



eWORKING WEEK 2021 20-25 JUNE
SMART SURVEYORS FOR LAND
AND WATER MANAGEMENT
CHALLENGES IN A NEW REALITY



Sustainability, Land Tenure and Land Administration

Meeting the Needs of Sustainable Land Management (SLM) in Africa Through Utility of Open-source Geospatial Infrastructure for Urban Growth Assessment

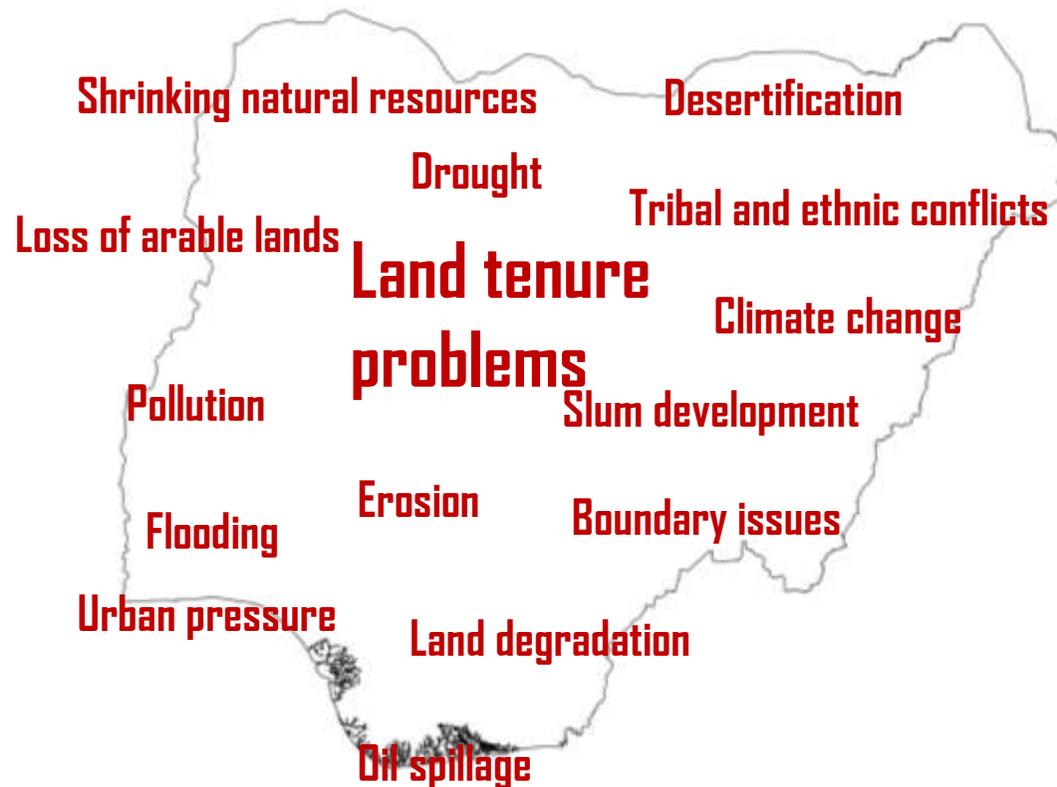
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Introduction & Background

- **The current pressure on land is disproportionate to sustainable land resources use and management**



Introduction & Background

- **The current pressure on land is disproportionate to sustainable land resources use and management**
- **Archaic inflexible land tenure system, and worrisome bureaucracies in land acquisition and registration**
- **Not all the places within the region have effective and efficient Multipurpose Cadastre**
- **lack of data to delineate accurately the actual status of land resources in the region and to predict future scenarios vis-à-vis increasing human population and climate vagaries**



Research Focus



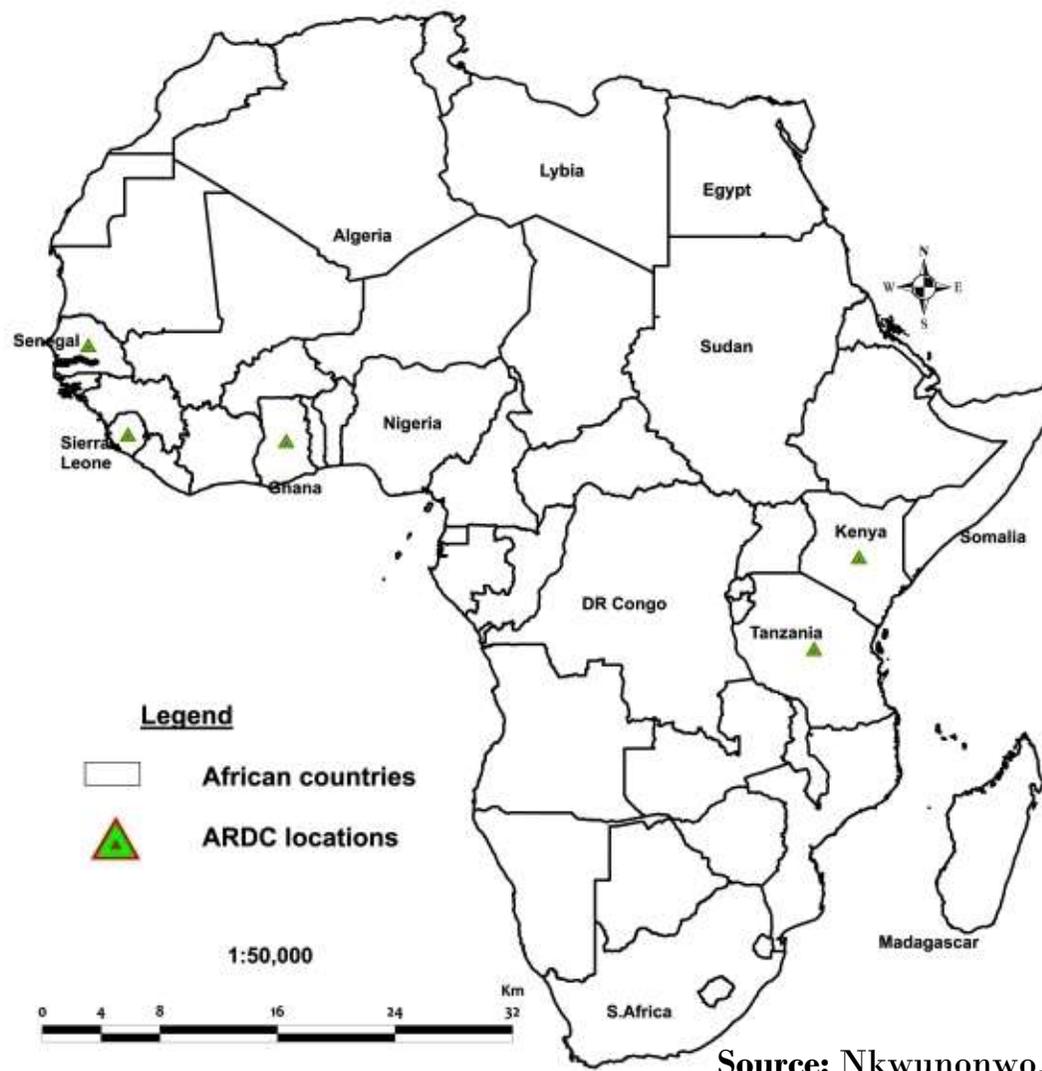
Available Open Source Geospatial Resources

The collage features several prominent web interfaces and data portals:

- ArcGIS Open Data**: Includes navigation for Documentation and GeoNet, with a search bar and user options like Sign In and My Data.
- GeoNetwork**: A portal for finding and analyzing geo-spatial data, featuring a search bar and a 'Show map' button.
- OpenStreetMap**: The open-source map project, showing a search bar and a 'Where am I?' button.
- Open Topography**: A platform for topographic data, displaying a 3D terrain visualization.
- TerraPop**: A data processing tool with a 'Select Desired Data Output Type' interface. It offers three options: Microdata Output, Area-level Output, and Raster Data Output. A central diagram shows a circular flow between Microdata, Raster Data, and Area-level Data, with text stating: 'TerraPop lets you mix and match variables originating in any data structure. Obtain output in the data structure most useful to you.'
- NASA Earth Observations (NEO)**: A portal for NASA's Earth observation data.
- WE MAPS**: A platform for maps, including a search bar and a 'Schedule' button.
- Socioeconomic Data and Applications Center**: A center for socioeconomic data, featuring a 'Theme - Water Resources and Consumption' section and a map interface.
- Map of San Francisco**: A map showing a red-shaded area, likely representing a specific geographic region or data overlay.

FIG 2021 – Sustainability, Land Tenure and Land Administration

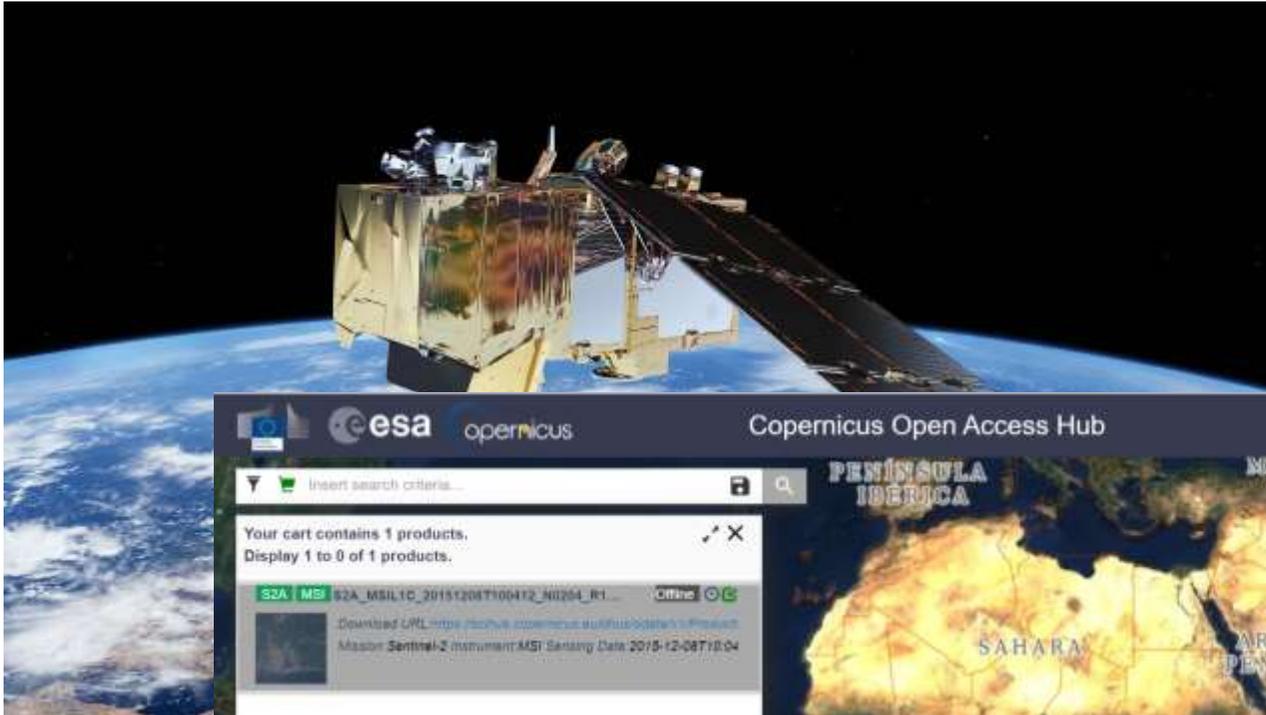
African Regional Data Cube



Source: Nkwunonwo, U.C. (in Press)



Sentinel – 2 Satellite Imagery



- Twin satellites aimed to provide continuity for SPOT and LANDSAT-type image data
- Sponsor: European Space Agency Copernicus program
- Payload: Multi-spectral with orbit, and high revisit days at the with is 290

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Major Challenges

1. Knowledge about the availability, source, and access of open-source geospatial datasets is still poor in Africa

2. Internet of things (IoT) to effectively support access, storage, manipulation, sharing and collaboration is lacking

3. Institutional and technical capacity to optimise open-source geospatial resources and bypass inherent technical challenges is still lacking



Thank you

**Thank you
for
listening!**

