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

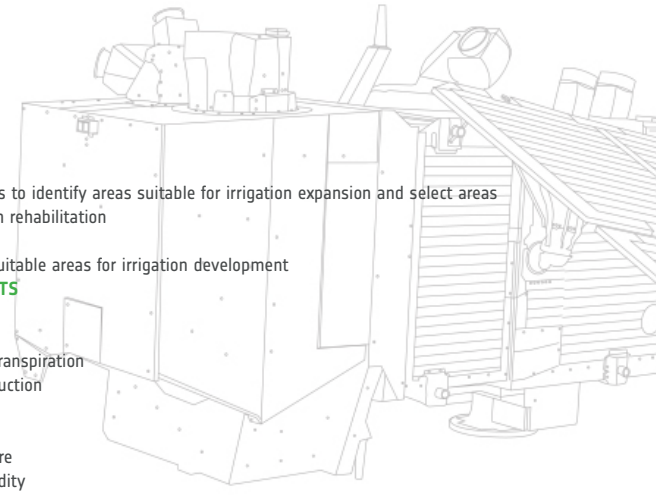
→ IRRIGATION DEVELOPMENT SERVICE

Satellite Earth Observation (EO) technologies provide a low cost methodology to plan irrigation development. It helps in selecting target areas for irrigation development by quantifying water stress and identifying under-performing areas in both rainfed and irrigated agriculture. Once areas have been selected, EO data can assist in determining land and irrigation suitability as well as (potential) impact of irrigation development on the water balance.

Suitable areas for irrigation development and their potential

The presence of green vegetation during the dry season and its temporal variation is a good indicator of irrigation activities, especially when actual evapotranspiration exceeds rainfall. Maps of actual evapotranspiration, water deficit and water productivity help to quantify irrigation performance. Actual evapotranspiration data gives spatial insight in water distribution within an entire irrigation system. The transpiration deficit is the difference between actual and potential evapotranspiration and shows the occurrence of water stress. Water productivity data shows the production per unit of water ('Crop per Drop') and is a measure of water use efficiency.

Earth Observation is also helpful to identify which areas are suitable for new irrigation activities and the impact on the water balance. In the example for the Tana-Beles catchments in Ethiopia maps of land degradation, slope and protected areas constraints are combined with maps on crop suitability (taking into consideration soil and climate), resulting in a map depicting the ideal crop and irrigation type (the irrigation suitability map).



DESCRIPTION
This service helps to identify areas suitable for irrigation expansion and select areas needing irrigation rehabilitation

USE
› Selection of suitable areas for irrigation development

INPUT PRODUCTS
› Irrigated area
› Land cover
› Actual evapotranspiration
› Biomass production
› Elevation
› Soil maps
› Air temperature
› Relative humidity
› Precipitation

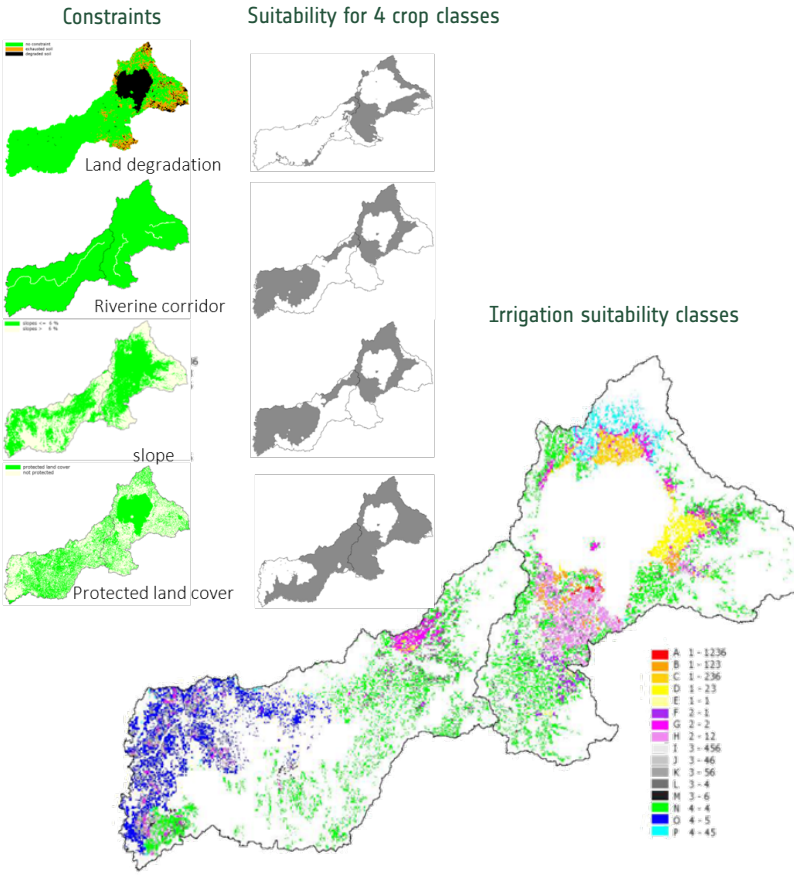
SPATIAL RESOLUTION AND COVERAGE
From local (field-level) up to regional scale (irrigation scheme level)

BENEFITS
Add spatial detail to irrigation rehabilitation and irrigation expansion plans at low costs

DELIVERY FORMAT
Depending on user needs, e.g.:
› Vector and raster formats

FREQUENCY
› Single date for selected baseline year(s), longer time series for the weather data

Irrigation potential in the Tana-Beles catchment



eo4sd earth observation for sustainable development

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