



Agency for Land Relations and Cadastre of the Republic of Moldova

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

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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.



# Setting up Agency for Land Relations and Cadastre

PREȘEDINTELE  
REPUBLICII MOLDOVA



ПРЕЗИДЕНТ  
РЕСПУБЛИКИ МОЛДОВА

## 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 economiei naționale cu producție topografică-geodezică și cartografică și al creării Fondului de Stat Cartografic-Geodezic și a băncii de date pentru cadastrul specializat de stat, Președintele Republicii Moldova decretează:

**Art.1.** - Se înființează pe lângă 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:  
În termen de zece zile va aproba structura și funcțiile de bază ale Agenției Naționale pentru Geodezie, Cartografie și Cadastru;  
În 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 corespundere 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

Mircea SNEGUR

Chișinău, 27 Iunie 1994.  
Nr. 230.



# 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)

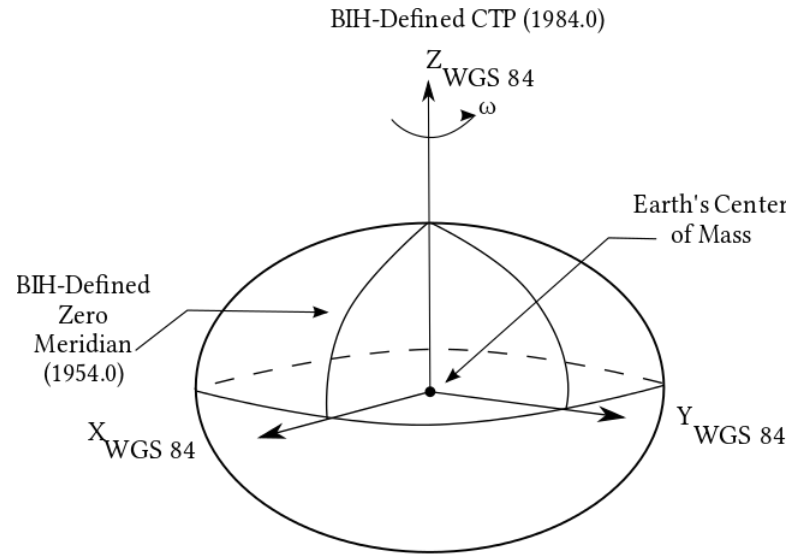


Figure 1.1 WGS 84 Reference Frame

 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**);

 Develop a mechanism for estimating the immovable property;

 creating cadastral information system.





Primary massive registration of real estate and the rights over them (partially realized)

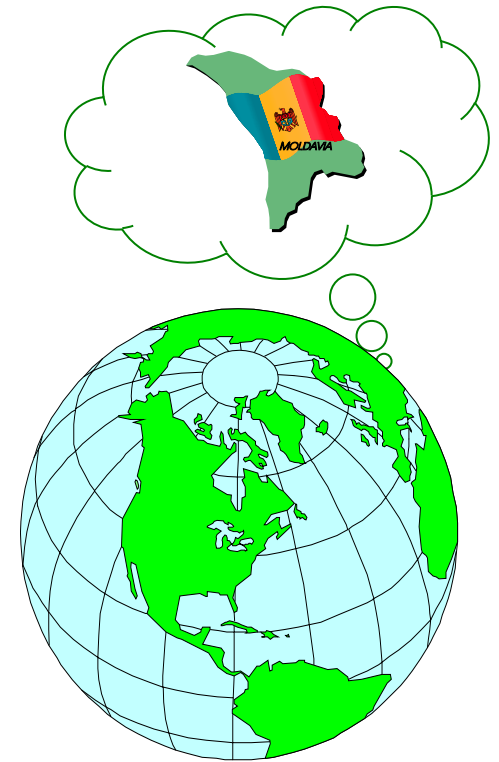
*number of registered land parcels in the real estate register and the number of unregistered land parcels (with private houses and gardens)*

Zona	Raion	Total number of land parcels (with individual houses and gardens)	Number of registred land parcels	Number of unregistred land parcels	Share of registred land parcels
Center	Dubăsari	34160	17660	17500	51%
	Șoldănești	42180	21480	20700	49%
	Ungheni	67500	37080	30420	45%
	Ialoveni	78970	61290	17680	22%
	Călărași	83580	55680	27900	33%
	Orhei	96390	65420	30970	32%
	Criuleni	74880	39760	35120	47%
	Telenești	67710	35170	32540	48%
	Strășeni	93730	58520	35210	38%
	Rezina	45880	30740	15140	33%
	Nisporeni	56580	47610	8970	16%
	Hâncești	94170	76730	17440	19%
Anenii Noi	72460	57400	15060	21%	
mun. Chișinău	100380	100380	0	0%	
North	Florești	77680	30940	46740	60%
	Soroca	67370	40510	26860	40%
	Fălești	69540	38250	31290	45%
	Sângerei	64700	43270	21430	33%
	Briceni	54790	32790	22000	40%
	Drochia	68230	47230	21000	31%
	Dondușeni	36800	23640	13160	36%
	Glodeni	47470	39050	8420	18%
	Ocnîța	36560	29930	6630	18%
	Râșcani	58070	47430	10640	18%
	Edineț	58050	45370	12680	22%
	mun. Bălți	16900	16900	0	0%
South	Ștefan Vodă	54250	26360	27890	51%
	Cimișlia	41400	33800	7600	18%
	Căușeni	56720	50950	5770	10%
	Cantemir	37110	31510	5600	15%
	Leova	32000	29160	2840	9%
	Basarabeasca	16460	16460	0	0%
	Cahul	67890	67890	0	0%
	Taraclia	25850	25850	0	0%
UTA	UTA Găgăuzia	82760	78430	4330	5%
<b>TOTAL</b>		<b>2079140</b>	<b>1499610</b>	<b>579530</b>	<b>28%</b>



# 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;



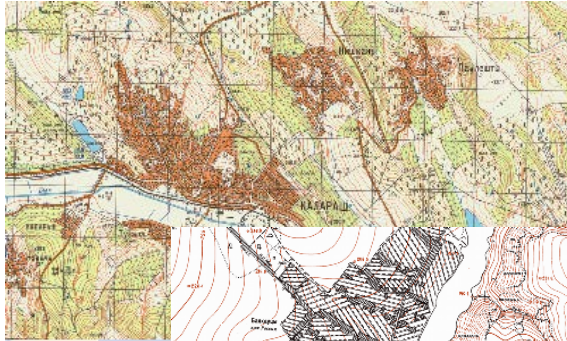
Development of the digital database in the National Geospatial Data Fund - [geoportal.md](http://geoportal.md), which includes scanned topographic paper maps with different scales, geodetic networks, digital maps, orthophoto, etc;



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

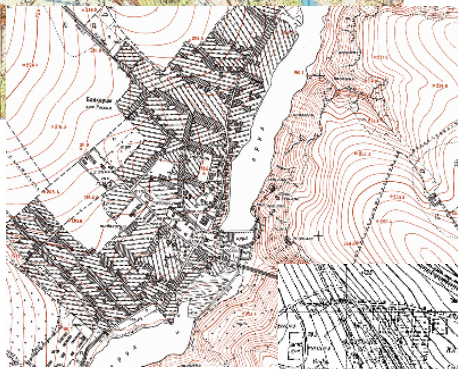
# Topographic paper maps and plans

## Raster:



1: 50 000 (100%)

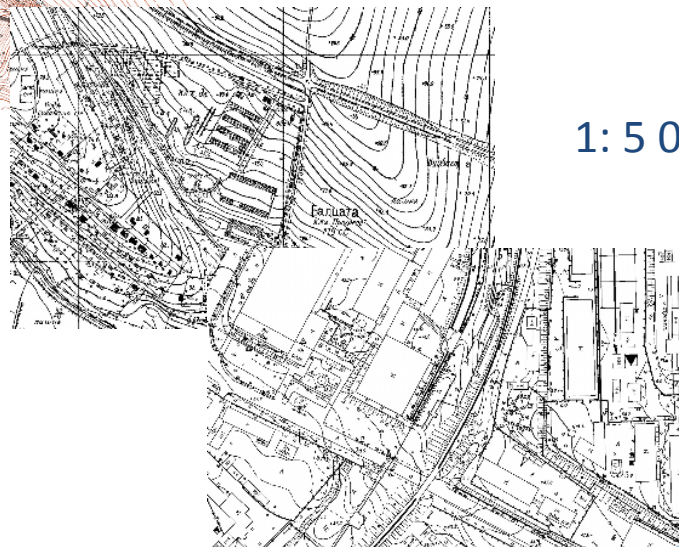
1:1 000 000 (100%)



1: 10 000 (92%)

1:200 000 (100%)

1: 25 000 (100%)



1: 5 000 (47%)

1:2 000 (70 cities )

# Digital maps

EuroGeographics

EuroGlobal Map

1: 1 000 000



EuroRegional Map

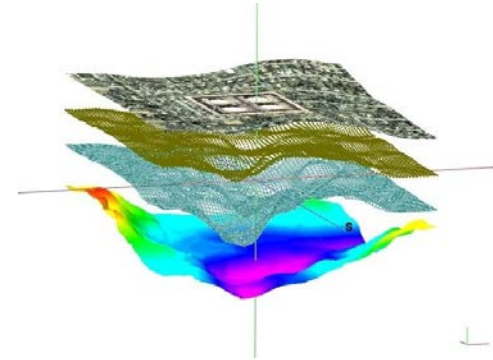
1:250 000



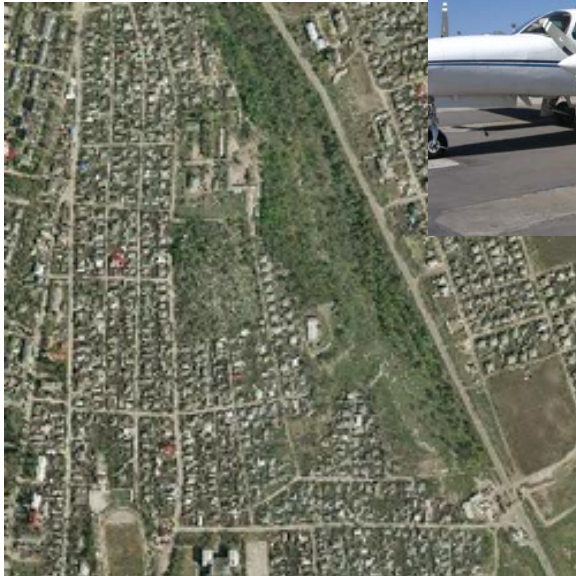
EuroBoundary Map



EuroDem

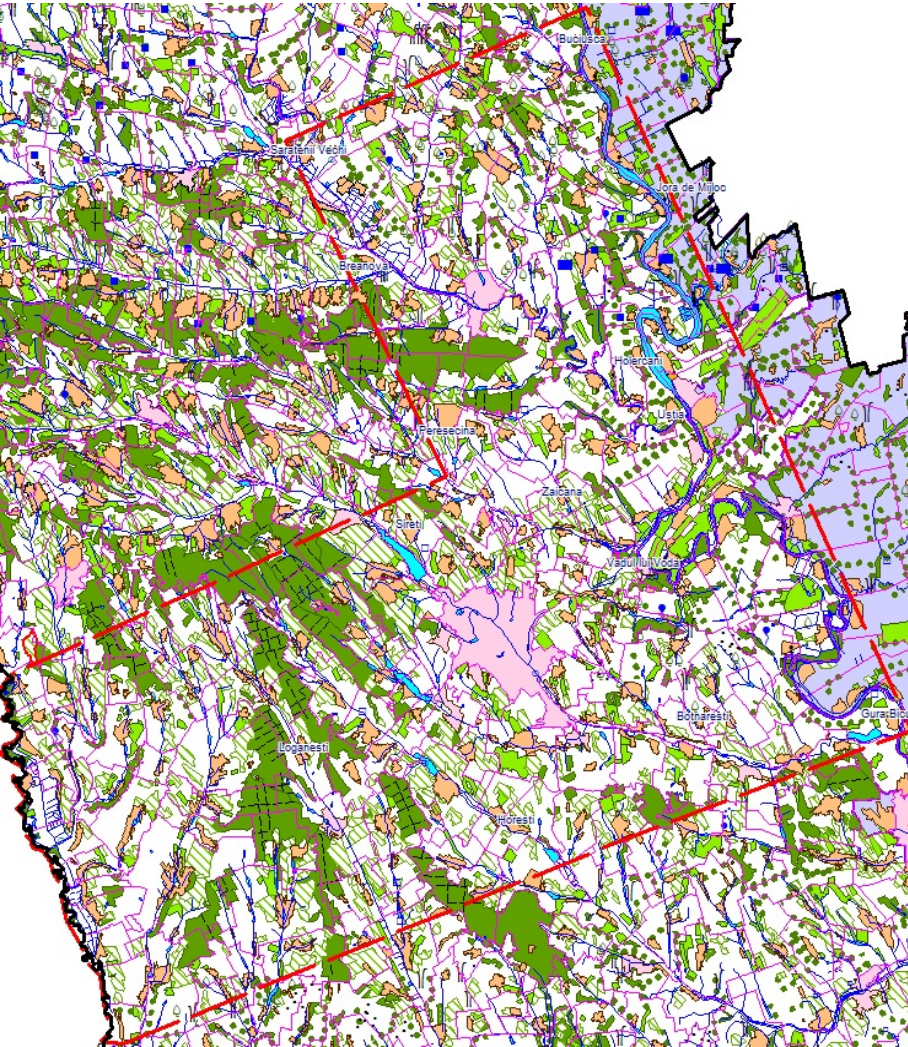


# Orthophoto -2007



- 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.



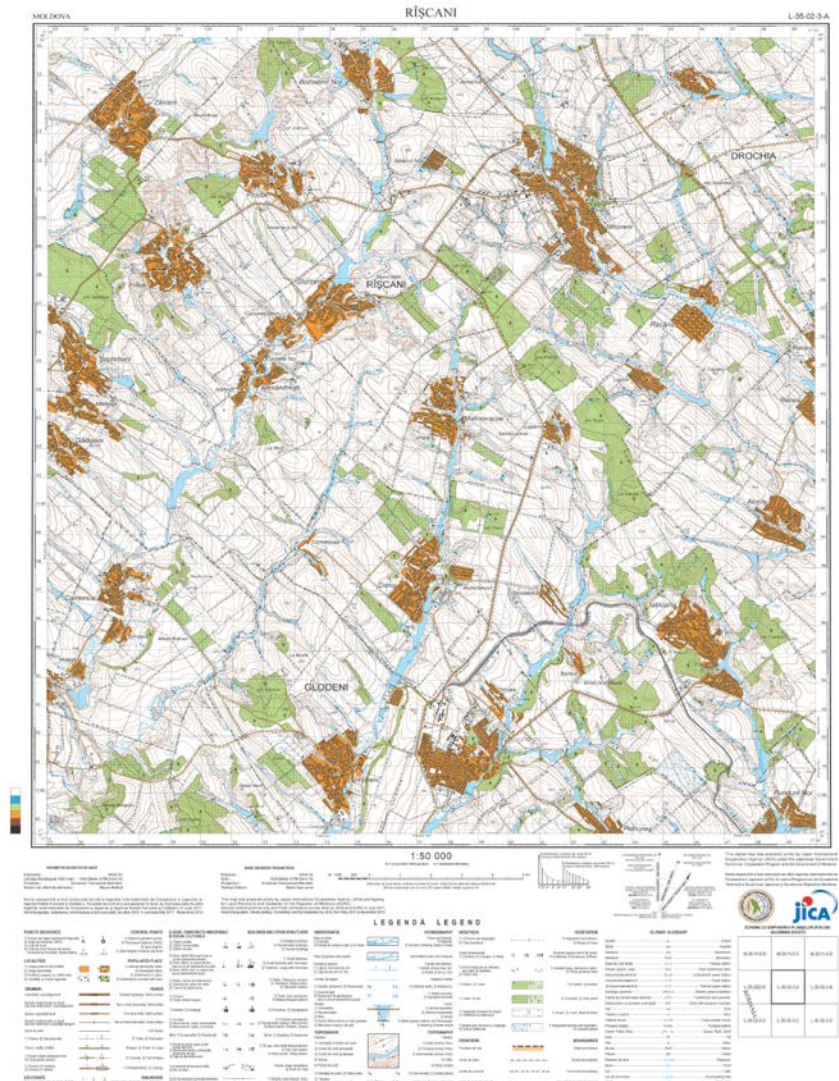
# General Base Map for Development of National Spatial Data Infrastructure



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.

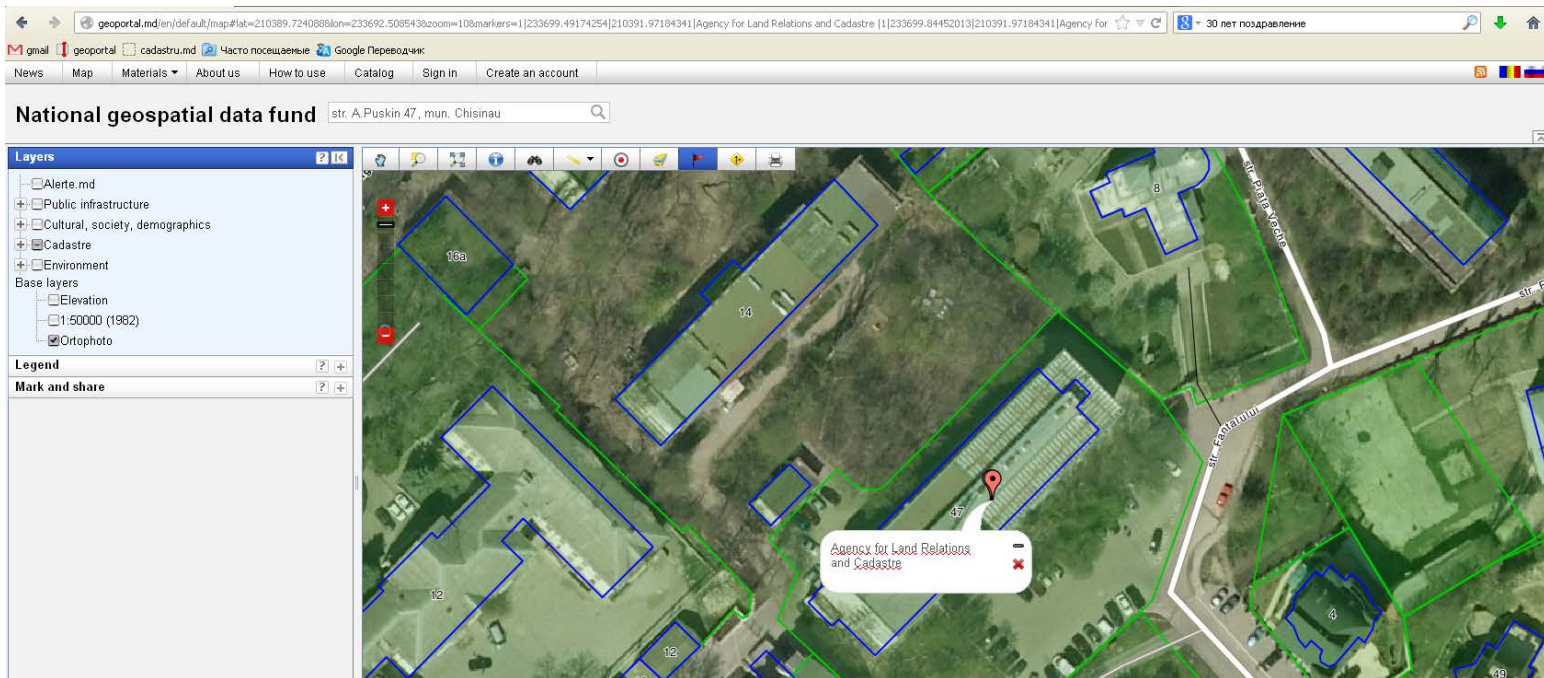




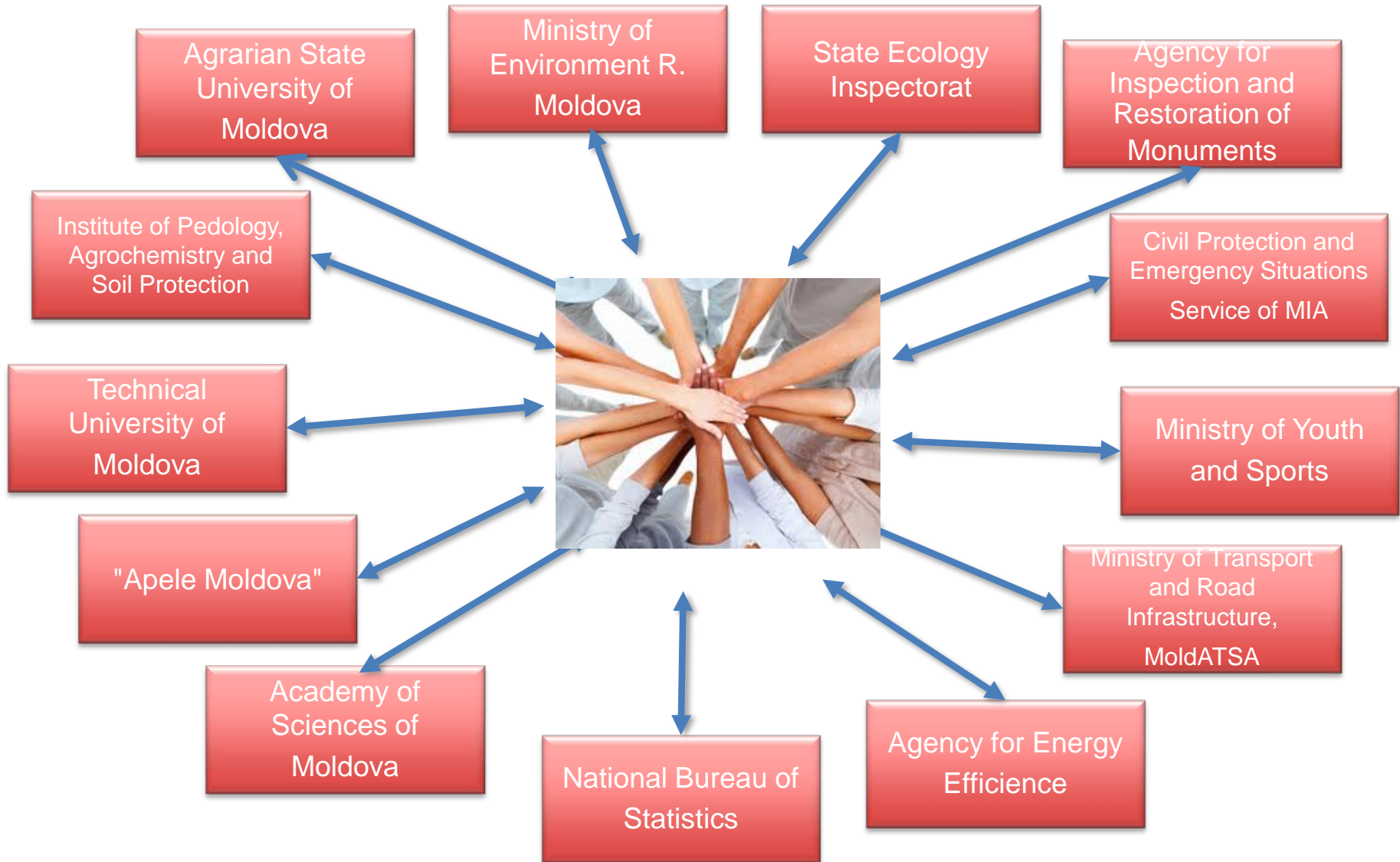
# www.geoportal.md



- 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





# Creating and editing geospatial data

National geospatial data fund - Mozilla Firefox

Национальный фонд геопространственных данных

Editing | Giscuit

geoportals.md/en/default/map#lat=21.2423,88.2653&lon=23.5339,55.1149&zoom=10

111

Recreational

active

Date: 2013-10-15

Save Cancel

Test area (polygon)

Tamara Rudenco 2013-10-15

Tamara Rudenco 2013-10-15

Tamara Rudenco 2013-10-15

Tamara Rudenco 2013-10-15

National geospatial data fund, S.E. CADASTRU

Scale: 1:500

Powered by Giscuit 1.4.1



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.

The screenshot displays the National geospatial data fund web application in a Mozilla Firefox browser. The browser's address bar shows the URL: `geoportal.md/en/default/map#lat=217515.877787&lon=215427.158541&zoom=2&layers=_base9,_base1`. The application interface includes a search bar at the top with the text "National geospatial data fund". On the left side, there is a "Layers" panel with a "Legend" section. The legend lists the following categories and symbols:

- Mineral resources**: Represented by a yellow triangle.
- Bores**:
  - Authorized: Represented by a green circle with a white outline.
  - Unauthorized: Represented by a red circle with a white outline.
- Water basins**:
  - Barrage state good: Represented by a blue circle.
  - Barrage state poor: Represented by an orange circle.
  - Barrage state damaged: Represented by a red circle.
- Mines and pits**: Represented by a yellow triangle.
- Deposits of household solid wastes**:
  - Authorized: Represented by a green square.
  - Unauthorized: Represented by a red square.

The main map area shows a satellite-style view of a region with numerous colored markers corresponding to the legend. The markers are densely packed in certain areas, particularly in the central and right portions of the map. At the bottom left of the map, there is a text label: "National geospatial data fund, State ecology inspectorate". At the bottom right, there is a scale indicator: "Scale: 1:250000". The browser's taskbar at the top shows several open tabs, including "National geospatial data fund" and "Ministere | Ministers | Gouverne...".



# Agency for Inspection and Restoration of Monuments created new data - historical object on the territory of the Republic of Moldova

National geospatial data fund - Mozilla Firefox

Входящие (22) - rudenco... | (без темы) - rudenco.tama... | Archaeology | Переводчик Google | GISMETEO.MD: Погода в ... | National geospatial data fu... | Administrator panel | Лунный посевной календ... | Новая вкладка

geoportal.md/en/default/map#lat=209907.597342&lon=233026.452343&zoom=8

News | Map | System | Materials | About us | How to use | Catalog | Sign out

## National geospatial data fund

Layers | Legend | Information

Monuments

- Ансамблul Catedralei "Nașterea Domnului"
  - Name: Ансамблul Catedralei "Nașterea Domnului"
  - Category: Națională
  - Type: Arhitectural
  - Date: 1836
  - Date:
  - Description: Catedrala Nașterea Domnului din Chișinău a fost ridicată în 1836 după proiectul arhitectului Avraam Melnikov. Este construită din piatră și cărămidă, cu trei altare: unul principal (cu hramul Nașterea Domnului) și două laterale (cel din dreapta cu hramul Sfântul Mucenic Nichita și cel din stânga cu hramul Sfântul Ioan cel Nou, care ulterior au fost consacrate sfântului Alexandru Nevski și sfântului Nicolae, făcătorul de minuni).
  - Photo: Catedrala Chisinau.jpg
  - Demolished: No

Catedrala Chisinau.jpg

National geospatial data fund, S.E.I.PGT, Agency for Inspection and Restoration of Monuments

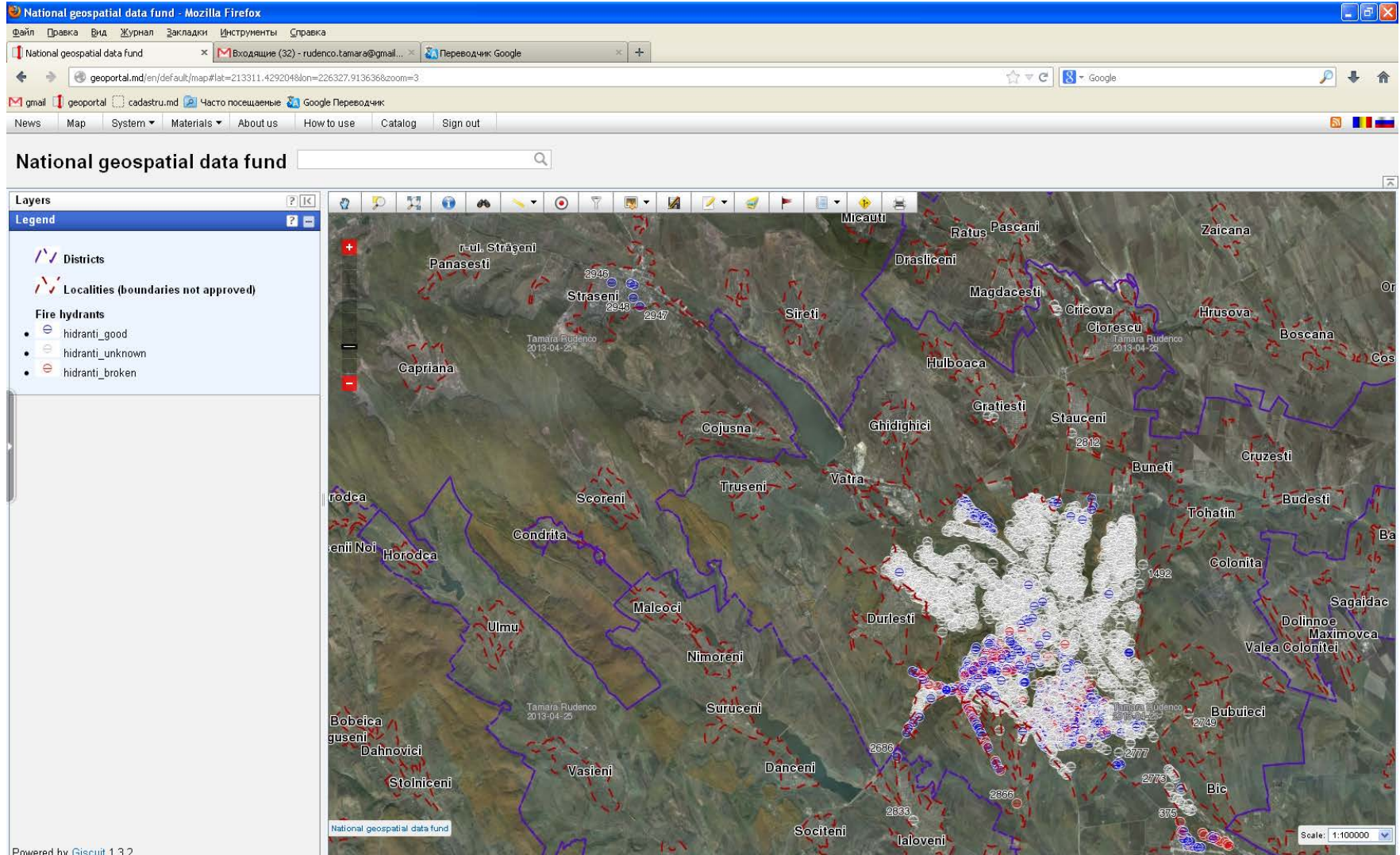
Scale: 1:2000

Powered by Gisclient 1.3.2

пуск | Входящие - Microsof... | National geospatial d... | BX Language acquisition | Fond | geoportal.doc - Micro... | RO | 9:38

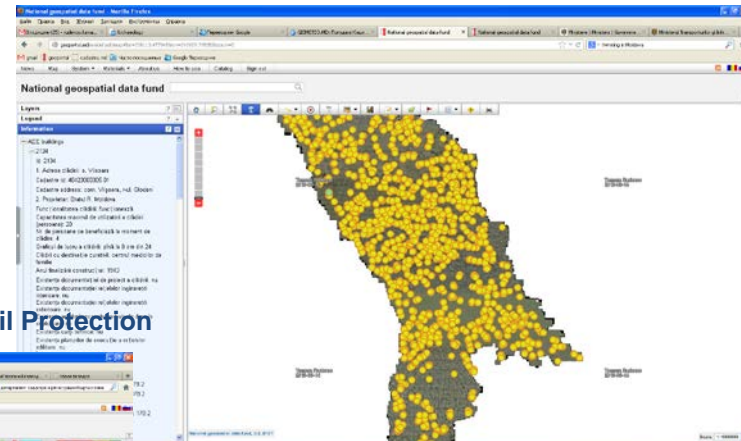
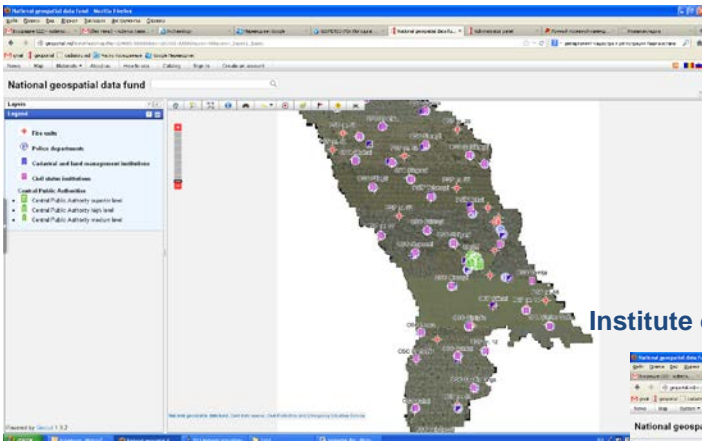


# Fire hydrants (Civil Protection and Emergency Situations Service of MIA)

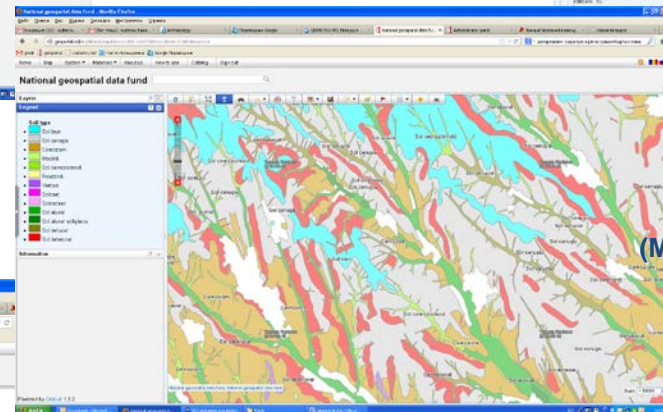


# Administrative infrastructure

# AEE buildings (Agency for Energy Efficiency)

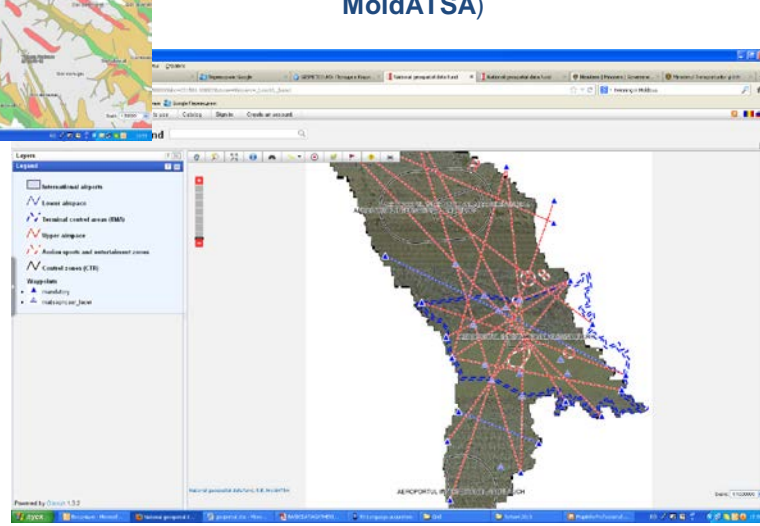
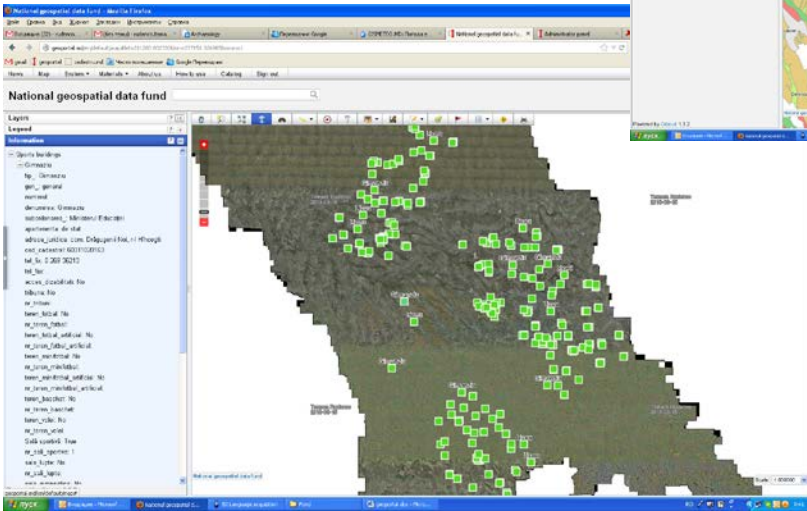


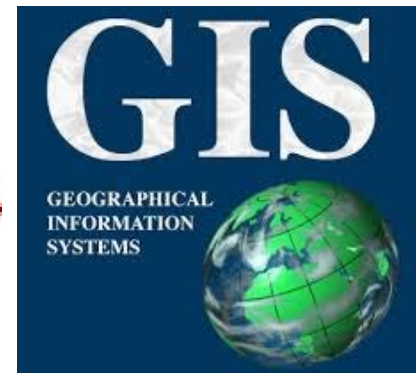
# Soil type Institute of Pedology, Agrochemistry and Soil Protection



# Sport buildings (Ministry of Youth and Sports)

# 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**?

**INSPIRE** is an initiative of the European Commission being realized through the ‘**Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (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

