators

Green: localities less than 2km from road

Rosado: locations more than 2km away



Source: INEGI, México

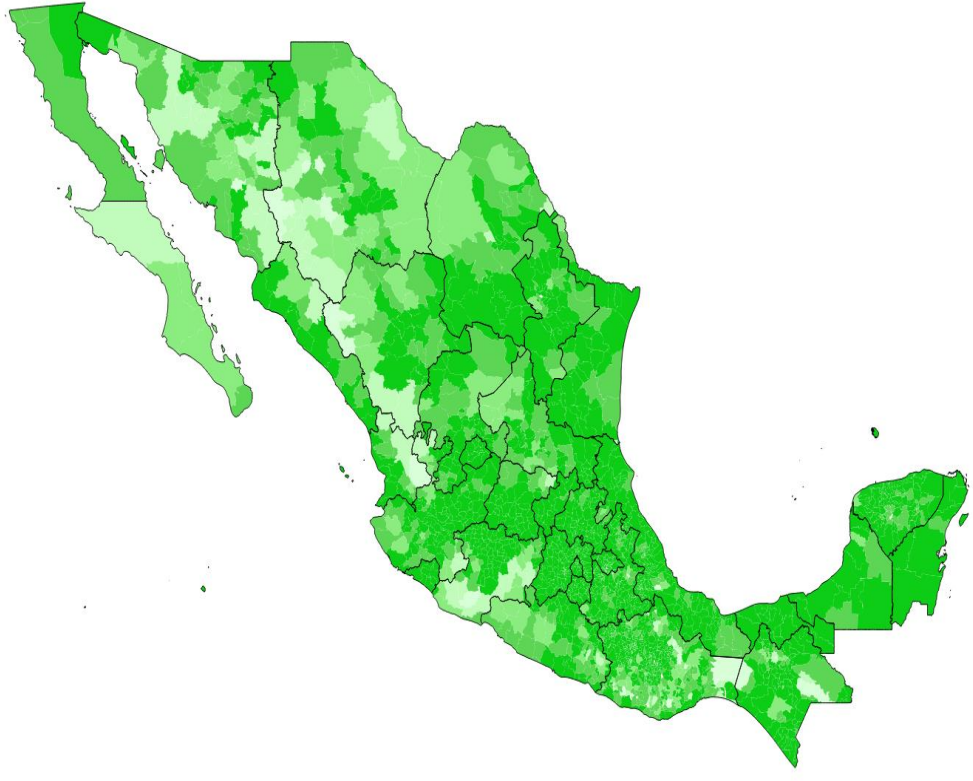
Geospatial information on the production and dissemination of SDG indicators

Rural population within 2Km of an all season road (National, and State)			
State	Rural population within 2km of road	Total Rural Population	Proportion (as %) of population within 2km of road
National	24,259,295	26,059,128	93.1
Aguascalientes	228,934	229,907	99.6
Baja California	219,355	243,196	90.2
Baja California Sur	73,469	88,308	83.2
Campeche	196,571	209,032	94.0
Coahuila	260,790	275,003	94.8
Colima	72,540	73,016	99.3
Chiapas	2,131,638	2,459,382	86.7
Chihuahua	366,551	517,269	70.9
Ciudad de México	40,687	40,687	100.0
Durango	427,687	508,499	84.1
Guanajuato	1,590,087	1,653,668	96.2
Guerrero	1,259,310	1,416,920	88.9
Hidalgo	1,247,993	1,273,778	98.0
Jalisco	926,187	985,248	94.0
México	1,956,414	1,976,017	99.0
Michoacán	1,246,190	1,362,688	91.5
Morelos	285,369	286,889	99.5
Nayarit	297,297	336,945	88.2
Nuevo León	239,483	247,333	96.8
Oaxaca	1,737,581	2,002,757	86.8
Puebla	1,563,986	1,633,943	95.7
Quérétaro	527,405	540,664	97.5
Quintana Roo	152,584	157,058	97.2
San Luis Potosí	872,814	935,008	93.3
Sinaloa	702,073	751,994	93.4
Sonora	320,686	372,252	86.1
Tabasco	943,984	954,075	98.9
Tamaulipas	386,563	398,945	96.9
Tlaxcala	232,159	235,696	98.5
Veracruz	2,866,657	2,976,060	96.3
Yucatán	310,569	312,821	99.3
Zacatecas	577,965	604,070	95.7

Source: INEGI, México

Geospatial information on the production and dissemination of SDG indicators

Municipio (clave)	Población a 2km de carretera	Población Rural Total	Porcentaje de población rural a 2km de camino
16071	27685	27685	100
16072	4118	4445	65
16073	6044	6044	100
16074	3188	3217	85
16075	21868	21868	100
16076	5718	5718	100
16077	10812	10997	94
16078	5531	5531	100
16079	17221	17861	91
16080	13820	15720	70
16081	7573	8704	72
16082	33823	35610	86
16083	14693	22667	52
16084	4358	4472	95
16085	14007	14007	100
16086	5630	5630	100
16087	7093	7118	91
16088	40543	40687	98
16089	7189	7766	76
16090	1227	1227	100
16091	6588	6588	100
16092	6093	11064	35
16093	22999	24057	97
16094	3662	3662	100
16095	4357	4587	41
16096	2059	5089	11
16097	11233	22182	25
16098	15248	16904	64



Source: INEGI, México

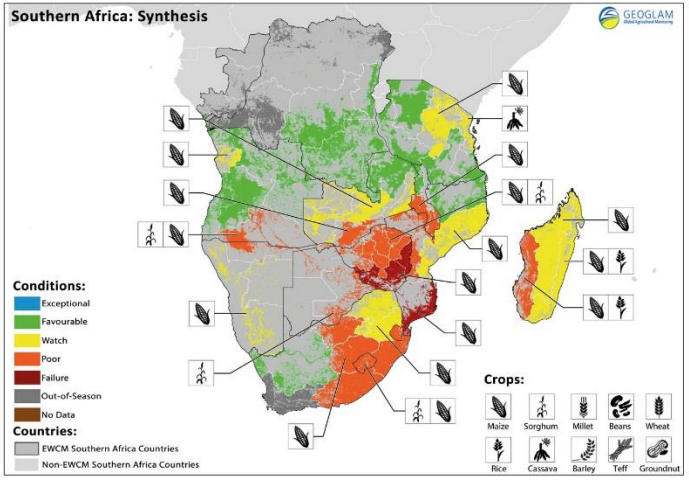
Geospatial information on the production and dissemination of SDG indicators

Target 2.c Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility.

MONITORING CROP CONDITIONS WITHIN COUNTRIES AT RISK OF FOOD INSECURITY

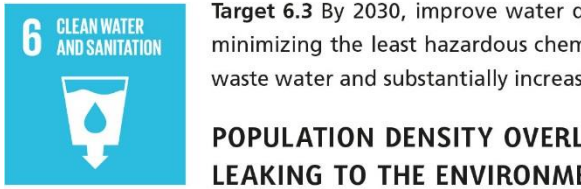
Crop condition map synthesizing information for all Early Warning Crop Monitor (EWCM) crops. Crop conditions over the main growing areas are based on a combination of national and regional crop analyst inputs along with Earth observation data. Crops that are in other than favourable conditions are displayed on the map with their crop symbol.

"Development planning and SDG outcomes can be visualized with maps." (CIESIN)



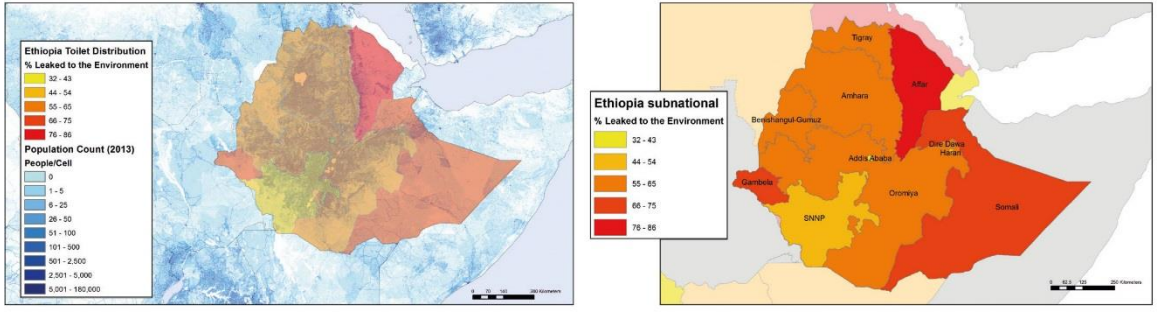
GEOGLAM Early Warning Crop Monitor

Geospatial information on the production and dissemination of SDG indicators



Target 6.3 By 2030, improve water quality by reducing pollution, illuminating dumping and minimizing the least hazardous chemicals and materials, halving the proportion of untreated waste water and substantially increasing recycling and safe reuse globally.

POPULATION DENSITY OVERLAID ON UNTREATED WASTEWATER LEAKING TO THE ENVIRONMENT, ETHIOPIA SUB NATIONAL



WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation

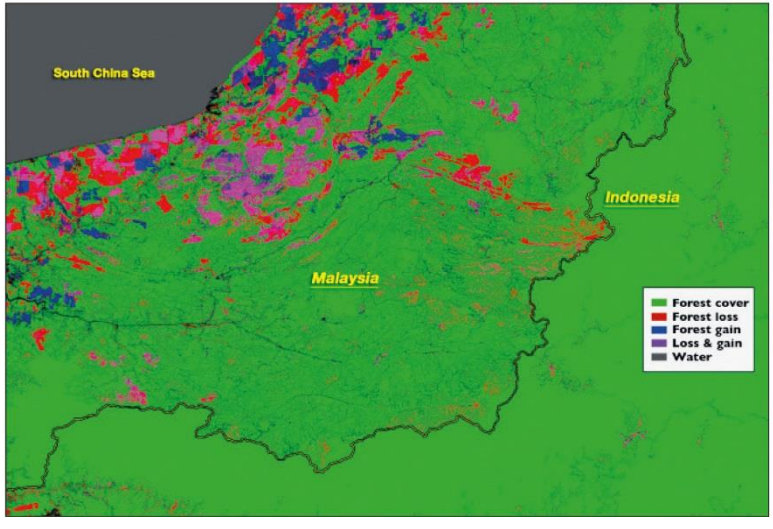
Integrating data from Earth observations and geospatial information with national surveys to monitor the impact of untreated wastewater on the population. The map on the left shows the extent of leakage of wastewater, excreta and grey water, with areas in red denoting extensive pollution. The map on the right integrates all data and shows where there is high impact, i.e., high leakage in densely populated areas.

Geospatial information on the production and dissemination of SDG indicators

Target 15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.

EARTH-OBSERVING SATELLITES CAN TRACK TREE COVER EXTENT AND FOREST LOSS AND GAIN OVER TIME

The border between Malaysia and Indonesia on the island of Borneo stands out in the Landsat-based map of forest disturbance. Red pixels represent forest loss between 2000 and 2012.



NASA Goddard, based on data from Hansen et al., 2013.

"Mapping SDG-related data will improve measuring and monitoring of progress toward the SDG Indicators."

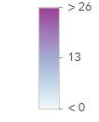
Geospatial platforms for the dissemination and monitoring of SDG indicators

Ireland's Life on Land

Ireland's Protected Areas

The map represents SDG 15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas at Electoral Division level, 2018.

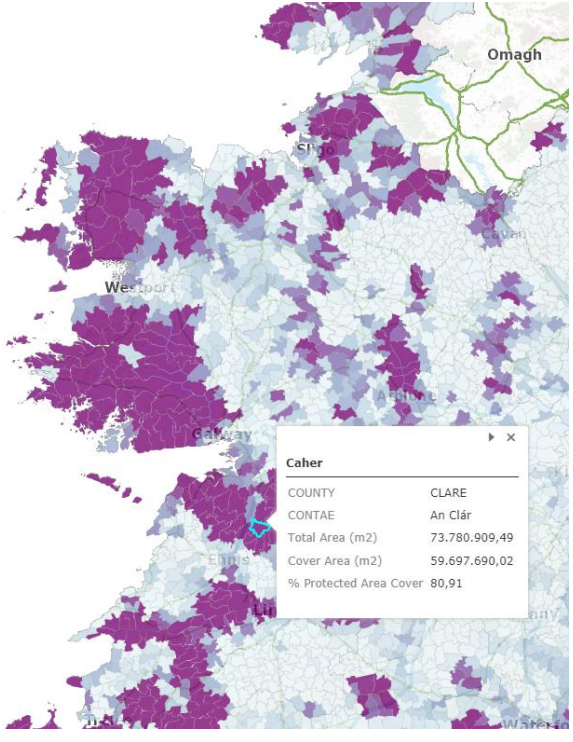
At this geography a high proportion of lands covered by protected areas are apparent in the Midlands and in the East associated with major ecological areas such as the River Shannon and the Wicklow Mountains.



% Cover by Protected Areas

Protected Areas include:

Special Protection Areas (SPAs) are important bird wildlife conservation areas on a European and Irish level. The EU Birds Directive ensures the protection of endangered species of wild birds. Ireland's SPAs cover



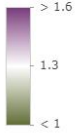
http://irelandsdg.geohive.ie/

Geospatial platforms for the dissemination and monitoring of SDG indicators

What about Family Income Supplements?

The data displayed represent **SDG 1.3.1 Proportion of the Population Receiving Social Welfare Payments by Scheme** and supports the efforts to achieve goal number 1 which aims to end poverty in all its forms everywhere.

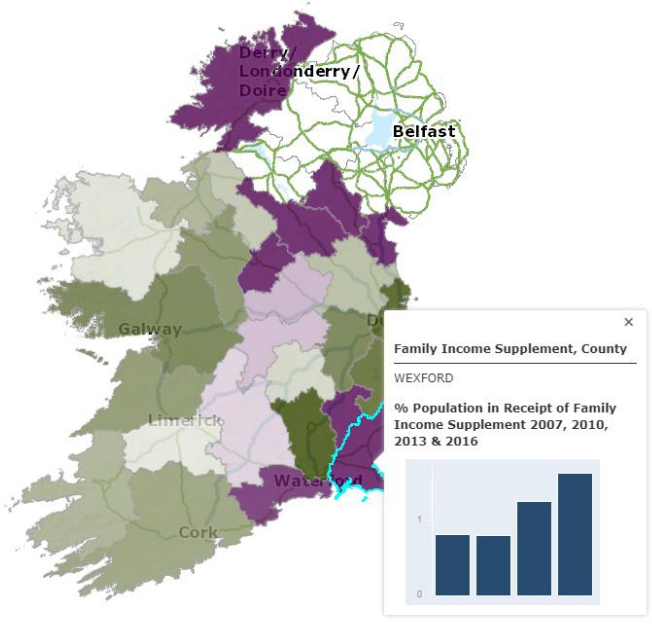
The map represents the proportion of population in receipt of Family Income Supplement (an in-work benefit), 2016 at County level.



% Population in Receipt of Family Income Supplements, **2016**

The proportion of the population receiving Job-seeker's Allowance is going down and there is a rise in the % of the population receiving Family Income Supplements.

Source: SDG 1.3.1 Proportion of the Population Receiving Social Welfare Payments by Scheme, 2016, DEASP



http://irelandsdg.geohive.ie/

Thank you !

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