European Commission

JRC SCIENCE FOR POLICY REPORT

Atlas of the Human Planet
2020

*Open geoinformation for
research, policy, and action*

2020

Executive Summary

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The Atlas of the Human Planet 2020 collects contributions from more than 100 users of Global Human Settlement Layer data sets among decision makers, researchers and practitioners. The showcases are grouped in four thematic areas with a close link to four policy domains disaster risk management (the Sendai Framework for Disaster Risk Reduction), urbanisation (SDG 11 and New Urban Agenda), Development (the 2030 Agenda for Sustainable Development), environment and sustainability (European Green Deal and UNFCCC Paris Agreement). All applications show action oriented, transformative and scalable solutions to make progress in the aforementioned policy frameworks. This year's Atlas also highlights challenges and strategic directions related to human settlements mapping as well as an outlook of the upcoming release of the GHSL (Global Human Settlement Layer) increasingly relying on Copernicus Sentinel data.

Policy Context

Spatial data from the Global Human Settlement Layer has been the knowledge base to develop the Degree of Urbanisation (DegUrba) a method that delineates cities, urban and rural areas for international comparisons. This methodology was endorsed by the UN Statistical Commission in March 2020. DegUrba is essential for monitoring progress in achieving the goals of the 2030 Agenda for Sustainable Development[1] by providing a tool for harmonised data collection disaggregated in urban and rural areas.

This Atlas also shows the progress made in exploiting Copernicus Sentinel satellite data to map human settlements, in particular by developing original methods for information extraction.

The Atlas of the Human Planet 2020 is a deliverable to the GEO (Group on Earth Observations) Human Planet Initiative[2]. The initiative maximises the use of (big) open data and artificial intelligence (AI) and combines Earth Observation (EO) data with socio-economic and other data. By developing a new generation of measurements and information products, the initiative provides new scientific evidence and a comprehensive understanding of the human presence on the planet that can support policy processes with agreed, actionable and goal-driven metrics.

Key Conclusions

This Atlas collects more than 30 different applications of GHSL data and tools for addressing societal challenges and priorities. GHSL datasets and models are used by a wide variety of stakeholders, across a number of policy areas. Applications in disaster risk management benefit from reliability and wide spatiotemporal coverage of GHSL data. Showcases on urbanisation leveraged on local yet globally consistent data with high level of spatial detail and long temporal coverage. Applications in the framework of development exploited GHSL data to generate scientific models to plan and scale policies at regional and global scales. Furthermore, several showcases highlighted actionable and scalable solutions for a transition towards greener and more inclusive economies. Next to applications derived from currently available GHSL data, the Atlas suggests possible directions for future research and innovation, ensuring the next generation of GHSL data continues to assist science for policy applications in the 2030 policy horizon and beyond.

Main Findings

In disaster risk management, the showcases highlight that GHSL data support all the different phases of the disaster risk management cycle. In the field of urbanisation, GHSL data unravel the relationship between urbanisation and development looking at the whole spectrum of settlement typologies by taking into account also functional linkages between settlements. In the thematic area of development, it has been recorded how GHSL data clearly fulfil the mission of filling data gaps and provide scalable solutions for Sustainable Development Goals targets estimation and monitoring. On aspects related to environment, sustainability and the opportunities posed by the European Green Deal it emerges how much knowledge GHSL data can help co-create when the essential societal variables of population and built-up areas are combined with other socio-economic, ecological or environmental data to address sustainable development.

Related and Future JRC work

At the core of the GHSL project is the understanding of the societal and environmental processes of planet Earth. The project supports several Knowledge Centres in the Commission (Disaster Risk, Territorial Policies, Migration and Demography). The GHSL project is one of the key test cases of the Joint Research Centre Earth

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[1] https://sustainabledevelopment.un.org/post2015/transformingourworld
[2] https://www.earthobservations.org/activity.php?id=119

Observation Data and Processing Platform (JEODPP). The processing power and storage of JEODPP are essential for the success of GHSL, which relies on artificial intelligence approaches applied to large fine scale data sets.

In the process of uptake of the Degree of Urbanisation as methodology for delineation of cities and urban and rural areas for international and regional statistical comparison purposes the JRC will increasingly work as technical partner of DG REGIO, EUROSTAT and other five International Organisations (OECD, World Bank, FAO, ILO, and UN-HABITAT) to improve capacities of National Statistical Offices and other institutional stakeholders.

Following the successful 'fitness for purpose' test of the GHSL products, the JRC is working with the Directorate-General for Regional and Urban Policy (DG REGIO) and Directorate-General for Defence Industry and Space (DG DEFIS), on an integration of the Global Human Settlement Layer products in the Emergency Management Service of the Copernicus programme.

Quick guide

The Atlas of the Human Planet 2020 is the fifth edition of the GHSL Atlas series and it relies on the extended network of GHSL data users to showcase high-impact applications in four thematic areas at the core of global development agendas. This edition of the Atlas hosts more than 30 contributions sourced from a network of more than 100 experts across various disciplines and regions of the world. The knowledge contained in this report supports policy areas in regional policy, external actions, development and cooperation and are a key contribution to the baseline information for the 2030 Development Agenda.