Evolution and development of National Spatial Data Infrastructure in Republic of Moldova

Alexandru Morcov
Deputy general director ALRC
Chisinau, R. Moldova, 08 September 2015
Important steps and realizations
Identifying problems

- lack of a central public authority responsible for spatial data policy;
- lack of legislative framework;
- lack of a national coordinate system (open);
- lack of a single national registry of real property registration;
- lack of digital spatial data;
- lack of data sharing between stakeholders;
- no open data, etc.
PREȘEDINTELE
REPUBLICII MOLDOVA

DECRET

cu privire la înființarea Agenției Naționale pentru
Geodezie, Cartografie și Cadastru

nr. 230 din 27.06.94
Monitor nr.6/94 din 30.06.1994

**

În scopul asigurării economie naționale cu producție topografo-geodezică și cartografică și al creării Fondului de Stat Cartografo-Geodezic și a bancii de date pentru cadastralele specializate de stat,
Președintele Republicii Moldova decretează:

Art.1. - Se înființează pe îng Guvern Agenția Națională pentru Geodezie, Cartografie și cadastru ca
organizație republicană de stat specializată.

Art.2. - Se stabilește că administrarea Agenției Naționale pentru Geodezie, Cartografie și Cadastru este
exercitată de directorul general, numit în funcție și eliberat din funcție de către Guvern.

Art.3. - Guvernul:
in termen de zece zile va aproba structura și funcțiile de bază ale Agenției Naționale pentru Geodezie,
Cartografie și Cadastru;
in termen de o lună va aproba Regulamentul Agenției Naționale pentru Geodezie, Cartografie și Cadastru;
va lua măsurile necesare pentru a asigura buna funcționare a Agenției Naționale pentru Geodezie, Cartografie
și Cadastru;
va aduce actele sale normative în corespondere cu prezentul Decret și va prezenta propuneri privind
modificarea și completarea legislației în vigoare.

Art.4. - Prezentul Decret intră în vigoare la data semnării.

PREȘEDINTELE REPUBLICII MOLDOVA

Nr.230.

Mircea SNEGUR.
Legal framework

• 1991-Land Code;
• 1995-GD on approving the Regulation of ALRC;
• 1997-GD on approval of the Concept of the National Cadastral informational system;
• 1997-GD on approving the Regulation of the National Geospatial Data Fund (FNDG);
• 1998-Law on real property cadaster;
Legal framework

• 2001-Law on geodesy, cartography and geoinformatics;
• 2001-GD approving the Regulations on the national geodetic network;
• 2003-GD on the Development of National geographic Information Systems (NGIS);
• 2004-Law on real property formation;
• 2007-Law on administration and privatization of public property;
• 2007-Law on public property lands and their delimitation, etc.
2001-order of the ALRC for switching to global coordinate system and reference, and respective cartographic projections:

- new geodetic system MOLDREF99;
- adopted global coordinate system is **WGS 84** (World Geodetic System 1984);
- As a reference system is determined the geodetic reference system European **ETRS 89** (European Terrestrial Reference System 1989)
1998-GD approving the state program of creating real estate cadaster, basic steps:

- Creating the legal framework for the implementation of real estate cadaster;
- Acceleration of land reform;
- Informational ensuring of population, staff training;
- Creating system of cadaster bodies;
- Primary massive registration of real estate and the rights over them (partially realized);
- Developing a mechanism for estimating the immovable property;
- Creating cadastral information system.
Primary massive registration of real estate and the rights over them (partially realized)

<table>
<thead>
<tr>
<th>Zona</th>
<th>Raion</th>
<th>Total number of land parcels (with individual houses and gardens)</th>
<th>Number of registered land parcels</th>
<th>Number of unregistered land parcels</th>
<th>Share of unregistered land parcels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center</td>
<td>Dubăsari</td>
<td>34160</td>
<td>17660</td>
<td>17500</td>
<td>51%</td>
</tr>
<tr>
<td></td>
<td>Şoldăneşti</td>
<td>42180</td>
<td>21480</td>
<td>20700</td>
<td>49%</td>
</tr>
<tr>
<td></td>
<td>Ungheni</td>
<td>67500</td>
<td>37080</td>
<td>30420</td>
<td>45%</td>
</tr>
<tr>
<td></td>
<td>Ialoveni</td>
<td>78970</td>
<td>61290</td>
<td>17680</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>Calăraşi</td>
<td>83580</td>
<td>55680</td>
<td>27900</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>Orhei</td>
<td>96390</td>
<td>65420</td>
<td>30970</td>
<td>32%</td>
</tr>
<tr>
<td></td>
<td>Criuleni</td>
<td>74880</td>
<td>39790</td>
<td>35120</td>
<td>47%</td>
</tr>
<tr>
<td></td>
<td>Teiuleni</td>
<td>67710</td>
<td>35170</td>
<td>32540</td>
<td>48%</td>
</tr>
<tr>
<td></td>
<td>Străşeni</td>
<td>93730</td>
<td>58520</td>
<td>35210</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>Rezina</td>
<td>45890</td>
<td>30740</td>
<td>15140</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>Nisporeni</td>
<td>56680</td>
<td>47610</td>
<td>8970</td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td>Hâncioţi</td>
<td>94170</td>
<td>76730</td>
<td>17440</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>Anenii Noi</td>
<td>72460</td>
<td>57400</td>
<td>15060</td>
<td>21%</td>
</tr>
<tr>
<td>mun.</td>
<td>Chişinău</td>
<td>100380</td>
<td>100380</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>North</td>
<td>Floreşti</td>
<td>77680</td>
<td>30940</td>
<td>46740</td>
<td>60%</td>
</tr>
<tr>
<td></td>
<td>Soroca</td>
<td>67370</td>
<td>40510</td>
<td>26860</td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td>Făleşti</td>
<td>69540</td>
<td>38250</td>
<td>31290</td>
<td>45%</td>
</tr>
<tr>
<td></td>
<td>Sângerei</td>
<td>64700</td>
<td>43270</td>
<td>21430</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>Băleşti</td>
<td>54790</td>
<td>32790</td>
<td>22000</td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td>Drochia</td>
<td>68230</td>
<td>47230</td>
<td>21000</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td>Donduşeni</td>
<td>38600</td>
<td>23640</td>
<td>13160</td>
<td>36%</td>
</tr>
<tr>
<td></td>
<td>Glodeni</td>
<td>47470</td>
<td>39050</td>
<td>8420</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>Ocniţa</td>
<td>35650</td>
<td>29530</td>
<td>6630</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>Râşcani</td>
<td>58070</td>
<td>47430</td>
<td>10640</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>Edineşti</td>
<td>58050</td>
<td>45370</td>
<td>12680</td>
<td>22%</td>
</tr>
<tr>
<td>mun.</td>
<td>Bălţi</td>
<td>16900</td>
<td>16900</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>South</td>
<td>Ştefan Vodă</td>
<td>54250</td>
<td>26360</td>
<td>27890</td>
<td>51%</td>
</tr>
<tr>
<td></td>
<td>Cimişlia</td>
<td>41400</td>
<td>33800</td>
<td>7600</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>Căuşeni</td>
<td>56720</td>
<td>50950</td>
<td>5770</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Cantemir</td>
<td>37110</td>
<td>31510</td>
<td>5600</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Leova</td>
<td>32000</td>
<td>29160</td>
<td>2840</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Basarabeasca</td>
<td>16460</td>
<td>16460</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Cahul</td>
<td>67890</td>
<td>67890</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Taracia</td>
<td>25850</td>
<td>25850</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>UTA</td>
<td>UTA Găgăuzia</td>
<td>82760</td>
<td>78430</td>
<td>4330</td>
<td>5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>2079140</td>
<td>1499610</td>
<td>579530</td>
<td>28%</td>
</tr>
</tbody>
</table>
National Geospatial Data Fund

• National Geospatial Data Fund (Cartographical Geodetic Fund) was created according to the Government Decision №.731 of 05.08.1997, and is subordinated to the Agency for Land Relations and Cadastre.

• National Geospatial Data Fund is a part of the State Archive of the Republic of Moldova.
The main tasks of NGDF

Accumulation, centralized record and keeping geodetic, cartographic, topographic, hydrographic, photogrammetry, gravimetric materials and data, also in digital form, derived from geodetic and cartographic activities, regardless of their type, place of incorporation and ownership;

Development of the digital database in the National Geospatial Data Fund - geoportal.md., which includes scanned topographic paper maps with different scales, geodetic networks, digital maps, orthophoto, etc;

Development and implementation of Web-services and provide public access to geospatial data for the public authorities, the private sector and citizens.
Topographic paper maps and plans

Raster:

1: 50 000 (100%)

1: 10 000 (92%)

1: 5 000 (47%)

1: 2 000 (70 cities)
Digital maps

EuroGeographics

EuroGlobal Map
1: 1 000 000

EuroRegional Map
1: 250 000

EuroBoundary Map

EuroDem
Orthophoto -2007

• Project “Moldova Orthophoto” and was funded in association with Norwegian Government.

• Norway Statens Cartverk in cooperation with Agency for Land Relations and Cadastre of Moldova administrated the Project.

• The Moldova Orthophoto Project consists of production of digital orthophotos with resolution 40 cm for the entire territory excluding Transnistrian region also orthophotos with resolution 20 cm for urban areas.
Line maps

- Line Maps is the part of Project “Line maps for development” and was funded by Norwegian Government.
- Line maps, orthophoto and laser scanning data covers 20% of the territory of the Republic Moldova.
- The project is important for the development of the national economy and creating Geospatial Data Infrastructure.
Base Map 1:50 000 is a part of Project “Base Map for Development of National Spatial Data Infrastructure in the Republic of Moldova” and is funded by the Government of Japan.

JICA team through Pasco Co. in cooperation with ALRC administrated the Project.
www.geoportal.md

A powerful web based GIS tool for:

• web services access to materials and geospatial data from NGDF;

• query possibility;

• Download and export data, etc.
Data sharing today

Agrarian State University of Moldova
Institute of Pedology, Agrochemistry and Soil Protection
Technical University of Moldova
"Apele Moldova"
Academy of Sciences of Moldova
National Bureau of Statistics
Agency for Energy Efficiency
Agency for Inspection and Restoration of Monuments
Civil Protection and Emergency Situations Service of MIA
Ministry of Youth and Sports
Ministry of Transport and Road Infrastructure, MoldATSA
Ministry of Environment R. Moldova
State Ecology Inspectorat
Institute of Pedology, Agrochemistry and Soil Protection
Academy of Sciences of Moldova
National Bureau of Statistics
Agency for Energy Efficiency
Agency for Inspection and Restoration of Monuments
Civil Protection and Emergency Situations Service of MIA
Ministry of Youth and Sports
Ministry of Transport and Road Infrastructure, MoldATSA
Creating and editing geospatial data
State Ecology Inspectorat created a new data on the geoportal (using the geospatial information) - mines and pits, bores, deposits of household solid wastes, water basins and mineral resources.
Agency for Inspection and Restoration of Monuments created new data - historical object on the territory of the Republic of Moldova.
Fire hydrants (Civil Protection and Emergency Situations Service of MIA)
Sport buildings (Ministry of Youth and Sports)

AEE buildings (Agency for Energy Efficiency)

Administrative infrastructure

Soil type
Institute of Pedology, Agrochemistry and Soil Protection

International airports
(Ministry of Transport and Road Infrastructure, MoldATSA)
What are **Geographic Information Systems**?

GIS are tools, which are able to read, write and calculate geographic information resp. data. While in our modern times this almost automatically ends up in computer application, in principle these tools could also be a map, a tape measure, a ruler and a pen.
What is **Spatial Data Infrastructure (SDI)**?

“An SDI is a coordinated series of agreements on technology, standards, institutional arrangements, and policies that enable the discovery and use of geospatial information by users and for purposes other than those it was created for.” (W. Kuhn, 2005)
What is INSPIRE?

Identifying support of similar authorities, experienced in creating SDI based on the principles of INSPIRE
"Twinning Project for Agency for Land Relations and Cadastre (ALRC) – Designing and implementing SDI at all levels of administration in Republic of Moldova"
Components:

- Draft *Geographic data umbrella law* in line with the EU INSPIRE requirements;
- Demonstration of an effective *regional SDI solution* with several stakeholders in line with EU best practices;
- Demonstration of a *local SDI solution* with several stakeholders in pilot areas in line with EU best practices;
- Demonstration of *Networks services* in the field of data sharing under the responsibility of ALRC.
Thank you