

Country Use Case of EO for SDG Indicator	
SDG Indicator/Sub-indicator	6.6.1 Change in the extent of water-related ecosystems over time Sub-indicator on open-water - Rate of surface variation (%) of open water
Country or region	Germany To allow a better comparison with UNEP data the national results have been cut to the GAUL areas (administrative boundaries).
Status (please check)	<input type="checkbox"/> being used in official SDG Indicator reporting <input checked="" type="checkbox"/> being verified or tested by country <input type="checkbox"/> studying feasibility
Earth Observation Data Used and its links	<p>Information on land cover/use categories was derived from the land cover model for Germany (LBM-DE) 2015 and 2018.</p> <p>You can find additional information on how this is produced here (only available in German language):</p> <ul style="list-style-type: none"> - https://gdk.gdi-de.org/geonetwork/srv/api/records/7387BFCE-72CD-442E-B268-D273DE1D61F8 (LBM-DE 2015) - https://gdk.gdi-de.org/geonetwork/srv/api/records/ED7F6DE9-6433-41DA-928A-044837C6EDAA (LBM-DE 2018)
Additional/ Other Data Used and its links	Data on GAUL administrative boundaries area used for the most recent reference year)
Description of data access, processing, and analysis, including methodology that was developed, associated tools or applications, and how these are applied to compute SDG Indicator	<p>The Digital Land Cover Model for Germany (LBM-DE) was developed in coordination with the Federal Environment Agency (UBA) for the purposes of the federal government and has been made available by the BKG since 2009 (then still under the name DLM-DE). It describes topographic objects of the landscape in vector format under the aspect of land cover and land use. In this way, the state of the environment at a certain point in time is recorded, thus enabling analyses according to different aspects. Furthermore, the LBM-DE serves as a basis for the derivation of the national CORINE Land Cover (CLC) data set, which in turn contributes to the uniform European land monitoring. The LBM-DE has been updated for the reference years 2012, 2015, and 2018 and covers the entire extension of the Federal Republic of Germany. Based on the boundaries of the spatial objects of the basic landscape model (Basis-DLM), data on land cover and land use in the sense of the European CLC nomenclature are derived from the respective reference year 2012, 2015 or 2018 by means of the evaluation of multi-spectral satellite image time series. Land cover models can be used in many different ways. The administrative sector in particular, which deals with environmental issues, has a strong interest in continuously recording landscape and environmental changes.</p>
Work flow	Following the official metadata description

Lessons learned, any gaps, key issues and recommendations

National monitoring






The identification of permanent and seasonal water areas, as offered by UNEP, was not examined in the present assessment, but is in principle possible by combining the LBM data set and satellite data time series, and can also be carried out by the BKG. The indicator could be calculated on the basis of a more suitable national and spatial data basis (LBM-DE).











European coordination

The outcomes and findings of the coordinated analysis carried out on the SDG indicators by the 'UN-GGIM: Europe Working Group on Data Integration' according to the Work Plan 2017-2019 have allowed to agree on the following set of recommendations to enhance the contribution of geospatial data analysis and its integration with statistical data to address the SDG indicators:

1. Harmonize relevant geospatial data themes
2. Implement Cadastral and Land Cover data as key national authoritative data
3. Use geospatial layers generated from Earth Observation data
4. Create capacity building initiatives for NSI to take full advantage of EO based data
5. Define and implement NSDIs having in mind the requirements for statistical production
6. Implement consistent and stable sub-national spatial units
7. Develop and use population grids and other grid-based statistics
8. Adopt harmonised and comparable concepts, definitions and classifications and build consensus among Geospatial Agencies and National Statistical Institutes
9. Ensure availability and accessibility of processing workflows, including open formats of programming codes
10. Develop initiatives that promote availability, accessibility and usability of geospatial data
11. Increase the collaboration with researchers and data providers
12. Increase cooperation between National Statistical Institutes and Geospatial Agencies

Lessons learned, gaps and key issues on (1) 'concepts', (2) 'data sources', (3) 'computation and algorithm' and (4) 'challenges regarding the use of geospatial data' have been compiled for four specific SDG indicators (11.2.1, 11.3.1, 11.7.1 and 15.1.1).

	 <h3>11.2.1</h3> <p><i>tier II indicator</i></p> <p>Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities</p> <p>Indicator coordinator: Austria (NSI)</p> <p>Contributors: Austria (NSI), France (NMCA), Ireland (NSI), Sweden (NSI), Switzerland (NSI)</p>	 <h3>11.3.1</h3> <p><i>tier II indicator</i></p> <p>Ratio of land consumption rate to population growth rate</p> <p>Indicator coordinator: Portugal (NSI)</p> <p>Contributors: Finland (NMCA), Ireland (NSI), Italy (e-GEOS), Portugal (NSI and NMCA)</p>
	 <h3>11.7.1</h3> <p><i>tier III indicator (currently tier II)</i></p> <p>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</p> <p>Indicator coordinator: Sweden (NSI)</p> <p>Contributors: Ireland (NSI), Sweden (NSI and NMCA), Switzerland (NSI)</p>	 <h3>15.1.1</h3> <p><i>tier I indicator</i></p> <p>Forest area as a proportion of total land area</p> <p>Indicator coordinator: Italy (e-GEOS)</p> <p>Contributors: Austria (NMCA), Finland (NMCA), France (NMCA), Germany (NMCA), Italy (e-GEOS), Spain (NMCA)</p>
<p>Supporting material about this use case. Include links, publications, etc.</p>	<p><u>European coordination</u></p> <p>Concerning the coordinated elaboration of the UN-GGIM: Europe Working Group on Data Integration a Final Report on ‘The territorial dimension in SDG indicators: geospatial data analysis and its integration with statistical data’ was published in July 2019 within the Work Plan 2017-2019. The report focuses on the contribution of geospatial data analysis and its integration with statistical data at a global, European and national perspective based on the analysis of four selected SDG indicators.</p> <p>Source:</p> <p>https://un-ggim-europe.org/wp-content/uploads/2019/05/UN_GGIM_08_05_2019-The-territorial-dimension-in-SDG-indicators-Final.pdf</p> <p>According to the Work Plan 2019-2022 the UN-GGIM: Europe Working Group on Data Integration has accepted new tasks to provide methodological, operational and technical guidance in the use of geospatial data and statistics to compute SDG indicators, with a European and national perspective, and reflecting on solutions which may contribute to reduce statistical burden and increase the level of detail of SDG indicators. The new tasks comprise (1) a benchmarking of pan-European data sources, i.e. comparative analysis between pan-European and national methodologies, data sources and results as well as (2) an integration of pan-European data sources with national data sources, i.e. analysis of the combination of pan-European with national data sources to extract new relevant information for indicators computation.</p> <p>The expected outputs will include:</p> <ol style="list-style-type: none"> 1. The development of standard methodological/technical documents for each selected indicator compiling the solutions analysed and presenting normative methodological guidance on the use of EO for the computation of SDG indicators; and 	

	<p>2. The production of flyers/leaflets synthesising and illustrating the approaches analysed and the main results.</p> <p>Based on this, the work has started by taking the following indicators as a reference:</p> <ul style="list-style-type: none">  3.6.1 Death rate due to traffic injuries (tier I)  6.6.1 Change in the extent of water-related ecosystems over time (tier I)  11.2.1 Accessibility to public transports (tier II)  11.3.1 Ratio of land consumption rate to population growth (tier II)  11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (tier I)  11.7.1 Access to public / green areas (proxy) (tier II)  14.5.1 Coverage of protected areas in relation to marine areas (tier I)  15.1.1 Forest area as a proportion of total land area (tier I)  15.3.1 Proportion of land that is degraded over total land area (tier I)  15.4.1 Coverage by protected areas of important sites for mountain biodiversity (tier I)
Collaboration with other agencies - agency names and activities	<p><u>National monitoring</u></p> <p>In 2017, the BKG, in cooperation with the Federal Statistical Office of Germany, began conducting feasibility studies regarding the integration of EO and national geospatial datasets for calculating selected SDG indicators. The indicators chosen were 11.7.1, 15.1.1, and 15.4.2. Since 2018 the calculation of this indicator is only done by BKG and the result are reported to the statistical office when necessary.</p> <p><u>European coordination</u></p> <p>The selection and analysis of the SDG indicators should benefit from the different institutional background and technical expertise of members of the UN-GGIM: Europe Working Group on Data Integration. Additionally, this list should benefit from an articulation with the UNECE as well as the European Environment Agency (EEA) and Eurostat's SDG Working Group. Furthermore, the information exchange with the Inter- and Agency Expert Group on SDG Indicators – Working Group on Geospatial Information (IAEG SDG WG GI) will be continued. The same applies with the exchange and collaboration with the relevant global GEO initiatives and working groups, in particular, the EO4SDG initiative. On the European level, the exchange with the EuroGEO initiative has to be established as well.</p>
Name(s) and email address of individual(s) involved in this effort. Please note the principal point(s) of contact (POCs).	<p>Point of Contact (POC): Dr. Patrick Knöfel, Patrick.Knoefel@bkg.bund.de</p> <p><u>European coordination</u> Pier-Giorgio Zaccheddu (Chair of the UN-GGIM: Europe Working Group on Data Integration), email: pier-giorgio.zaccheddu@bkg.bund.de Francisco Vala (Leader of the Subgroup I – SDG Analysis of the UN-GGIM: Europe Working Group on Data Integration), email: francisco.vala@ine.pt</p>