Turkey

Discover the potential

REPUBLIC OF TURKEY
MINISTRY OF ENVIRONMENT AND URBANISATION
GENERAL DIRECTORATE OF GEOGRAPHICAL INFORMATION SYSTEMS

FOCAL POINT OF **GEOSPATIAL DATA**

SMART CITIES
REMOTE SENSING
SPATIAL ANALYSIS
STANDARDS
ENVIRONMENTAL INFORMATION MANAGEMENT
TURKISH NATIONAL GEOGRAPHICAL INFORMATION SYSTEM
INTEROPERABILITY
SPATIAL DATA SERVICES
INFORMATICS

REPUBLIC OF TURKEY
MINISTRY OF ENVIRONMENT AND
URBANISATION

In our age, in all areas from public administration to everyday life, the need for geographical information is much more realized. Sharing the geographic data produced as current, accurate and standard among all public institutions has indisputable importance on directing investments in right way and the improvement of the service quality and citizen satisfaction.

My support to our GIS General Directorate, which brings knowledge and geography together and carrying out its activities with great enthusiasm, and my trust that it will fulfill its undertaken tasks properly is full.

Fatma Güldemet SARI
The Minister of Environment and Urbanisation

General Directorate of GIS

Mission and Vision

- Establishing Turkey Geographic Information Infrastructure
- Specify Geographical Data Standards
- Establishing the Spatial Data Infrastructure of the Ministry
- Installing and Operating the TNGIS Portal
- Performing Certification and Accreditation Studies About GIS
- Dissemination of GIS Technology In the Country
- Representing Our Country In the International Environment About GIS Issues
- Performing Automation, Navigation and Documentation Systems Related Activities Integrating GIS Applications
- Performing Information Technology Services of the Ministry

General Directorate of GIS

Units

DEPARTMENT OF DOCUMENTARY EXTENSIFICATION

DEPARTMENT OF INFORMATION NETWORK AND SYSTEM

DEPARTMENT OF GEOGRAPHICAL INFORMATION

DEPARTMENT OF IMPLEMENTATION AND COORDINATION

DEPARTMENT OF SOFTWARE TECHNOLOGIES

DEPARTMENT OF MANAGEMENT SERVICES

General Directorate of GIS

Where GIS is used?

- Planning
- Agriculture
- Meteorology
- Natural Resources
- Environmental Effect
- Assessment
- Natural Disaster
- Pollution Management
- Protected Sites
- Asset Management
- Infrastructure
- Archeology
- Military
- Transportation
- Logistics
- Mine
- Geology
- Geomatics
- All fields, in which geographic information is used on earth...

Partner Organizations

PRIME MINISTRY

Ministry of Transport, Maritime Affairs and Communications

Repuclic Of Turkey Ministry Of Environment And Urbanisation

Ministry of National Defense

Ministry of Health

Ministry of Development

Ministry of Forestry and Water Works

Ministry of Interior

Ministry of Finance

Ministry of Economy

Ministry of National Education

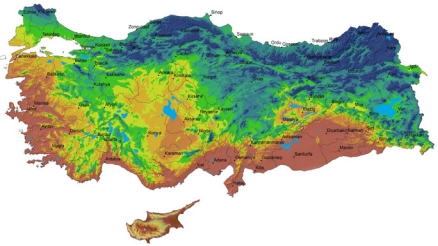
Ministry of Justice

Ministry of Culture and Tourism

Ministry of Family and Social Policies

Ministry of Customs and Trade

Ministry for EU Affairs



Ministry of Food, Agriculture and Livestock

Ministry of Science, Industry and Technology

Ministry of Youth and Sport

Ministry of Labour and Social Security

Ministry of Energy and Natural Resources

Ministry of Foreign Affairs

GENERAL DIRECTORATE OF GEOGRAPHICAL INFORMATION SYSTEMS

Universities

Municipalities

All institutions producing and using geographic data ...

National Data Standards

National Spatial Data Standard specification works are still continuing.

MAJOR THEMES

Address
Building
Cadastral Parcels
Administrative Units
Transport Networks
Hydrography
Land Cover
Orthoimagery
Topography
Geodetic Infrastructure

GEOGRAPHIC THEMES

Banned/Protected Sites
Plan Sites
Social/Culturel
Infrastructure
Natural Resources
Bio-diversity
Air/Climate
Geology/Environment
Production and Industrial Facilities

National Data Standards

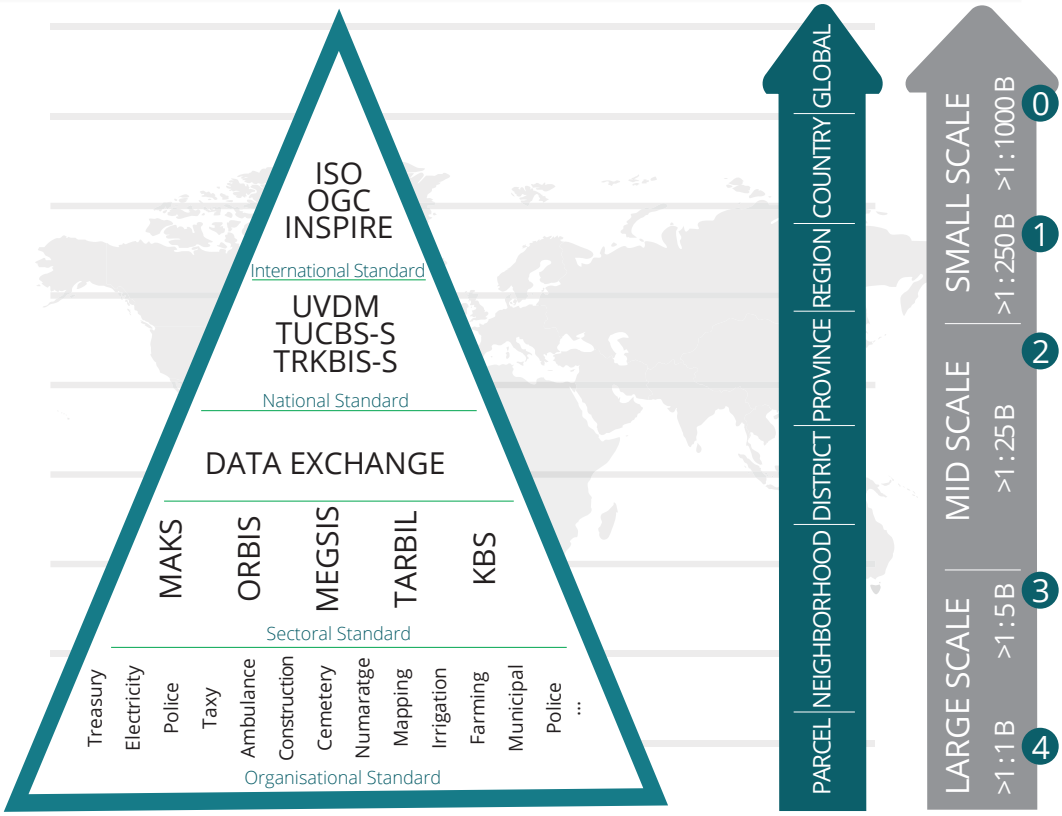
10 Basic standards of National Spatial Data Standards have been specified.

- Address
- Land Cover
- Building
- Hydrography
- Administrative Unit
- Geodetic Infrastructure
- Orthophoto
- Land Registry - Cadastre
- Topography
- Transportation

Coordinator and Responsible Organizations have been specified.
National metadata standards have been specified.

Standards Hierarchy

SDI – Geographic Data Usage and Standard Levels...



Urban Information Systems

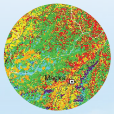
10 Data Themes have been defined for Local Governments.

In the Regulation, it is mentioned that;

- Local administrations should produce geographic data and geographic data sets in accordance with the urban information system implementation principles determined by the Ministry,
- Institutions and organizations that are unable to service geographic data and geographic data sets from the National Geographic Data Portal could use the infrastructure provided by the Ministry,
- The said information will be provided to local administrations including the urban infrastructure system functions.


Address


Building


Land Cover


Urban Furniture


Geodetic Stations


Land Use


Vegetation Cover


Water Body


Transportation


Public Services

Updating And Digitization Of Administrative Boundaries Project

The report named "Updating Turkey Administrative Boundary and Digitizing" that was prepared as a result of discussions and recommendations at "Determination of the Administrative Boundary Turkey" meeting, which Geographic Information Systems and Remote Sensing Working Group that was established under the Official Statistics Program (2012-2016) and relevant public institutions has participated and held on January 16, 2013 January 23, 2013 January 29, 2103 February 6, 2013 dates and after that finalized by taking into account comments and suggestions received from public institutions; was evaluated on the agenda of the meeting of Statistical Council held on March 28, 2013 and "Updating and Digitizing Administrative Boundaries" issue is decided to be covered by the Official Statistics Program.

General Directorate of Geographic Information Systems has participated the meetings of aforementioned working group held in 2013, 2014 and 2015.

In 2013, a pilot study has been made in the Çamlıdere district of Ankara about provincial borders prepared in 1938, 1959 and 1959 and was completed in early 2014, by the Turkish Statistical Institute, Ministry of Interior General Directorate of Provincial Administration, Ministry of Environment and Urbanisation General Directorate of Geographic Information Systems.

The meetings continued in 2014 and, the "Draft Cooperation Protocol Relating to Supplying and Sharing Data To The Studies Applied Within The Digitization of Administrative Borders", which is prepared in scope of "Updating and Digitizing the Administrative Borders Project" in coordination with the Ministry of Interior General Directorate of Provincial Administration in early 2015, has been signed by General Directorate of Geographic Information Systems.

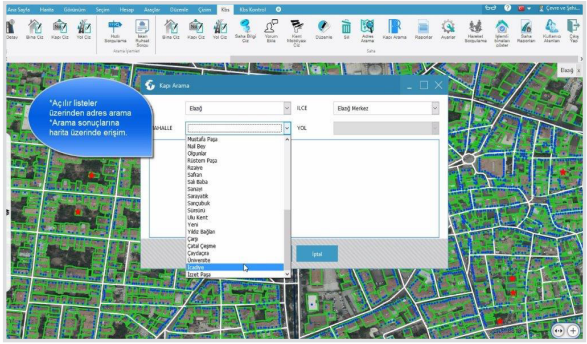
The works will be continued about the creation of the approved administrative boundary data that can be shared with institutions in 2016 and contribution will be made by our General Directorate.

Administrative boundaries published at http://www.atlas.gov.tr/

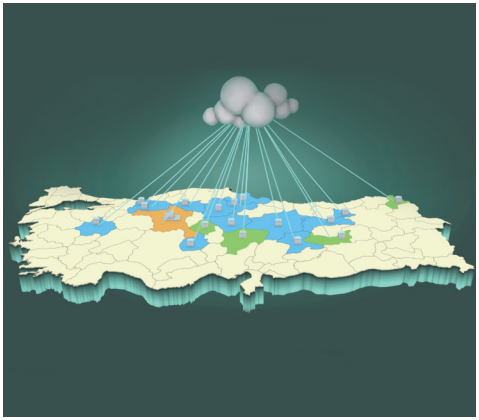
Cloud Urban Information System

"Determining the Transformation of Urban Areas and Disaster Scenario-Based Geographic Information System using the data generated by local governments for the establishment of the Research and Development of Automation Systems Project" has been conducting by the General Directorate of GIS.

Purpose of this project are establishing Urban Information Systems for municipalities and Urban Information Systems developing data standards that were determined by our Ministry into practice. Within this scope our studies have been continuing.



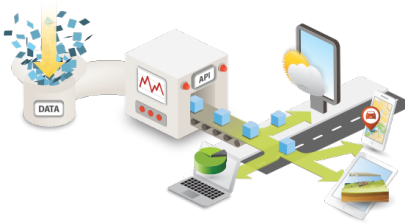
Cloud Urban Information System



Within this project, Municipalities of Ardahan, Elazığ, Kayseri/Talas and Kırşehir have been determined as a pilot area.

The protocols were signed between our Ministry and Municipalities of Erzincan, İlkadım, Kütahya, Sivas, Tekkeköy, Yozgat, Atakum, Canik, Battalgazi, Yeşilyurt, Aksaray, Amasya, Bayburt, Bolu, Çankırı, Çorum, Çubuk, Düzce, Samsun and Malatya. Within framework of the protocols, these municipalities are going to be integrated to the system.

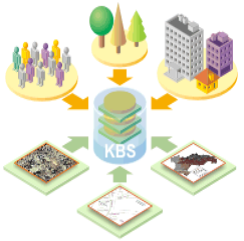
DATA COLLECTION



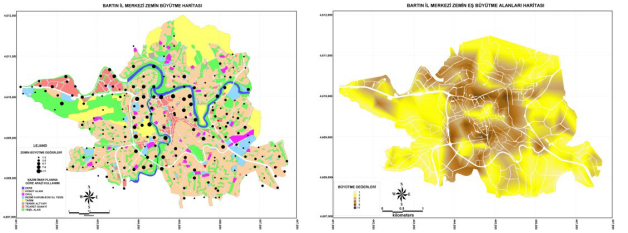
DATA PREPARATION

SOFTWARE DEVELOPMENT

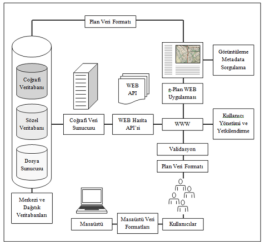
Cloud Urban Information System

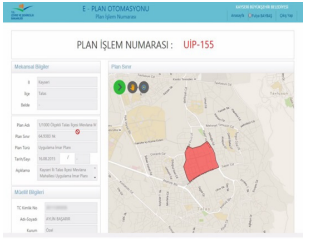


Urban Information System Modules

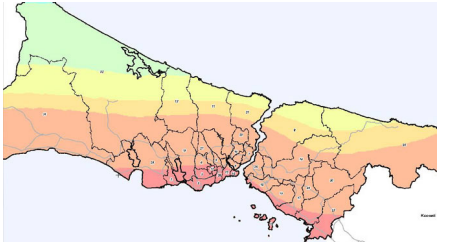


Geological Etude Automation System



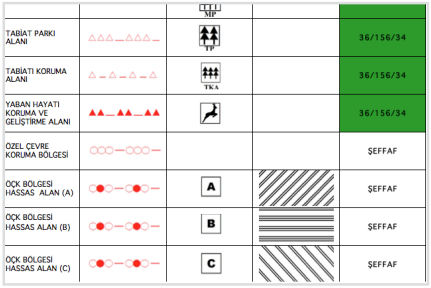


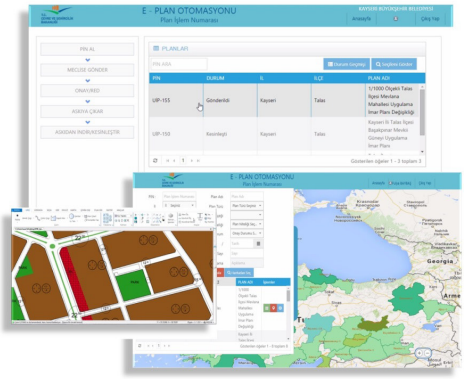
E-Plan Automation System



Earthquake Risk Prediction System

E-Plan Automation System





E-Plan project website has been opened for use to include information related to Spatial Planning Regulation and plan identification number application.

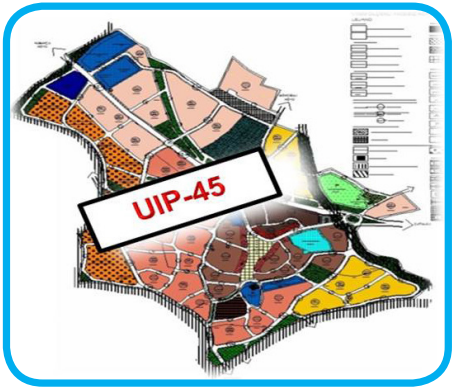
Developed, E-Plan Automation will provide monitoring of spatial strategic plans, environmental plans, development and application plans procedures in addition to this it will have the infrastructure to publish other special plan types like urban design projects, protection plans, transportation plans on the web.

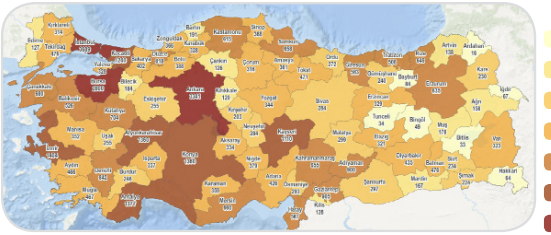
www.csb.gov.tr/projeler/e-plan/

Plan Identification Number (PIN)

With the Plan Identification Number, by following the planning process, spatial plans can be queried by the features and the desired plan can be reached. By the web-based running plan identification number application, institutions that perform plan approval are able to obtain number to their plans by username and password.

According to current legislation, obtaining PIN is obligatory and spatial plans cannot be proclaimed, finalised and put into practice without an obtained Plan Identification Number (PIN).





PLAN IDENT. NUMBER **TOTAL REGISTRATION NUMBER: 46.500**

10 December 2015

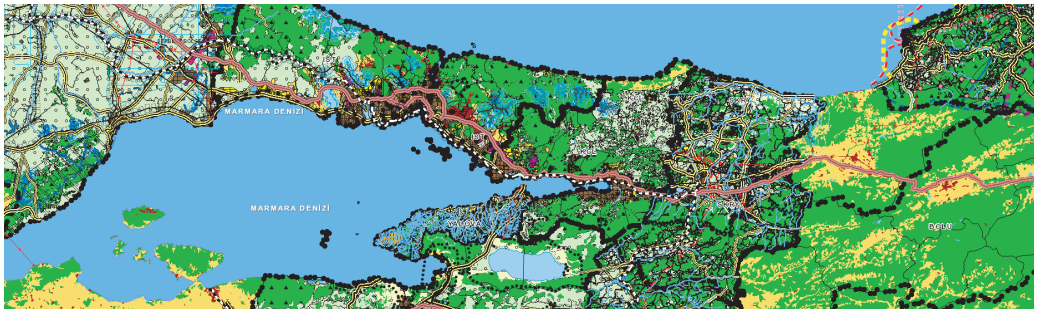
TOTAL PIN #

- 16 - 100
- 101 - 200
- 201 - 300
- 301 - 500
- 501 - 1000
- 1001 - 2000
- 2001 - 4000

Determination of Standards for Preparation of Plans by Geographic Information Systems Project

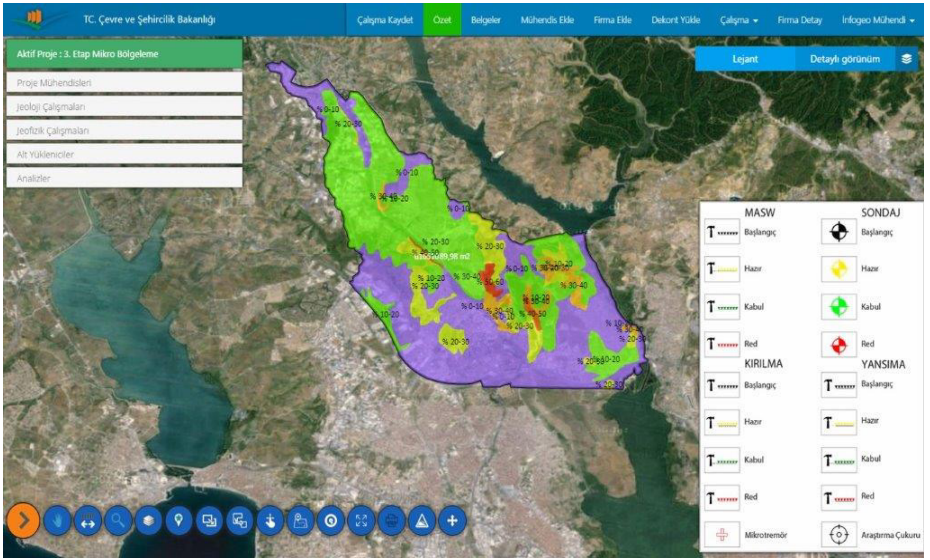
Legend specifications of Environmental Plans, Master Plans and Application Plans were standardized with specifications like color codes, border types, feature class, attribute, geometry type and comments which are declared in the annexes of Spatial Plans Regulation.

In accordance with the specified standards, Improvement of Spatial Plans Data Structure, Symbology Files and Plan GML Validation Software Improvement projects are being conducted.



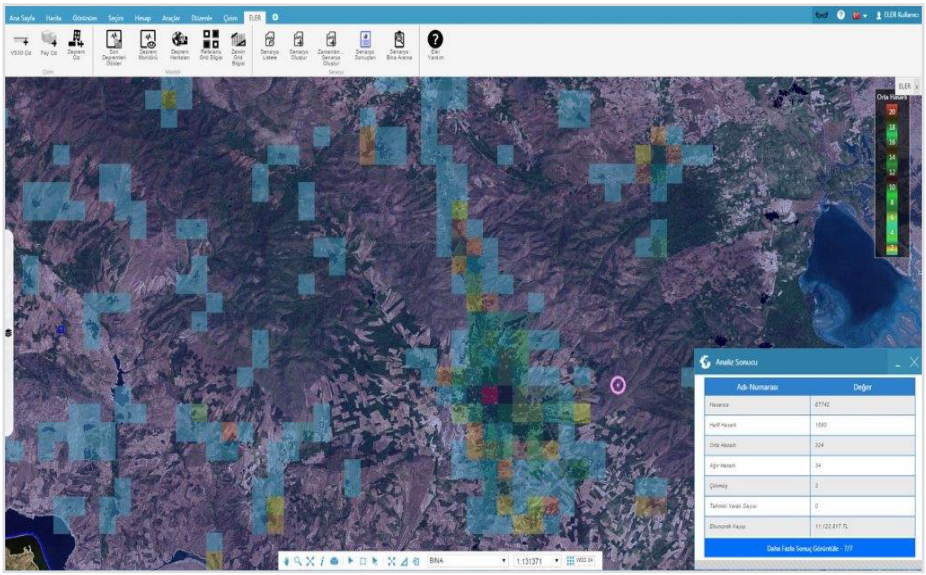
Geological Etude Automation System

The purpose is to develop an environment to access all reports belonging to the Geological etudes' processes by a fast and reliable system. This system will monitor working processes data entry, download and upload transactions done by natural and legal entities by using map services in web environment.



Earthquake Risk Rapid Mapping System

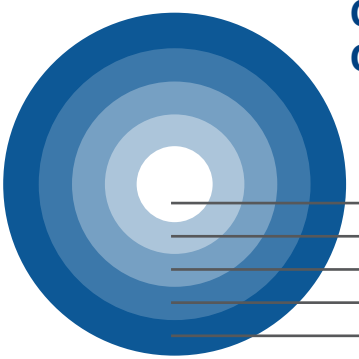
Earthquake Risk Rapid Mapping Application has been improved for Enabling disaster management systems and to reducing disaster risk due to the requirement of identification of risk areas and developing methods of direct intervention in these areas.



Inspire Capacity Building Project (2015-2017)

The main purpose of project is improving institutional, technical and legal framework for implementing effectively and establishing powerful administrative-technical capacity of EU INSPIRE directive.

COMPONENTS OF PROJECT



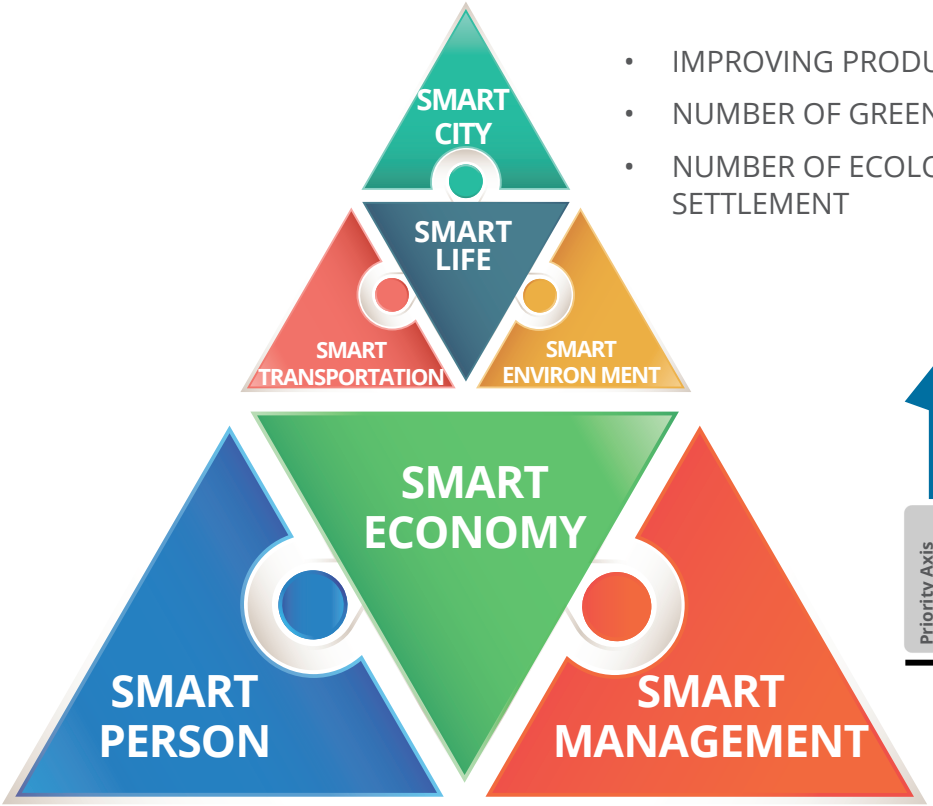
- Education
- Seminar
- Workshop
- Software Devolopment
- Applications For Improving Data Sets

EXPECTED OUTPUTS

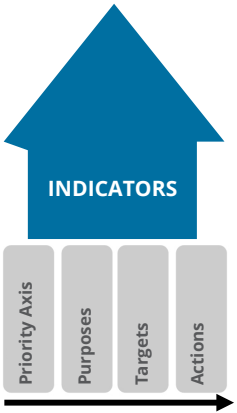
IMPROVING MINISTRY'S AWARENESS REGARDING GEOGRAPHICAL INFORMATION

IMPROVING LOCAL GOVERMENTS/ MUNICIPALITY'S SPATIAL NECESSITY AND TECHNICAL INFRASTRUCTURE WHICH IS THE MAIN DATA (GIVEN BY INSPIRE DIRECTIVE) PRODUCERS IN TURKEY

Strategy And Action Plan Of Smart Cities (2015-2016)



- IMPROVING PRODUCTIVITY
- NUMBER OF GREEN BUILDINGS
- NUMBER OF ECOLOGICAL SETTLEMENT

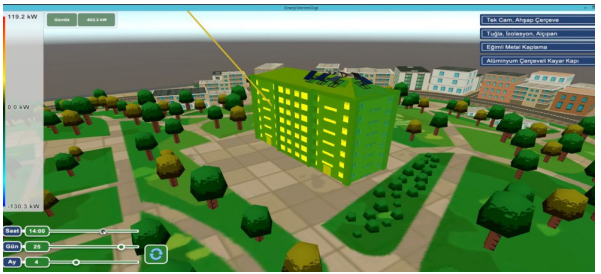


Project of Improving 3D Topography And Urban Data Model (2015-2016)

- **Data Preparation Module,**
- **Presentation and Visualization Module,**
- **Quality Control Module was prepared**.

For testing the system and providing the perform of sample application; A pilot application using data given by Ministry which contains 3000 buildings is performed for Elazığ Municipality.

3D Model library is prepared by a total of 691 model designs of street furniture, suburban equipment, transportation, traffic arrangement, warning signs and tree species.



For each building energy efficiency calculations can be worked, according to structure's materials efficiency results and population/energy consumption values can be shown by The Energy Efficiency Analysis Module as a part of BEP-TR II Project which is performing within Ministry IEP is being conducted within-T II Project.

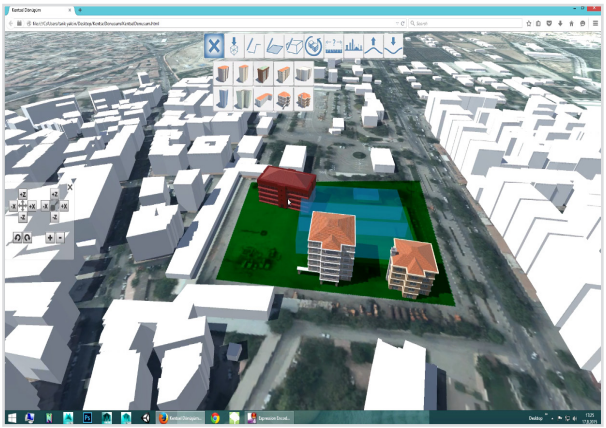
Project of Improving 3D Topography And Urban Data Model (2015-2016)

With Analysis Module;

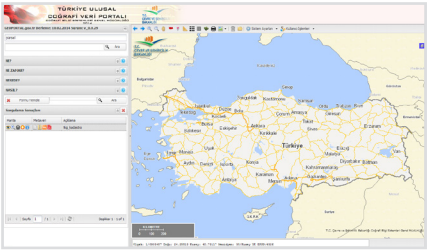
With analysis module, which can be compatible with projects carried out as air and noise pollution analysis carried out by the Ministry it can also be done with visualizations of traffic congestion and flooding.

Urban Regeneration and Planning Module;

With Urban Regeneration and Planning Module, Urban Transformation Analysis which is compatible with projects performing by Ministry can be performed.



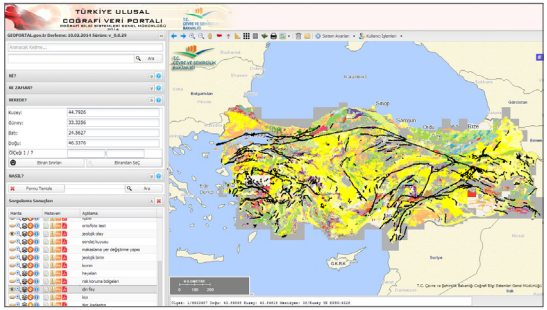
National Geographic Data Portal (Geoportal)



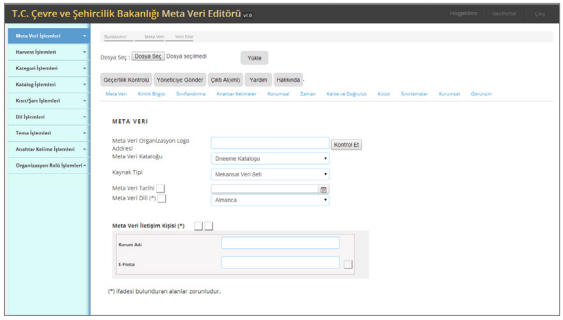
National Geographic Data Portal application fullfills the basic geospatial data portal functions such as, the existence of spatial data sources of both for geographic data within responsibility of our Ministry and all other public institutions, searching spatial data and spatial data entering / editing, displaying the query results, downloading metadata & geographic data based on user authorization.

National Geographic Data Portal (Geoportal)

National Geographic Data Portal developed by General Directorate of GIS has been published.



https://www.geoportal.gov.tr/geoxportal.aspx



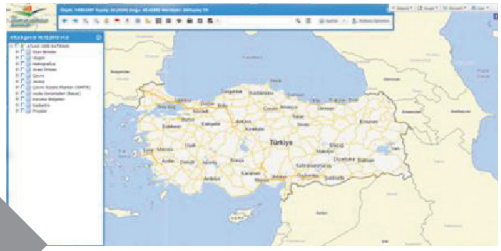
https://metaveri.geoportal.gov.tr/

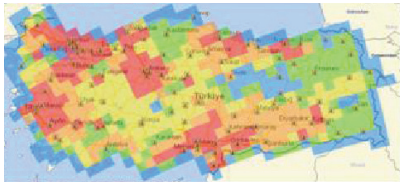
Sharing Geospatial Data

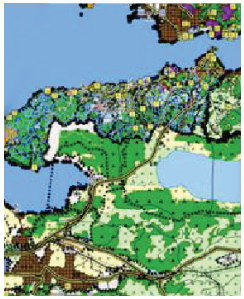
Environment and Urban Ministry

Coordination Studies; Submission on the Web Environment of Spatial Information

- General Directorate of Infrastructure and Urban Transformation Services
- General Directorate of Geographic Information System
- General Directorate of Enviromental Impact Assesment, Permit, and Inspection
- General Directorate of Enviroment Management
- General Directorate of Spatial Planing
- General Directorate of Professional Service
- General Directorate of Protection of Natural Assets
- General Directorate of Construction Works





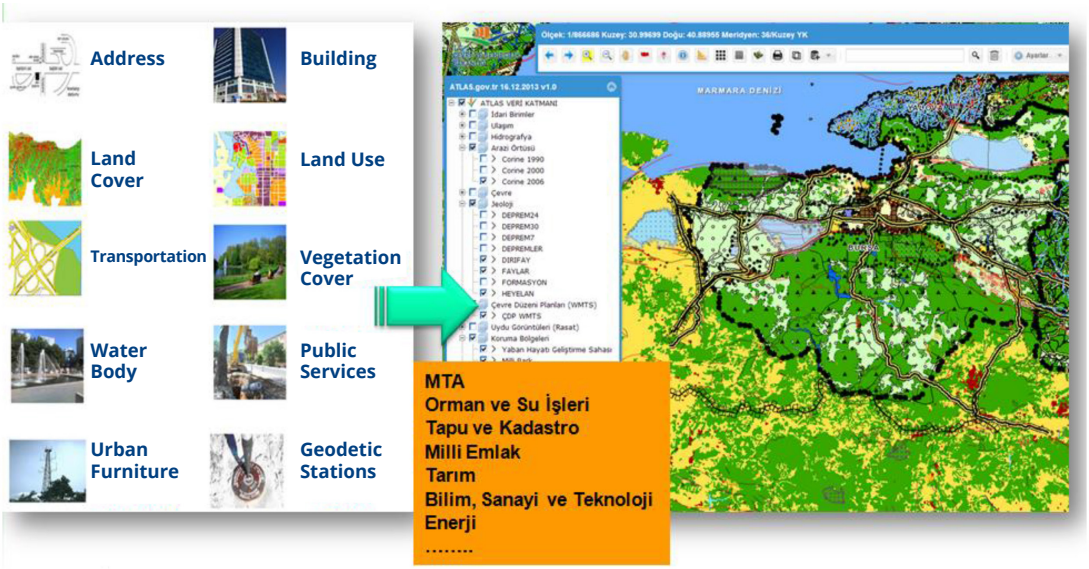


www.atlas.gov.tr

Sharing Geospatial Data

Environment and Urban Ministry

Coordination Studies; Submission on the Web Environment of Spatial Information



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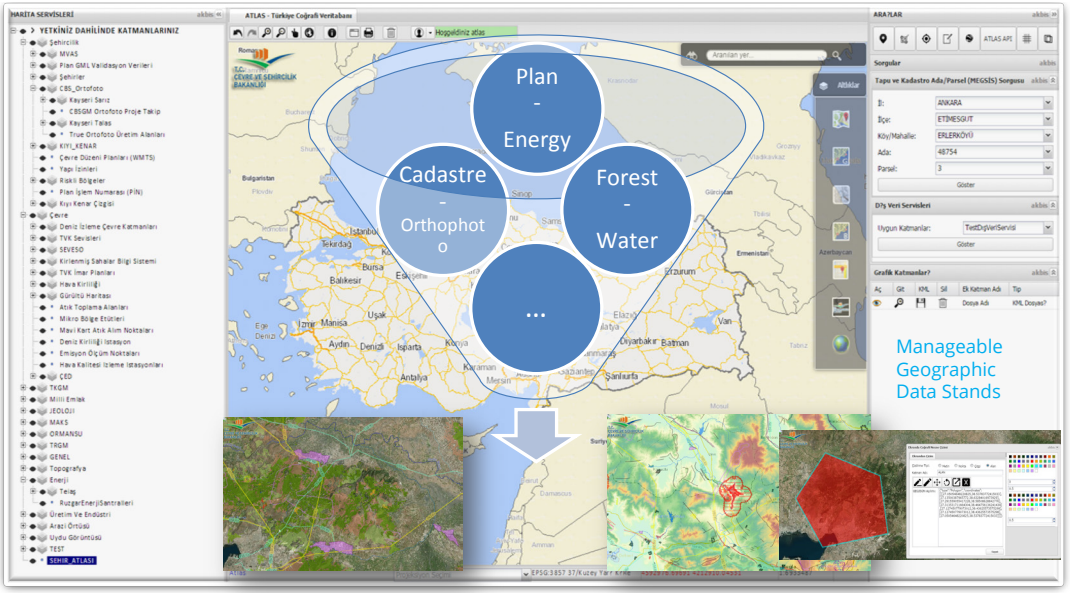
Sharing Geospatial Data



Geospatial Data Services
- Environment and Urban
- General Dirctorate of Land Registry and Cadastre
- Ministry of Forestry and Water Affairs
- Ministry of food, Agriculture and Livestock

Rich Display Function

National and International Map Stands (2 Dimension – 3 Dimension)

Rich Drawing Functions
(Graphic Layers)
Query/Search Functions

REPUBLIC OF TURKEY
MINISTRY OF ENVIRONMENT AND URBANISATION
GENERAL DIRECTORATE OF GEOGRAPHICAL INFORMATION SYSTEMS

True Orthophoto and Geospatial Data Product Project

Purpose and Scope of the Project

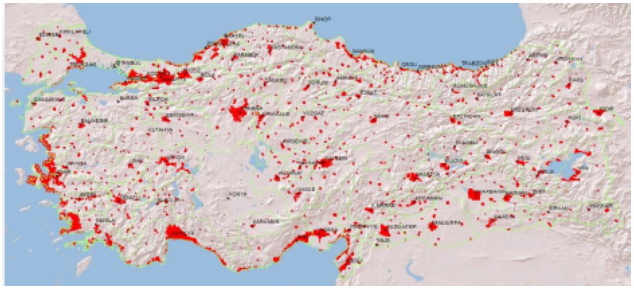
DASK NATURAL DISASTER INSURANCE INSTITUTION

40.000 km² area within the scope of this project which covers **settlement and development areas** of the cities.

- Coastal areas
- Social, cultural, industrial and tourism sectors
- Provincial, district and in major towns

Production of High Resolution Orthophoto Production of vector Based Roads and Buildings Data Harmonisation with Information Systems studies will be carried out.

Since similar studies have already been made by the municipalities of İstanbul, Bursa and Konya by their own means; in order to avoid duplication, these cities are excluded from the scope of this study. Project outputs will be also be integrated with other spatial information systems.

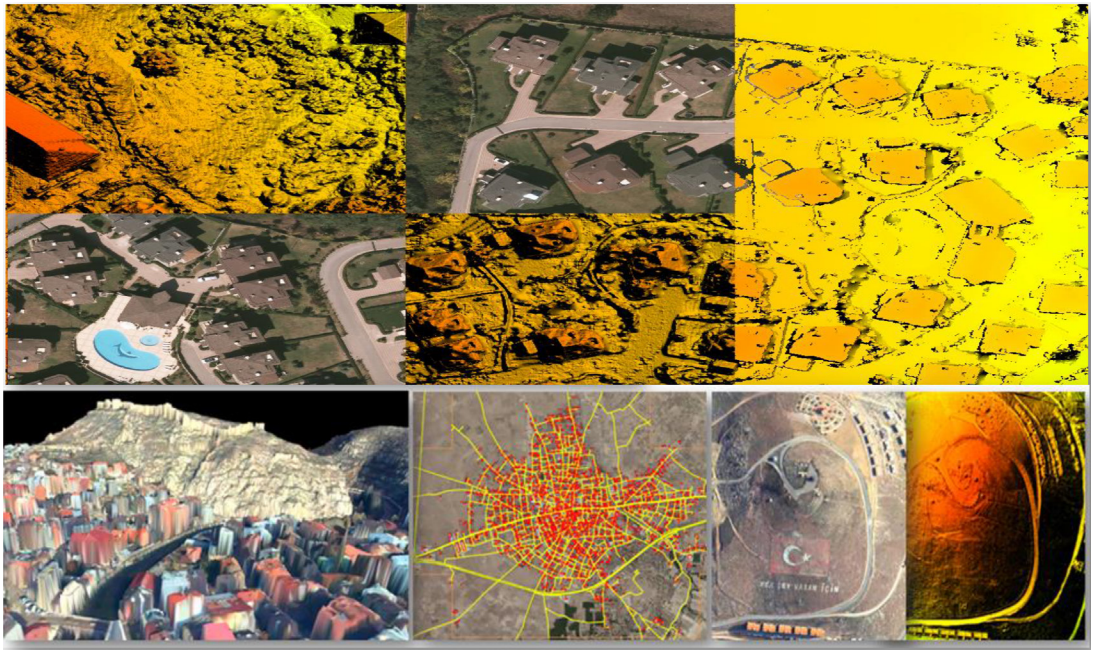


REPUBLIC OF TURKEY
MINISTRY OF ENVIRONMENT AND URBANISATION
GENERAL DIRECTORATE OF GEOGRAPHICAL INFORMATION SYSTEMS

True Orthophoto and Geospatial Data Product Project

High Resolution Orthophoto Production Project Studies

DASK
NATURAL DISASTER INSURANCE INSTITUTION



REPUBLIC OF TURKEY
MINISTRY OF ENVIRONMENT AND URBANISATION
GENERAL DIRECTORATE OF GEOGRAPHICAL INFORMATION SYSTEMS

True Orthophoto and Geospatial Data Product Project

Project Outputs and Outcomes

DASK
NATURAL DISASTER INSURANCE INSTITUTION

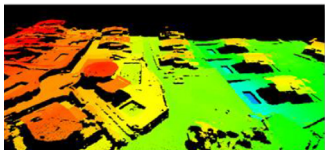
Generated by using advanced technological equipment and most up-to-date production techniques; will be served free of charge to all governmental institutions and municipalities.

Will bring efficiency and speed to studies such as spatial planning, urban regeneration, municipal services, illegal building monitoring, decision making, disaster planning, and emergency management.

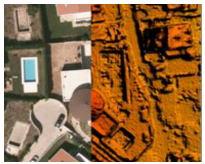
Will shorten the periods of environmental projects, application projects, planning works besides it will also reduce the costs of municipalities up to %70 which are unable to provide enough financial resources for similar projects.

Damage assessment can be made as soon as possible after natural disasters, coordination studies can be carried out with the aim of arranging the necessary organization for the timely intervention.

In the implementation phase of high technology, with the collaborative project works that will be performed by the universities and industry carrying out R&D activities, knowledge and capacity building of our ministry and our country will be carried out.



Point Clouds



Digital Surface Model

Orthophoto

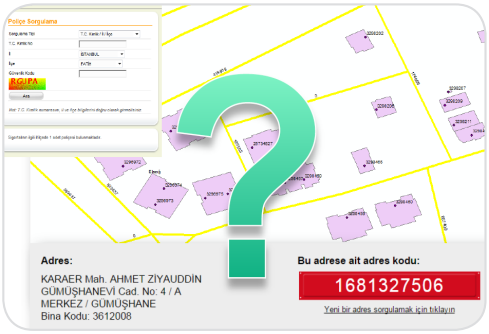
True High Definition Orthophoto

3D Models

Detection of Address Code On the Map (Geocoding)

Rationale of project:

- Incompatibility with other information system designed at the urban scale,
- The lack of building inventory in our country,
- Different production and storage premises according to standards required by many institutions to the extent of building data (building data to be away from the standardization),
- Address complex components, non-sensitive Numbering work,
- The use of different address formats and non-spatial address components,



- It is not associated with each of the existing systems,
- There has been no small statistical coding region,
- Building identification number necessity non-compliance with statistical anaylsis for solving the administrative boundaries.

Detection of Address Code On the Map (Geocoding)

Pilot studies are planned to be done in Adıyaman, Batman, Çorum, Gümüşhane, Malatya, Nevşehir, Uşak ve Yozgat. Tender was held on 8 June 2015. Evaluation results in the tender the signed contracts in July 2015 project were initiated. The project is completed in December 2015.

Detection of Address Code On the Map (Geocoding) Used Resources

Orthophoto, Road and Building Services that are used in the context of Project


True Orthophoto


Road Vector Data


Building Vector Data

Detection of Address Code On the Map (Geocoding)

Achievements of Project;

Building and road vector data is updated and reorganized,

An updated road and building inventory, which is the most needed asset of Country, is formed,

Shareable through service architecture,

The result data in standard data formats to be prepared and presented,

Performing geographic queries, making analysis and preparing location based statistical data is provided,

Providing significant time savings (8 Provinces has been completed in 6 months),

Will form a base for all kind of projects that are realized by public organisations; up-to-date, accurate and highest level relational data is acquired.

Human Resource and Education

Distance e-Learning Portal

- Use of Geographic Information Systems Development and dissemination of capacity development for distance e-learning model and applying distance e-learning programs “improving capacity and expanding use of GIS” aimed.
- For this purpose, distance e-learning course material standards, contents and open course materials required under modules in order to gain the necessary basic knowledge and skills, for the training of expert staff for the development of their vocational qualifications, is being formed.

Human Resources and Education

Distance e-Learning Portal

- In distance e-Learning Portal, Ministry central and provincial organization, related and affiliate entities and local government GIS technology is being with the aim of increasing the technical capacity for GIS course content and materials contained system design is made in this regard.
- Distance e-Learning Portal initially prepared in this context and It can be used in all our Ministry training it has a flexible structure.


SERTİFİKA

Sayın :

2013 yılında gerçekleştirilen "Coğrafi Bilgi Sistemi Orta Seviyesi Eğitimi"ne üç ay süreyle katılım sağlayıp, başarı göstererek bu belgeyi almaya hak kazanmıştır.

Dr. Bekir YILDIZ
Genel Müdür V.

Vocational Qualifications Work

GIS Professional Standards and National Qualifications

- As a result of the studies done together with the Vocational Qualifications Authority, GIS Operators and GIS Expert professional standards was published in the Official Gazette and national qualification work is in its final stage.
- Draft national qualifications prepared as a result of the evaluation of the received opinions was prepared. Date of entry into force is estimated to be in December 2015.
- Employment increase will be provided on GIS including labor-intensive works, the employment of unskilled will be prevented by meeting the job description and qualified personnel needs of the sector.

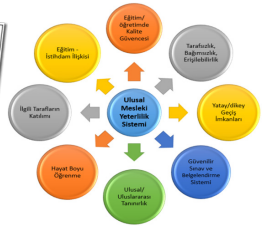
Vocational Qualifications Work

Personnel Certification

BelgeCBS

Within the scope of the work of personnel certification in the vocational qualification field, the studies about establishment of Personnel Certification Unit accredited by TURKAK was initiated in accordance with the TS EN ISO/IEC 17024 standards.

MYK
MESLEKİ YETERLİLİK KURUMU

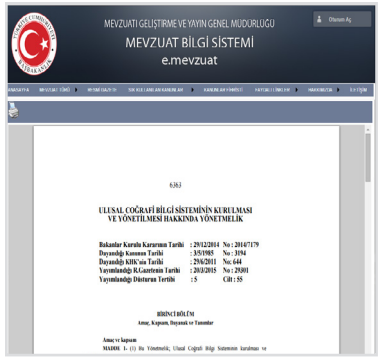


As A Result of the Establishment of Personnel Certification Unit

- QMS (Quality Management system) compatible with the ISO 17024,
- Creating an impartial examination process,
- Being the most reliable institute that gets the testing and certification authority in GIS Qualifications,
- To provide service in accordance with Terms of Reference of General Directorate of GIS (doing certification and accreditation studies),
- To contribute the employment of the certificated staff,
- Continuous development and improvement will be provided.

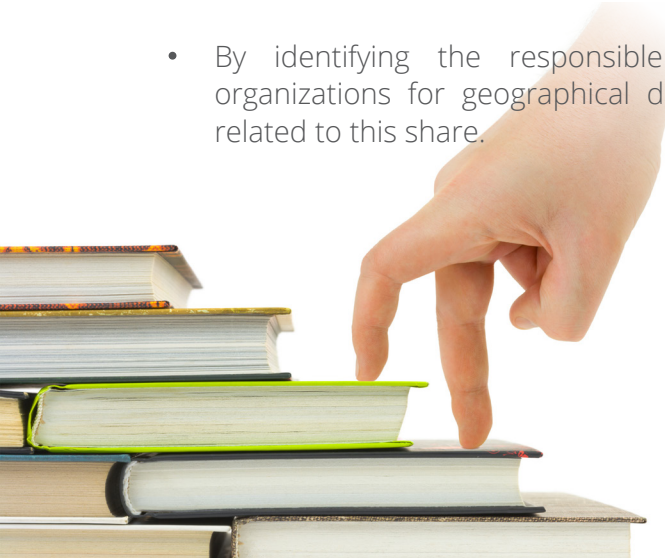
Regulations About Establishing and Managing National Geographic Information System

It has been prepared on the basis of paragraph (ç) of the Article 8 of the Zoning Law and the Decree Law of No. 644 About Organization and Duties of Environment and Urbanisation and based on the decision of the Council of Ministers dated 29/12/2014, entered into force after published in the Official Gazette dated 20/3/2015 with no. 29301.



Purpose of the Regulation

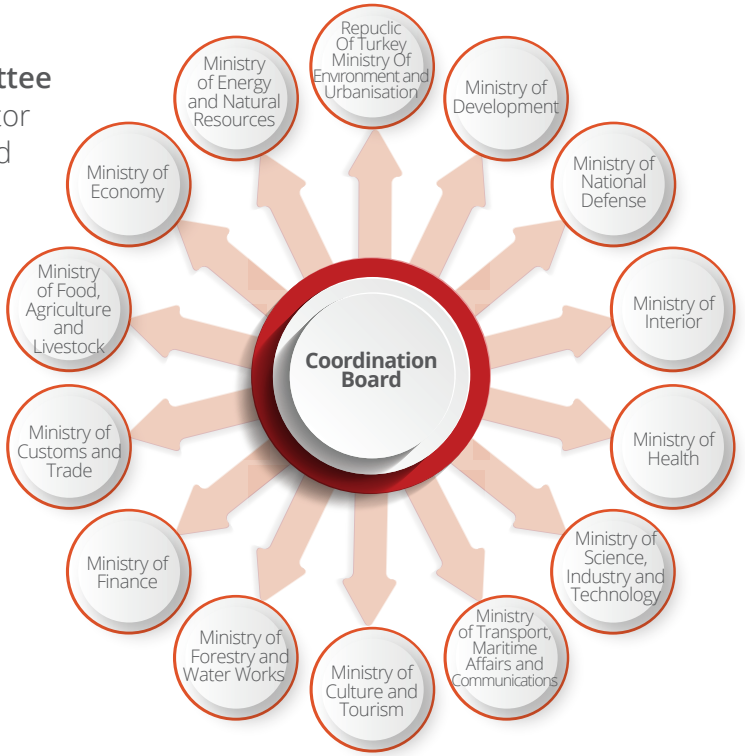
- The establishment and management of the National Geographic Information System
- To ensure cooperation and coordination about the production, updating and sharing of geospatial data among institutions and organizations
- Determination of details about the production of geographic data and associated metadata and standards about sharing it
- By identifying the responsible and coordinator institutions and organizations for geographical data, determination of the obligations related to this share.



Board and Committee

- **Coordination Board** consisting of undersecretaries to ensure the coordination between the institutions engaged in the production of geographic data,

- **Technical Committee** was formed to monitor the harmonization and production of data in accordance with the data definition of geographical data and to ensure coordination in this regard.



Legislation Studies

Article '8/ç', which makes the usage of GIS in the preparation of plans mandatory, was added to the Zoning Law.

Protocols for data sharing was signed by many institutions.

Circulars regarding informatics, interoperability and collection of zoning plan revisions in the General Directorate of GIS were prepared.

Zoning Law and the Draft Law on amendments in some laws and decree laws were updated.

Draft law of GIS Services has been prepared.

IT Infrastructure

More Functional, Stronger, Safer

100 PHYSICAL SERVERS

347 VIRTUAL SERVERS

ISO/IEC 27001

IN TS ISO / IEC 27001 SCALE

CONNECTION TO 81 PROVINCES VIA METRO ETHERNET

CENTRAL DATABASE

Data Center

New Service Building & Data Center

- Internationally Certificated by Uptime-TIER Data Center
- 800 m² Total Area
- 8 Different Sections
- 380 m² White Space
- 92 Cabinets (8 Network Cabinets)

IT Applications

Applications Prepared, Technically / Administratively Supported by the Directorate

- KENTGES

- E-Cooperative

- Construction Material Cost Index

- Construction Materials

- Waste Package

- Blue Card

- GeoPortal

- Atlas

- E-EIA

- Control of Construction

- Waste Water

- Investment Tracking System

- Electronic Document Management System

- Residential Tracking

- Human Resources

- Noise Control

- YAMBİS

- Sea Coast

- Company Information System

- Environmental Permissions

... 70 APPLICATIONS

New Service Building

T.C. Gıda,Tarım ve Hayvancılık Bakanlığı

T.C. Danıştay Başkanlığı

T.C. Diyanet İşleri Başkanlığı

Türkiye Odalar ve Borsalar Birliği

Ankara Şehirler Arası Terminal İşletmesi (AŞTİ)

Mustafa Kemal Mahallesi Eskişehir Devlet Yolu (Dumlupınar Bulvarı)
9. km. (Tepe Prime Yanı) No: 278 Çankaya / Ankara
32°45’05.9”E 39°54’42.0”N

REPUBLIC OF TURKEY
MINISTRY OF ENVIRONMENT AND URBANISATION
GENERAL DIRECTORATE OF GEOGRAPHICAL INFORMATION SYSTEMS

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Turkey
Discover the potential