UN-GGIM: Europe webinar

Showcasing the added-value of geospatial and statistical data integration to compute SDG indicators

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SDG indicator 15.3.1

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SDG 15.3.1

Proportion of land that is degraded over total land area

SDG indicator analysis – 15.3.1

Proportion of land that is degraded over total land area

DEFINITION

- Land degradation is “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” (UNCCD 1994, Article 1 of the Convention Text).
- This includes combat desertification and restore degraded land and soil to achieve a land degradation-neutral world
- For the indicator computation must be considered three sub-indicators
  - Trends in Land cover
  - Trends in Vegetation productivity
  - Trends in Carbon stock above and below ground

TO BE CONSIDERED

- Detailed reporting of EU countries on this 15.3.1 indicator is limited. Proxy indicator for the EU context is Eurostat’s indicator sdg_15_41 – Soil sealing index

SDG indicator analysis – 15.3.1

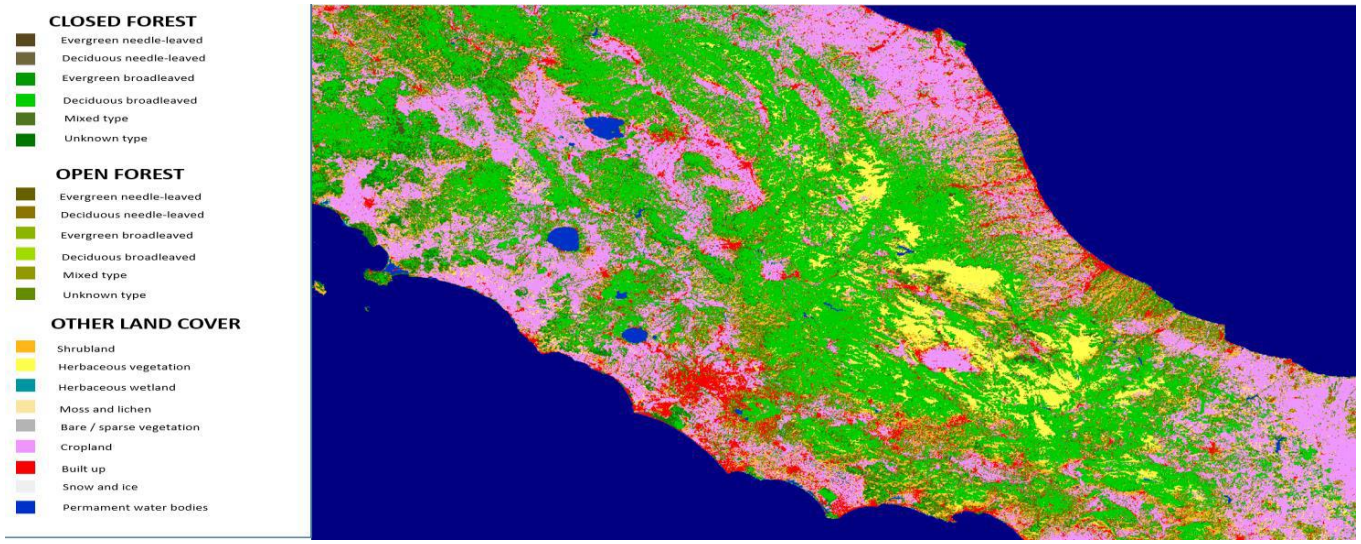
Proportion of land that is degraded over total land area

TO BE CONSIDERED

- **Definition:** The three sub indicators are not fully capturing the complexity of land degradation at national level. In this framework, additional datasets, always with a geographic component are welcomed in the computation, allowing a a more comprehensive approach in the management of land degradation, since assessing the phenomena from different points of view
- **Granularity:** Indicator should be used in support to action planning at national/local level, therefore the integration of more detailed datasets should be considered
- **Reporting:** Countries could report with different metrics on this indicator but could also provide a more comparable and homogeneous value at EU or global level by using EU datasets
- **Computation:** Standard workflow based on the three sub-indicators (land cover, land productivity and carbon stocks) is enough for being customized according to local needs and requirements, easily embedding additional datasets, and integrating land degradation definition.

SDG indicator analysis – 15.3.1 Methodology – Which data?

- It is possible to use different data sources, with different level of detail depending on data availability over the single country.
- Data sources are different for each sub-indicator
- Several data sources are available at global, EU or local scale for each sub-indicator



Land cover from Copernicus Global Land Service- Year 2019

LAND COVER

- **Corine Land Cover**
- Copernicus Global Land Cover

LAND PRODUCTIVITY

- **Copernicus NDVI HR**
- Copernicus NDVI MR

CARBON STOCK

- SoilGrids
- FAO GSOC

SDG indicator analysis – 15.3.1 Methodology – Which logic?

- The method of computation for this indicator follows the One Out, All Out statistical principle and is based on the baseline assessment and evaluation of change in three sub-indicators to determine the extent of land that is degraded over total land area:
  - Trend in land cover
  - Trend in land productivity
  - Trend in carbon stock above and below ground
- Each trend can be:
  - Positive or improving
  - Negative or declining
  - Stable or unchanging
- Baseline year is 2015, starting values of trend are computed in the baseline period 2000-2015.

SDG indicator analysis – 15.3.1 Methodology – How to compute?

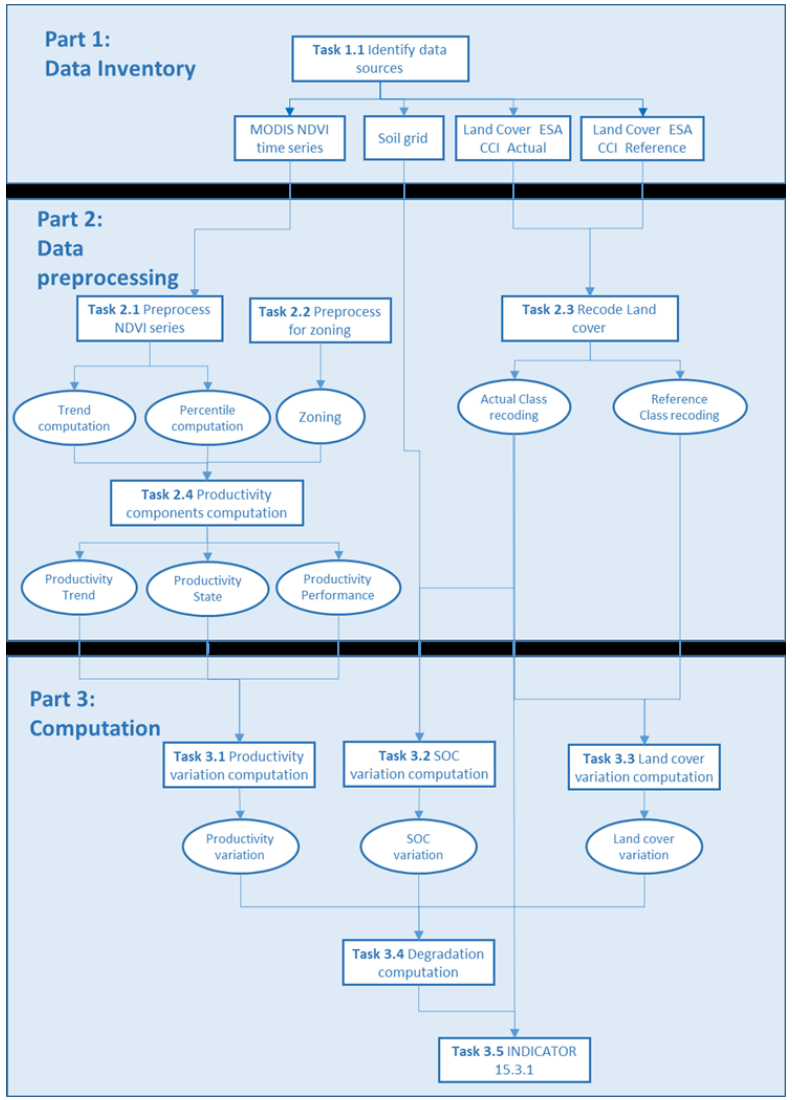
- Over each country, it is possible to assess land degradation by using Trends.Earth, that addresses each of the three components by using global datasets, and then combining the output of the analysis of the three components:
  - Land cover - The detected transition of the land cover, if any, can be considered a land degradation or improvement according to a pre-defined transition matrix
  - Land productivity - considering three metrics:
    - trend (i.e., rate of change in primary production over time)
    - state (i.e., detection of changes in primary productivity as compared to a baseline period)
    - performance (i.e., local productivity relative to other areas that share a similar land cover type over the dedicated region)
  - SOC – Based on the usage a combination of land cover changes and SOC
- Other more local datasets can be used in the analysis
- Merging the results of the three components is obtained the final results about Land degradation

SDG indicator analysis – 15.3.1 Methodology – Results improving

- The indicator can be computed in different ways according to:
  - adopted data sources, by using national or other global/regional datasets having better resolution and higher thematic accuracy
  - the definition of land degradation, that can be simplified or more complex. I.e. could be considered:
    - **Loss of habitat quality**: based for example on the InVEST model for habitat quality.
    - **Burnt areas**
    - **Fragmentation Index**:
    - **Areas of potential impact**: 60 meters buffer around soil sealed area
    - **Density of artificial land cover**: the increasing of urban and suburban areas, as defined in the target 11.7 of SDGs, are considered degraded areas
    - **Increase of small natural patches** < 1000 m2
    - **Soil erosion change** depending on land use change (factor C considered in Rusle model)
  - Country/Region requirements

SDG indicator analysis – 15.3.1

Methodology – Computation workflow



- Possible standard computation workflows:
  - Use of the standard methodology, adopting global datasets
  - Use of a standard methodology but adopting EU-wide datasets
  - Use of a standard methodology but adopting local/national datasets
- Customized workflow:
  - dealing with a different definition of land degradation
  - possibility of involving additional datasets
  - Possibility of involving different methodology

SDG indicator analysis – 15.3.1 Concluding remarks

- Relevant role of geospatial information for the computation
- Possibility to leverage on different datasets and rules for getting results more detailed and more in line with country situation
- Availability of specific SW for the computation
- Clear description of the methodology in the Good Practice Guidance document

THANK YOU!

Questions?

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