

Expert Consultation and Meeting on Enhancing Geospatial Information Management Arrangements and Accelerating Implementation of the Sustainable Development Goals, and the Sub-regional Workshop on the United Nations Integrated Geospatial Information Framework (UN-IGIF) for Central Asia, South Asia, and Neighboring Countries

Implementing geospatial strategies: challenges and opportunities

Astana, Kazakhstan
15-19 September 2025



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Enhancing Geospatial Information Management arrangements Accelerating the Implementation of the SDGs

Sub-regional Workshop on UN-IGIF for the Central Asia, South Asia and Neighboring Countries

TÜRKİYE

General Directorate of Geographic Information Systems

<https://cbs.csb.gov.tr>

39°54'41.85" N, 32°45'7.32" E



REPUBLIC OF TÜRKİYE
MINISTRY OF ENVIRONMENT,
URBANIZATION AND CLIMATE CHANGE

Delegation of Türkiye:

Omer ALAN (*General Director of GIS*)

Naim Cem GÜLLÜOĞLU (*Head of the Remote Sensing Dept.*)

Murat BAYAZIT (*Attache, Survey Eng., Ministry of Foreign Affairs*)

Sept. 2025 / Astana



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Introduction: General Directorate of GIS, Republic of Türkiye

Established in 2011 (*w. Decree Law No. 644*), we have been providing national leadership in setting geospatial policies and developing the NSDI (National Spatial Data Infrastructure).

Our core duties & responsibilities include:

-  **National Geospatial Information System** – establishing & operating national GIS platform
-  **Data Standards & Regulations** – setting rules for geospatial data production and defining sharing policies of geospatial data themes
-  **Urban Information Systems** – setting urban info. system standards and promoting nationwide implementation
-  **Smart Cities** – establish national strategy for smart cities and setting its action plan; assesing maturity level
-  **International Networks** – participating in global geospatial data sharing and GIS & RS initiatives, events
-  **Certification & Accreditation** – developing quality assurance for GIS practices
-  **Remote Sensing** – conducting remote sensing applications as well as establishing National Strategy for RS



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Introduction: Some Legacy Challenges and Need for NSDI

Almost two decades ago...

- Geospatial data inventory of public institutions was unclear.
- There was a lack of coordination regarding the use and sharing of spatial data.
- No full consensus existed among institutions on the standards of geospatial data.
- While some geospatial data were not produced by any institution, some geospatial datasets were redundantly produced by different institutions.
- Geospatial data sharing rules were not clearly set by an authorized-national-level body.
- Preparedness for emergency and disaster cases were insufficient.
- Due to bureaucracy, tens of thousands of protocols existed. This caused complicated access to geospatial data.
- Data flow from central institutions to local governments, and vice versa, was lacking.



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Where is your country today in enhancing the management and use of geospatial information? **TIMELINE : Two Decades of Progress in Developing Policy and Legal Frameworks**

Before 2004

Need for;

- institutional & legal framework
- national geospatial data standards
- regulations for geospatial data sharing among institutions

TIMELINE



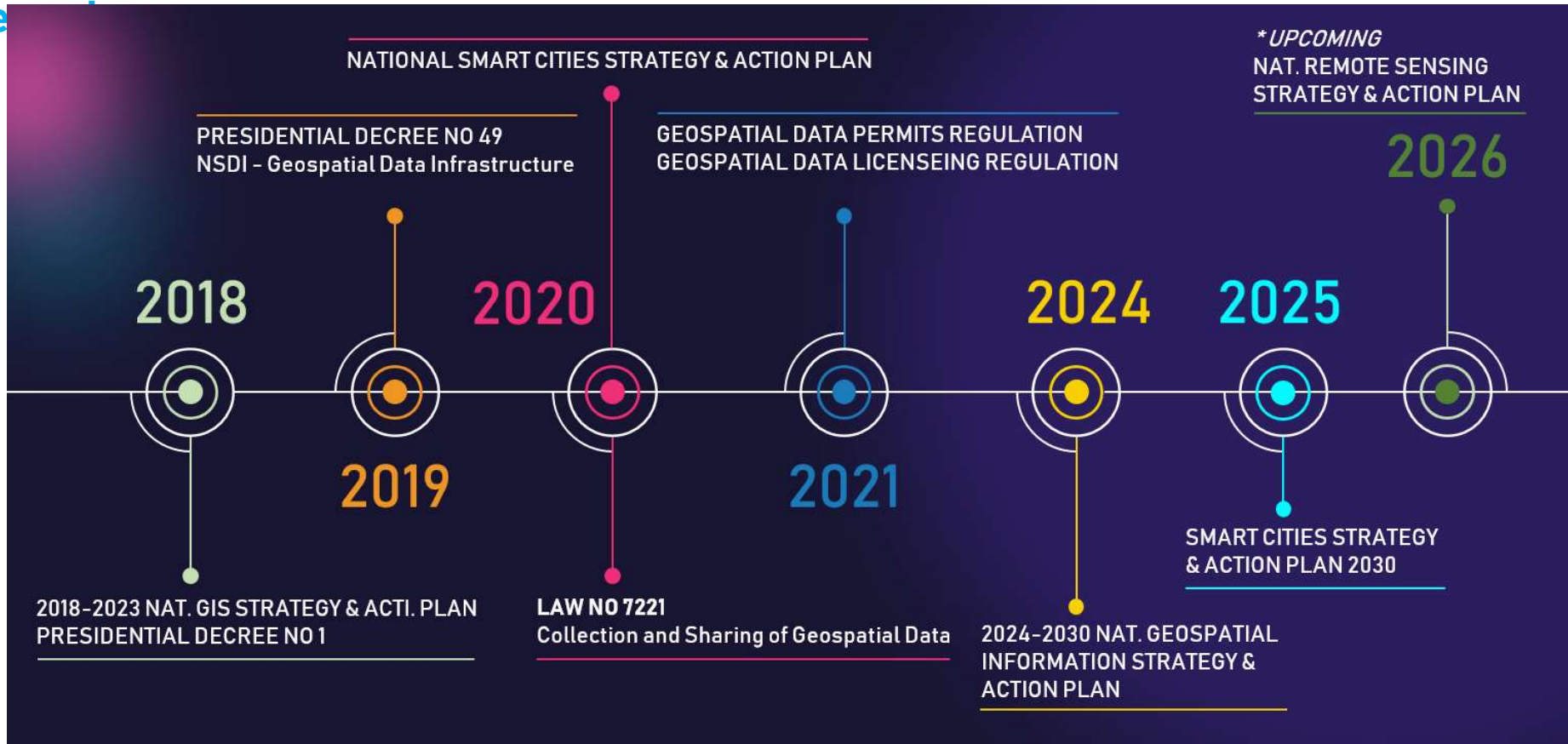
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Where is your country today in enhancing the management and use of geospatial information? **TIMELINE : Two Decades of Progress in Developing Policy and Legal Frameworks**

TIMELINE (cont.)



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Where is your country today in enhancing the management and use of geospatial information? INSTITUTIONAL FRAMEWORK : GIS Board, GIS Executive Board, Workgroups

GIS Board convenes under the chairmanship of the Vice President of the Republic of Türkiye. Most of the members are deputy ministers. (*>10 ministries are involved in these annual meetings*)

Executive Board mostly includes Director Generals. Makes several meetings each year.

Workgroups include technical people from related institutions to set rules & standards for geospatial data themes. Reports of WGs are later sent to the Exec. Board for review and final decision.



*Annual meeting of GIS Board
5 meetings
64 strategic decisions*



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Where is your country today in enhancing the management and use of geospatial information? GEOSPATIAL DATA THEMES : **Standards & Sharing Policies**

Regarding geospatial data, there are **32 themes** and **53 sub-themes** listed under the NSDI.

Standards for data themes are established through negotiations in technical WG meetings (between producer and user institutions).

<https://tucbs.gov.tr/tucbs-tanimlama-dokumanlari/>

Sharing policies are defined through «data sharing matrix» for each theme.

<https://cvpm.tucbs.gov.tr/>



Where is your country today in enhancing the management and use of geospatial information? NATIONAL GEOSPATIAL DATA PLATFORM : [TUCBS.GOV.TR](https://tucbs.gov.tr)

turkiye.gov.tr
>66 mil. users



322
GEO-SERVICES ARE CERTIFIED FOR
OFFICIAL TRANSACTIONS

Konu/Bilgi Al	
ogc_fid	13748.00000000
faytipi	1.00000000
faycesidi	12.00000000
shape_leng	4488.46480967
fayno	1
segmentno	1-25
fayadi	KUZEY ANADOLU FAY ZONU
segmentadi	Düzce Segmenti
deptar	11/12/1999
depmag	7,2
name	14-ADAPAZARI
area	146378923.00000000
perimeter	48852.13350000
pafta25bin	G26a3
pafta50bin	G26a
pafta100bi	G26
il	ADAPAZARI
aciklama	
depderinli	
uzunluk	48.00000000

tucbs.gov.tr
> 300k users

630 TOTAL
GEO-LAYERS

646 VIEW ONLY
MAPPING SERVICES

589 MAP DATA
DOWNLOAD SERVICES

e-Hizmetler
Sorgulama, Başvuru ve Ödeme Hizmetleri

Kurumlar
Resmî kurumların hizmetleri ve iletişim bilgileri

Belediyeler
Belediyelerin iletişim bilgileri ve sundukları hizmetler

Firmalar
Şirketlerdeki fatura ve abonelik bilgilerinize erişin.

Üniversiteler
Üniversitelerin sundukları hizmetler

ATAM
Atatürk Araştırma Merkezi Başkanlığı internet sitesini ziyaret edin.

Tarife Karşılaştırma
Elektronik haberleşme işletmecilerinin bireysel abone alımına açık olan tarifelerini / kampanyalarını karşılaştırabilirsiniz.
Tarife Karşılaştırma

Çalışma Hayatım

Araçlarım (Gerçek Kişi)

Türkiye Ulusal Coğrafi Bilgi Sistemi

Adrese Teslim Şifre Başvurusu

İkametgâhim (Adrese Bağlı Hizmetler)

Vâris Hizmetleri

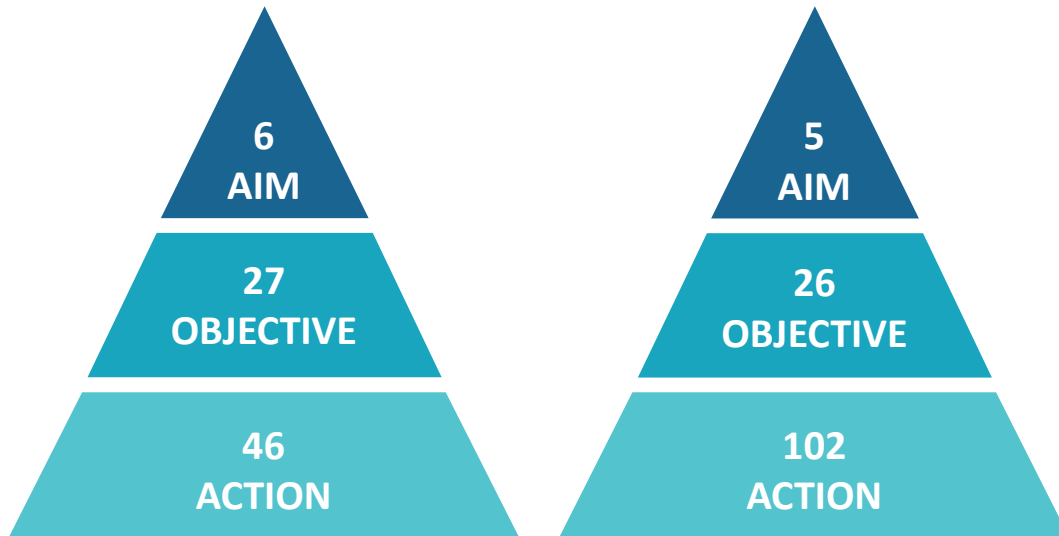
Özel Sigortalarım



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Where does your country aim to be in the next five years?

National GIS Strategy and Action Plan



2018-2023
Nat. GIS Strategy and
Action Plan

2024-2030
Nat. GIS Strategy and
Action Plan



2018-2023 National Geospatial Information Strategy and Action Plan has been completed with a success rate of 87%.



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Where does your country aim to be in the next five years?

Strategy, Goals, Actions...

- Integrate all ministries' decision support systems with the NSDI *«geo-data driven approach for all»*.
- Enabling utilization of geospatial data from this centralized repository *«for all ministries»*.
- Strengthen National Geospatial Data Platform which is integrated with e-Gov Türkiye. *«until 2030»*
- We aim to expand the platform by integrating +100 geospatial services annually. *«enhancing service capacity»*
- Support domestic GIS market & innovation ecosystems
- Monitoring progress on GIS with maturity indexing: Measuring at the province level incld. service ratings *«target: all 81 provinces until 2027»*.
- Increasing geospatial data awareness and improving GIS education *«hackathons, peer-reviewed journals»*
- Establishing National Strategy for Remote Sensing Data Management
- Integrating GIS as a core component for smart cities
- Cooperation with the Turkic States and countries in our close geography to enhance NSDI capacity.



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What do you see as the main challenges in reaching this “ideal” situation within the next 5 years?

Challenges

- Bureaucracy in inter-institutional data sharing «*still some old-practices*»
- Differences in data quality and update cycles «*lack of proper metadata culture*»
- Lack of full compliance with national standards

Although 630 layers are served under national geo-data portal, only 322 can be validated for official use.

- Need for human capacity development and technical expertise «*national training capacity should be increased*»
- We need a sustainable business model for the GIS industry
- GIS-based AI language model is still not at the desired level of maturity
- Securing financial resources for spatial data production «*long-term financial strategies*»
- Some of our archives are centuries old and can still contain non-digitized geographical data.
- Türkiye is a natural disaster prone country. «*Earthquakes, wildfires, floods etc.*»



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What do you see as the main challenges in reaching this “ideal” situation within the next 5 years?

Opportunities

- The NSDI we have established is robust and open to future improvements. *«strong system infrastructure»*
- We have established strong legal framework and strategic plan. *«2024–2030 Strategy includes 26 well defined national targets»*
- National Geospatial Data Portal is integrated to e-Gov. Portal of Türkiye *«this leads a potential to serve 66M+ citizens by 2030»*
- In Türkiye, companies working in the field of geospatial data production are formally registered. *«production, sharing and commercial use of such data are regulated by law»*
- National platform ensures transparent sharing of geospatial data. *«over 600+ geo-services are publicly accessible»*
- New Technologies are emerging such as *AI, Machine Learning*
- Regional and international cooperation (UN-GGIM, EU Networks, Org. of Turkic States) *«Türkiye actively participates in UN-GGIM activities and keeps focus on international best-practices.»*
- We also see Organization of Turkic States as a potential cooperation platform.



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How familiar are you with UN-GGIM, the UN-GGKIC, the IGIF, and the CAP?

- Türkiye is member of UN-GGIM Europe and UN-GGIM Asia-Pacific. We try to actively engage in both.
- First attended in the 2014 session, Türkiye has been actively engaging in UN-GGIM studies since 2023 with increasing motivation.
- Türkiye's National Integrated Geospatial Information Framework (2020) is fully aligned with UN-IGIF*

(*Based on overarching strategy 1st ed. Revision of National IGIF with respect to 2nd ed. has been initiated.)

<https://cevresehiriklimkutuphanesi.csb.gov.tr/ShowPDF/0a1a09bc-c2c7-4f37-b2b8-17a8a42f7808>

- Our 2024–2030 Strategy incorporates with IGIF strategic pathways
- “GIS Maturity Model” and “Türkiye Geo-Data Economy Report” are under development. These will be announced by at the end of 2025, covering all public CBS projects.



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Integrated Geospatial Information Framework of Türkiye

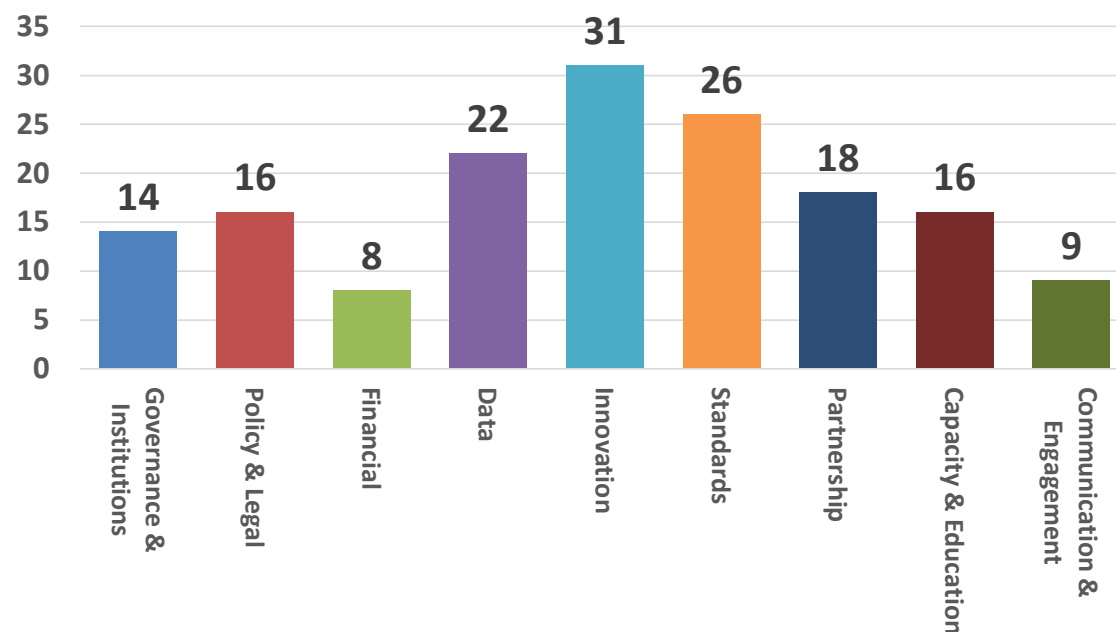
IGIF Strategic Paths vs. Actions in Nat. GIS Strategy

Completeness of actions based on National GIS Strategy & Action Plan

- Gov. and Inst. %87**
- Policy and Legal %100**
- Financial n/a (monitoring started as of 2025)**
- Data %87**
- Innovation %84**
- Standards %78**
- Partnership %87**
- Capacity and Edu. %100**
- Comm. And Engag. %100**

TOTAL SCORE > % 90,4

IGIF Pathways vs. Actions



What kind of support would you like to receive from UN-GGIM, UN-GGKIC, or other partners?

- Training programs for capacity development
Training support for technical staff at UN-GGKIC, UN-GGCE, UN-GGECE
- Technical collaboration on standards & interoperability
- We look forward for best practices on financing geospatial information ecosystems
- Access to international data sharing platforms
such as Earth observation data inventories (for emergency and disaster cases)
- We seek for international cooperation in climate change & disaster management applications *vital for Türkiye as a natural disaster-prone country (earthquakes, floods, wildfires)*
- As Asia-Pacific is huge geographic region, we believe that the establishment of sub-groups among neighboring regions would be beneficial.



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