AREC responsibilities, data and registries and the way of their distribution
Introduction

• The Real Estate Cadastre Agency (AREC) is responsible for the establishment and maintenance of the Real Estate Cadastre (REC), the management of the geodetic-cadastre information system (GCIS), as well as the establishment, maintenance and public access to the NSDI

• AREC has the status of a legal entity with rights, obligations and responsibilities determined by the Law on Real Estate Cadastre, and for its work answers to the Government of FYROM

• AREC works on the basis of the principles of legality, expertise, efficiency, openness, service orientation, professionalism, work responsibility and achieved results

• AREC has 7 regions divided in 29 REC departments and one Center for REC located in the capital city – Skopje
History

1947, the Geodetic Authority was formed

1967, the Geodetic Authority was renamed in Republic Geodetic Authority (RGA)

1977, Reorganization: Institute for Geodetic and Photogrammetric Works (IGPW) & RGA

1989, IGPW was again integrated into RGA

2002, RGA was renamed into the State Authority for Geodetic Works (SAGW)

2005, The private geodetic practice was introduced for performing the operational geodetic works

2005, WB Project: REC and registration (Phase 1)

2008, SAGW continued to work as an Agency for Real Estate Cadastre (AREC)

2010, WB Project: REC and registration (Phase 2)

2013, New Law on REC with new responsibilities and obligations
Responsibilities

• Establishment and management of the GCIS  
• Performing basic geodetic works  
• Performing real estate surveys  
• Registration of real estate rights  
• Establishment and maintenance of the REC and infrastructure cadaster as part of REC  
• Geodetic works for special purposes of importance for the FYROM, determined by the Government of FYROM  
• Preparation of state topographic maps  
• Establishment and management of the registry of spatial units, graphical registry of construction land, graphic registry of streets and house numbers and registry of prices and leases  
• Establishment, maintenance and provision of public access to the National Spatial Data Infrastructure (NSDI)  
• Performing supervision on the work of private authorized surveyors and trade companies for geodetic works
Legislation

- Law on Real Estate Cadastre (with all the included amendments)
- Law on NSDI (with all the included amendments)
- Regulations:
  - for the maintenance of the REC
  - on establishment of the REC
  - on real estate survey
  - on survey and processing of data from survey
  - on registration of infrastructure objects
  - on geodetic works for special purposes
  - on basic geodetic works
  - on cadastral plans and plans of infrastructure objects
  - on the manner of changing the boundaries of the cadastre municipalities and for determining the cadastre municipalities
  - on the manner of carrying out the survey of the state border
  - on the manner of preparation of topographic maps, orthophoto maps / plans and cartographic products
  - on the form and manner of keeping the register for spatial units
  - on the form and manner of keeping the graphic registry for construction land
  - on the manner of keeping, the form and content of the registry for prices and leases
  - on the method of cadastral classification and the establishment and registration of the change in the cadastre culture and class of land
  - Decree establishing and using the information system for processing data in electronic form and electronic signature when submitting applications and reports to AREC
  - Rulebook on the manner of usage, distribution, access, issuance, storage and protection of data from the geodetic cadastre information system

- Cadastre 2014 (FIG)
- INSPIRE Directive (EU)
- Eurogeographics, EUPOS, EUREF, ICA, UN-GGIM Europe, UNECE – WPLA
GCIS - Data

**Cadastre**
- Parcels
- Buildings
- Building parts
- Infrastructure objects
- Rights
- Right holders
- Cadastre (cadastre and land register) as one institution with one harmonized central DB for cadastral and land registry data

**Cartography**
- Topographic maps
- Orthophotos
- DTM
- Aerial images

**Geodesy**
- MAKPOS – Active permanent GNSS network (CORS network)
- MAKREF – Passive GNSS network
- High-precision leveling network
- Gravimetric network
- Old geodetic networks
Registries - Data

Registry of spatial units
- Local government
- Cadastral municipalities
- Settlements
- Statistical units
- Census units

Graphical registry of construction land
- General urban plans
- Detailed urban plans
- Planning coverage
- Construction coverage
- Construction block
- Regulation line
- Urban parcel
- Building area

Graphic registry of streets and house numbers (Address registry)
- Streets
- House numbers

Registry of prices and leases
- Sale – parcels
- Sale – buildings/buildings parts
- Sale – parcels and buildings
- Lease – parcels
- Lease – buildings/buildings parts
- Lease – parcels and buildings
Some of the core systems in AREC

Harmonized Geo + Attribute Data

Central DB

RSU
Cartography
Geodesy

File Systems

MAKPOS

eKat

GRCL

OSSP

NSDI

AR

Mak Edit

eKat Lite

ERP

DMS

Recorder

IO

RPL

AR

Mak Edit
Distribution – eKat + eKat Lite

- Web solution for professional users (notaries, private geodetic companies, real estate appraisers, banks, state and public institutions)
- 2 way communication - based on signed agreement
- Submitting a request through defined procedures (attaching documents...)
- Direct data/documents download
- Act upon request - cadastral/land registry procedures (back office – eKat)
- Online payment
Distribution – One Stop Shop Portal (OSSP)

- **e-Store**
  - **User options**
  - **Search and View**
  - **Products categories**

- **WMS**
OSSP – Distribution portal

- OSSP provides access to data and information from:
  - REC
  - Geodetic data
  - Cartography data
  - Data from the RSU
  - Data from the price register and leases
  - and many other thematic layers
- OSSP is intended and used by individuals and legal entities
- The data and documents can be obtained in a digital electronic form signed with electronic stamp and signature or in paper form delivered through the post office
- The system is available online 24/7
- The system was launched at the end Aof 2015

- e-Store – all in four simple steps (search, view, purchase, and download the data or document)
- e-Store – data in vector or raster digital format (shp, gml, geotiff, xls, pdf...) documents such as property and map certificates or WMS services
- e-Store – e-Payment, invoice or voucher
- Geoportal – offers search and view of many categories of data including a large set of thematic data
- Geoportal - informative character
- OSSP has near real time replication of cadastral data from eKat
- Most used products: geodetic points & property certificates
- Mainly used by regular uses and private geodetic companies
OSSP – Distribution portal
Distribution – NSDI

Metadata catalog/Registries...

NSDI stakeholders

Administration panel

Search options

Map Viewer

Metadata/Data Services

Metadata editor/validator
NSDI Geoportal

• NSDI Geoportal represents a single point from where all public geo-data can be searched, find, viewed and accessed

• Users: NSDI subjects, ministries and public institutions, citizens, private companies, education, third parties etc.

• Publishers: NSDI subjects or third parties

• Agreements for publishing data, terms of use etc.

• OGC services (OWS, WMS, WCS, WFS, WPS, SOS, SPS, CSW, or KML), ATOM, OAI, WAF...

• Different metadata protocols for publishing resources (CSW, REST URL formatted in GEORSS, OpenSearch description XML, URL to a metadata XML, ESRI Metadata Server service

• Defined country metadata profile for data and services based on EN ISO 19115 and EN ISO 19119, INSPIRE metadata compatible profile
NSDI Geoportal - Services

AREC:
• Administrative units - WMS, WFS, ATOM
  • State border
  • Local Government Units
  • Populated places
• Elevation terrain model – WMS, WFS, ATOM
  • Elevation grid points
  • Grid raster elevation
  • Contour lines
• Geographic names - WMS, WFS
• Hydrographical network – WMS, WFS, ATOM
(All by national and INSPIRE standards)

Center for Crisis Management:
• Map with dryness of the forest ,WMS
• Map index of fires, WMS

Ministry of Agriculture, Forestry and Water Management:
• Soil Map, WMS

Geological Survey:
• Geological formations of Macedonia, WMS

Ministry of Environment and Physical Planning:
• National Parks - WMS

State Statistical Office:
• Demographic data - WMS

Agency for Spatial Planning:
• Spatial Plan
Other types of services

• Custom XML based WEB-service for access to data on cadastral parcels and property lists - Standard protocol for data provision over the Internet that is generated by one or more distribution databases owned by AREC

• WEB-service for accessing and downloading property list certificate, a list for the pre-registration of a building and a cadastral map certificate – used as part of the interoperability project (e-Government)

• CORS network services - MAKPOS RTK, DGNSS, PP (RINEX)

• Coordinate transformation services
Data – sources, quality, accessibility, security and formats

• Sources
  • Terrestrial and aerophotogrammetric methods
  • Alpha-numerical and image raw data as basis for creating cadastral and topography maps

• Quality
  • Positional precision and accuracy is related to the chosen field data collection method, mapping method, scanning, georeferencing, digitalization
  • Integrity and logical consistency of the descriptive data
  • Maintenance processes and procedures

• QCQA
  • Defined procedures for QCQA of geospatial and attribute data

• Formats
  • Formats changed over time from paper to georeferenced images, from CAD to GIS formats, to DB
  • Export is available indifferent formats: shp, gml, geotiff, xls, pdf

• Metadata for data and services
  • Defined country metadata profile for data and services based on EN ISO 19115 and EN ISO 19119, INSPIRE metadata compatible profile
  • Defines data source, quality, accessibility, spatial and time resolution

• Accessibility
  • AREC data access is subject to fee except for ministries and some governmental institutions. Information is free of charge
  • Data can’t be used by third parties in order to create new products without AREC permission

• System security
  • All AREC core systems have security protocols implemented
  • Data storage, data distribution, data access, data editing (tokens, user profiles/complex user passwords, domain control, logs, periodically changing passwords and controls

• Security in relation with privacy
  • Part of the personal data is considered as protected data
  • Part of the personal data is only accessible by the AREC employees and some professional users (ex. notaries)
  • All users dealing with personal data must have a completed statement of secrecy
  • Third parties have no overview of personal data such as PIN
  • Directorate for personal data protection acts as external body for control of access and use of personal data
Data interoperability - data integration and provision of services

• Information collected, stored, processed and used/reused by public authorities to perform their functions, to serve public needs are considered under the Law on electronic governance and Law on data in digital format and electronic signature

• Defined bylaws prescribe the manner of use of IS for processing data in digital format and electronic signature use in AREC

• e-Government

• Interoperability - Interconnection and use of registers and databases between state bodies and institutions

• NSDI Agreements for access and use of data and services
Thank you

http://www.katastar.gov.mk/