9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

TurkStat Experience on SDG 9

Elif MERDER

TurkStat Expert

18 March 2021

Content

- 2030 Agenda

- Introduction to SDG 9

- Coordination of SDGs in Turkey

- TurkStat's Role and Tools

- SDG 9 Indicators of Turkey

- Road Map for SDG 9

- Challenges and Experiences

- Key Takeaways

2030 Agenda for Sustainable Development

Transforming Our World: 2030 Agenda for Sustainable Development;

- On September 25, 2015,

- At the United Nations General Assembly,

- Adopted with the signature of the Heads of State

  - continuation of the Millennium Development Goals (MDG) process announced by the UN for the years 2000-2015…

Introduction to the 2030 Agenda:
A New Agenda for a Sustainable World

Goal, Target and Indicators

- **17 Goals**

  - **169 Targets**

    - **231 (unique) Indicators**

  There are at least 1 and at most 5
  indicators below each target

INDUSTRY, INNOVATION AND INFRASTRUCTURE: Importance

- **Goal:** To build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

- Economic growth, social development and climate action are heavily dependent on investments in infrastructure, sustainable industrial development and technological progress

- Key role of inclusive and sustainable industrialization, together with innovation and infrastructure
    - Basic infrastructure (roads, information and communication technologies, sanitation, electrical power and water etc.)
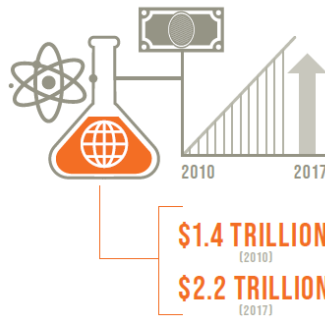
Source : https://www.un.org/sustainabledevelopment/news/communications-material//

SDG 9 in Short

BEFORE COVID-19

MANUFACTURING GROWTH WAS DECLINING

DUE TO TARIFFS AND TRADE TENSIONS

INVESTMENT IN R&D
IS GROWING BUT NEEDS TO ACCELERATE

2010   2017

$1.4 TRILLION
(2010)

$2.2 TRILLION
(2017)

FINANCING FOR
SMALL-SCALE INDUSTRIES
IS NEEDED FOR THEIR SURVIVAL THROUGH THE CRISIS

ONLY **35%**
HAVE ACCESS TO CREDIT IN DEVELOPING COUNTRIES
(2006-2018)

FEWER THAN 1 ɪɴ 5 PEOPLE
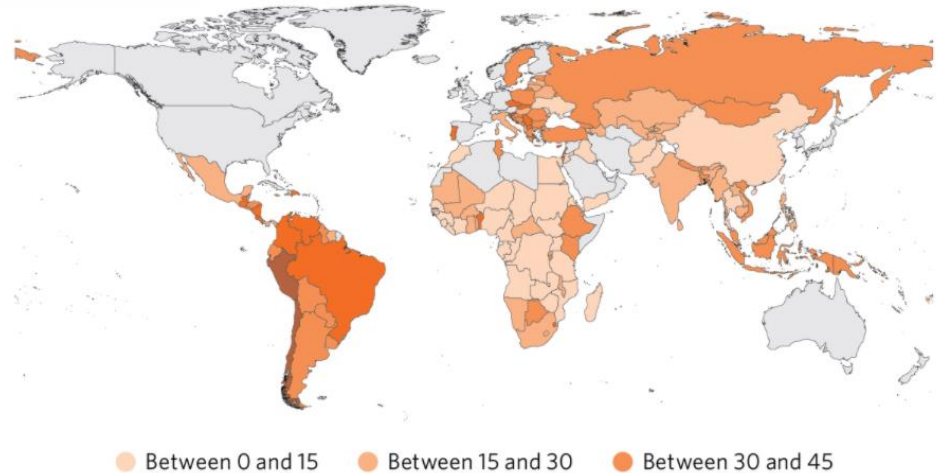USE ᴛʜᴇ **INTERNET** ɪɴ **LDCs** (2019)

COVID-19 IMPLICATIONS

THE AVIATION INDUSTRY HAS SUFFERED ᴛʜᴇ STEEPEST DECLINE ɪɴ HISTORY

AIR PASSENGER NUMBERS FELL BY 51%
ꜰʀᴏᴍ JANUARY ᴛᴏ MAY 2020
(COMPARED TO THE SAME PERIOD IN 2019)

Proportion of small-scale manufacturing enterprises with a loan or line of credit, according to surveys conducted in 2006–2018 (percentage)

● Between 0 and 15   ● Between 15 and 30   ● Between 30 and 45

Source : Sustainable Development Report 2020, https://unstats.un.org/sdgs/report/2020/goal-09/

Covid-19 Effect on SDG 9

- The aviation industry, a driver of economic development, has likely suffered the steepest decline in its history

- Better access to financial services for small-scale industries is urgently needed

Source : Sustainable Development Report 2020, https://unstats.un.org/sdgs/report/2020/goal-09/

Environment and Sustainable Development Statistics Department

Sustainable Development Indicators Group

Covid-19 Effect on SDG 9

- 9.1.2 Passenger and freight volumes, by mode of transport

- 9.2.1 Manufacturing value added as a proportion of GDP and per capita

- 9.3.2 Proportion of small-scale industries with a loan or line of credit

- 9.c.1 Proportion of population covered by a mobile network, by technology

Statistical Commission   Background document
Fifty-second session   Available in English only
1–3 and 5 March 2021
Item 3(a) of the provisional agenda
Items for discussion and decision: Data and indicators for the 2030 Agenda for Sustainable Development

COVID-19 and the global SDG indicators

Prepared by the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs)

Source : **COVID-19 and the global SDG indicators:** Prepared by the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs)

Industry, Innovation and Infrastructure

Goal 9

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
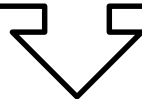
9 الصناعة والابتكار والهياكل الأساسية

9 SANAYİ, YENİLİKÇİLİK VE ALTYAPI

Indicator List From the 50th Session in March 2019 (UN Statistical Commission)	**2020 Revision** 51st Session in March 2020 (UN Statistical Commission)	**2021 Annual Refinement** 52nd Session in March 2021 (UN Statistical Commission)

12 SDG 9 indicators

12 SDG 9 indicators

No Refinements

12 SDG 9 indicators

No Refinements

232 Total indicators
244 repeated indicators

231 Total indicators
247 repeated indicators ✔

Some Reporting Platforms:

National

Global

Regional: UN ECE , UN ESCAP
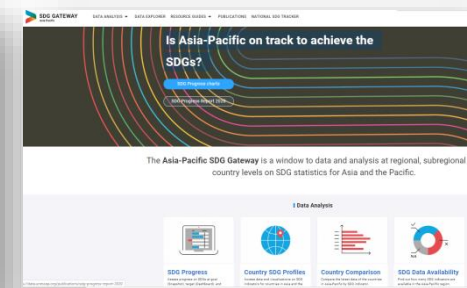
UNIDO Statistics Data Portal

VNRs: 2016 & 2019

UN SDSN etc.

SDGs and TurkStat

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Coordination of SDGs in Turkey

Two-pillar structure

Policy making

(Presidency of the Republic of Turkey, Strategy and Budget Office)

Data production & monitoring (TurkStat)

- Coordination within TurkStat
- Coordination with stakeholders
- Coordination with international organizations

Policy Context of SDGs in Turkey

- Statistics Law (Nr 5429 enacted in 2005)

- 11th Development Plan
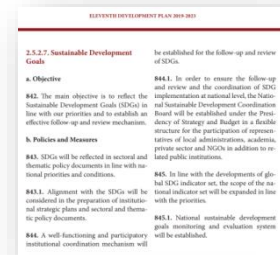
- Official Statistical Programme

- Strategic Plan of TurkStat

TurkStat's Role
Monitoring and Coordination

Indicators in the global set;

- Identifying responsible (and related) institutions for each indicator

- Monitoring the national availability of each indicator,

- Coordination of production of unavailable data,

- Data dissemination and monitoring,

- Communication with international organizations (Custodian Agencies)

  responsible for the indicator,

  - Coordination of data transmission and validation process – strong

  communication with data producers is needed

> **An indicator set to be produced with the active participation and support of all official statistics producers institutions…**

2021 Press Release

Sustainable Development Indicators

Press Release

- Published on February 2, 2021

- Across 17 Goals

- Total **131** Indicators

  - Compiled from **19 i**nstitutions including TURKSTAT

  - **69** of them are produced by TURKSTAT and **62** of them are produced by other institutions

  - **21** of them are Proxy *(the slightest difference in definition, scope, calculation method is evaluated as deviation from global)*

  - **11** out of **12** SDG 9 indicators are produced in this press release

Indicator Availability by Goal (%)

Sustainable Development Indicators, 2010-2019
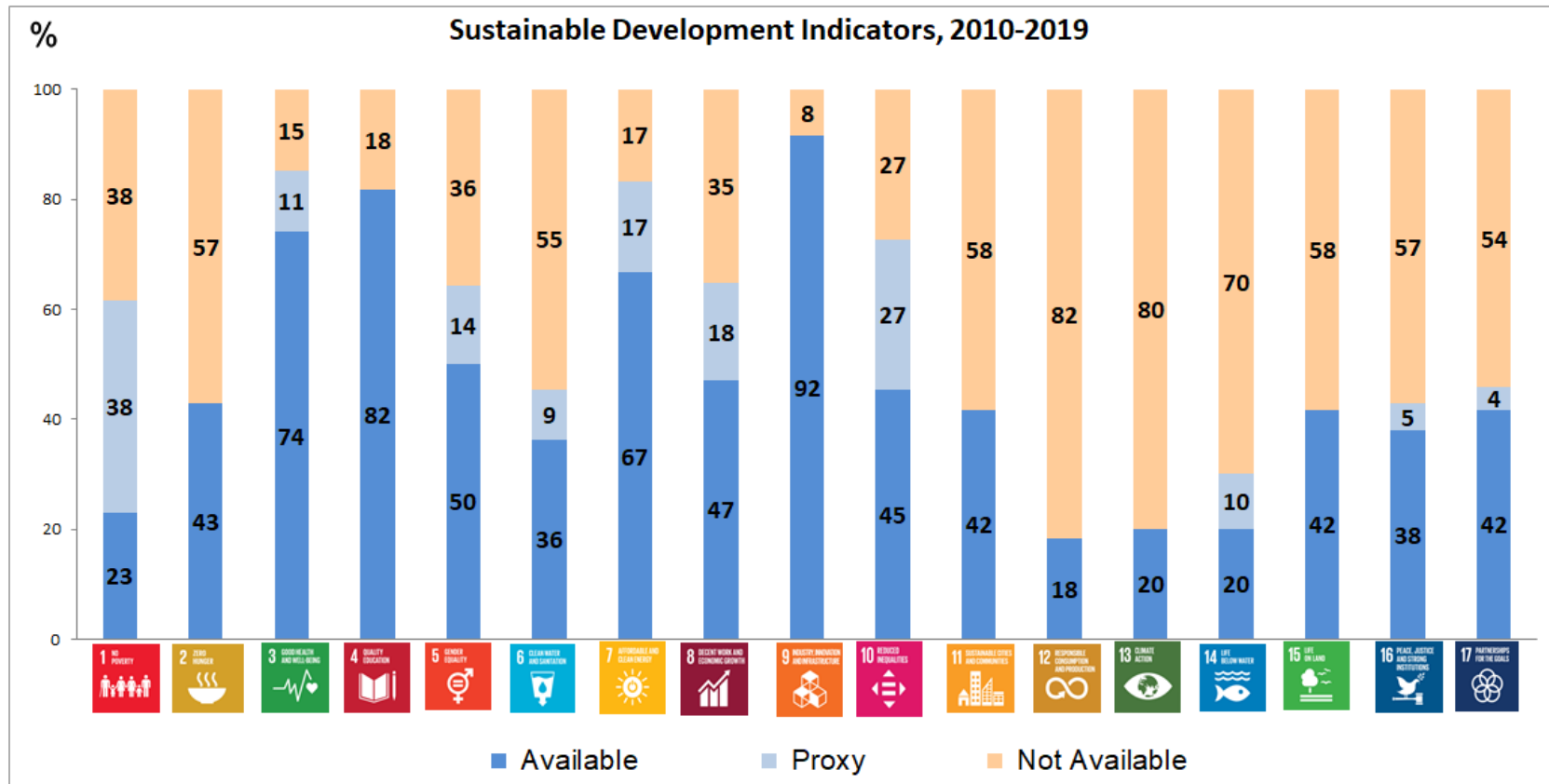
Indicator Availability for SDGs
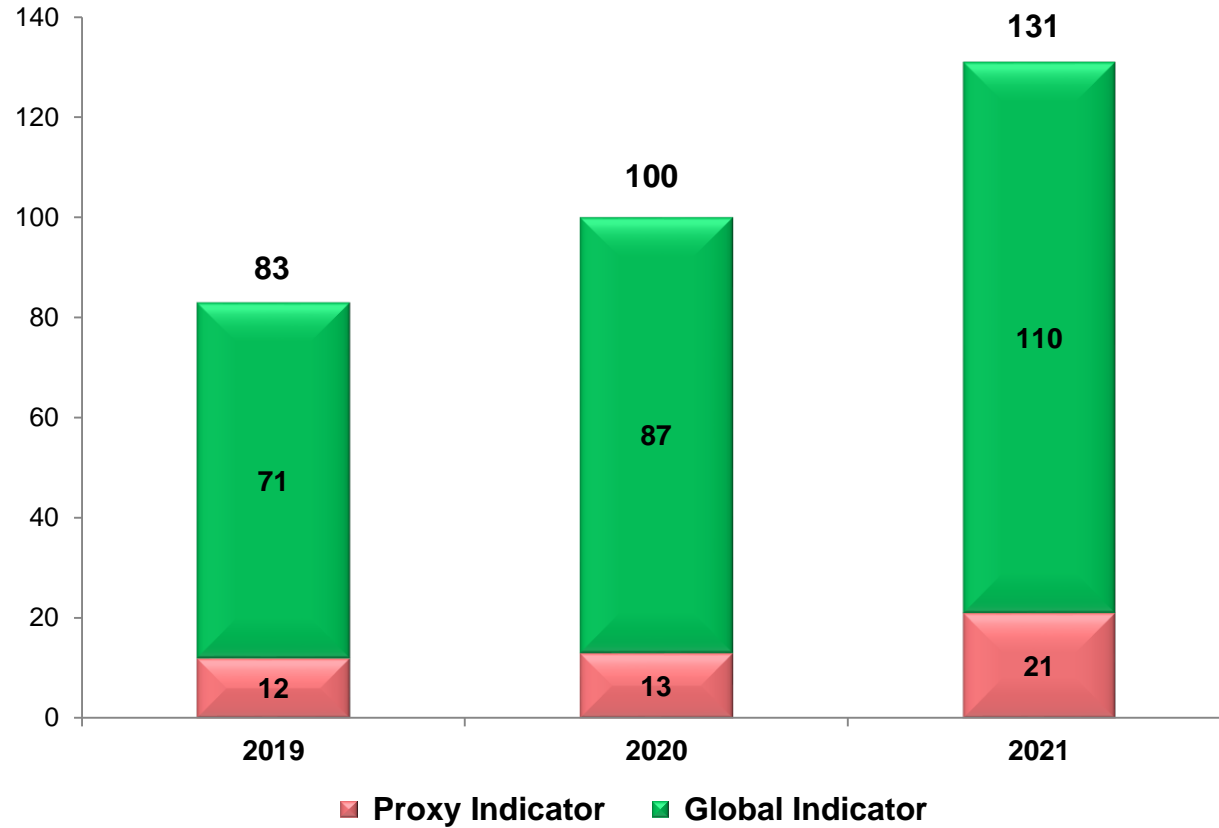
Available Disaggregations and Disaggregated Data

Chart data:

Year	Number of Available Indicators with Disaggregation	Number of Available Disaggregations
2019	30	42
2020	38	53
2021	79	124

■ Number of Available Indicators with Disaggregation   ■ Number of Available Disaggregations
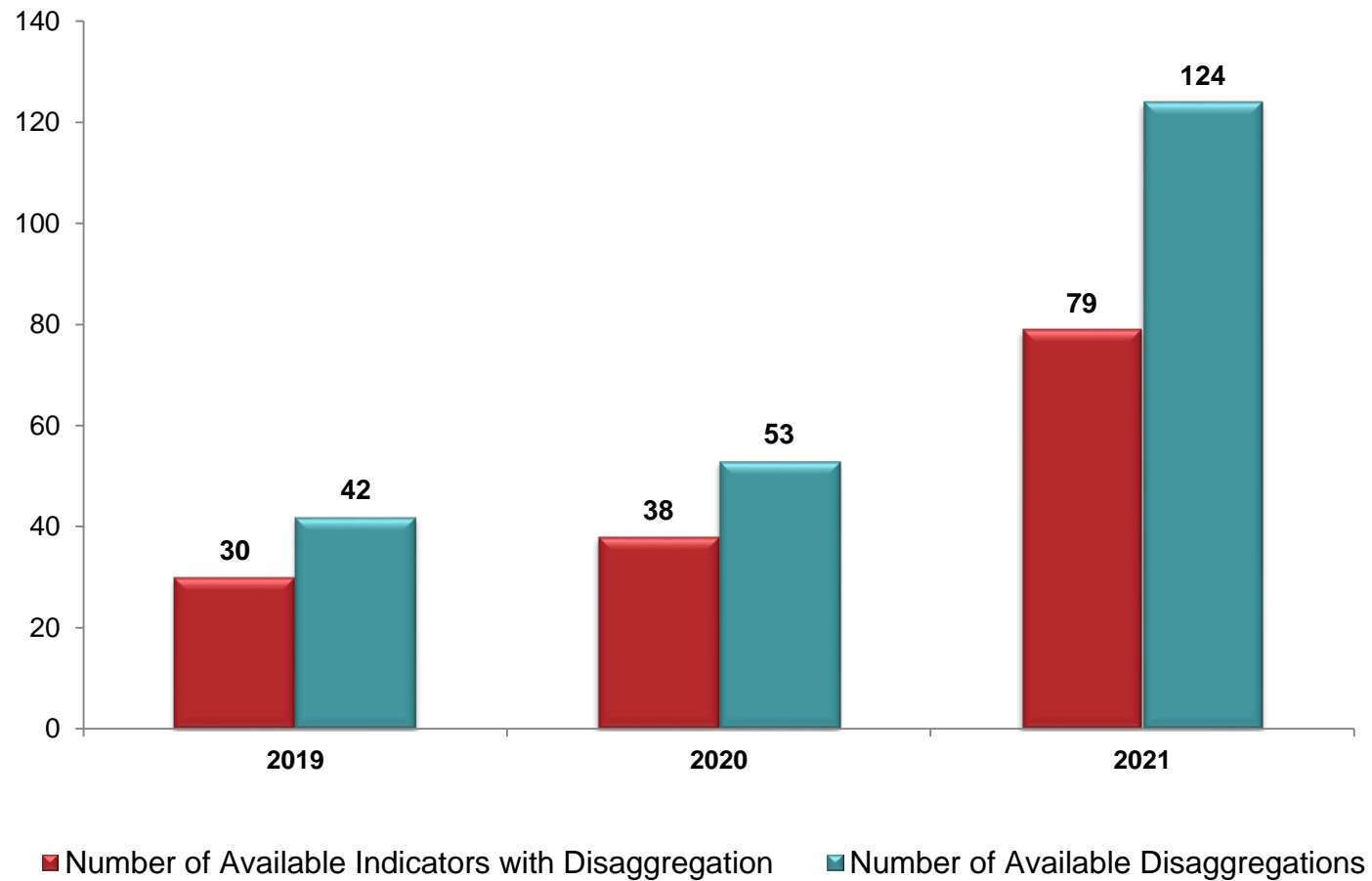
Compilation Method & Quality

Press Release

The publication of SDG indicators is currently only via a Press Release.

ongoing web portal works

Communication

for data validation purposes and control of calculation method s of data providers when necessary

Quality control

- higher changes in data
- time series consistency
- quality control studies for existing surveys

Workshops

contributes to SDG awareness and data availability

Inventory Analysis

shed light on the production of new indicators and data availability

Data compilation templates

organizing data compilation templates and sharing them with relevant institutions and organizations

---

Environment and Sustainable Development Statistics Department

Sustainable Development Indicators Group
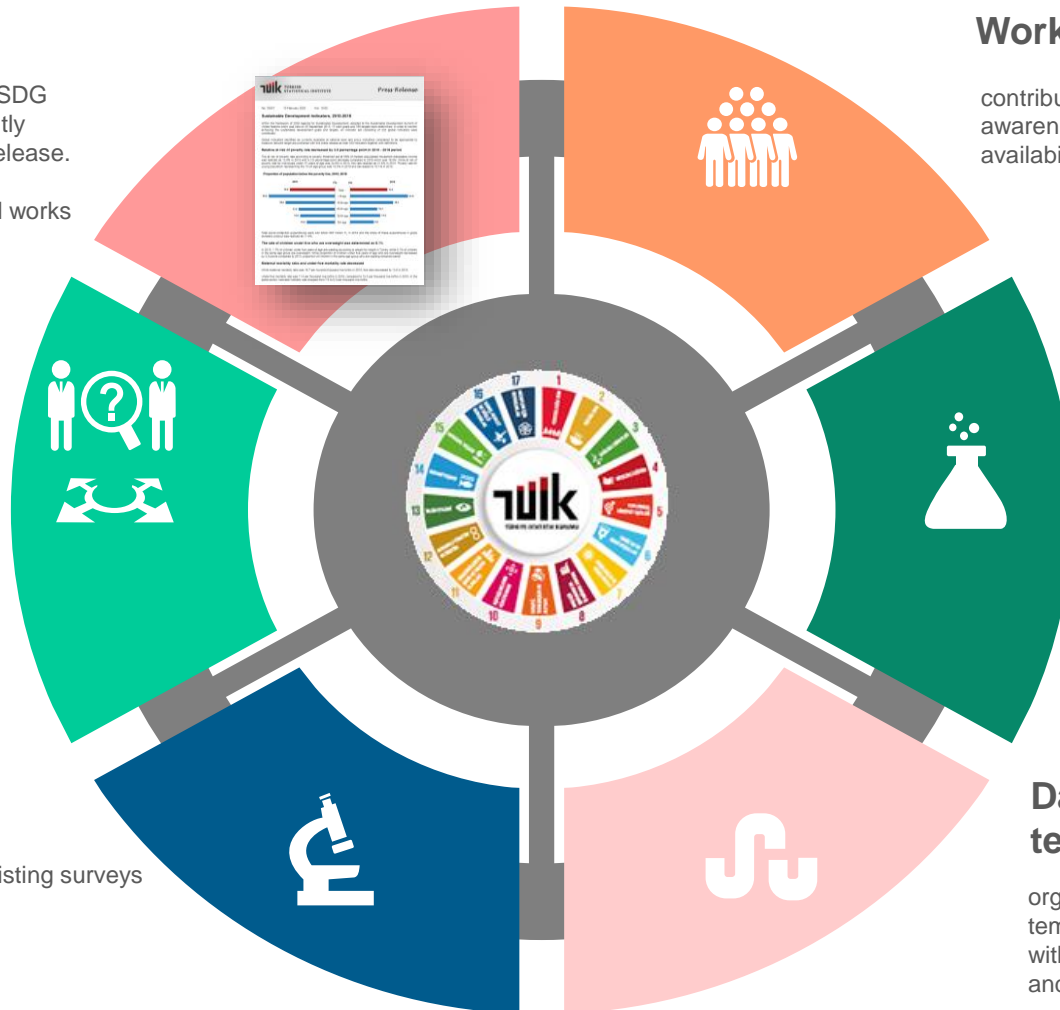
Other Works Along with the Press Release

SDGs Web Portal (sdg.tuik.gov.tr)
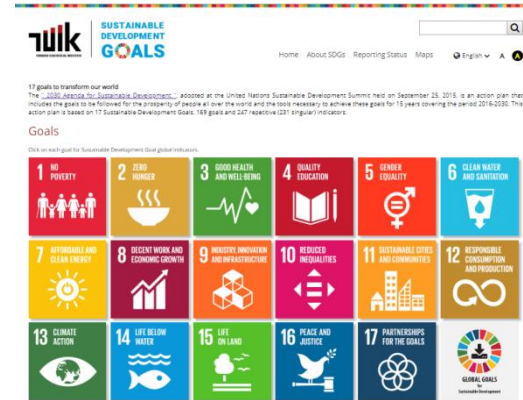
Sustainable Development Indicators: the Roadmap for Turkey (December 2020)

Unavailable Indicators and Production Plans

Unavailable indicators : 100
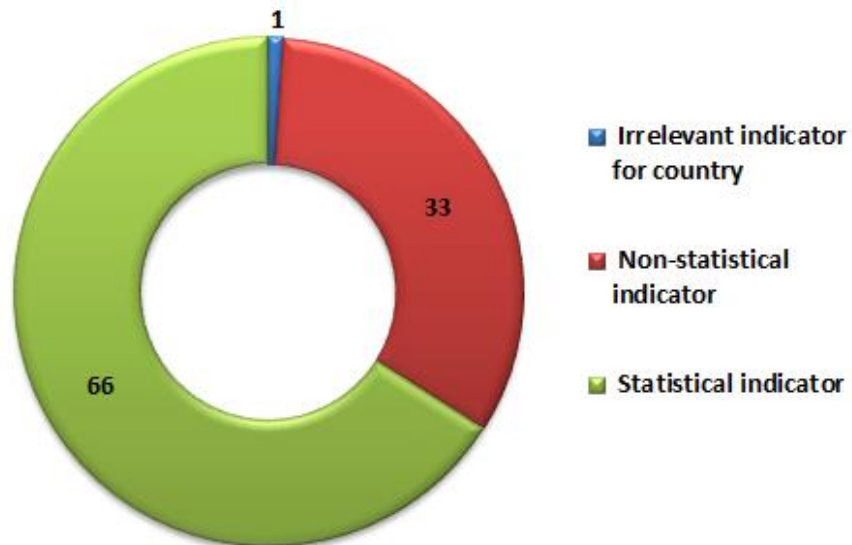
Production plan for unavailable 66 statistical indicators

Left chart legend:
- Irrelevant indicator for country (1)
- Non-statistical indicator (33)
- Statistical indicator (66)

Right chart legend:
- Short term (0-2 years) (15)
- Medium term (3-4 years) (8)
- Long term (5-8 years) (14)
- Production Plan does not exist (16)
- Undetermined (11)
- New indicator (2)

SDG 9 indicators of Turkey
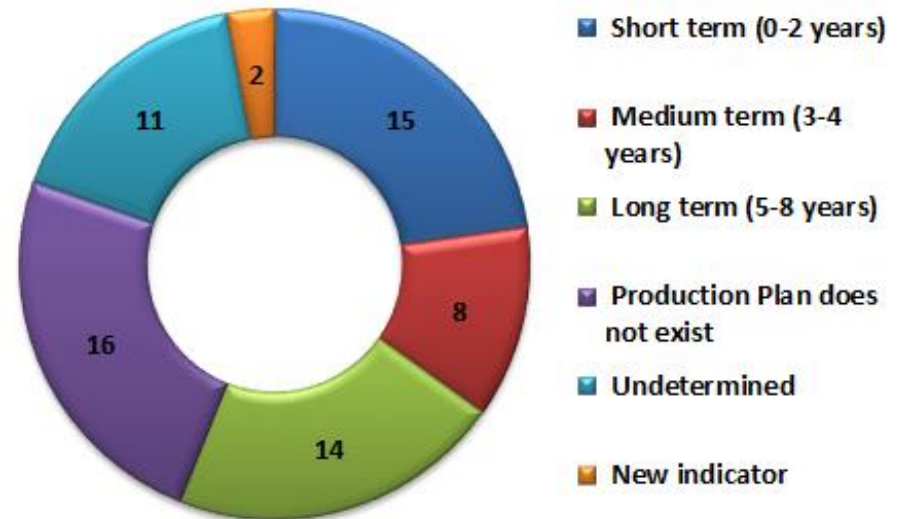
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

SDG Indicators: Metadata

- Concepts and definitons

- Methodology

  - Computation method, disaggregation, etc.

- Data sources

- Data availability

Data availability

- Data providers

- Data compilers

Responsibility

- Related indicators

Proxy indicators ⟹ Relevant to target

SUSTAINABLE
DEVELOPMENT
GOALS

SDG Indicators
Metadata repository

Indicator 9.1.1: *Proportion of the rural population who live within 2 km of an all-season road*

- <u>Target 9.1</u>: Develop **quality, reliable, sustainable** and **resilient infrastructure**, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on **affordable and equitable access** for all

- <u>Definition</u>: The indicator (commonly known as the Rural Access Index or RAI) measures the share of a country's rural population that lives within 2 km of an all-season road

- <u>Computation Method</u>:

    - The indicator is calculated by overlying three basic geospatial datasets: population distribution, road location, and road passability

    - The RAI is calculated as the rural population within a 2 km buffer of a good road divided by the total rural population of the country

- <u>Disaggregation</u>: Subnational levels

- <u>Data providers</u>: National road agencies and NSOs

SDG 9 Indicators of Turkey

9.1.2. Domestic passenger and freight volumes by mode of transport

Definition of Indicator: This indicator represents the values of passenger and freight volumes reported by mode of transportation. All values include only domestic transportations.

Unit: (Million) passenger-km, (Million) tonne-km, (Million) passenger-sea mile, (Million) tonne-sea mile

Computation Method:

Passenger-km = Σ (number of passengers carried * transport distance)
Tonne-km = Σ (amount of tons transported * transport distance)
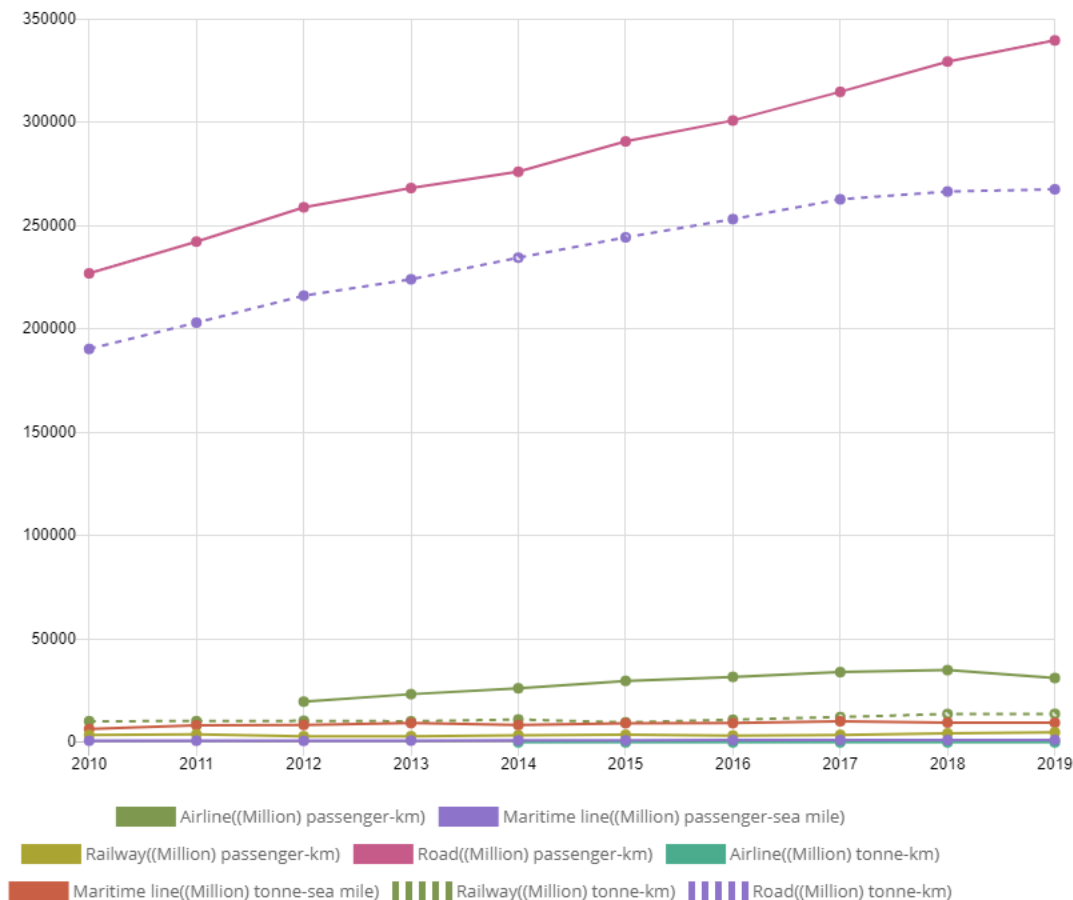
Available Disaggregation: Mode of transport

Data Source: TurkStat, Transportation Statistics

https://sdg.tuik.gov.tr/en/9-1-2/

TARGET 9·1

DEVELOP SUSTAINABLE, RESILIENT AND INCLUSIVE INFRASTRUCTURES

SDG 9 Indicators of Turkey

Passenger and freight volumes, by mode of transport

	National Metadata	Global Metadata
Target name		Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all
Indicator name		Domestic passenger and freight volumes by mode of transport
Global / Proxy indicator		Global indicator
Description of indicator		This indicator represents the values of passenger and freight volumes reported by mode of transportation. All values include only domestic transportations. Road transport passenger-km and tonne-km values include only domestic transport on the road network of General Directorate of Highways. For railway passenger-km values main line transport, including also high-speed trains are covered but suburban lines are excluded. For air transport values of passenger-km and tonne-km include only domestic flights. Air freight data covers cargo and post (baggage excluded). Maritime passenger and freight transport values include only cabotage (domestic port transport). Tonne-km: A traffic measurement unit obtained by transporting a tonne of cargo over a distance of one kilometer. Passenger-km: A traffic measurement unit obtained by transporting a passenger over a distance of one kilometer. Tonne-sea mile: A traffic measurement unit obtained by transporting a tonne of cargo over a distance of one sea mile. Passenger-sea mile: A traffic measurement unit obtained by transporting a passenger one sea mile
Unit		(Million) passenger-km- (Million) tonne-km- (Million) passenger-sea mile - (Million) tonne-sea mile

Environment and Sustainable Development Statistics Department

Sustainable Development Indicators Group

SDG 9 Indicators of Turkey

TARGET 9·2

PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION

9.2.1. Value added of manufacturing industry as a proportion of gross domestic product (GDP)

Definition of Indicator: This indicator is calculated by dividing the value added created by the manufacturing industry to the gross domestic product value.

Unit: (%)

Computation Method: $\frac{MVA}{GDP} * 100$

Data Source: TurkStat, Gross Domestic Product (GDP) Statistics

https://sdg.tuik.gov.tr/en/9-2-1/

Manufacturing value added as a proportion of GDP (%)
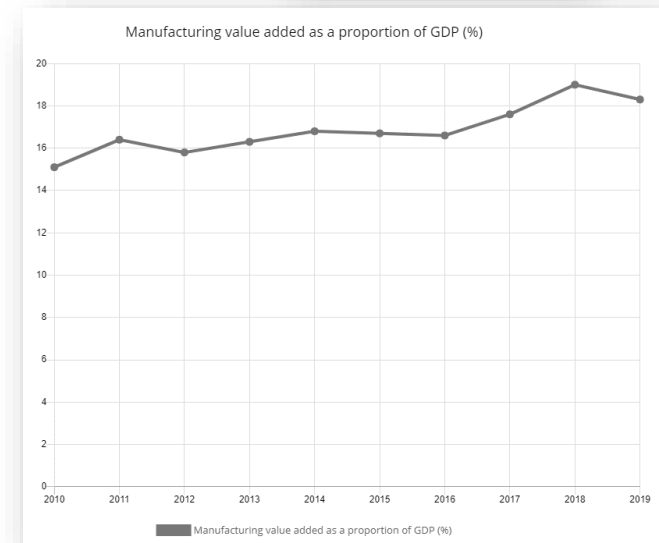
SDG 9 Indicators of Turkey

9.2.2. Manufacturing employment as a proportion of total employment, by sex and age group

Definition of Indicator: The indicator is represented by the share of manufacturing industry employment in total employment.

Unit: (%)

Computation Method:

$$\frac{Manufacturing\ industry\ employment}{Total\ employment} * 100$$

Available Disaggregation: Age group, Gender

Data Source: TurkStat, Household Labour Force Survey
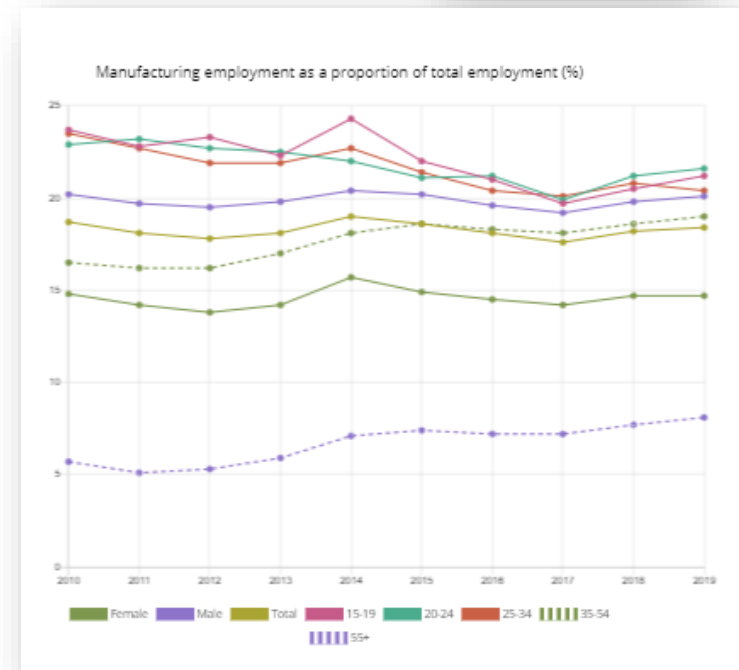
https://sdg.tuik.gov.tr/en/9-2-2/

TARGET 9·2

PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION

Manufacturing employment as a proportion of total employment (%)

Female | Male | Total | 15-19 | 20-24 | 25-34 | 35-54 | 55+

SDG 9 Indicators of Turkey

TARGET 9·3

INCREASE ACCESS TO FINANCIAL SERVICES AND MARKETS

9.3.1. Share of micro-scale enterprises in total manufacturing industry value added

Definition of Indicator: This indicator refers to the proportion of micro-scale manufacturing industry value added in total value added of manufacturing. 1-9 employees were used for micro scale enterprises.

Unit: (%)

Computation Method:

$$\frac{Value\ added\ by\ micro-scale\ enterprises\ at\ factor\ cost}{Total\ manufacturing\ industry\ value\ added\ with\ total\ factor\ cost} * 100$$

Data Source: TurkStat, Annual Industry and Service Statistics
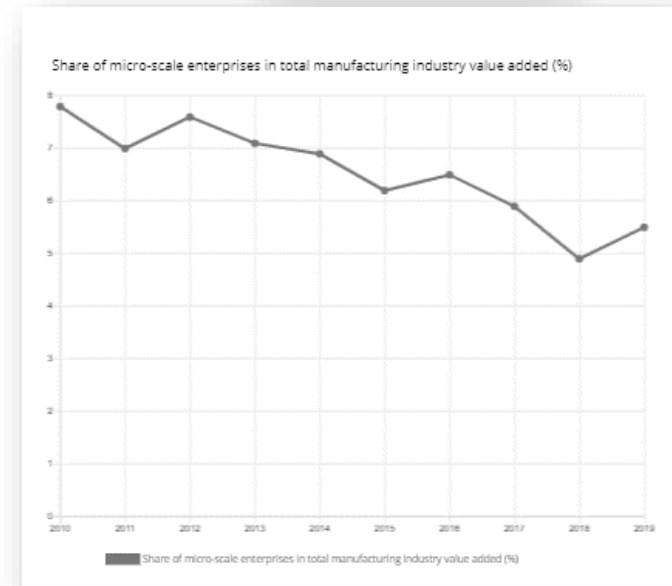
https://sdg.tuik.gov.tr/en/9-3-1/

Share of micro-scale enterprises in total manufacturing industry value added (%)

SDG 9 Indicators of Turkey

TARGET 9·3

INCREASE ACCESS TO FINANCIAL SERVICES AND MARKETS

9.3.2. Proportion of micro-scale industries with a loan (cash or non-cash)

Definition of Indicator: This indicator shows the proportion of micro-scale enterprises (number of employees between 1 and 9) operating under the manufacturing sector with a cash or non-cash debt to a bank or financial leasing, factoring or financing company.

Unit: (%)

Data Source: Banking Regulation and Supervision Agency (BRSA), TurkStat

https://sdg.tuik.gov.tr/en/9-3-2/

Proportion of micro-scale industries with a loan (cash or non-cash) (%)

SDG 9 Indicators of Turkey

TARGET 9·4
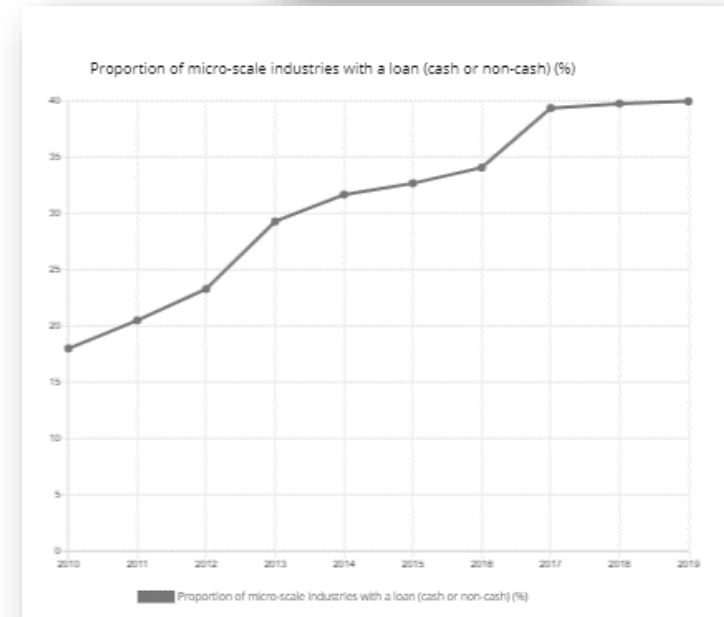
UPGRADE ALL INDUSTRIES AND INFRASTRUCTURES FOR SUSTAINABILITY

9.4.1. CO_2 emission per unit of value added

Definition of Indicator: This indicator is the ratio of CO_2 emissions from fuel combustion (CRF category 1.A) to the GDP, purchasing power parity (PPP) (2015 constant USD). Gross domestic product by purchasing power parity data were obtained from OECD database.

Unit: Kg CO_2/US $ (2015 $ PPP)

Computation Method:

$$\frac{CO2\ emission\ from\ fuel\ cumbustion\ (in\ kg)}{GDP\ (PPP\ 2015\ constant\ USD)}$$

Data Source: TurkStat, Greenhouse Gas Statistics

https://sdg.tuik.gov.tr/en/9-4-1/

CO2 emission per unit of value added (Kg CO2/US $ (2015 $ PPP))
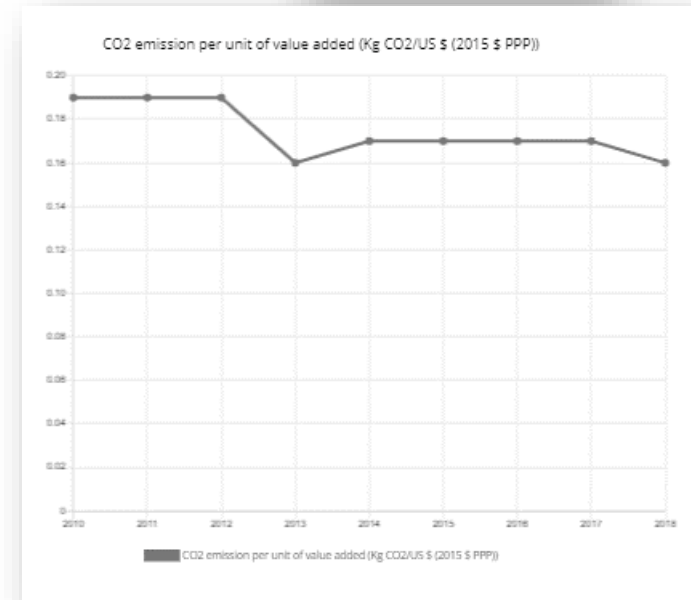
SDG 9 Indicators of Turkey

9.5.1. Research and development (R&D) expenditure as a proportion of gross domestic product (GDP)

Definition of Indicator: This indicator is calculated by the amount of research and development expenditure divided by the total output of the economy, gross domestic product (GDP).

Unit: (%)

Computation Method:

$$\frac{Research\ and\ development\ (R\&D)\ expenditure}{Gross\ Domestic\ Product\ (GDP)} * 100$$

Available Disaggregation: Sector, Source of finance

Data Source: TurkStat, Research and Development Activities Survey

https://sdg.tuik.gov.tr/en/9-5-1/

TARGET 9·5

ENHANCE RESEARCH AND UPGRADE INDUSTRIAL TECHNOLOGIES

Research and development (R&D) expenditure as a proportion of gross domestic product (GDP) (%)

SDG 9 Indicators of Turkey

TARGET 9·5

ENHANCE RESEARCH AND UPGRADE INDUSTRIAL TECHNOLOGIES
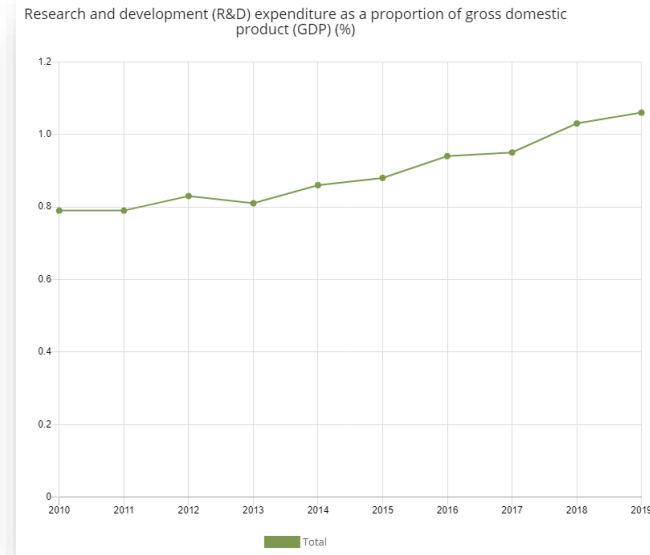
9.5.2. Researchers per million inhabitants

Definition of Indicator: This indicator is obtained by dividing the number of researcher personnel calculated in terms of full time equivalent (FTE), by mid-year population (million people). Researchers are professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned.

Unit: FTE, Headcount

Available Disaggregation: Researchers by sectors

Data Source: TurkStat, Research and Development Activities Survey
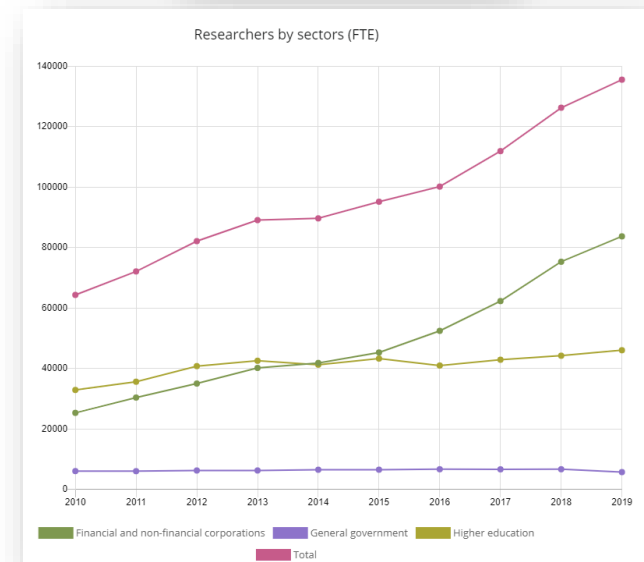
https://sdg.tuik.gov.tr/en/9-5-2/

Researchers by sectors (FTE)

Financial and non-financial corporations — General government — Higher education — Total

SDG 9 Indicators of Turkey

TARGET 9▸A

FACILITATE SUSTAINABLE INFRASTRUCTURE DEVELOPMENT FOR DEVELOPING COUNTRIES

9.a.1. Total official international support (official development assistance plus other official flows) to infrastructure
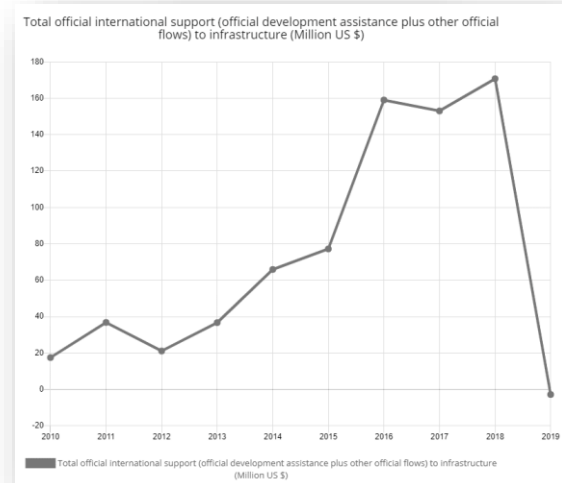
Definition of Indicator: This indicator is defined as total official development assistance (ODA) and other official flows (OOF) flows to developing countries quantify the public effort (excluding export credits) that donors provide to developing countries for infrastructure. Official development assistance (ODA) is defined as public grants made by donor countries' central and local governments or the executive bodies of these governments to developing countries or international organizations operating in the respective countries in accordance with their main purposes of raising the level of economic development and prosperity or at least 25% of the grants long term and low interest loans. Other official flows (OOF) is defined as other official flows (excluding officially supported export credits) are defined as transactions by the official sector which do not meet the conditions for eligibility as ODA, either because they are not primarily aimed at development, or because they are not sufficiently concessional. Support to infrastructure includes all related OECD Creditor Reporting System (CRS) sector codes under the 200 series.

Unit: Million US $

Data Source: Turkish Cooperation and Coordination Agency

https://sdg.tuik.gov.tr/en/9-a-1/

Total official international support (official development assistance plus other official flows) to infrastructure (Million US $)

Total official international support (official development assistance plus other official flows) to infrastructure (Million US $)

SDG 9 Indicators of Turkey

TARGET 9▸B

SUPPORT DOMESTIC TECHNOLOGY DEVELOPMENT AND INDUSTRIAL DIVERSIFICATION

9.b.1. Proportion of high and medium-high-tech manufacturing industry value added in total value added

Definition of Indicator: This indicator refers to the proportion of high and medium-high-technology manufacturing industry value added in total value added of manufacturing. The high-tech classification of the manufacturing industry is based on Statistical Classification of Economic Activities in the European Community (NACE Rev.2).

Unit: (%)

Computation Method:

$$\frac{\text{Value added in HT and MHT manufacturing industry}}{\text{MVA}} * 100$$

Data Source: Turkstat, Annual Industry and Service Statistics

https://sdg.tuik.gov.tr/en/9-b-1/

Proportion of high and medium-high-tech manufacturing industry value added in total value added (%)

■ Proportion of high and medium-high-tech manufacturing industry value added in total value added (%)
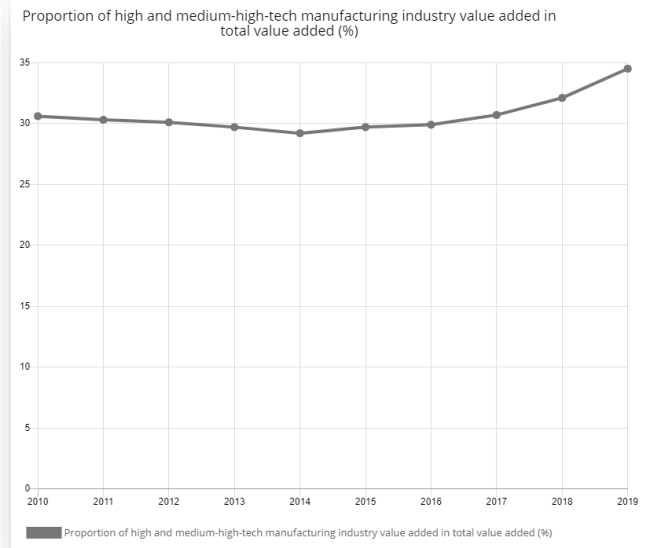
SDG 9 Indicators of Turkey

9.b.1. Proportion of high and medium-high-tech manufacturing industry value added in total value added

High-tech classification based on NACE Rev. 2 at 3-digit level of manufacturing industries

High-technology:

- Manufacture of basic pharmaceutical products and pharmaceutical preparations (21)

- Manufacture of computer, electronic and optical products (26)

- Manufacture of air and spacecraft and related machinery (30.3)

Medium-high-technology:

- Manufacture of chemicals and chemical products (20)

- Manufacture of weapons and ammunition (25.4)

- Manufacture of electrical equipment (27)

- Manufacture of machinery and equipment n.e.c. (28)

- Manufacture of motor vehicles, trailers and semi-trailers (29)

- Manufacture of other transport equipment excluding Building of ships and boats and excluding Manufacture of air and spacecraft and related machinery 30-(30.1+30.3)

- Manufacture of medical and dental instruments and supplies (32.5)

TARGET 9▸B

SUPPORT DOMESTIC TECHNOLOGY DEVELOPMENT AND INDUSTRIAL DIVERSIFICATION

SDG 9 Indicators of Turkey

9.c.1. Proportion of population covered by a mobile network by technology

Definition of Indicator: This indicator refers to the percentage of inhabitants living within range of a mobile-cellular signal, irrespective of whether or not they are mobile phone subscribers or users. Based on the value that the operator with the highest coverage value for that year reported to Information Technologies and Communications Authority.
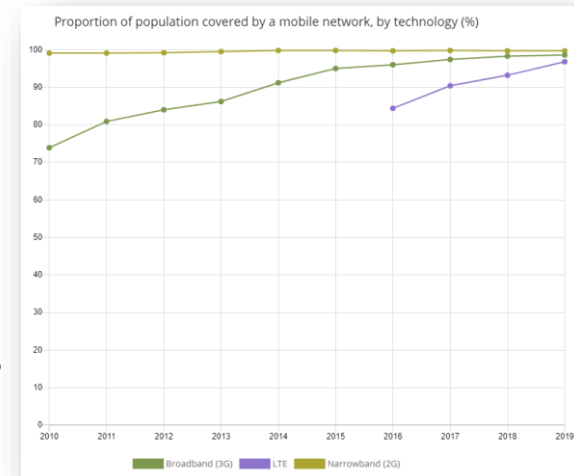
Unit: (%)

Computation Method:

$$\frac{Number\ of\ inhabitants\ within\ range\ of\ a\ mobile-cellular\ signal}{Total\ population}$$

Available Disaggregation: Technology type (narrowband (2G), broadbans (3G) and LTE)

Data Source: Information Technologies and Communications Authority

https://sdg.tuik.gov.tr/en/9-c-1/

TARGET 9›C

UNIVERSAL ACCESS TO INFORMATION AND COMMUNICATIONS TECHNOLOGY

Proportion of population covered by a mobile network, by technology (%)

Broadband (3G) · LTE · Narrowband (2G)

Road Map for SDG 9

According to the last Press Release in 2021
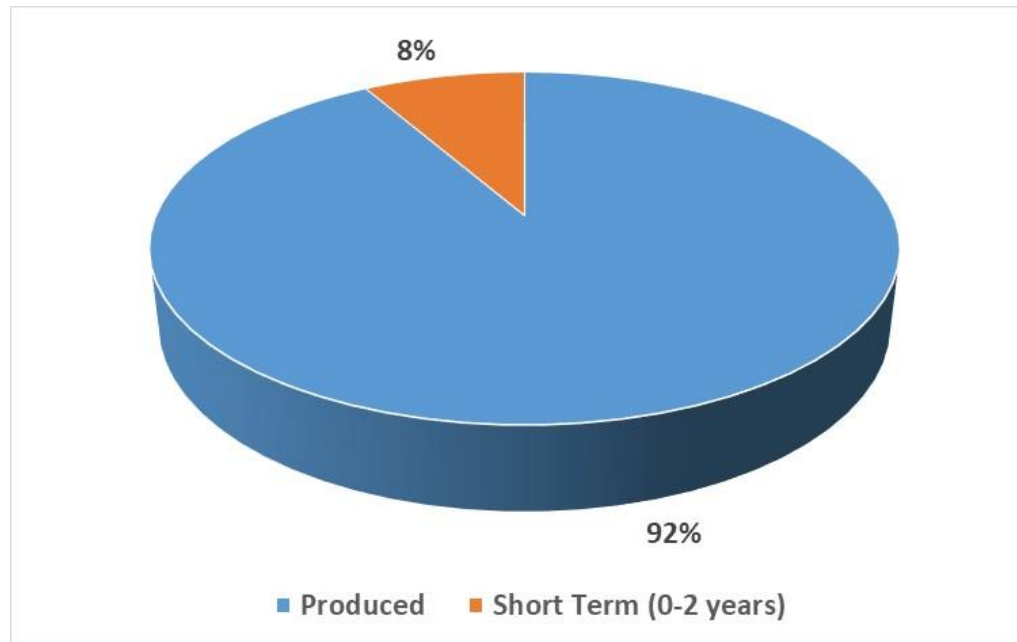
Road Map for SDG 9

9.1.1. Proportion of the rural population who live within 2 km of an all-season road

Responsible Institution: TurkStat, Software Department

Availability: Short Term (0-2 years)

Disaggegation: Geographical location

Planned Study:

- Consultation with TurkStat, Geographical Information Systems Group Presidency

- Studies are ongoing for the production of data on a provincial basis in the short term, starting from the largest provinces

- Coordination is being provided within TurkStat

TARGET 9·1

DEVELOP SUSTAINABLE, RESILIENT AND INCLUSIVE INFRASTRUCTURES

Challenges & Experiences

- **Need for untraditional data sources**

  - 9.1.1 → Geographic information systems

- **Some indicators need data disaggregation**

  - 9.1.1, 9.1.2, 9.2.2, 9.c.1 → Geographical location

  - 9.4.1 → Sector

  - 9.5.2 → Age, gender

- **UN SDG global database**

  - 9.5.2

- **SDG 9.3.2- Proportion of micro-scale industries with a loan (cash or non-cash)**

  - Sector coverage : Manufacturing

  - Definition : Small scale vs. Micro-scale

  - Data source : Business Registers vs. Annual Industry and Service Statistics

  - Data producer : Cooperation of two institutions
    - ✓ Banking Regulation and Supervision Agency (BRSA)
    - ✓ Turkish Statistical Institute (TurkStat)

Key Takeaways

- Establish the legal setting for **SDG responsibilities** with a binding legal document

- National **coordination** is critical

- Organize **workshops** to increase SDG awareness and ownership

- Carry out **inventory analysis** to investigate data availability

- Prepare a **national road map** for unavailable SDG indicators

- Improve **administrative records**

- Produce **disaggregated data**

- Produce SDG indicators by adding questions to some **surveys/censuses**

- Eliminate the **data inconsistencies** in international databases by communicating with custodian agencies

- Present the indicators at a more effective, visible, updateable platform - **web portal**

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Thank you

sdg@tuik.gov.tr