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Prerequisites for developing geospatial data infrastructure in Georgia

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Abstract: The X Plenary Meeting of the Group on Earth Observations on 15 January 2014 recognized Georgia as 90th Member of GEO (http://www.earthobservations.org/documents/geo_x/geo_x_outcomes.pdf). In welcoming address of the GEO Principle, designated by the Minister of Environment and Natural Resources Protection, Georgia pledged to become active member of GEO community and working to establish a coordinating mechanism within the country to strengthen the earth observation capacity. In line with the European aspirations of the country, INSPIRE model is selected to follow. This vector was indeed confirmed in 2013 with the agreement of Georgia to join the implementation of the EEA-compatible Shared Environmental Information System (SEIS), confirming as well the current national policy of facilitating unrestricted access to public sources of data and information in Georgia. This paper is analyzing the technical and institutional prerequisites for developing the geospatial data infrastructure in Georgia. In technical terms, the current state of the geospatial data infrastructure is analyzed on its compatibility and potential compliance with themes addressed by INSPIRE Directive (<http://inspire.jrc.ec.europa.eu/index.cfm/pageid/2/list/7>). In institutional terms, those agencies are briefly characterized, which could contribute in populating various INSPIRE themes, such as the National Agency of Public Registry under the Ministry of Justice (already providing prototype clearinghouse geoportal at <http://maps.napr.gov.ge>), National Environmental Agency of the Ministry of Environment and Natural Resources Protection (holding meteorology, hydrology and ambient pollution monitoring datasets, as well as competence in geology and geodynamic processes such as landslides, mudslides), Ministry of Agriculture (soils), various universities and research institutes (seismicity, geology), other organizations. Certainly there is an important role to be played by Environmental Information and Education Centre (Ministry of Environment and Natural Resources Protection), as the competent authority for the implementation of Aarhus Convention in Georgia. The paper reports on various projects (international, national) contributing into GEO and INSPIRE processes, the datasets available at the national level, as well as those global datasets which could fill the gaps while respective national datasets are to be generated at higher precision and resolution. In that respect, certain approaches and actions are recommended, which could contribute into strengthening the geospatial capacities in Georgia. Examples/cases are also provided where national spatial data infrastructure could provide a backbone for promoting wider sharing and dissemination of geospatial datasets and services. Certain considerations are also provided with regard to the recommended next steps for the establishment of the coordination mechanism for data sharing and cooperation in an integrated manner between the agencies and levels of governance concerned with various GEO Societal Benefit Areas.



Prerequisites for Developing Geospatial Data Infrastructure in Georgia

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PHOTOS 1-3. Georgian Delegation at the GEO-X Plenary and Ministerial, 14-17 January 2014, Geneva

INTRODUCTION

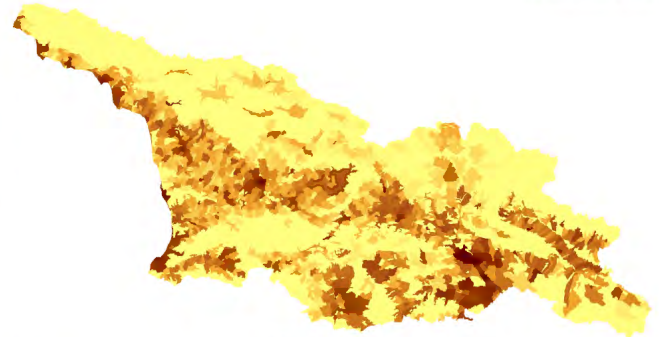
The X Plenary Meeting of the Group on Earth Observations on 15 January 2014 recognized Georgia as 90th Member of GEO (Photos 1-3). In welcoming address of the GEO Principle, designated by the Minister of Environment and Natural Resources Protection of Georgia, pledged to become active member of GEO community and working to establish a coordinating mechanism within the country to strengthen the earth observation capacity.

In line with the European aspirations of the country, INSPIRE model is selected to follow. This vector was indeed confirmed at the end of 2013 with the agreement of Georgia to join the implementation of the EEA-compatible Shared Environmental Information System (SEIS), confirming as well the current national policy of facilitating unrestricted access to public sources of data and information in Georgia.

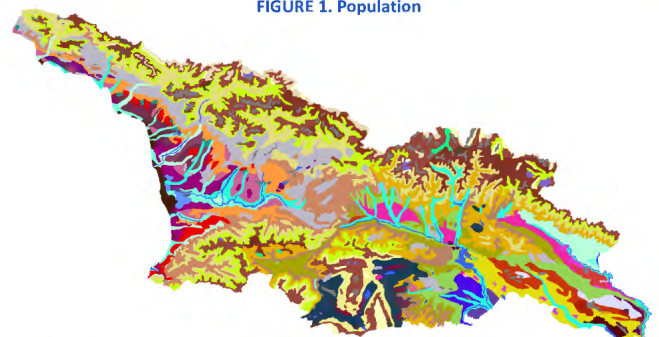
METHODS and RESULTS

Technical and institutional prerequisites for developing the geospatial data infrastructure in Georgia are analyzed in this work. Current state of the geospatial data infrastructure is assessed on its compatibility and potential compliance with themes addressed by INSPIRE Directive (implementation level indicated with colour in Table 1). Agencies, which could contribute in populating various outstanding INSPIRE themes are the National Agency of Public Registry under the Ministry of Justice (already providing prototype clearinghouse geoportal at <http://maps.napr.gov.ge>), National Environmental Agency of the Ministry of Environment and Natural Resources Protection (holding meteorology, hydrology, ambient pollution monitoring datasets, competence in geology and geodynamic processes such as landslides, mudslides), Ministry of Agriculture (soils), various universities and research institutes (seismicity, geology), other organizations. Certainly there is an important role to be played by the Environmental Information and Education Centre (Ministry of Environment and Natural Resources Protection), as the competent authority for the implementation of Aarhus Convention in Georgia.

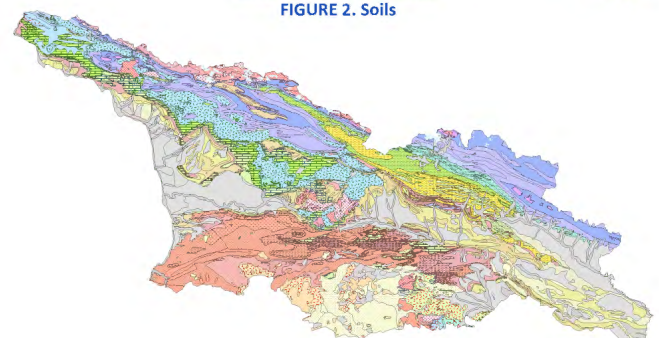
Various projects (international, national) contribute into the GEO and INSPIRE processes (enviroGRIDS, PEGASO, IASON, etc.). While there are certain quality datasets available at the national level, the global sources of data can indeed fill some gaps while national level datasets are being generated at higher precision and resolution. In that respect, those approaches and actions are recommended, which could contribute into strengthening further the geospatial capacities in Georgia. Examples of already existing data sources are provided on Figures 1-3, which illustrate, that with proper inter-sectoral coordination complementary INSPIRE resources can be identified, contributing further into spatial data infrastructure (see in Table 1). In this regard, the recommended next steps at the national level include the promotion of wider sharing and dissemination of existing geospatial datasets and services, as well as the establishment of the institutional coordination mechanism for data sharing and cooperation in an integrated manner between agencies and levels of governance concerned with various GEO Societal Benefit Areas.



(Source: GeoStat, <http://geostat.ge>)
FIGURE 1. Population



(Source: Ministry of Agriculture of Georgia, <http://moa.gov.ge>)
FIGURE 2. Soils



(Source: Institute of Geophysics, <http://www.ig-geophysics.ge/sakartvelo.html>)
FIGURE 3. Geology

ANNEX I

- 01. Coordinate reference systems
- 02. Geographical grid systems
- 03. Geographical names
- 04. Administrative units
- 05. Addresses
- 06. Cadastral parcels
- 07. Transport networks
- 08. Hydrography
- 09. Protected sites

ANNEX II

- 01. Elevation
- 02. Land cover
- 03. Orthoimagery
- 03. Geology (Figure 3)

ANNEX III

- 01. Statistical units
- 02. Buildings
- 03. Soil (Figure 2)
- 04. Land use
- 05. Human health and safety
- 06. Utility and governmental services
- 07. Environmental monitoring facilities
- 08. Production and industrial facilities
- 09. Agricultural and aquaculture facilities
- 10. Population distribution and demography (Figure 1)
- 11. Area management / restriction / regulation zones / reporting units

- 12. Natural risk zones
- 13. Atmospheric conditions
- 14. Meteorological geographical features
- 15. Oceanographic geographical features
- 16. Sea regions
- 17. Bio-geographical regions
- 18. Habitats and biotopes
- 19. Species distribution
- 20. Energy Resources
- 21. Mineral Resources

TABLE 1. Current status of INSPIRE themes in Georgia

