



Monitoring progress towards Sustainable Development Goals

The role of land monitoring

Authors: Erika Romijn¹, Martin Herold¹, Brice Mora¹, Stephen Briggs², Frank Martin Seifert², Marc Paganini²
¹ Wageningen University/GOFC-GOLD ² European Space Agency

Background

The United Nations adopted "**Transforming our World: The 2030 Agenda for Sustainable Development**" in September 2015. Comprising a set of 17 Sustainable Development Goals (SDGs) with 169 associated targets, the 2030 Agenda builds on the achievements of the Millennium Development Goals (MDGs). The 17 ambitious, universal and transformative Goals are interlinked and capture the **three pillars of sustainable development - economic, social and environmental**.

The aim is to achieve full implementation of the UN agenda for sustainable development by 2030, integrating the principles of sustainable development into country policies and programs. In order to reach these ambitious goals, progress needs to be made in the areas of reduction of poverty and inequality; economic growth and job creation; sustainable use of resources and restoration of ecosystems.

To monitor progress towards SDG targets, a number of indicators on measurable outcomes have been defined under the authority of the UN Statistical Commission. Remote sensing, and in particular **land monitoring**, can contribute to monitoring progress on SDG targets.

Objectives of GOFC-GOLD analysis

Within the scope of GOFC-GOLD land monitoring:

1. Identify which goals, targets and indicators *land use, land cover, land cover change, biomass and fire data* can support
2. Identify gaps and needs, in terms of data, *and* indicators

Conclusions

- **Land monitoring** contributes to many goals / targets / indicators, for some goals it is **essential**, and for some goals **complementary**
- SDGs require **operational programs** to assess **trends** for reporting performance (2015-2030)
- Current list of indicators can benefit from existing / future programs (i.e. goal **13 Climate action** & goal **15 Life on land**), however additional indicators are needed to monitor progress on specified targets
- Need for further **dialogue** between SDGs **indicator developers** and **scientific community** to assess gaps and further development of indicators
- **Key examples of existing / anticipated programs that can support monitoring:**

Datasets	Coverage of years	Temporal resolution	Spatial resolution
1 ESA Land Cover CCI (22 classes)	2000, 2005, 2010, 2015	Every 5 years; Annual from 2017 onwards	300 m
2 Globeland30 (10 classes)	2000, 2010	10 years	30 m
3 Hansen et al., 2013. High-Resolution Global Maps of 21st-Century Forest Cover Change.	2000 - present	Annual	30 m
4 Copernicus European Earth monitoring program - Global Land Service (GIO-GL)	2015 onwards	Annual	1 km & 300 m
5 ESA Globbiomass	2000-2015	Reference year = 2010	150-500 m
6 Pekel et al., A Global 30m Water Occurrence Dataset (expected)	1985-2015 (expected)	Monthly	30 m

Sustainable Development Goals



17 goals, 169 targets, 230 indicators*¹

Datasets essential for monitoring goals/targets

Datasets complementary for monitoring goals/targets

We define land data as **essential** when they are the primary data source to monitor goals and targets.

We define land data as **complementary** when other types of data are used as primary data source, or when they can be used for aggregation/disaggregation analyses for example.



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The role of land monitoring

Importance of land use, land cover, land cover change, biomass and fire data to monitor SDG targets/goals, with the current indicators in place

SDGs		Land Use data	Land Cover data	Land Cover Change data	Biomass data (AGB)	Fire data (Active fires, burnt areas)
2 Zero hunger						
6 Clean water						
9 Industry						
11 Cities						
12 Consumption & production						
13 Climate action		X	X	X	X	X
14 Life below water						
15 Life on land		X	X	X	X	X

Importance of data:

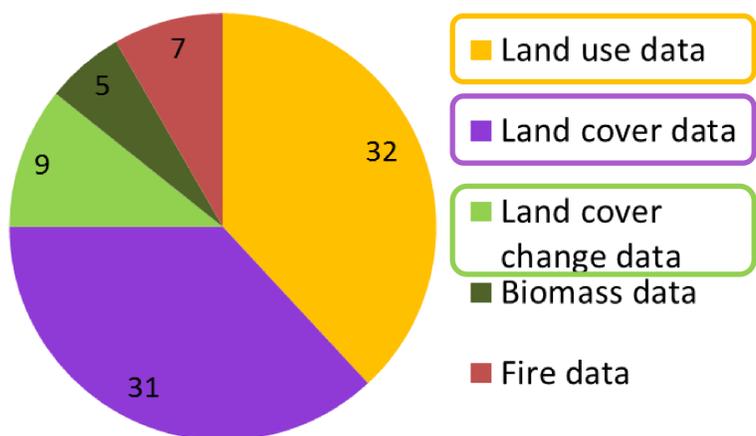
Essential	some essential / some complementary	Complementary	Not relevant

Gaps for indicators:

The **X** in the table indicates that LU, LC or other data are essential to monitor targets and goals. However, the indicators that are currently listed for Goal 13 (Climate action) and Goal 15 (Life on land) are not sufficient to report progress on specific targets. Additional indicators are needed and proposed data streams can inform them.

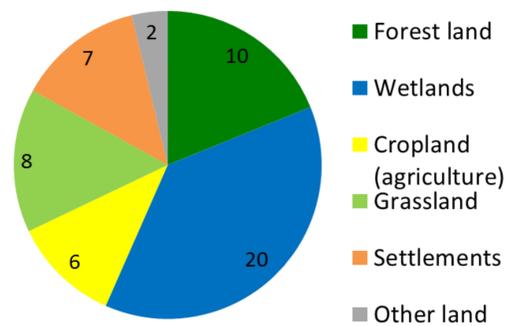
Summary of spatial data requirements for monitoring of current SDG targets/goals

Thematic categories of data needed for monitoring targets/goals

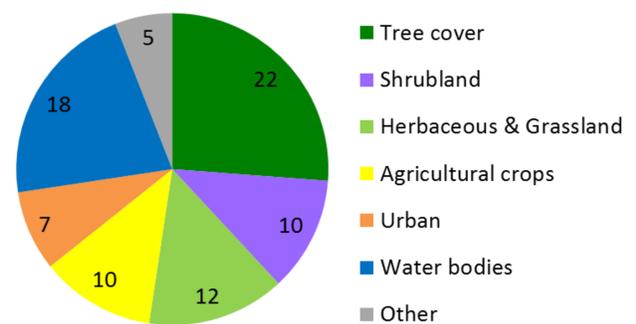


Our assessment shows that land monitoring provides important data (essential or complementary) to monitor SDGs targets. Land Use data are most needed (for 32 indicators), closely followed by Land Cover data (31 indicators), and Land Cover Change data (9 indicators). Biomass data and Fire data are of less demand, but they are essential for goals 13 and 15. From Land Use data, the subcategories "Wetlands", "Forest Land" and "Grassland", as well as "Settlements" and "Cropland" provide data for many indicators. High spatial resolution data (<30 m or 30-100 m) are necessary to monitor progress in achieving Sustainable Development Goals.

Land Use data subcategories



Land Cover data subcategories



Land Cover Change data subcategories

