

LARGE-SCALE EXPLOITATION OF SATELLITE DATA IN SUPPORT OF INTERNATIONAL DEVELOPMENT

→ LAND DEGRADATION ASSESSMENT

EO data provide synoptic, continuous and homogeneous views to monitor land degradation: from mapping land degradation drivers such as for instance land use and land use change, to assessing actual land degradation status, to identifying areas with higher susceptibility and land degradation. The service makes use of different resolution data in order to map land use and its changes at different scales to connect the regional dimension with national and local processes.

Land degradation conditions can be measured by a change in net primary productivity (NPP), whose EO proxies are vegetation indexes proportional to vegetation density, like the Normalized Difference Vegetation Index (NDVI). A Land Degradation Index can be obtained from a ratio of the NPP proxy (NDVI) to climate data (temperatures and precipitation) by exploiting a model (e.g. RUE – Rain Use Efficiency). Finally, identification of areas more prone to land degradation (Indicator of susceptibility to land degradation) takes into account soil degradation, land cover changes and climate dynamics over time.

Determine extent and magnitude of land degradation

The land degradation assessment service provides spatial information of long-term change in vegetation cover to identify hotspots of major decrease or increase in land productivity. It is important to rely the assessment on long term observations because the processes behind degradation are generally slow. Once hotspots of change have been identified, they can then be further explored at local scale with more detailed EO information and expert knowledge as a basis for prioritizing both preventive interventions for the restoration or reclamation of degraded land and subsequent focal ground-based studies.

The combination of productivity change maps with other satellite-based information products, such as land cover/use change, carbon stock change or other supporting climatic and biophysical variables allows for a comprehensive assessment of the status of the land and follows the UNCCD Framework for land degradation indicators. The service can be extended with the land degradation monitoring service to follow short-term changes in vegetation productivity at a regular basis, for instance to evaluate the impact of interventions.



DESCRIPTION

Mapping of status and trends of land degradation indicators

USE

- › Baseline mapping
- › Identify hotspots of change
- › Decision support for interventions

INPUT PRODUCTS

Depending on assessment

- › Land productivity status and long term change
- › Land cover and land cover change
- › Carbon stocks
- › Other land status indicators include land surface temperature, evapotranspiration, precipitation, soil moisture, terrain slope, erosion potential, protected areas, habitat heterogeneity, burnt areas, water bodies and so on.

SPATIAL RESOLUTION AND COVERAGE

Local to regional, based on long-term (decadal) time-series with spatial resolution between 30 m and 8 km, depending on the scope of the assessment. The assessments of hotspots is based on high resolution data, in-situ data and local interpretation

BENEFITS

Improved strategy and decision making:

- › Large scale overview of trends and extent of degradation indicators
- › Prioritize actions
- › Improved understanding of the context of land degradation
- › Linking of multiple indicators for a comprehensive assessment

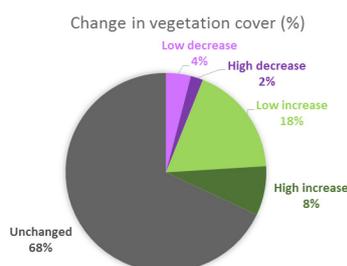
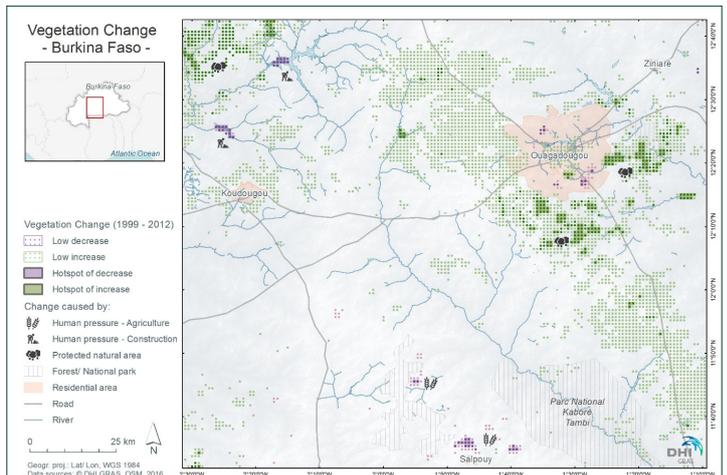
DELIVERY FORMAT

Depending on user needs:

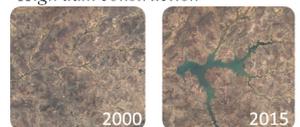
- › Vector and raster formats for integration into existing management systems
- › Statistics in tables and/or graphs

FREQUENCY

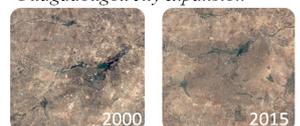
- › Annual, seasonal



High dam construction



Ouagadougou city expansion



For more information, please contact:

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