

# TRENDS.EARTH

tracking land change

▲TRENDS.EARTH is a free platform for monitoring land change using an innovative desktop and cloud-based system

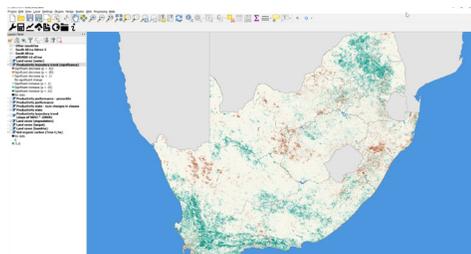
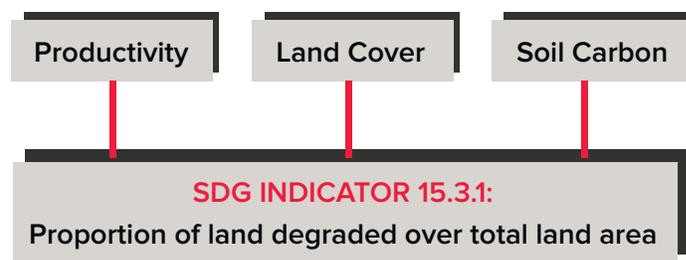
## Technical Fact Sheet

▲TRENDS.EARTH was produced by the Global Environment Facility (GEF)-funded project “Enabling the use of global data sources to assess and monitor land degradation at multiple scales.”

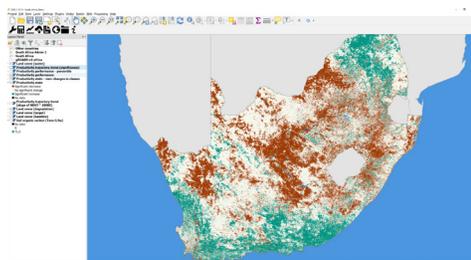
### Sustainable Development Goal (SDG) Target 15.3:

SDG Target 15.3 is to “combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world.”

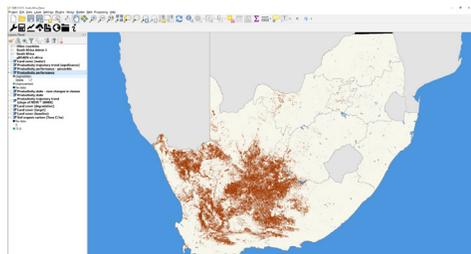
▲TRENDS.EARTH supports tracking the indicator for target 15.3 at a national-level, as well as monitoring the effectiveness of individual sustainable land management (SLM) projects.



Productivity Trajectory



Productivity State



Productivity Performance

## Track Changes in Land Productivity

Productivity is assessed by integrating three sub-indicators capturing different aspects of change in productivity: trajectory, performance and state.

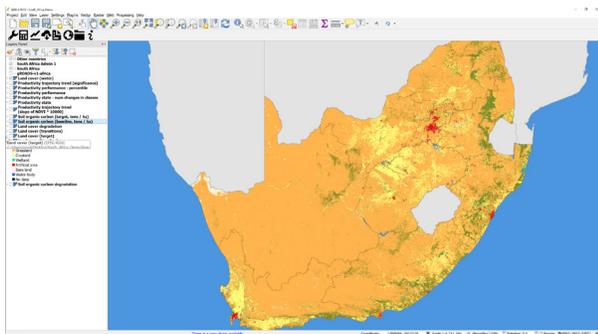
▲TRENDS.EARTH allows users to access MODIS (250 m) or AVHRR (8 km) data, and to define the period and spatial extent of the analysis appropriate for their particular project.

The tool supports several methods for assessing productivity trajectory, including trends in NDVI, Rain Use Efficiency (RUE), residual trend (RESTREND), and Water Use Efficiency (WUE). Productivity performance compares how productivity in an area relates to productivity in similar areas at the same point in time. Productivity state is a comparison of how current productivity in an area compares to past productivity in that area.

To identify areas of land that may have degraded or improved according to land productivity, state, performance and trajectory are combined into a final overall map of change in productivity.

## Track Changes in Land Cover

The second sub-indicator of SDG 15.3.1 is derived from change in land cover. **▲TRENDS.EARTH** allows users to flexibly map the 37 classes from the European Space Agency (ESA) Climate Change Initiative 300m land cover product (ESA-CCI-LC) to the seven classes used by the United Nations Convention to Combat Desertification (UNCCD) Land Degradation Neutrality Target Setting Program. **▲TRENDS.EARTH** then computes the transitions among these seven classes between a user-defined baseline period and target year.



Baseline land cover

Once the land cover transitions between the baseline and target date are identified, degradation is calculated based on a user-defined transition matrix that determines, for each possible land cover transition, whether that transition indicates degradation or improvement.

		Land cover in target year						
		Forest	Grassland*	Cropland	Wetland	Artificial area	Bare land	Water body
Land cover in baseline year	Forest	0	-	-	0	-	-	0
	Grassland*	+	0	-	0	-	-	0
	Cropland	+	+	0	+	-	-	0
	Wetland	0	0	-	0	-	-	0
	Artificial area	+	+	+	+	0	0	0
	Bare land	+	+	+	+	0	0	0
	Water body	0	0	0	0	0	0	0

Legend  
 Degradation: - (orange)  
 Stable: 0 (white)  
 Improvement: + (green)

\*The "Grassland" class consists of grassland, shrub, and sparsely vegetated areas (if the default aggregation is used).

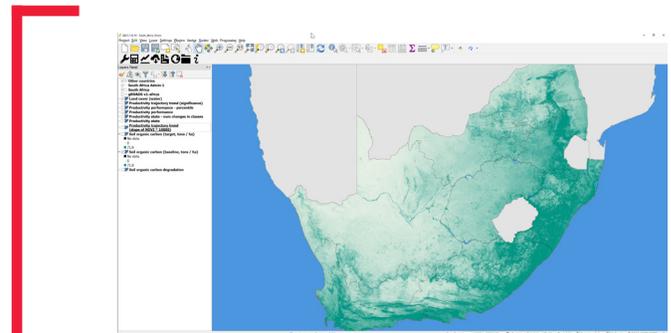
Buttons: Reset table, Load saved table..., Save table to file..., Previous, Next, Calculate

Transition matrix for calculating degradation due to change in land cover

## Track Changes in Soil Organic Carbon

The third indicator of SDG 15.3.1 is change in soil organic carbon. **▲TRENDS.EARTH** supports access to the SoilGrids dataset produced by International Soil Reference Information Centre (ISRIC) – World Soil Information.

Calculation of change in soil organic carbon between a baseline and target year is supported using the change factors recommended by the UNCCD SDG 15.3.1 Good Practice Guidelines (GPG) and the Intergovernmental Panel on Climate Change (IPCC) 2006 Guidelines for National Greenhouse Gas Inventories.



Baseline soil organic carbon map

## Support Reporting and Project Monitoring

The outputs from **▲TRENDS.EARTH** allow users to identify where degradation could be occurring in a country or region and facilitate reporting on SDG 15.3.1 to the UNCCD

by allowing users to directly determine the proportion of land that is degraded over total land area.

To download the tool, visit: <http://trends.earth>

The Land Degradation Monitoring Project is a partnership of Conservation International, Lund University, and the National Aeronautics and Space Administration (NASA), and is funded by the Global Environment Facility (GEF).

**▲TRENDS.EARTH**



**VITAL SIGNS**

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