

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

### → RURAL INFRASTRUCTURE & SUPPLY CHAIN MAPPING

Rural infrastructure mapping helps to devise policies and programs to meet specific rural development and market access objectives. It can support the assessment of needs in rural infrastructure investments, and identification of lagging / underdeveloped areas - future breadbaskets - if investment in infrastructure is stimulated.

Satellite Earth Observation (EO) is a powerful technique to map rural infrastructure assets and physical supply chain infrastructures such as the road network and other transport infrastructure, storage facilities, markets and irrigation schemes. Analyses enhanced with local data can provide information on travel times to market centers or support emergency planning in case of natural hazards, such as floods.

The service consists of maps identifying the road networks as well as other transport and critical agriculture infrastructure elements (like irrigation systems). Land cover and use maps focus on agricultural production centers, rural settlements, and potential markets, as well as indicators resolving distance to markets (e.g. travel time from production or storage facilities) which are used for supply chain assessments. Also, the impact of rural infrastructure investments can be identified by mapping land cover change related to new developments including impact on settlements growth or ecosystems degradation. Furthermore, maps assessing the risk of infrastructure to e.g. floods can be provided, including satellite based terrain information.

The service typically consists of the original maps in raster or vector format for easy integration within existing GIS systems and/or webportals. It is also possible to receive the service (maps and analytical tools) in a webportal. Furthermore summaries of information, such as statistics per administrative unit, can be provided in tables or graphs and included in email reports.

#### DESCRIPTION

Mapping of rural infrastructure helps to enhance rural-urban linkages and access to markets. This service provides spatially explicit analytics of land use and natural resources distribution (e.g. settlements, roads, cropland, forest, energy sources) in relation to the transport network as well as irrigation schemes

#### USE

- › Planning
- › Assessment of rural infrastructure status and change
- › Assessment of the impact of irrigated areas development
- › Access to infrastructure and travel times to assets
- › Evaluate impact of investments

#### INPUT PRODUCTS

- › Rural infrastructure (roads, settlements, rivers, waterbodies)
- › Distance to markets (e.g. travel time) from production / storage facility
- › Land cover/use
- › Infrastructure risk assessment (e.g. flood) based on terrain information
- › Irrigation infrastructure

#### SPATIAL RESOLUTION AND COVERAGE

Local/national (10-30m) scale

#### BENEFITS

- Improved strategy and decision making:
  - › Prioritize investments
  - › Select and upscale successful rural investments
  - › Improved understanding of the rural – urban linkages and value chain
  - › Monitor rural development activities more effectively and efficiently

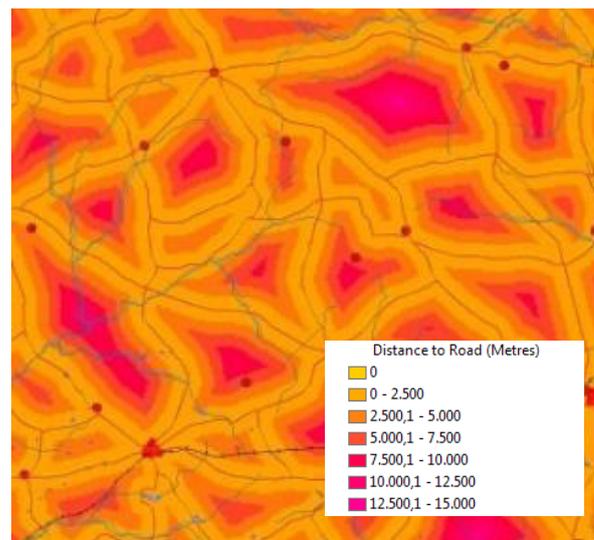
#### DELIVERY FORMAT

Depending on user needs, e.g.:

- › Vector and raster formats
- › Printable maps
- › Through a web portal
- › Statistics in tables and/or graphs

#### FREQUENCY

Depending on user needs, most products can be updated regularly (user define time intervals)



The distance to a road can be calculated for each location, allowing to e.g. further calculate travel times between important supply chain locations. Credits: GeoVille