

Center for International Earth Science Information Network

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The Center for International Earth Science Information Network (CIESIN) is a data and research center of Columbia University's Earth Institute that addresses human interactions with the environment. Our focus is on the impacts of human activities and institutional arrangements on the environment, and, in turn, how environmental changes affect society.

CIESIN has several core programs and collaborates widely with partners around the world on projects related to environmental change and sustainability.

CIESIN is located at the Lamont Campus of Columbia University in Palisades, New York. Its international staff have advanced training in a range of fields, including geography, demography, political science, economics, natural resource management, geophysics, information management, library science, geospatial technologies, software engineering, and computer science.
www.ciesin.columbia.edu

Contact Information:

P.O. Box 1000, 61 Route 9W
Palisades, NY 10964 USA
Tel: +1 (845) 365-8988
Fax: +1 (845) 365-8922
E-mail:
ciesin.info@ciesin.columbia.edu



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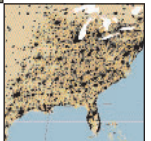
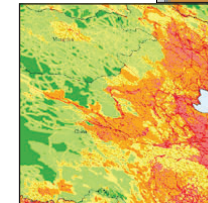
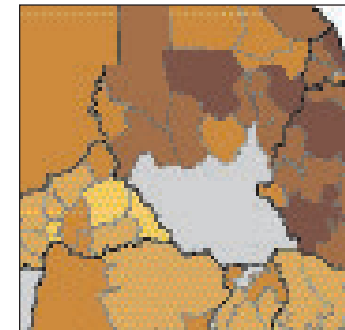
Columbia University's Earth Institute blends research in the physical and social sciences, education and practical solutions to help guide the world on to a path toward sustainability.
www.earth.columbia.edu



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Programs and Projects



Programs

NASA Socioeconomic Data and Applications Center (SEDAC):

One of twelve NASA Earth Science Data Centers, providing access to socioeconomic and environmental data, for integration with NASA earth science and remote sensing data.

<http://bit.ly/37E6f4s>

IPCC Socioeconomic Data Distribution Centre: A data center operated collaboratively by SEDAC, the UK's British Atmospheric Data Centre, and the World Data Center Climate in Hamburg, Germany, with access to key data sets used in IPCC assessments and reports.

<http://bit.ly/2OM90Iz>

Environmental Performance Index (EPI): A collaboration with Yale University, in association with the World Economic Forum, to measure progress toward environmental goals; the 2018 EPI assesses 180 countries.

<http://bit.ly/2pNB04s>

Geo-referenced Infrastructure and Demographic Data for Development (GRID3): A program with WorldPop/Flowminder and UNFPA to develop/disseminate high-resolution geo-referenced data, for development goals. Funded by the Bill & Melinda Gates Foundation and UK's DFID.

<http://bit.ly/34IjWDk>

Population-Environment Research Network (PERN): PERN promotes online scientific exchange to further research on population and the environment. Sponsored by the IUSSP and Future Earth.

<http://bit.ly/2ONuZ1A>

Environment and Security: CIESIN is part of a number of initiatives and projects assessing the impacts of environmental stress, especially climate change, on national and global security concerns. Among the workshops, trainings, and academic courses offered is a Massive Online Course (MOOC) CIESIN helped lead.

<http://bit.ly/2KSW42x>

Recent Awards

Drivers of Migration In and Out of West Africa: A four-year grant from the National Science Foundation takes a transdisciplinary approach to exploring factors that influence West Africa migration. The project is led by the LDEO, with CIESIN, Columbia's SIPA, and the Earth Institute's CCSR.

Mapping Water Infrastructure in the Hudson Valley: An award by the New York State Water Resources Institute at Cornell University, in collaboration with the NYS DEC Hudson River Estuary Program, for a pilot project to assist

communities in mapping wastewater infrastructure for flood resilience planning.

Data Analytics and Tools for Ecoscurity (DANTE):

CIESIN is partnering with ISciences and Case Consulting International on a new two-year project to develop an open source software toolkit for systematic monitoring, forecasting, and analysis of environmental stressors and their impacts on security. Supported by the U.S. ERDC.

<http://bit.ly/2WQb35b>

Assessing Nighttime Lights Data to Improve Urban SDGs Monitoring and Target Achievement:

With GEO, CIESIN is exploring the use of daily nighttime lights data from the NASA/NOAA SUOMI-VIIRS satellite to develop near real-time population distribution estimates.

Urban Population in Low-lying Coastal Zones: Using data from the Global Human Settlement Layer (GHSL) and MERIT-DEM, this project with the CUT-WRI assesses the size of urban populations living within low-elevation coastal zones.

<http://bit.ly/2nvLsh8>

GIS-Based Tools for Analyzing Solar-Thermal Desalination Systems:

Funded by the US DOE, this project led by Columbia University is using state-of-the-art solar-thermal desalination models to develop software that supports the planning and valuation of solar-thermal and hybrid technologies. CIESIN will integrate spatial data and geographic Information system functions with the models.

Selected Collaborative Projects

POPGRID Data Collective: An ongoing effort to spur the development and use of high-quality, highly-usable georeferenced data on population, human settlements, and infrastructure. Web site and map viewer developed by CIESIN. Supported by the Gates Foundation and SEDAC.

<http://bit.ly/2OHQI0y>

High Resolution Settlement Layer (HRSL): A joint effort between Facebook, Columbia University, and the World Bank using high resolution satellite imagery and census data, to develop human population distribution estimates, providing unprecedented levels of detail, especially for rural areas.

<http://bit.ly/2WvI5GM>

Global High Resolution Population Denominators:

Partnering with WorldPop and University of Louisville, CIESIN is using a statistical model based on census and biophysical data to create a high-resolution (100 m) global surface of population. Funded by the Bill and Melinda Gates Foundation.

Mapping the Missing Millions: A project led by Oregon State University addresses the issue of approximately

250 million people estimated missing from sustainable development goal (SDG) progress assessments. A global database of informal settlement will be developed.

<http://bit.ly/2Mw8box>

Estimating and Mapping Off-Grid Populations: High-resolution satellite imagery, volunteered geographic information, and modeling will be leveraged to provide data on the location and size of villages within mangrove areas of six data-poor countries in West Africa, via an online interface. Partners include the Connectivity Lab at Facebook and Wetlands International Africa.

Assessment of Potential Flood Impacts to Buildings in the Hudson Valley/Long Island Regions:

A project to develop building footprint data and conduct a flood scenario impact analysis, supported by the New York State Energy Research and Development Authority Climate Change Adaptation Research and Strategies Program.

SERVIR-West Africa: An implementing partner with Tetra Tech under USAID funding, CIESIN is developing the Web site and data platform, and training partners in data management.

<http://bit.ly/2XKDy1n>

Task Group on Citizen Science Data: This CODATA-WDS task group focuses on data-generating citizen science, crowdsourced, and volunteered geographic information projects, for the Sustainable Development Goals (SDGs).

Population and Infrastructure on Our Human Planet:

CIESIN and the University of Louisville, ImageCat, Inc., NASA Goddard Space Flight Center, Baruch College, and Yale University are helping developing countries better utilize population and related data in sustainable development monitoring and decision making. Funded by the NASA Applied Sciences program under GEO's Human Planet Initiative.

Consortium for Climate Risk in the Urban Northeast (CCRUN):

The Earth Institute and four academic institutions are addressing climate change risks in the urban Northeast under an award from the NOAA Regional Integrated Sciences and Assessments initiative. CIESIN is supporting training and outreach and operates the project Web site.

<http://bit.ly/2OjUbOs>

West Africa Biodiversity and Climate Change (WA-BiCC):

A project addressing direct and indirect drivers of natural resource degradation to improve livelihoods and natural ecosystems across the region. An implementing partner with Tetra Tech under USAID funding, CIESIN is helping improve forest conservation and building coastal climate resilience.

<http://bit.ly/2KQuumi>