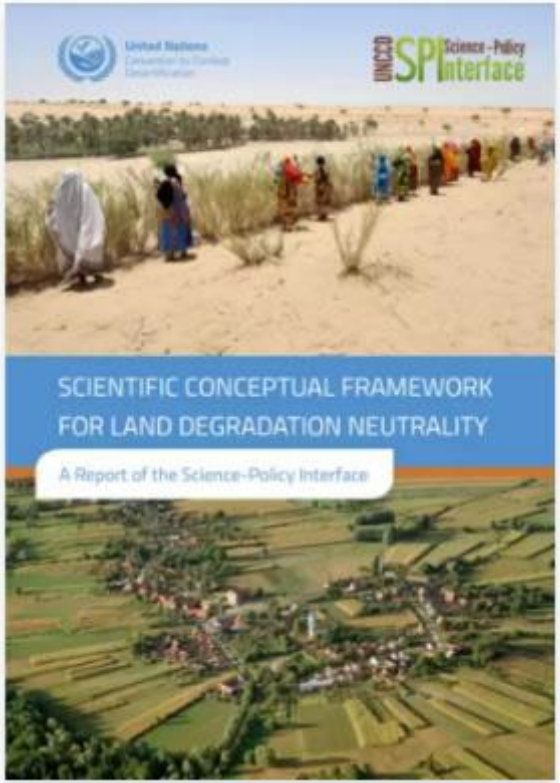
GEO Land Degradation Neutrality Flagship

Neil Sims

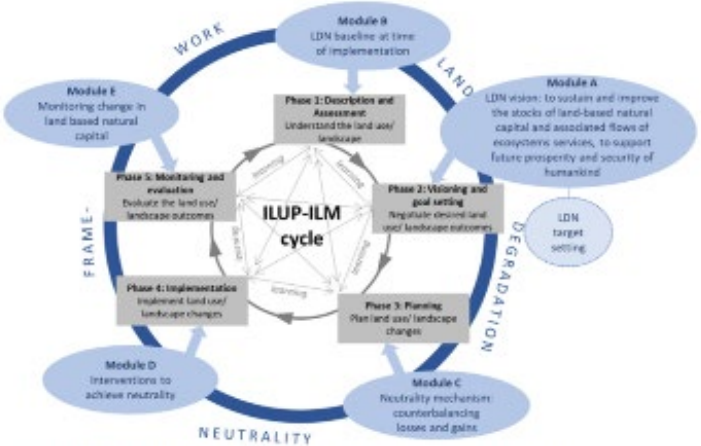
LDN, GPG, GEO



2017

2016, 2017, 2021, 2025

Land Degradation Neutrality



Source: 2022 UNCCD Science Policy Interface Review of LDN entry points (see link above)

2018

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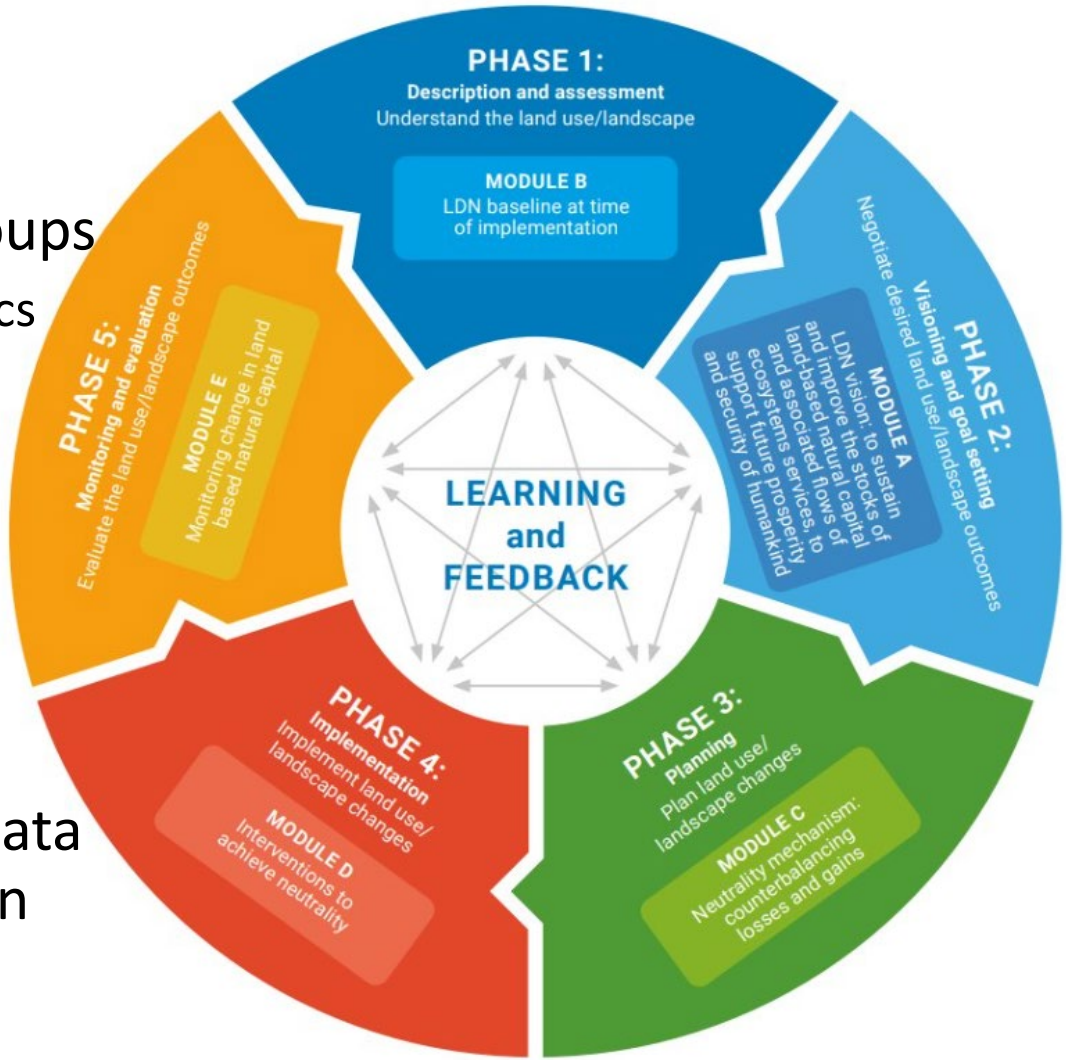
GEO LDN & ILUP

- Three(ish) Working Groups
  - Data, Standards & Analytics
  - Capacity Development
  - Decision Support

- Translate science and data into planning and action



LDN Toolbox (https://geo-ldn.org/ldn-toolbox/)

I NEED HELP TO FIND THE RIGHT TOOL

SEARCH FILTER

LIST OF TOOLS

TRENDS.EARTH tracking land change from Conservation International

Jan. 25, 2023

Trends.Earth

Trends.Earth, integrated into QGIS, serves as a valuable tool for tracking SDG 15.3.1 and assessing...

Keywords: SDG 15.3.1

Learn More

IMPACT TOOLBOX

Portable GIS Toolbox for Image Processing and Land Cover Mapping

July 26, 2022

IMPACT Toolbox

The IMPACT (Image Processing) Toolbox is a Free and Open Source browser-based application, develop...

Keywords: SLM, land use planning (LUP), land restoration

Learn More

LandPKS

Nov. 3, 2023

LandPKS

LandPKS (Land Potential Knowledge System) is a cloud-based decision support tool that leverages cro...

Keywords: land use planning (LUP)

Learn More

WOCAT

World Overview of Conservation Approaches and Technologies

LADA

Oct. 31, 2023

WOCAT-LADA-DESIRE M...

The WOCAT-LADA-DESIRE mapping tool offers guidelines and a questionnaire to integrate spatial land ...

Keywords: SLM

Learn More

LDN LUP LUP4LDN

Oct. 31, 2023

LUP4LDN

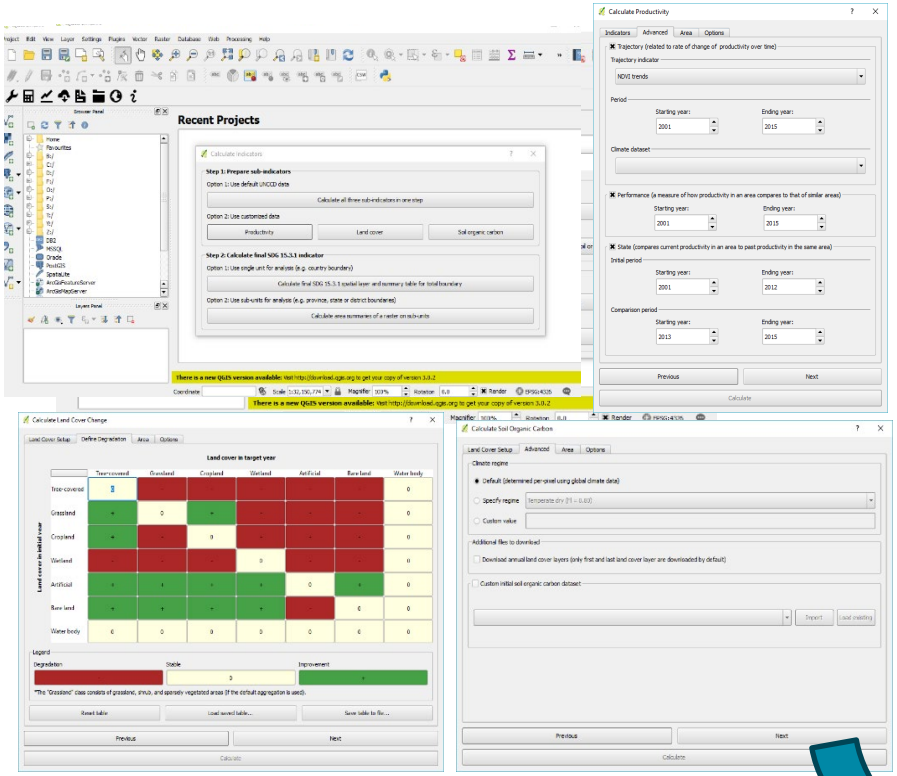
LUP4LDN (Land Use Planning for LDN) is a web-based tool that empowers users to visualize and assess...

Keywords: land use planning (LUP)

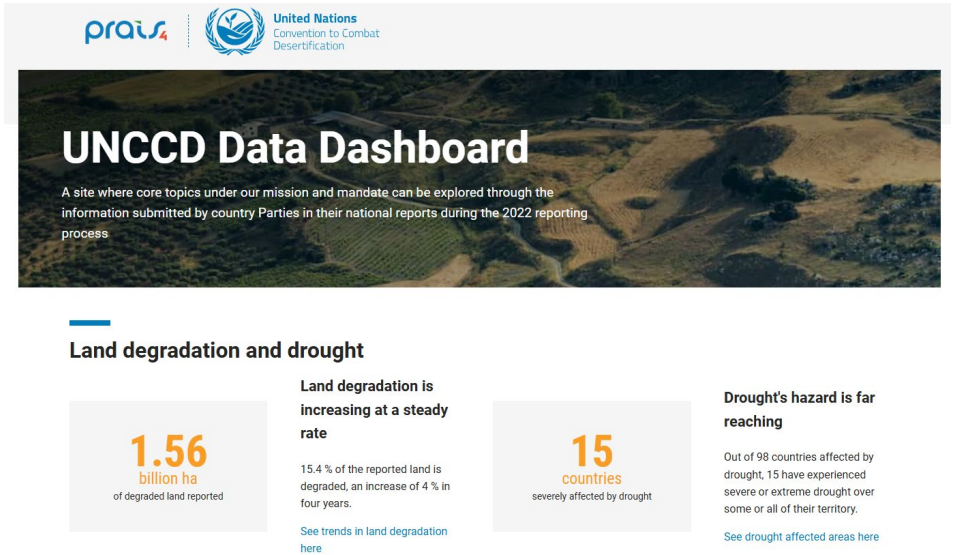
Learn More

CSIRO

Analytics and Reporting



Trends.Earth



UNCCD Data portal (https://data.unccd.int/

Data sets – Global Default

Sub-indicator	Default data provided for 2018 reporting	Alternatives
Land Cover	**ESA-CCI-LC**[43] 300m annual global from 1992 to 2019	**Copernicus CGLS-LC100 (Collection 3)**[44]100m annual global from 2015 to 2019
Land productivity	**JRC Land Productivity Dynamics (LPD)**[45]1km annual global from 1999-2013	**MODIS vegetation index (MOD31Q1, MYD13Q1)**[46] 250 m global, 16-day integration period since 2000 **Copernicus Global Land Service NDVI,**[47] 1km annual global since 1998.
SOC	**ISRIC SoilGrids250m**[48] 250 m global spatial predictions for selected soil properties at six standard depths	**ISRIC SoilGrids250m version 2** (de Sousa et al. 2020), updated global product at 250 m spatial resolution with spatial uncertainty. **FAO Global Soil Organic Carbon Map**[49], global and national maps of SOC stocks at 1 km spatial resolution; latest version 2019. *https://soilsrevealed.org/

Trends.Earth (MODIS)

FAO-WOCAT LPD

- 30m dataset now available for SIDS

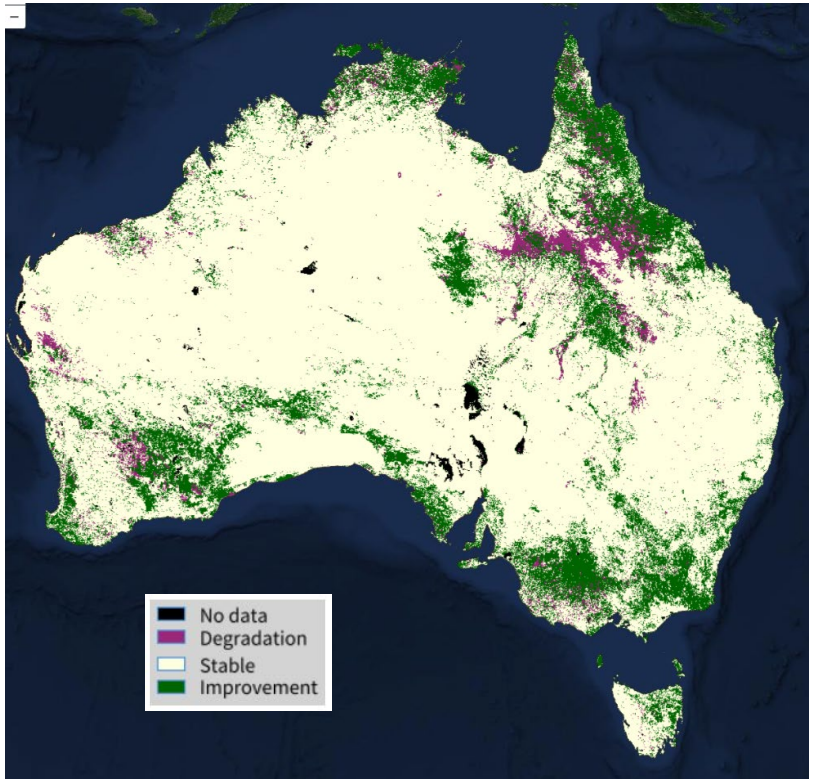
Global default data – Land cover

ESA CCI-LC

FINAL CLASS

ORIGINAL CLASS: IPCC Class	Forest Land	Grassland	Cropland	Wetlands	Settlements	Other Land
Forest Land	Stable	Vegetation loss	Deforestation	Inundation	Deforestation	Vegetation loss
Grassland	Afforestation	Stable	Agricultural expansion	Inundation	Urban expansion	Vegetation loss
Cropland	Afforestation	Withdrawal of Agriculture	Stable	Inundation	Urban expansion	Vegetation loss
Wetlands	Woody Encroachment	Wetland drainage	Wetland drainage	Stable	Wetland drainage	Wetland drainage
Settlements	Afforestation	Vegetation establishment	Agricultural expansion	Wetland establishment	Stable	Withdrawal of Settlements
Other Land	Afforestation	Vegetation establishment	Agricultural expansion	Wetland establishment	Urban expansion	Stable

Global default data – Land productivity & SOC

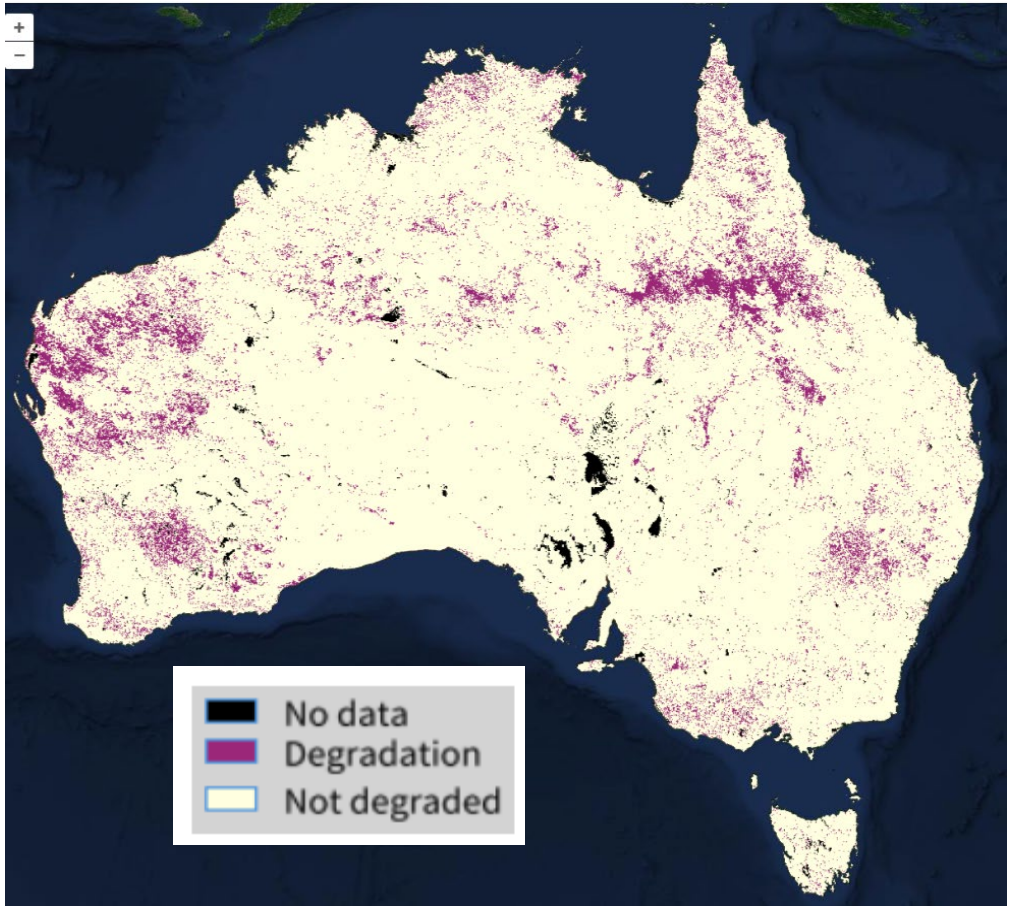


JRC LDP

Soil Grids 250m

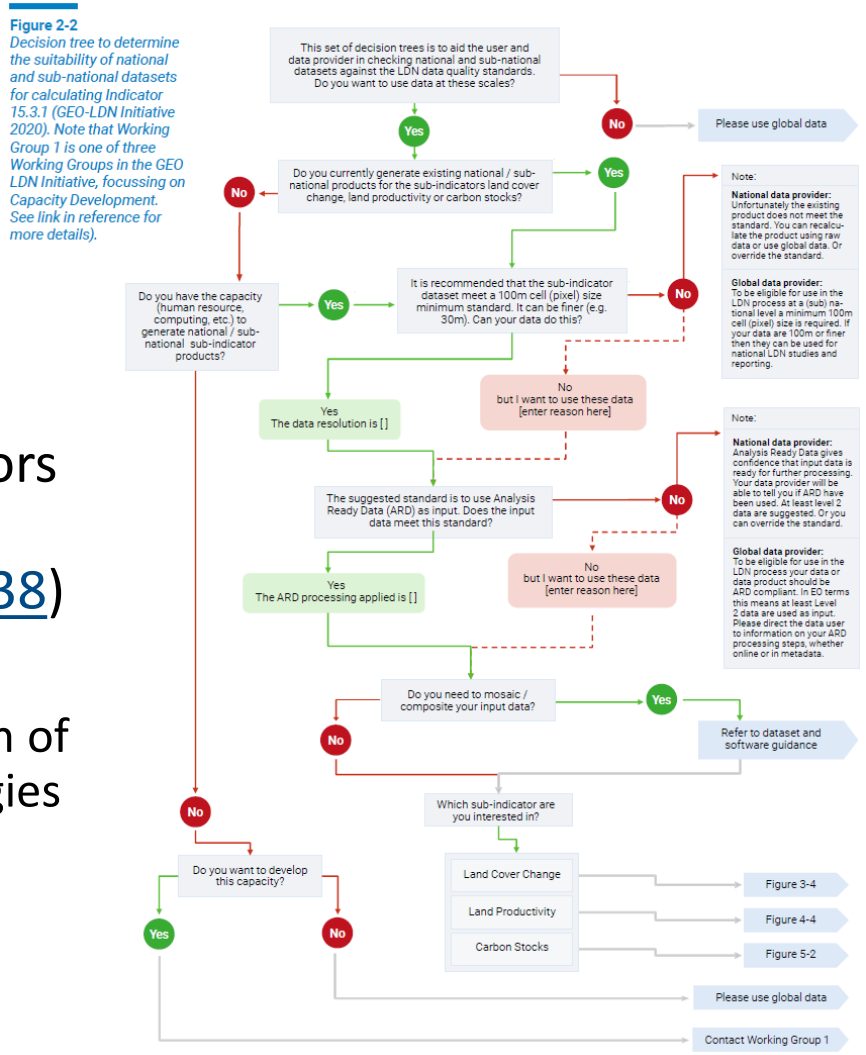
Land Degradation 2016-2019 (Default)

- Shows new and persistent degradation relative to the baseline (2000-2015)



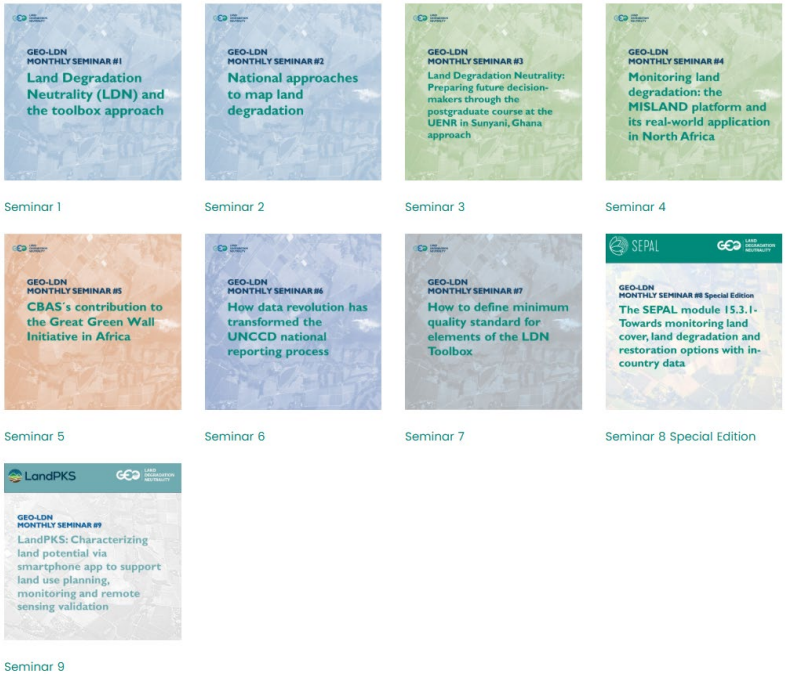
Reporting & Data Standards

- Decision trees in the GPG
- OGC Geospatial Reporting Indicators Standards Working Group (https://portal.ogc.org/files/107038)
  - Develop portfolio of open standards
  - Accelerate development and adoption of standards-based geospatial technologies
  - Initial focus on LDN

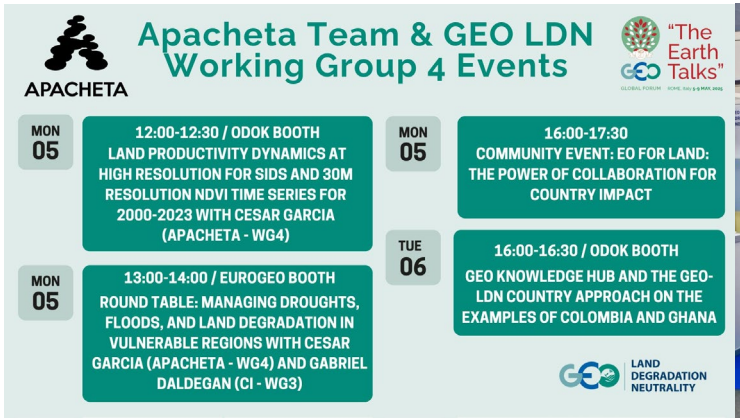


Capacity Development

- Postgraduate Programmes
  - University of Energy and Natural Resources, Ghana
- Monthly online seminars
- Global and Regional Dialogue Forums
- Online Support Sessions
- E-learning courses
- Regional Helpdesks

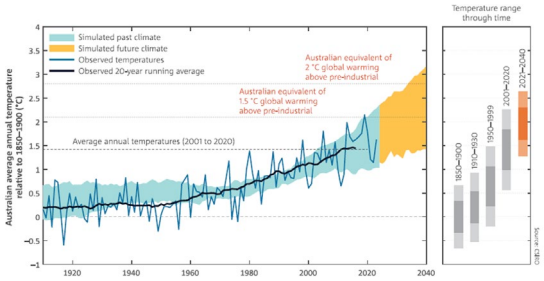


Decision Support



Challenges & opportunities

- Lack of consistent global land cover data
- Diversity of NPP methods
- Difficulty assessing SOC, absence of full C dataset
  - but see ESA Biomass
- Coarse resolution of default datasets
- Combining datasets of different frequency and resolution
  - Baseline and reporting periods
- Climate calibration
  - Attribution and forecasting



1. DETAILS OF SDG INDICATOR 15.3.1

INDICATOR	15.3.1 Proportion of land that is degraded over total land area
Target	15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world
Custodian Agency	United Nations Convention to Combat Desertification (UNCCD) **TIER** I

The UNCCD has defined three sub-indicators of SDG indicator 15.3.1: i) trends in land cover (Strategic Objective SO 1-1), trends in land productivity or functioning of the land (SO 1-2) and iii) trends in carbon stocks above and below ground (SO 1-3). With the Good Practice Guidance (GPG, Version 1.0, 2017 and Version 2.0, 2021), the UNCCD has established a universal methodology for reporting on SDG 15.3.1.

Approach

Indicator 15.3.1 reports the proportion of land that is degraded over total land area. 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" (UNCCD, 1994).

The total proportion of land that is degraded over total land area is given by:

$$P_n = \frac{A(degraded)_n}{\sum_i^m A(Total)}$$

https://ceos.org/document_management/Ad_Hoc_Teams/SDG-AHT/Support%20Sheets/SDG_15.3.1_EO_Support_Sheet_v2025_1.pdf

Key connection points

- Custodian agency
  - UNCCD for SDG 15.3.1 & LDN
- Funding bodies
  - GIZ, BMZ
- National focal points
  - GEO
  - United Nations
- Implementing actors
  - Public and private sector
    - Data, dataset development, training, industry advocacy, collaboration, planning, implementation

Thank you

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Land Degradation Neutrality