

# Expert Consultation and Related Meetings on Developing Strategies and Implementing Geospatial Solutions for the Sustainable Development Goals

9-13 February 2025, United Nations Office in Vienna / Austria



## Country Experience on the UN-IGIF & GSGF TÜRKİYE

**Ministry of Environment, Urbanization & Climate Change**  
**General Directorate of Geographic Information Systems**

**Turkish Statistical Institute (TURKSTAT)**

**Delegation of Türkiye:** Ömer ALAN (*Director General of GIS*)  
Cem GÜLLÜOĞLU (*Head of Remote Sensing Dept., GD of GIS*)  
Selin ERTÜRK (*TURKSTAT Expert*)



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# Introduction: Towards Spatially Enabled Era...

In today's data-driven world, National Spatial Data Infrastructure (NSDI) and the integration of geospatial & geostatistical data have become strategic assets. In this context, the UN-IGIF and GSGF provide a guiding framework for shaping national data ecosystems.

In Türkiye,

- **General Directorate of GIS** is responsible for the NSDI [cbs.csb.gov.tr](https://cbs.csb.gov.tr)



institutional governance, setting geospatial data standards & sharing policies, maintaining the geospatial portal, legal framework & regulations, licensing commercial activities...

- **Turkish Statistics Institute (TURKSTAT)** is the national statistical authority [tuik.gov.tr](https://tuik.gov.tr)



produces and disseminates national statistics based on economic, social, demographic and environmental data.



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# NSDI: Two Decades of Progress & the Legal Framework

Since the early 2000s, Türkiye has been developing and managing the components of the NSDI through various initiatives.

## Key Regulations & Legal Framework for the NSDI

- 2004, Action Plan on e-Transformation of Türkiye
- 2006-2010, National GIS Policy initiatives
- 2011, Estab. of the Gen. Dir. of GIS as NDSI auth. *\*July 2011, Estab. of the UN-GGIM*
- 2013, First rel. of Geoportal & Geospatial Data Standards
- 2018, National GIS Strategy & Action Plan (1st release)
- 2019-2021, Pres. Decree on Geospatial Data Infra. & Law on the Regulation of Nat. Geospatial Market
- 2024, Nat. GIS Strategy & Action Plan (Updated for 2024-2030)
- 2025, Updated rel. of the National Geospatial Data Platform *tucbs.gov.tr*

*The Piri Reis map (1513) depicting Atlantic, Western Europe, North Africa and Eastern Coast of South America.*



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# NSDI: Inter-Institutional Governance and Coordination

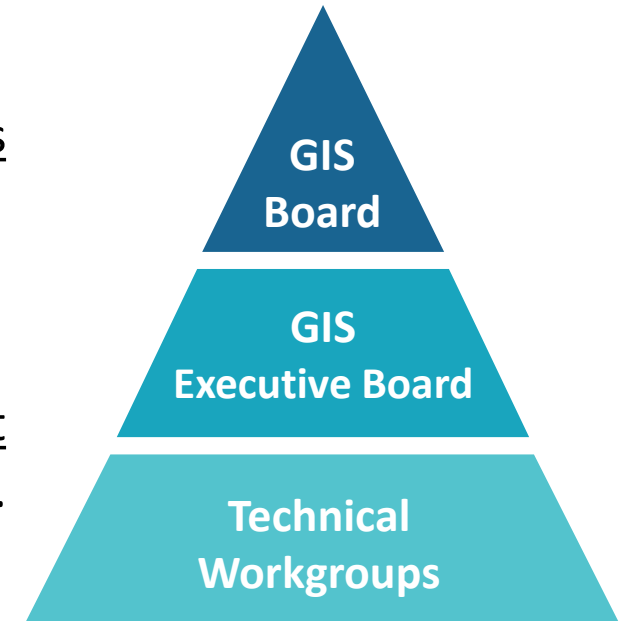
Regulated by the Pres. Decree #49, the **GIS BOARD** convenes under the chairmanship of the Vice President of the Republic of Türkiye. Most members of the Board are Deputy Ministers. More than 10 ministries are represented in the annual meetings.

At this level, projects related to the NSDI and geospatial information technologies are addressed from strategic and financial perspectives.

The **EXECUTIVE BOARD** mainly consists of Directors General and convenes several times a year to take decisions on implementation principles.

Exec. Board is chaired by the Director General of GIS.

**WORKING GROUPS** are composed of technical experts from relevant institutions. They develop rules & standards for geospatial data themes, prep. technical documents and provide technical support to the Exec.



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# NSDI: National GIS Strategy & Action Plan (2024 - 2030)

The current National GIS Strategy of Türkiye includes 26 objectives under 5 main goals, fully aligned with the 9 strategic pathways of the UN-IGIF.

All actions linked to these objectives are being systematically monitored.



		# of OBJECTIVES
GOAL 1	STRENGTHEN THE NATIONAL GIS THROUGH INTEGRATION WITH THE E-GOVERNMENT ECOSYSTEM	5
GOAL 2	CONTRIBUTE TO THE DEVELOPMENT OF THE GEOSPATIAL INFORMATION INDUSTRY	5
GOAL 3	ENHANCE THE DATA AND SERVICE CAPACITY OF THE NATIONAL GEOSPATIAL INFORMATION SYSTEM	5
GOAL 4	INCREASE AWARENESS AND EFFECTIVE USE OF THE NATIONAL GEOSPATIAL INFORMATION SYSTEM	6
GOAL 5	MONITOR AND EVALUATE THE DEVELOPMENT PROCESS OF THE NATIONAL GEOSPATIAL INFORMATION SYSTEM	5



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# NSDI: National GIS Strategy and IGIF Strategic Paths

Objectives of the National GIS Strategy are mapped against the Strategic Pathways of the IGIF.

*No uncovered strategic pathways!*

As our GIS Strategy is well aligned with the UN-IGIF, the CAP draft document has been prepared and is planned to be shared following the necessary provisions.

8



**UN-IGIF**  
INTEGRATED GEOSPATIAL  
INFORMATION FRAMEWORK



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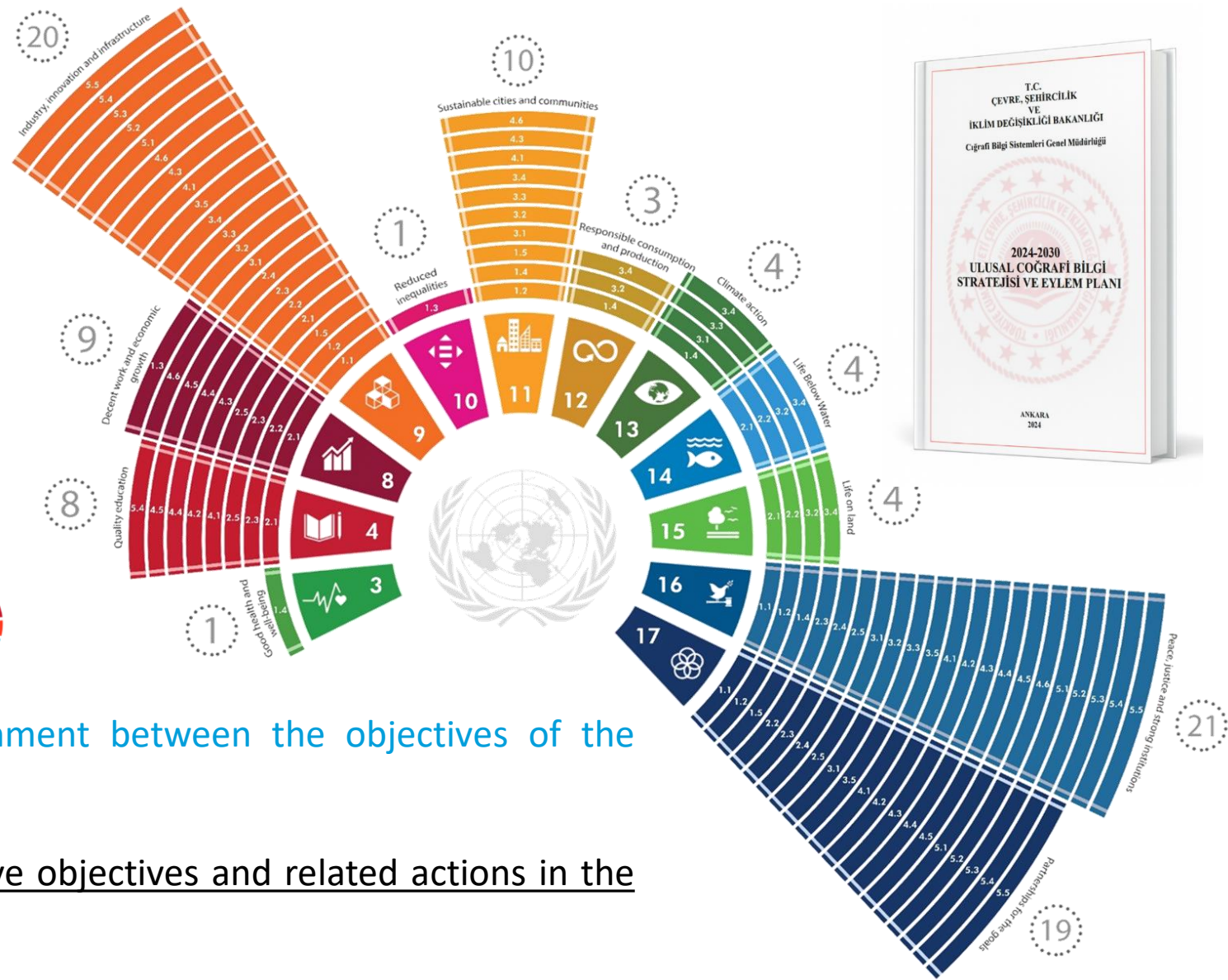


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# NSDI: Mapping Objectives & Actions of the Nat. GIS Strat. with respect to the SDGs



The illustration on the right illustrates the alignment between the objectives of the National GIS Strategy and the SDGs.

The numbers above each SDG show the cumulative objectives and related actions in the National Strategy.



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# NSDI: National Geospatial Data Platform

- Geospatial Data Platform as a core component of the NDSI provides free-of-charge access to geospatial data
- [tucbs.gov.tr](http://tucbs.gov.tr) updated platform was released in Jan. 2025
- Seamless integration w. the e-Gov portal [turkiye.gov.tr](http://turkiye.gov.tr)

User Profiles	
CITIZEN	> 750.000
PUBLIC INSTITUTION	581
LOCAL GOVERNMENT	210
UNIVERSITY	69
PRIVATE SECTOR	347

**>730**  
TOTAL GEO-LAYERS

**>600**  
DOWNLOADABLE MAP DATA  
w/ OGC COMPLIANT WEB SERVICES

**>300**  
GEO-SERVICES ARE CERTIFIED  
FOR OFFICIAL TRANSACTIONS

The screenshot displays the 'ULUSAL COĞRAFI BİLGİ PLATFORMU' interface. It features a search bar, a map of Turkey with various data layers, and a metadata table on the right. A red arrow points to the 'Türkiye Ulusal Coğrafi Bilgi Sistemi' logo in the top navigation bar. The metadata table includes fields like 'ogc\_fid', 'faytipi', 'faycesidi', 'shape\_leng', 'fayno', 'segmentno', 'fayadi', 'segmentadi', 'deptar', 'depmag', 'name', 'area', 'perimeter', 'pafta25bin', 'pafta50bin', 'pafta100bi', 'il', 'aciklama', 'depederlinli', and 'uzunluk'.

Map viewer



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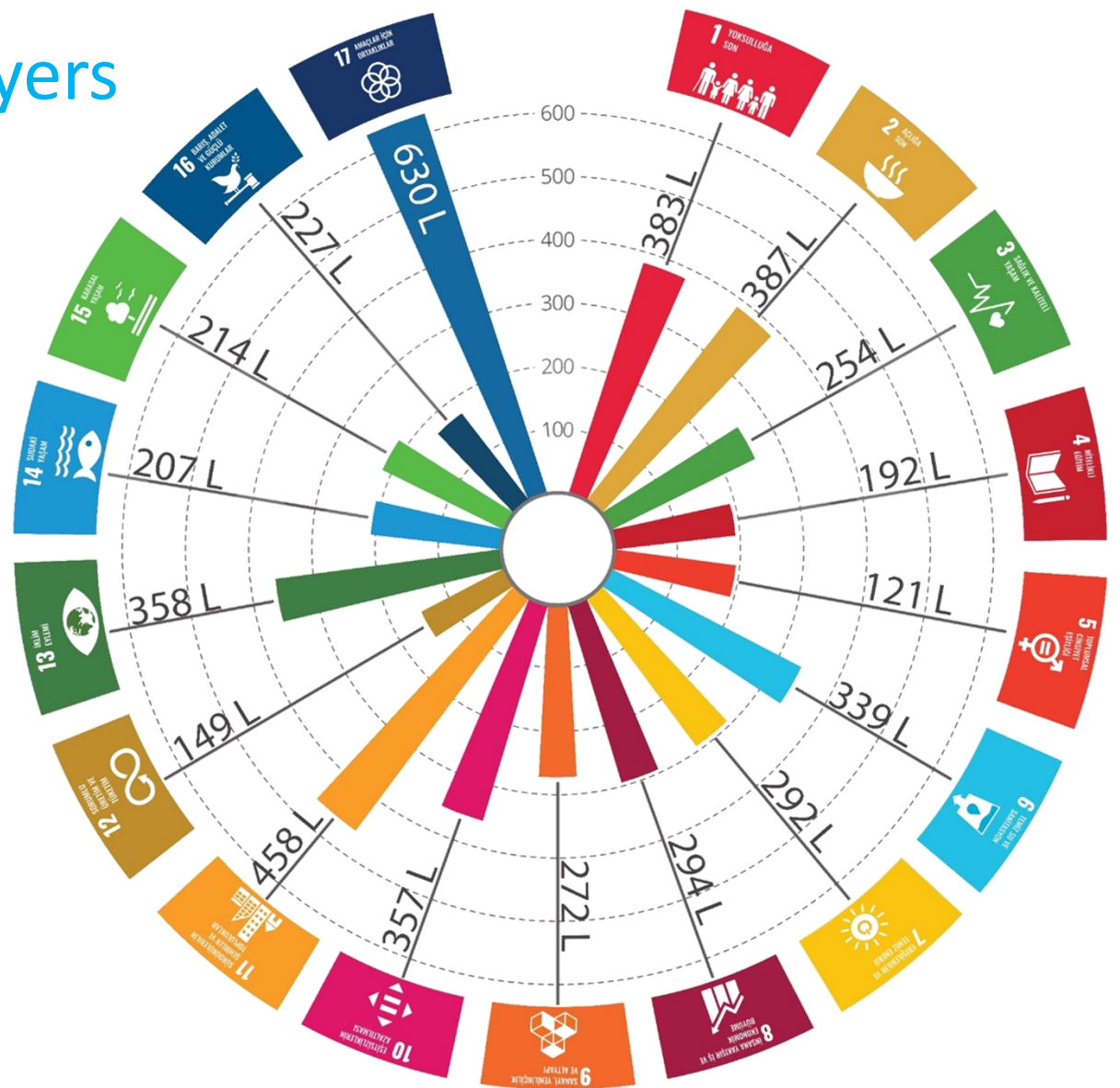
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# NSDI: Distribution of Geospatial Layers with respect to the SDGs

Regulated by the Pres. Decree #49, NSDI comprises 32 main spatial data themes.

Within the scope of these themes, >730 geospatial layers are provided through the National Geospatial Data Platform, based on the geospatial data sharing matrix.

The distribution of these served layers with respect to the SDGs is illustrated in the figure on the right.



# NSDI: Multi-Source Funding Mechanism

- **General Budget**  
(National Level)
- **Licensing Revenues**  
(based on Law No. 7221)
- **Institutional Contributions**  
(‘Revolving’ Fund Structure)
  - **Disaster Prevention & Climate Resilience Budget**  
(Special Budgets)

The maintenance and development of new features for the NSDI are funded through the central government budget.

Revenues generated from geospatial data licensing under Law No. 7221 are allocated exclusively for use within the NSDI.

In addition, the Ministry operates a ‘revolving’ fund structure, which provides financial support for critical and strategic projects.



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# NSDI: Ongoing Challenges

- Bureaucracy in inter-institutional data sharing,  
*<<still reflects some legacy practices>>*
- Despite the existence of spatial data standards,  
*<<there is a lack of full compliance>>*
- Not all data layers on the platform can be used for official purposes
- GIS-based AI language models have not yet reached the desired level of maturity.
- Some of our national archives span centuries  
*<<still contain some non-digitized spatial data>>*
- Türkiye is highly prone to natural disasters



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# NSDI & GSGF: Geostatistical Layers Available through the Platform

Currently, 23 Geostatistical data layers are provided by **TURKSAT** to the **National Geospatial Information Platform** via OGC compliant web services.

- Ratio of Municipal Pop. Receiving Solid Waste Services to Total Mun. Pop. (%)
- Pop. Served by Wastewater Treatment Services (%)
- Tot. # of Physicians per 1,000 Inhabitants
- # of Automobiles per 1,000 Inhabitants
- Life Expectancy at Birth (Years)
- Pop. at Grid Level 1 sqkm
- Pop. Served by Drinking Water Treatment Services (%)
- Statistical Regions Level 1, 2, 3, 4 (NUTS 1, 2, 3, 4)
- Employment Rate (%)
- Labor Force Participation Rate (%)
- Unemployment Rate (%)
- Crude Divorce Rate (‰) & Crude Marriage Rate (‰)
- Crude Death Rate (‰)
- Daily Wastewater Generation per Capita (L/person/day)
- Electricity Consumption per Capita (kWh)
- GDP per Capita (USD)
- Net Migration Rate (‰)
- Pop. Density Projection Grids (2013–2021)
- Total Fertility Rate (‰)



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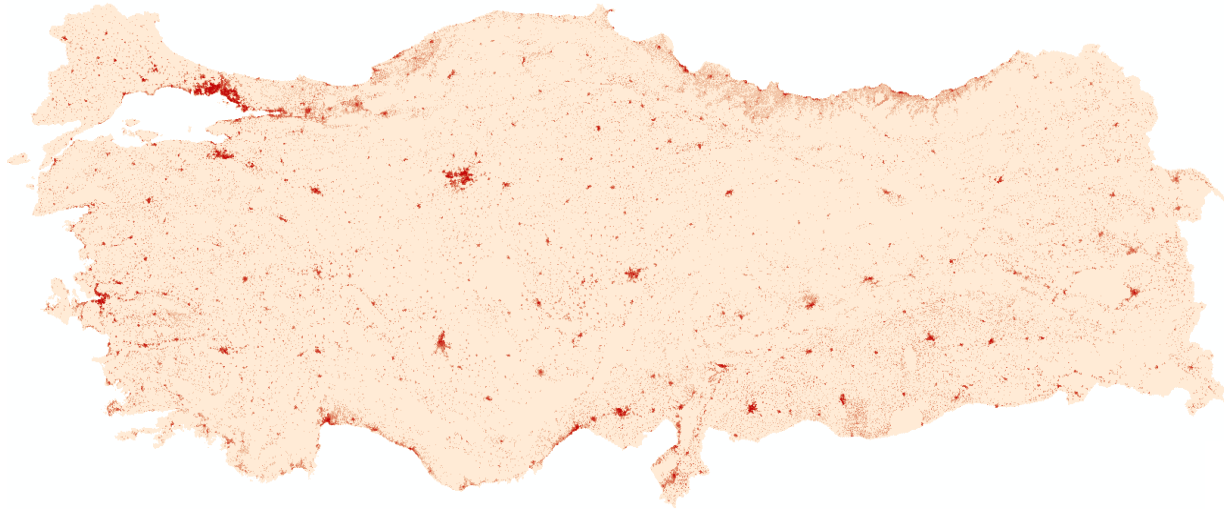


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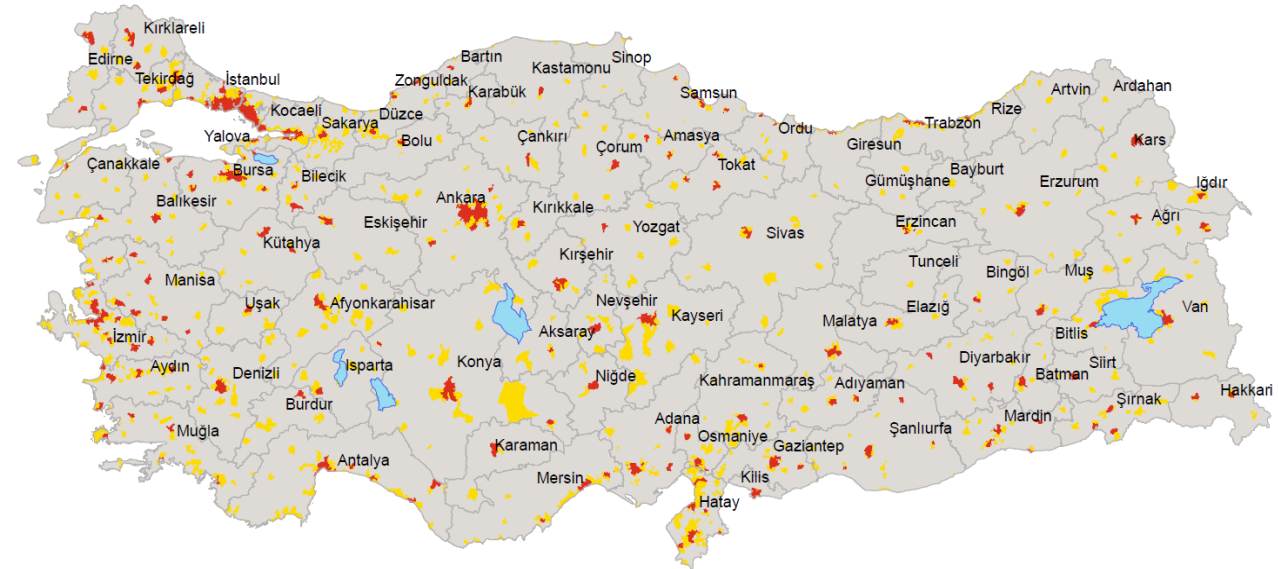
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# TURKSTAT: Population Grids and Revision of Urban Rural Definition



- DEGURBA
- Neighborhood/Quarter and Villages
- 3 classes
- Urban-Rural Population Statistics, 2022

- Spatial Address Registration System + Address Based Population Registration System
- 1km2 grids



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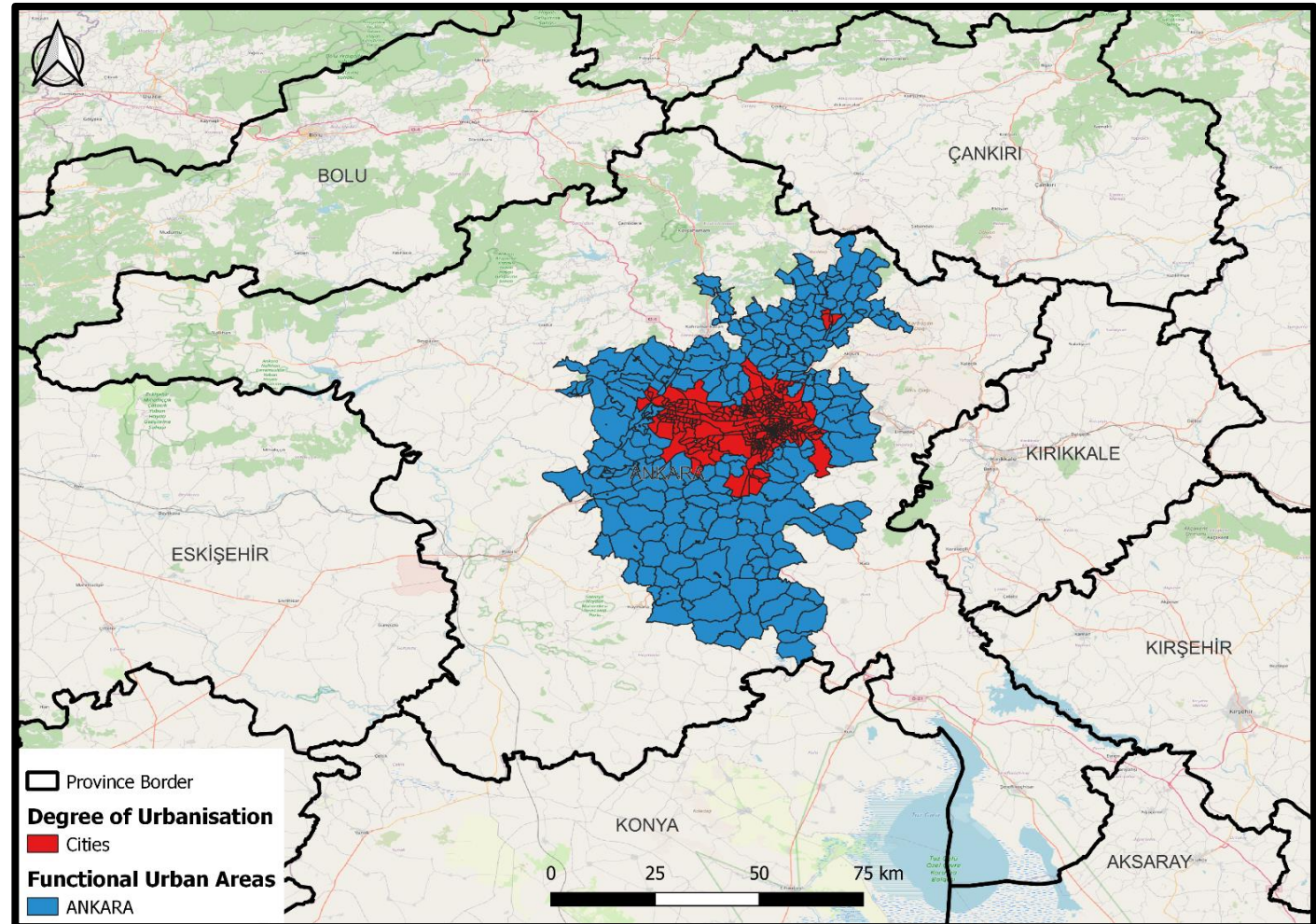
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# TURKSTAT: Functional Urban Areas “Pilot”

- Defining a methodological approach to delineate Functional Urban Areas (FUAs) in Türkiye.
- Establishing a comparable and sustainable analytical framework.
- **Identifying Functional Urban Areas using administrative data. The case of Ankara, Türkiye**

*\* Statistical Journal of the IAOS*



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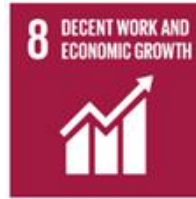
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# TURKSTAT: Sustainable Development Goals

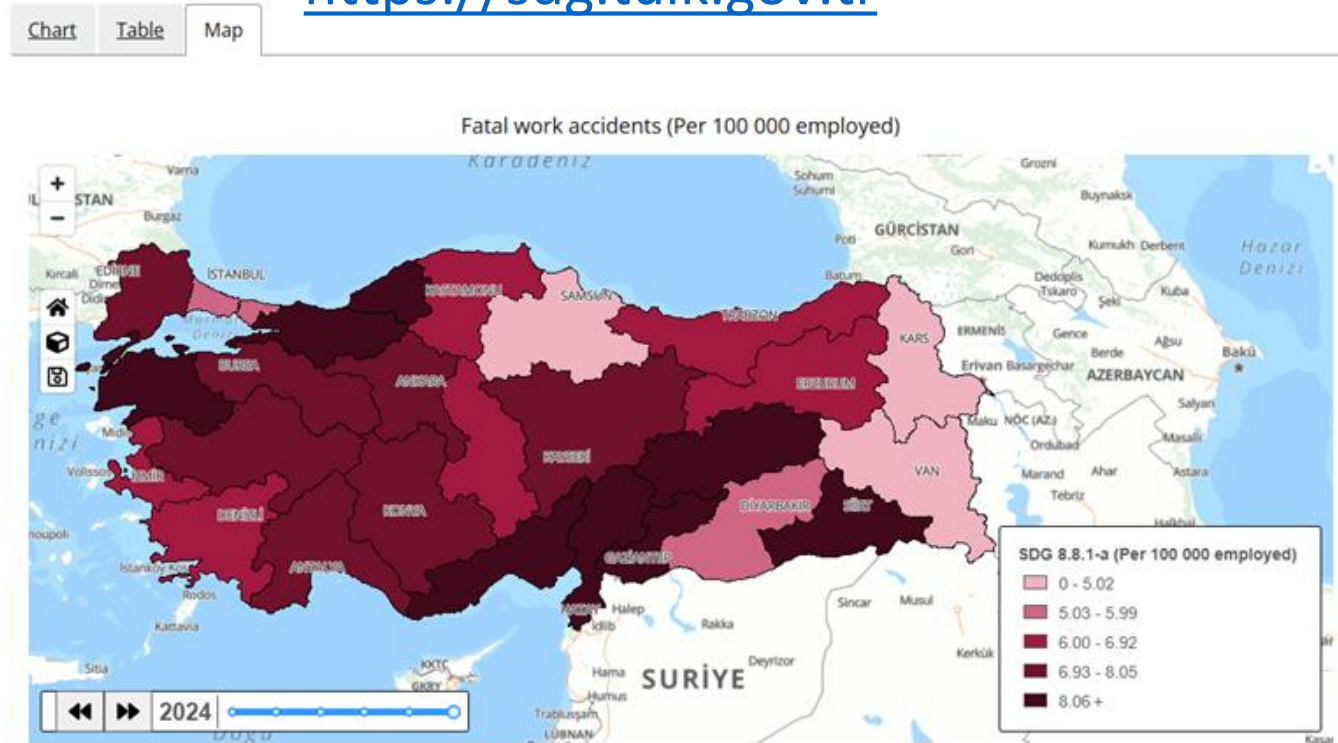
- Indicator 11.2.1: Proportion of the population with easy access to public transport
- Indicator 11.3.1: Ratio of land consumption rate to population rate
- Indicator 11.7.1.: Average share of built-up areas in cities, fully open to public use



Indicator 8.8.1

Incidence rates of fatal and non-fatal occupational injuries by sex

<https://sdg.tuik.gov.tr>



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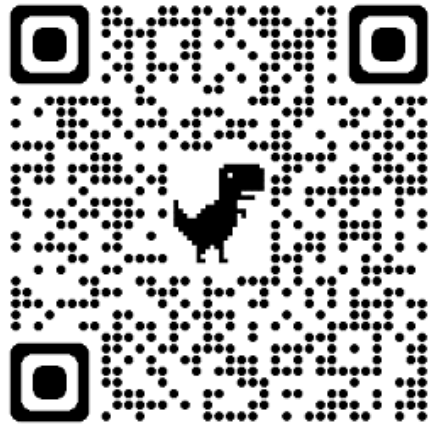
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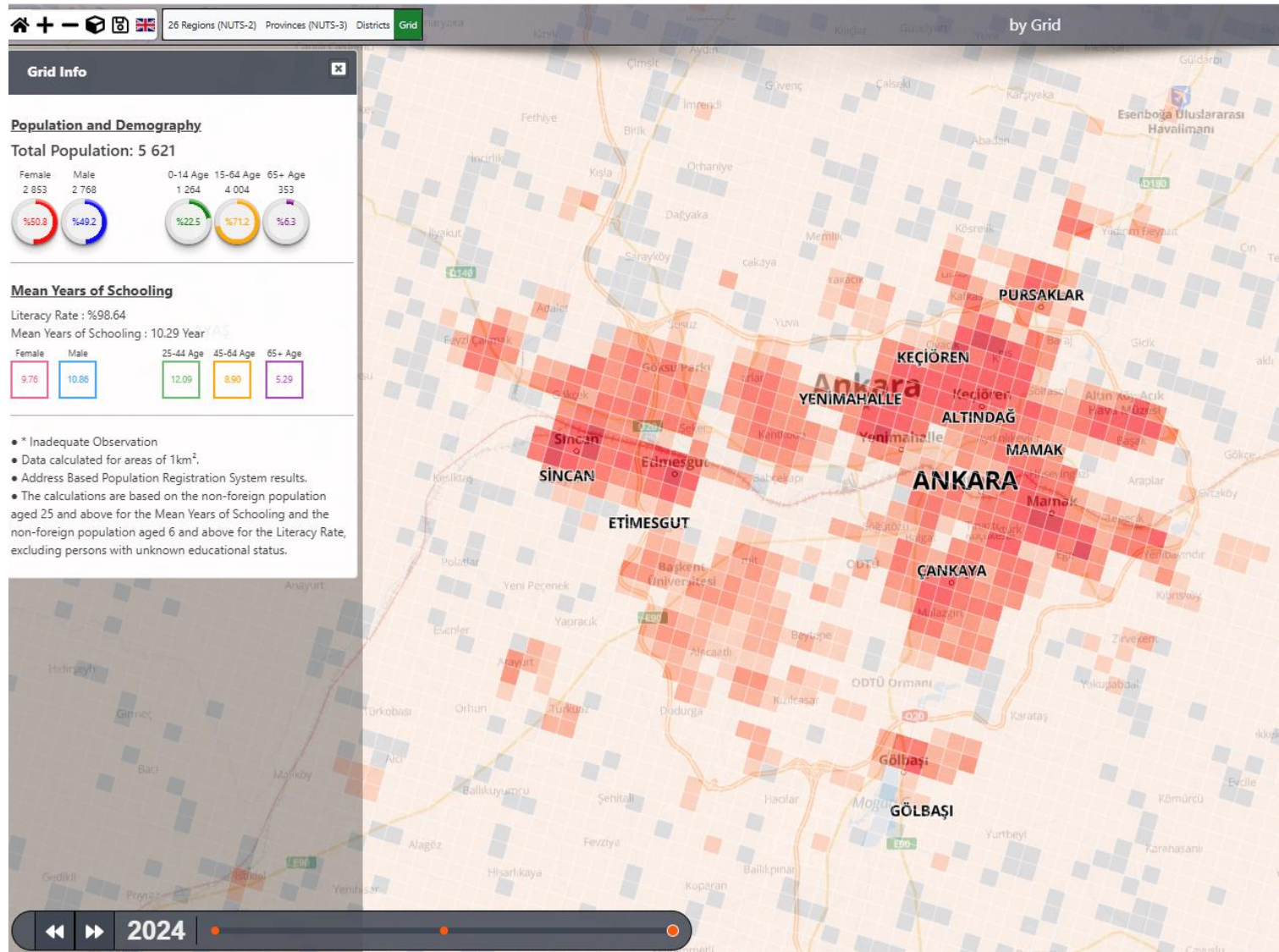
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# TURKSTAT: GIS Portal

- Population by age and sex
- Mean years of schooling by age and sex



<https://cip.tuik.gov.tr>



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**Thank you for your attention!**

For any questions or further clarification  
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[selin.tekin@tuik.gov.tr](mailto:selin.tekin@tuik.gov.tr)



## **Country Experience on the UN-IGIF & GSGF TÜRKİYE**

**Ministry of Environment, Urbanization & Climate Change**

**General Directorate of Geographic Information Systems** 39.91167 N, 32.75221 E

**Turkish Statistical Institute (TURKSTAT)** 39.91607 N, 32.84454 E

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