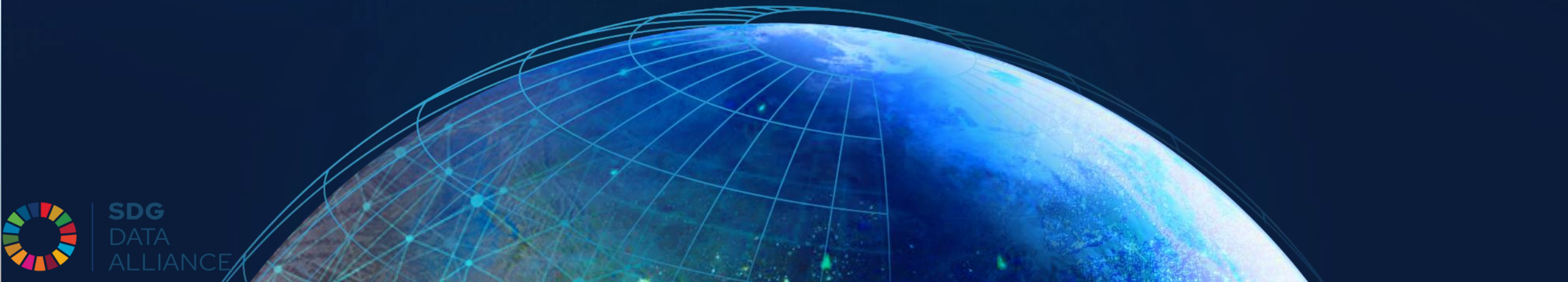


# Using Geospatial Information to Derive SDG Data Indicators: Useful Global Geospatial Data Sets and Capacity Building Resources

Charles Brigham  
Senior Account Manager

Esri Nonprofit and Global Organizations

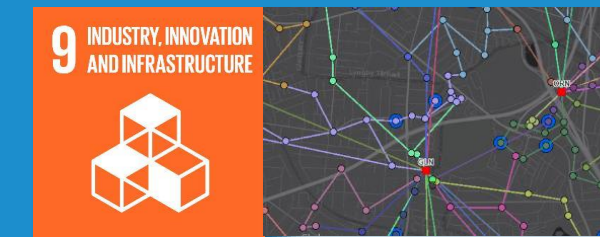
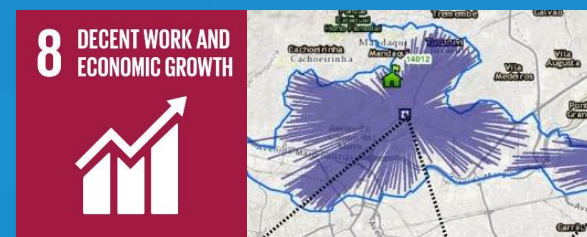
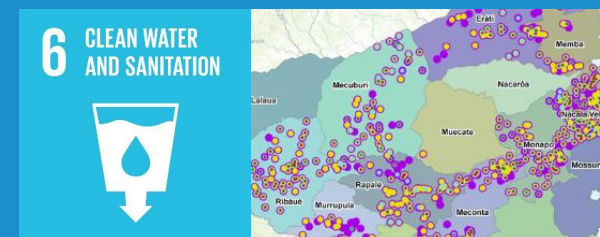
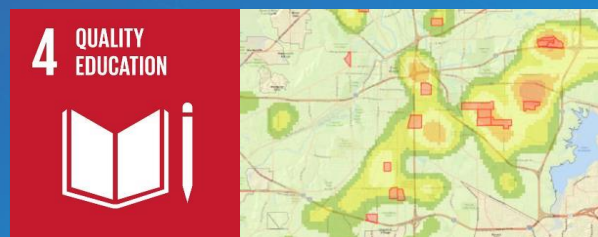
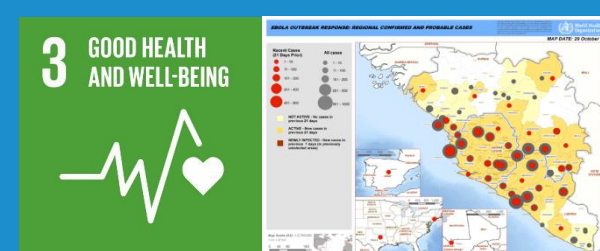


# The Sustainable Development Goals (SDGs)

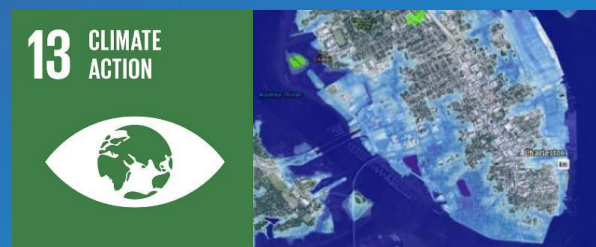
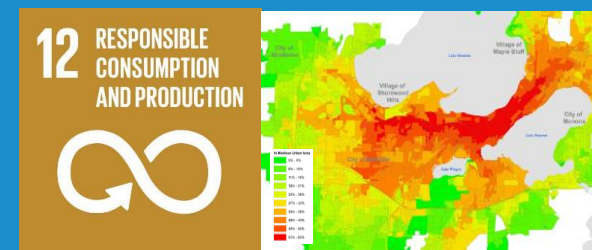


17 Goals | 69 Targets | 232 Indicators | 2015-2030

# The Sustainable Development Goals (SDGs)



# The Sustainable Development Goals (SDGs)



**SUSTAINABLE DEVELOPMENT GOALS**

Records: 183

Indicator: 1\_1\_1\_Series\_SI\_POV

value_2013	0
value_2014	43.8
value_2015	0
value_2016	0
value_2017	0
value_2018	0
value_2019	0
latest_value	43.8
footnotes	[1994]

Zoom to

United Nations - Department of Economic and Social Affairs - Statistics Division - Country Profiles

**United Nations** | Department of Economic and Social Affairs  
Statistics • SDG Indicators Database

Sustainable Development GOALS

Home | SDG Indicators | Data | SDG Reports | HLG-PCCB | IAEG-SDG's | Events | Resources

SDG Country Profile | Burkina Faso | Select a country

- Population and migration
- National accounts and labour market
- Trade and balance of payments
- Environment

- 1 No Poverty
- 2 Zero Hunger
- 3 Good Health and Well-being
- 4 Quality Education
- 5 Gender Equality
- 6 Clean Water and Sanitation
- 7 Affordable and Clean Energy
- 8 Decent Jobs and Economic Growth
- 9 Industry, Innovation and Infrastructure
- 10 Reduced Inequalities
- 11 Sustainable Cities and Communities
- 12 Responsible Consumption and Production
- 15 Life on Land
- 16 Peace and Justice - Strong Institutions
- 17 Partnerships for the Goals

**1 NO POVERTY**

**No Poverty**  
End poverty in all its forms everywhere

The proportion of the population living below the extreme poverty line reduced from **82.1% in 1994** to **30.5% in 2018**.

Proportion of population below international poverty line (%)

Year	Proportion (%)
1994	82.1
2018	30.5

The proportion of the country's workers and their families living on less than 1.90 US dollars per person per day reduced from **75.8% in 2000** to **28.0% in 2022**.

Employed population below international poverty line, by sex and age (%)

Search Sign In

Select

Drop a point

Draw a line

Draw an area

Collapse

+

-

Home



# Example Goal | Target | Indicator

- Goal 1: End poverty in all its forms everywhere
- Target 1.1 by 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day
- Indicator Proportion of population below international poverty line disaggregated by sex and age group and employment status (or proportion of employed people living below the international poverty line)

A screenshot of the SDG 1 dashboard for Burkina Faso. The main header reads 'OBJECTIF 1 : PAS DE PAUVRETÉ' with the subtitle 'La croissance économique doit être partagée pour créer des emplois durables et promouvoir l'égalité'. The dashboard includes a sidebar with filters for 'Indicateur', 'Catégorie', 'Sous-catégorie', and 'Geography'. The main content area shows a map of Burkina Faso with regional labels like 'Kayaes', 'Bamako', 'Niamey', 'Ouhadougou', 'Bobo Dioulasso', and 'Tamale'. To the right, there is a line graph showing the 'Proportion of the population living below the national poverty line' from 2014 to 2021. The graph shows a steady increase from approximately 25% in 2014 to 45% in 2021. A legend indicates the data is for 'All'.

# Geospatial Data: Essential to Calculating the SDG Data Indicators

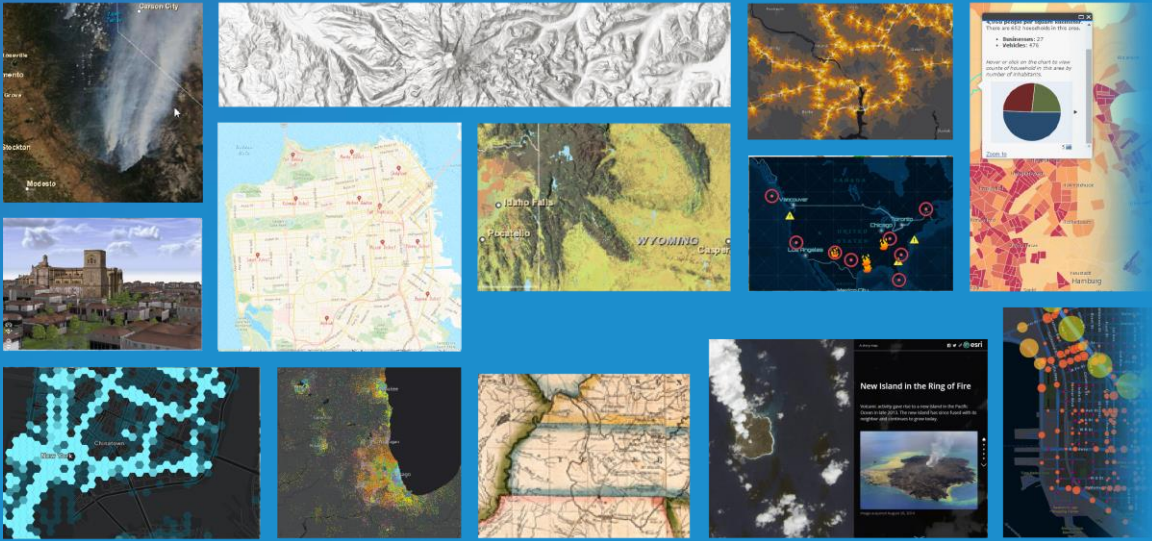
- Population
- Landcover (forest, agricultural, etc.)
- Satellite Imagery
- Degree of Urbanization (urban/rural)
- Location of Critical Infrastructure (schools, health facilities)
- Conflict Incidents
- Marine Areas
- Protected Areas
- Administrative Units
- Ecosystems
- ...



# Useful Global Data Sets

## Living Atlas

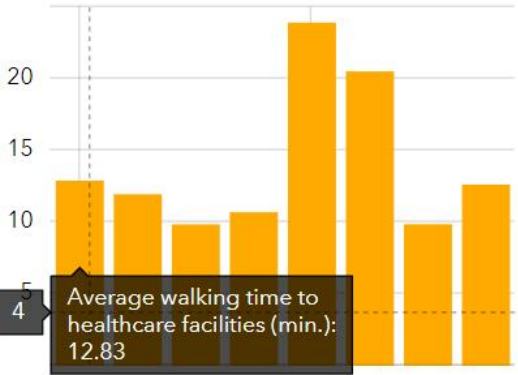
- A rich collection of geographic content, available in ArcGIS Online and ArcGIS Enterprise.
- Contains thousands of items: maps, layers, scenes, apps and tools to enrich your GIS.
- You can use the items as is or supplement with your own data.





# Useful Global Data Sets

Pedestrian accessibility indicators for urban centers in Brazil

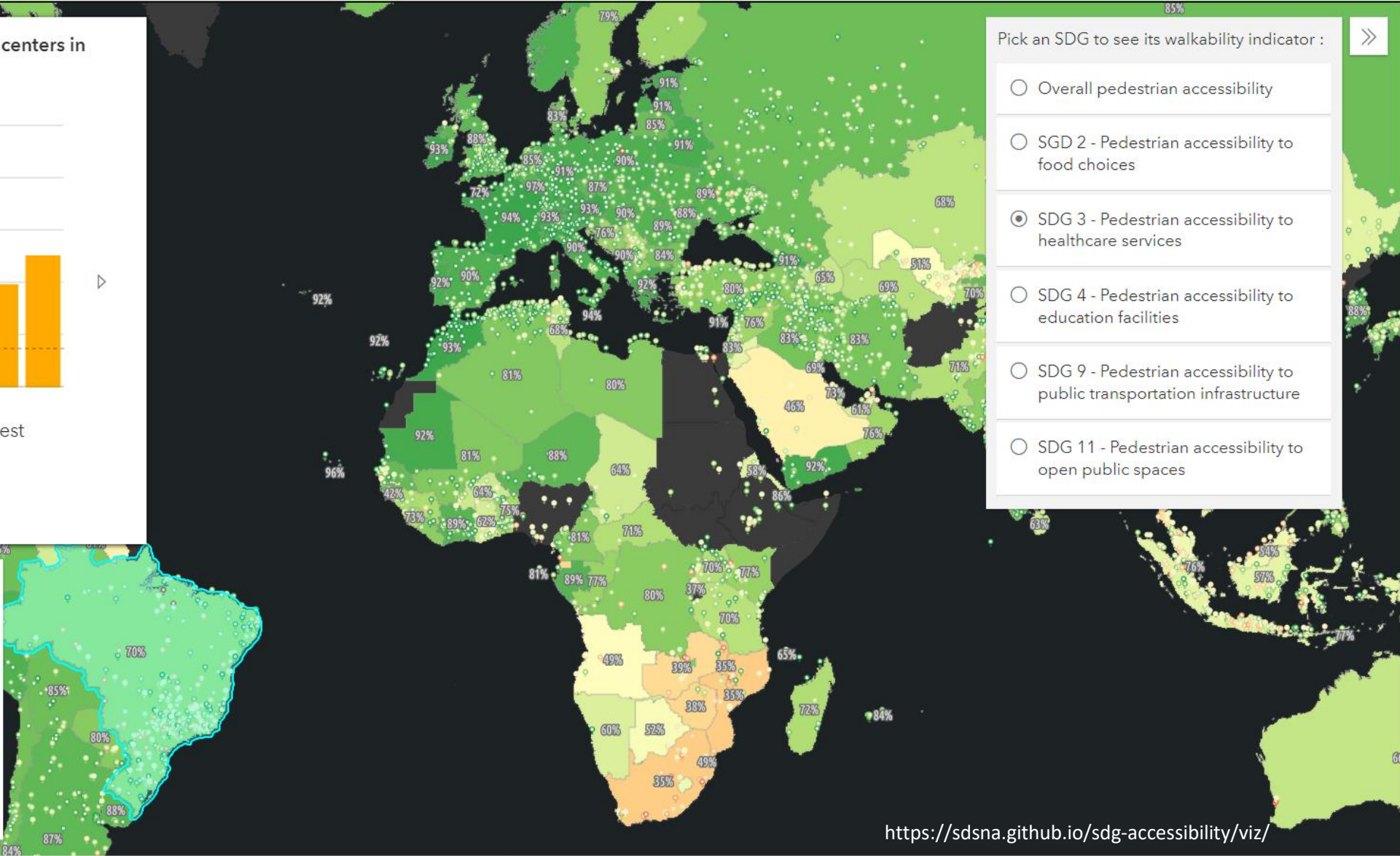
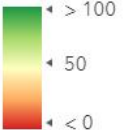


Average walking time to points of interest  
Hover to see the category

Read the full methodology [here](#).

SDG 3 - Pedestrian accessibility to healthcare services

% of population with access to healthcare services within a 15min walk



Pick an SDG to see its walkability indicator :

- Overall pedestrian accessibility
- SGD 2 - Pedestrian accessibility to food choices
- SDG 3 - Pedestrian accessibility to healthcare services
- SDG 4 - Pedestrian accessibility to education facilities
- SDG 9 - Pedestrian accessibility to public transportation infrastructure
- SDG 11 - Pedestrian accessibility to open public spaces

<https://sdsna.github.io/sdg-accessibility/viz/>

# Useful Global Data Sets



- **Population Data Portal** (Source: UNFPA - <https://pdp.unfpa.org>)
- **Degree of Urbanization** (Source: CIESIN or JRC)
- **Land use/Land cover** (Source: Impact Observatory, Microsoft, and Esri - derived from ESA Sentinel-2 imagery at 10m resolution - <https://www.arcgis.com/home/item.html?id=cfc7609de5f478eb7666240902d4d3d>)
- **Second Administrative Level Boundaries** (Source: UN Geospatial - <https://salb.un.org>)
- **Humanitarian Operational Data** (Source: varied sources in UN OCHA's Humanitarian Data Exchange)
- **World Database on Protected Areas** (Source: UNEP-WCMC - <https://www.arcgis.com/home/item.html?id=ae78aeb913a343d69e950b53e29076f7>)
- **Sentinel 2 Imagery** (Source: ESA, EC, and USGS - <https://www.arcgis.com/home/item.html?id=fd61b9e0c69c4e14bebd50a9a968348c>)



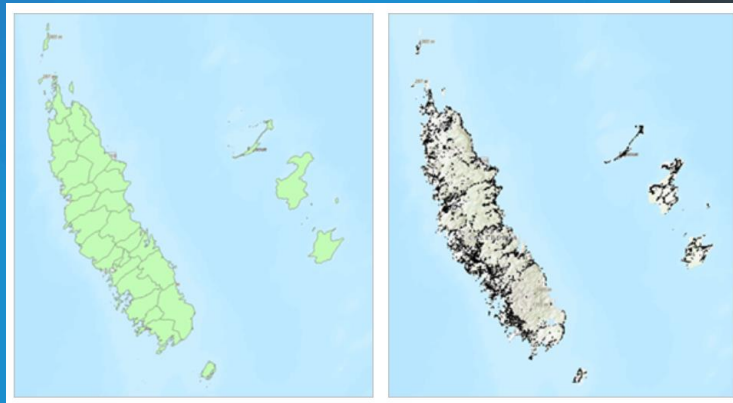




# SDG 11: Sustainable Cities & Communities

- A Lesson and Blog on SDG 11
- Supporting the Goal Target and Indicator geospatial data for classification

A screenshot of a lesson interface. The main title is 'Classify areas by degree of urbanization'. Below the title is a subtitle: 'Implement the United Nations-endorsed degree of urbanization method to classify urban and rural areas across a territory.' The authors are listed as 'Keera Morrish and Pietro Florio'. The duration is '1hr(s)' and the difficulty is 'Intermediate'. There are social media icons for Facebook, Twitter, LinkedIn, and Print. Below the lesson information are tags: 'Mapping', 'Spatial Analysis &amp; Data Science', '#Government', and '#Sustainable Development'. The background of the lesson card is a map of a region with a grid overlay.



SDG 11, the United Nations (UN) endorsed the Degree of Urbanization method to classify urban and rural areas around the world. Urbanization provides greater access to amenities and opportunities, while creating challenges such as increased air pollution and crime. Understanding urbanization in a standardized way helps officials monitor and report a country or region's progress toward the UN's Sustainable Development Goals (SDGs), adopted in 2015 as a call to action to end poverty and protect the planet.

# Example: SDG 11.3.1

The method to compute ratio of land consumption rate to population growth rate follows five broad steps:

- a. Deciding on the analysis period/years
- b. Delimitation of the urban area or city** which will act as the geographical scope for the analysis
- c. Spatial analysis** and computation of the land consumption rate
- d. Spatial analysis** and computation of the population growth rate
- e. Computation of the ratio of land consumption rate to population growth rate
- f. Computation of recommended secondary indicators





# SDG 3.3.3: Malaria incidence per 1,000 population

- **Malaria Epidemics** Learn Lesson - <https://learn.arcgis.com/en/projects/monitor-malaria-epidemics/>

**Monitor malaria epidemics**

Map the malaria incidence rate from 2016 to 2020 to analyze progress towards reaching the United Nations Sustainable Development Goal.

 Author: Niki Wong | Duration: 45mins | Difficulty: Beginner

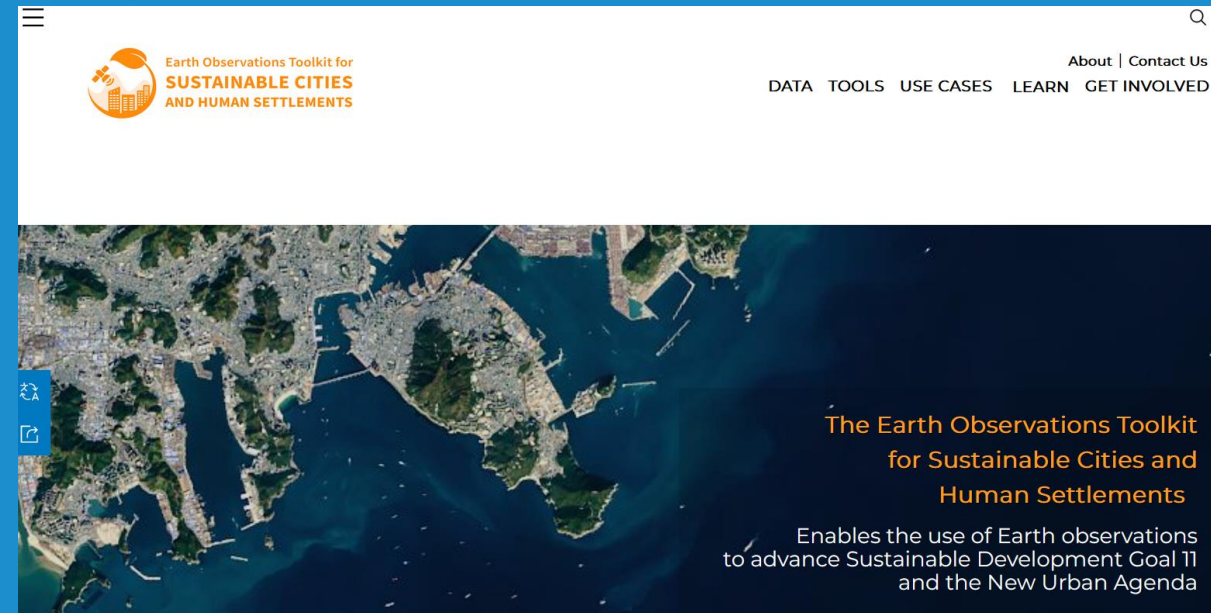
Mapping | #Health & Human Services | #Sustainable Development



# SDG 11.3.1: Ratio of land consumption rate to population growth rate



- A Learn Lesson is currently being developed on “**Degree of Urbanization**” in partnership with EO4SDGs, UN HABITAT and EU Joint Research Centre (JRC)
- Will be added to the EO4SDGs EO Toolkit for Sustainable Cities and Human Settlements - <https://eotoolkit.unhabitat.org/>





# SDG 14.1.1a: Index of coastal eutrophication

- GEO Blue Planet, NOAA, Esri and UNEP worked together on the **Coastal Eutrophication** project - <https://chlorophyll-esrioceans.hub.arcgis.com/>

Methodology, processing and application development in support of Sustainable Development Goal 14.1

## Chlorophyll

Global analysis and metrics

Collaborative project with



MONITORING FOR SDG INDICATOR 14.1.1: Coastal Eutrophication







# SDG 15.4.2: (a) Mountain Green Cover Index and (b) proportion of degraded mountain land




- A StoryMap by FAO - <https://sdgs.un.org/partnerships/development-novel-approach-based-earth-observations-measure-and-monitor-mountain-green>
- FAO also has a training program for the MGCI

Office of the Chief Statistician (OCS)   

## Mountain Green Cover Index: revised metadata

15.4.2: *Mountain Green Cover Index*



Pietro Gennari, *Chief Statistician, FAO*  
Lorenzo De Simone, *Senior EO expert, FAO*  
Dorian Navarro, *Programme Advisor, FAO*



# Thank You!

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cbrigham@esri.com