

Deliverable 7.4

EVs and policy indicators toolbox

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Introduction

This deliverable is the result of the Task 7.4. Compared to the Task 7.3, this task will use the GEOEssential indicators toolbox (Task 7.2) to operationalize the processing EO data (coming from GEOSS and Copernicus) and generate a selection of SDG indicators to support the 2030 Agenda for Sustainable Development.

Selected SDG indicators

All SDG indicators will be integrated and available by the end of the project on the GEOEssential Portal at: <https://geoessential.unepgrid.ch> (under the EO Workflows section).

The entry point will look like the following figure (figure 1):



Figure 1: Initial interface to select an SDG indicator.

For each indicator, a short description will be given together with the link to the indicator metadata description on the United National Statistical Division repository. In addition, a button “More” will give access to the detailed methodology applied as well as to all relevant information for generating the indicator using the GEOEssential indicators toolbox (figure 2).

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SDG15.3.1 indicator Land Degradation

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Spatial extent: Switzerland, Europe, World

Dashboard link: <https://geoessential.unepgrid.ch/mapstore/#/dashboard/4>

Temporal extent: 2001-2009

EVs used: Land cover, NDVI, Precipitation, Temperature, Soil Moisture

Inputs: Land cover, NDVI, Precipitation, Temperature, Soil Moisture, Evapotranspiration

Outputs: Land Cover, Land Productivity, Carbon Stocks , Land degradation

Targeted Policy: UN SDG

Targeted Indicator: 15.3.1: Proportion of land that is degraded over total land area

Main process: Trends.Earth model : <http://trends.earth> Land degradation is defined as "the reduction or loss of the biological or economic productivity and complexity of rain fed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from a combination of pressures, including land use and management practices". Total land area is the total surface area of a country less the area covered by inland waters, like major rivers and lakes. The indicator is expressed as a percent. The indicator is derived from a binary classification of land condition (i.e., degraded or not degraded) based on three sub-indicators (and associated metrics): • Land Cover (land cover change) • Land Productivity (land productivity dynamics) • Carbon Stocks (soil organic carbon stocks) Quantifying the indicator is based on the evaluation of changes in the sub-indicators in order to determine the extent of land that is degraded over total land area. The sub-indicators are few in number, complementary and non-additive components of land-based natural capital and sensitive to different degradation factors. The One Out, All Out (1OAO) principle is applied: if one of the sub-indicators is negative (or stable when degraded in the baseline or previous monitoring year) for a particular land unit, then that land unit would be considered as degraded subject to validation by national authorities. This rule is applied as a precautionary measure, because stability or improvements in land condition in any of the three indicators cannot compensate for degradation in the others.

Level of development: 75%

GitHub code: To be included when available

Outputs endpoints: <https://geoessential.unepgrid.ch/geoserver/> and <https://geoessential.unepgrid.ch/geonetwork>

Link to the VLab: TO BE ADDED

Partner(s): UNIGE, CNR, JRC, ESA

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Additional information: This workflow is also featured in the GEOSS platform > search for Land Degradation

Information of July 24, 2019

Other

Here we will be able to add some other information.

Figure 2: A detailed view of the the SDG 15.3.1 indicator methodology.

The following 8 SDG indicators will be implemented (with their respective official metadata):

- SDG2.4.1 - Proportion of agricultural area under productive and sustainable agriculture
<https://unstats.un.org/sdgs/metadata/files/Metadata-02-04-01.pdf>
- SDG6.1.1 - Proportion of population using safely managed drinking water services
<https://unstats.un.org/sdgs/metadata/files/Metadata-06-01-01.pdf>
- SDG6.4.2 - Level of water stress: freshwater withdrawal as a proportion of available freshwater resources
<https://unstats.un.org/sdgs/metadata/files/Metadata-06-04-02.pdf>
- SDG11.3.1 - Ratio of land consumption rate to population growth rate
<https://unstats.un.org/sdgs/metadata/files/Metadata-11-03-01.pdf>
- SDG11.7.1 - 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
<https://unstats.un.org/sdgs/metadata/files/Metadata-11-07-01.pdf>
- SDG15.1.1 - Forest area as a proportion of total land area
<https://unstats.un.org/sdgs/metadata/files/Metadata-15-01-01.pdf>
- SDG15.1.2 - Progress towards sustainable forest management
<https://unstats.un.org/sdgs/metadata/files/Metadata-15-01-02.pdf>
- SDG15.3.1 - Proportion of land that is degraded over total land area
<https://unstats.un.org/sdgs/metadata/files/Metadata-15-03-01.pdf>

These indicators are generated at different scales. Some of them are at national levels, some at European level, and the SDG15.3.1 is provided at the global level. This demonstrates the scalability of the proposed approach using the VLab technology to process data at various scales.

Regarding the audience, these indicators can potentially be used by national or regional authorities to gain knowledge about some important environmental conditions.