

Submitted to United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM)

## **Country Report of Ukraine – 2018**

Towards digitalization, e-government  
and geospatial initiatives

*prepared by the State Service of Ukraine for Geodesy, Cartography and Cadastre*

Content:

## Introduction

1. State Service of Ukraine for Geodesy, Cartography and Cadastre (StateGeoCadastre)
2. Key achievements of StateGeoCadastre
  - 2.1 Surveying and Mapping
  - 2.2 State Land Cadastre development
  - 2.3 Land management & land market
3. National Spatial Data Infrastructure (NSDI) in Ukraine
  - 3.1 Legislative background
  - 3.2 Operational model
  - 3.3 Standards
  - 3.4 Institutional arrangements
  - 3.5 Initiatives and implemented projects
4. International cooperation

## **Introduction**

Being one of the biggest countries in Europe, Ukraine in the same time is considered to be one of the youngest democracies in the newest history.

1/3 of European black soils are concentrated in Ukraine granting the country one of the greatest potentials in land relations and agriculture.

After receiving the independence in 1991 a comprehensive reforming process started in each sphere of the country. In 2014 Ukraine signed the Association Agreement with the EU which determined the European vector of development for the country.

Land reform in Ukraine started in December 1991 and is aiming on titling of the agricultural lands of former collective farms and establishment of open and transparent land market in Ukraine.

In 2013 as a result of the World Bank project the biggest digital cadastral system of Europe was launched ([www.map.land.gov.ua](http://www.map.land.gov.ua)). As of now this system is containing information about 20 million of land parcels over the country. New online available services are being introduced supporting e-governance and digital economy.

Development of geospatial information and National Spatial Data Infrastructure (NSDI) establishment are also ambitious goals of the StateGeoCadastre.

This report illustrates results of initiatives and key achievements in the sphere of land relations, surveying and geospatial information in Ukraine, addressing key challenges and future plans for NSDI creation in the nearest future.

## **1. State Service of Ukraine for Geodesy, Cartography and Cadastre.**

State Service of Ukraine for Geodesy, Cartography and Cadastre (StateGeoCadastre) is a central executive authority of Ukraine that is mandated for implementation of state policy in such domains as:

- Topography, geodesy and mapping,
- Land relations,
- Land management,
- Control for land use and land protection,
- State Land Cadastre,
- National Spatial Data Infrastructure,
- Provision of administrative services.

StateGeoCadastre is coordinated by the Cabinet of Ministers of Ukraine via Minister of Agrarian Policy and Food of Ukraine.

StateGeoCadastre has a wide representation all over the country with the network of its 24 territorial departments (representation in each oblast). The total amount of staff all over the country is about 10 000, including 2000 of state registers that are responsible for registration of new land parcels in the State land cadastre system.

There is also a number of state enterprises (topographic / geodetic enterprises and land management institutes) and State Land Cadastre Centre, that are coordinated by StateGeoCadastre, perform technical works and are responsible for production.

## **2. Key achievements of StateGeoCadastre.**

### *2.1 Surveying and Mapping*

Surveying and mapping activities in Ukraine are conducted with utilization of modern digital methods, satellite technologies of Global navigation satellite systems (GNSS) - NAVSTAR, GALILEO, and GLONASS.

Global geodetic reference system WGS-84 was approved by Cabinet of Ministries of Ukraine for utilization on the whole territory of the country from 1999.

On January 1<sup>st</sup> 2007 the State Geodetic Reference System USC-2000 became mandatory for all topographic, geodetic and mapping activities.

While participating in the international research (e.g. geodynamics and seismic processes, Earth surface investigation) and also for space and transport spheres the international terrain reference system (ITRS) is utilized.

In 2017 the quasi-geoid model for the territory of Ukraine was created according to the USC-200 reference system and Baltic heights system as of 1977. It gave the possibility to identify the heights of geodetic points of State Geodetic Network and terrain objects utilizing the GPS-leveling methods.

StateGeoCadastre continues the modernization of State Geodetic Network that enables utilization of the USC-2000 coordinate system – the single high-precision coordinate base for fundamental and profile geospatial data of NSDI.

In May 2019 Ukraine became the member of the European levelling network / European vertical reference system 2000 that already includes 29 countries.

Full digital photogrammetric technology for processing of aerial and space images and for production of digital ortho-images was introduced (software for digital photogrammetry, digital photogrammetric station «Delta» with high precision digital scanner). This allows supporting the full working process starting from triangulation to formation of maps, ortho-photoplans and ortho-photomaps.

In 2017 StateGeoCadastre completed the creation of digital data base of geographical objects of Ukraine – State Registry of Geographical Names of Ukraine. This registry contains 100 000 of standardized geographical names (both in Ukrainian and Latin alphabets) of settlements, administrative-territorial units, physical, geographical and social-economic objects.

The database contains information according to the following structure (46 overall indicators):

- Registration number,
- Standardized name of geographical object in Ukrainian and Latin,
- Kind of geographical object,
- Administrative status (for settlements),
- Administrative-territorial reference,
- Geographical coordinates (latitude and longitude),
- Information on re-naming of the geographical object,
- Historical names, etc.

Forming of the State Registry of Geographical Names data base was done according to the administrative units of Ukraine (Autonomous Republic of Crimea, Sevastopol and Kyiv cities, oblasts, cities, village councils) on the basic map in scale 1:1 000 000. The information from the Registry is considered to be updated according to the official information

## *2.2 State Land Cadastre development*

Created with support of the World Bank in 2013 State cadastral system ([www.land.gov.ua](http://www.land.gov.ua)) is considered to be one of the most visited public sources in Ukraine. In 2018 it was visited by 1.7 million of unique users. StateGeoCadastre registered 1.2 million of new land parcels and issued 1.2 million of extracts from State Land Cadastre in 2018. In total there are about 20 million land parcels registered in the system, meaning that 73% of all lands (state, private and communal ownership) have been properly registered.

Starting from 2015 StateGeoCadastre introduced a number of e-services: online application for extract from State Land Cadastre, request on personal information about the owners of land parcels, online registration of land parcels, online extracts on normative land valuation. In 2018 StateGeoCadastre issued 1.24 mln extracts from State Land Cadastre (19.7 % - in digital form via e-service).

As of now State land cadastre is a modern, digital system with convenient authentication for users (Digital signature, BankID, MobileID). The access to the system was given to anticorruption bodies, police, fiscal service, local authorities, centres for administrative services, notary officers and land surveyors.

## *2.3 Land management & land market*

At the moment the moratorium for sale and purchase of agricultural lands is introduced in Ukraine.

StateGeoCadastre jointly with Ministry of Agrarian Policy and Food of Ukraine have been working on preparing the necessary infrastructure for land market launching:

Monitoring of land relations was initiated (including a number of key indicators on the level of district that are proceeded from StateGeoCadastre, Ministry of Justice, State Agency of Water Resources, State Statistic Service, State Fiscal Service and State Court Administration);

Initiated the transfer of lands to conglomerated territorial communities. In line with the decentralization reform 1.47 mln of ha of agricultural lands were transferred to the ownership of 648 conglomerated territorial communities.

StateGeoCadastre is active in organization of auctions for lease rights for the state-owned lands. In 2018 the total area of leased lands via auctions is more than 64.1 thousand ha that already have accumulated 219.8 million UAH income to the local budgets.

Starting from 2018 the according to the Resolution of the Cabinet of Ministers StateGeoCadastre is working to launch land e-auctions pilot project.

In total in 2018 (starting from 18<sup>th</sup> of October) with utilization of online auctions rights for 191 land parcels were leased.

In 2018 StateGeoCadastre finalized the national normative monetary valuation of agricultural lands having updated the normative value of 35 mln ha. This information is essential for taxation and identification of the lease rate. As a result of this work online portal of normative monetary land valuation was launched (<https://ngo.land.gov.ua/>). After launching the portal StateGeoCadastre has already issued 1.5 mln extracts on normative monetary land valuation online.

In 2017 StateGeoCadastre also introduced a new initiative that was aimed to increase transparency in land management - "extraterritorial approval of land management documentation". Main goal of this initiative is to avoid direct contact between the land management documentation developer and officer who is responsible to approve it. Documentation is uploaded to the system and randomly is assigned to the officer from any of 24 regional departments of StateGeoCadastre. It facilitates transparency and eliminate corruption risks.

### **3. National Spatial Data Infrastructure in Ukraine**

#### *3.1 Legislative background*

Legislative background for NSDI remains one of the most important issues for further development in Ukraine. Right after adoption of the EU INSPIRE Directive in 2007 the Cabinet of Ministers of Ukraine approved the Concept of NSDI Law by its Resolution.

Starting from that time several attempts to adopt the NSDI act were done, but none of it was successful due to political instability (elections to the Parliament, changes of the Cabinet of Ministers of Ukraine).

In the same time in national legislation there are the following legal acts that indirectly regulate the geospatial information issues:

The Law of Ukraine "On Topographic, Geodetic and Cartographic activities" (as of 1998) mandates the StateGeoCadastre for creation, development and operation of National Spatial Data Infrastructure in Ukraine;

The Law of Ukraine “On geographical names” (as of 2005) established the legal framework for names of geographical object and its registry, maintenance and indication;

The Law of Ukraine “On National program of informatization”;

The Law of Ukraine “On State Land Cadastre”;

The Law of Ukraine “On Regulation of city-building documentation”;

The Law of Ukraine “On State registration of property rights for immovable property”;

The Law of Ukraine “On environmental protection”;

The Law of Ukraine “On Natural Reserve Fund of Ukraine”;

The Law of Ukraine “On Standardization”;

The Law of Ukraine “On Space activities”.

In 2018 StateGeoCadastre via Cabinet of Ministers submitted the draft NSDI Law to the Parliament of Ukraine and it is being discussed by the Parliament Committees.

### 3.2 *Operational model*

Key principles of NSDI Draft law and NSDI operational model are based on the best EU MS approaches and INSPIRE Directive, taking into account some national specific issues that are typical for Ukraine as post-soviet country.

According to the operational model the following NSDI key players are indicated:

Cabinet of Ministers – to approve the methodology;

Ministry of Agrarian Policy and Food – to form the NSDI policy;

State Service of Ukraine for Geodesy, Cartography and Cadastre – for implementation of the NSDI policy;

State Enterprise under StateGeoCadastre – for administration of NSDI (e.g. fundamental data, metadata), data interoperability and sharing, providing services;

Other state and private data holders – for profile data sharing and providing services.

The following key data holders and will be involved to the NSDI development and operation: StateGeoCadastre (topographic and geodetic materials, land management documentation, State Land Cadastre data), Ministry of Regional Development and Housing of Ukraine, Ministry of Ecology and Natural Resources, State Agency of Water Resources, State Agency of Forest Resources, State Emergency Service, Ministry of Infrastructure, Ministry of Culture of Ukraine, Ministry of Health, State Service of Statistics.

### 3.3 *Standards*

According to Ukrainian legislation standards are mandatory if they are referenced in the normative act (e.g. Law, Regulation or Order of the Ministry). Development of Ukrainian standards in the matter of geospatial information was done in accordance with ISO standards.

According to the Program of harmonization and implementation of international standards ISO 19100 «Geographical information/Geomatics» in Ukraine the national standard of Ukraine ISO 19101:2009 «Geographic information. Standard model» was adopted in 2009.

National authority for standardization adopted such national normative documents:

in 2017 14 national standards of ISO 19100 «Geographic information / geomatics» were adopted and harmonized with European and international normative acts;  
 in 2018 national standards of Ukraine 8774:2018 «Geographic information. Rules for geospatial data modelling».

### 3.4 *Institutional arrangements*

INSPIRE directive foresees the Coordination body to be established in each Member State consisting of the key NSDI players. Establishment of such NSDI coordination group is foreseen in the draft law on creation of National Spatial Data Infrastructure.

As a temporary decision, until the draft law is not voted, the SubGroup on NSDI coordination was established under the Ministry of Agrarian Policy and Food of Ukraine. The following participants were included to the mentioned subgroup:

StateGeoCadastre;  
 Ministry of Agrarian Policy and Food of Ukraine;  
 Ministry of Defense;  
 Ministry of Natural Resources;  
 State Space Agency;  
 State Forest Agency;  
 State Statistics Service;  
 State Energy Efficiency Agency;  
 State Agency for Emergency situations.

During the meetings participants agreed to coordinate the work in geospatial domain, to consult on the policy documents and to exchange ideas on further NSDI development.

### 3.5 *Initiatives and implemented projects*

The following activities, related to NSDI were completed in Ukraine:

1. Ukrainian-Swedish Project On facilitation of conditions for NSDI development in Ukraine (2000-2003) that facilitated development of geo-informational systems.

2. The following data were created for the territory of Ukraine:

in scale 1:500 000 for EuroGlobalMap and GlobalMap

in scale 1:200 000 as base for geo-information systems of state and regional level  
 in scale 1:10 000, 1:5 000 1:2 000 for big cities for city-building and land cadastre.

3. The following geo-portals were launched as a part of NSDI since 2012:

State Geodetic Reference Frame (<http://dgm.gki.com.ua>) for access to metadata and information about State geodetic points. Geo-portal was updated in 2015 with the possibility of coordinates' transformation;

Public cadastral map (<http://map.land.gov.ua/kadastrova-karta>) as an information source about land parcels (owners, size, form, ownership);

In 2017 geographical objects of Ukraine digital data base of State registry of geographical names was created.

Data from State registry of geographical names (in Ukrainian and Latin alphabet) is available at <http://land.gov.ua/info/informatsiia-pro-derzhavnyi-reiestr-heohrafichnykh-nazv/>.

7. Ukrainian-Canadian Project for experts in GIS “Laying the Foundation for a Spatial Data Infrastructure: Building Capacity within the Ukrainian Government to Support Sustainable Economic Growth” (2013-2018);

8. Several projects on NSDI development for the pilot territories were implemented:

in 2014 the NSDI pilot was created for the Fastiv district of Kyiv Oblast

in 2018 the NSDI prototype was developed for the Vinnytsia districts with support of JICA (<http://nsdi.land.gov.ua/>)

In 2018 StateGeoCadastre and Norway Mapping Authority signed the Agreement to implement the Project that is aimed on (i) creation the digital base map for Ukraine in scale 1:50 000 and (ii) development of state-owned GNSS network. It is planned that the created base map will be utilized as a fundamental map for all data holders to reflect the profile data.

#### **4. International Cooperation**

For the recent years we have established a wide range of international cooperation that may be structured as following:

##### *Membership in international organizations*

StateGeoCadastre remains an active member of Eurogeographics, supporting and providing data to EuroGlobalMap and EuroBoundaryMap and participating in the KENs under the umbrella of the Association. In 2018 the First Deputy Chairman of StateGeoCadastre was elected to the Eurogeographics Management Board.

StateGeoCadastre participates in the events under International Cartographic Association (ICA) and provides national reports on cartography to ICA.

Experts from StateGeoCadastre are active participants of UN-GEGN, UN-GGIM and UN-GGIM: Europe

##### *Implementation of donor-funded projects*

For the recent years the following projects were initiated and successfully implemented in Ukraine with support of international donor community:

- 1) The World Bank Project on Rural Land Titling and Cadastre System (2004 - 2012)
- 2) The EU Twinning on Agricultural Land Market (2014 - 2016)
- 3) The World Bank Project on Evidence-Based Policy Development in Agriculture and Land Relations (2014 - 2017)
- 4) JICA Project on NSDI Prototype Creation (2015 - 2018)
- 5) FAO Project on Voluntary Land Consolidation (2016 - 2018)
- 6) Kartverket Project on GNSS network and Digital Base Map creation (2018 - 2020)
- 7) EU Project on Transparent Land Management in Ukraine (2018 - 2022)

##### *Participation and hosting of international events*

Experts from Ukraine presented the achievements of StateGeoCadastre during a number of events both in Europe and worldwide.

Five international conferences dedicated to INSPIRE and geospatial information were held in Ukraine for the last 5 years with speakers from Joint Research Centre, EuroGeographics, UN-GGIM: Europe, Norway, Sweden, Finland, Latvia, Lithuania, Belarus, Germany, Poland, France, Slovenia, Croatia, Romania and Moldova.