

Land resources assessment based on remotely sensed data and land use management for agriculture in a digital era

Vyacheslav BOGDANETS
National University of Life and Environmental Sciences,
Kyiv, Ukraine

Successful R&I in Europe 2026: 13th European Networking Event
Food, Bioeconomy, Natural Resources, Agriculture and Environment

The project idea is interdisciplinary and covers agricultural and digital domains. Draft project acronym: **LUCID**: (**L**and **U**se **C**oordination through **I**ntegrated **D**igital assessment).

Objectives:

- up-to-date multiscale *land resources assessment* in easy accessible digital form tailored for EU countries and Ukraine with focus on environment, effectiveness and SDGs;
- *community-specific agricultural land use with early warnings* on risks and challenges based on reliable calculated scenarios aimed to sustainability and EU agricultural policy;
- *land administration AI algorithms* with constant update of remote sensing data and land monitoring.

The main benefit - to strengthen land administration focused on agricultural land use through land assessment and digital land use management with AI, RS and GIS.

There's already some projects and startups in GeoAI using Copernicus data (EO4EU, AI4EU, AI4Copernicus, VITO RS, CORAMaps, DSE, etc.)

The main difference of the proposed idea — land assessment and land allocation for a sustainable agricultural land management in a digital era for the EU and Ukraine.

Remote sensing of LandUse/LandCover (LULC) for land monitoring and land use modelling, involving geospatial artificial intelligence (GeoAI) for land assessment and administration, gives a basis for a fair and clear *agricultural land use allocation and landscape sustainability*.

GeoAI brings new correlations and insights to decision-makers using big data on land use (~25 Tb of total data daily in Copernicus), **identifying patterns and challenges earlier**, combining remote sensing data (Copernicus Hub, etc.) with geospatial and statistical data on agricultural land use, crops, land cadastre and soil cover.

Types of expected participants

- **University/research institution** — labs with background in land use study, agricultural policy, environmental monitoring and landscape research;
- **Land administration bodies** (state or commercial), incorporating spatial data infrastructures and INSPIRE principles;
- **Enterprises** in agricultural land assessment, land surveying, and land monitoring;
- International / global **EU organizations, associations, NGOs** in the field of geospatial data and agricultural/land use policy.

Roles of expected participants

- **Project management and budget;**
- Agricultural policy, land monitoring, and **land use experts** to participate in project design and **validate AI results;**
- **Data science specialists** for retrieving, preprocessing and analysis of data from Copernicus Land Monitoring portal and other sources;
- **IT-specialists** with focus on deep learning, **generative AI and geospatial AI;**
- **Networking, communication, media;**
- Verification, **dissemination and capacity building** for expanding the results obtained.

Background and personal expertise

- Soil science and agricultural science major (BSc, MSc, PhD)
- Agricultural land use mapping and modelling
- Geomatics expertise and QGIS user since 2008
- Remote sensing data processing and classification (Landsat, Sentinel, SuperDove, ...), landscape analysis and environmental research using GIS and remote sensing data for over 17 years.
- Vice-dean on internationalization for the Land management faculty of the National University of Life and Environmental Sciences of Ukraine

Email: v_bogdanets@nubip.edu.ua **site:** <https://nubip.edu.ua/en>