

# Climate Change Works of Istanbul Metropolitan Municipality

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## İSTANBUL



- Located between the continents of **Asia and Europe**
- The **most populous city of Türkiye and also Europe** with its population exceeding **16 millions**
- **Financial capital** of Türkiye
  - has a significant impact on the country's overall economic performance.
- **Importance in maritime , trade, tourism, history and culture.**

## Istanbul Metropolitan Municipality (IMM)

- 39 District Municipalities in İstanbul
- **IMM** has:
  - **31 Departments** and **117 directorates**.
  - **30 subsidiary companies + 2 affiliated public utility corporations;** İstanbul Electrical Tram and Tunnel Operations (İETT) and İstanbul Water & Sanitation Administration (İSKİ) and
  - around **90,000 employees** in total.



**ISTANBUL  
METROPOLITAN  
MUNICIPALITY**

## Expected Climate Change Effects in Istanbul by 2100



### TEMPERATURE CHANGE

Increase in annual average temperature

**1 - 4,5 °C**

Warmest day temperature

**40 + °C**

Coldest day temperature

**0 + °C**



### PRECIPITATION CHANGE

Decrease in total annual precipitation

**maximum %12**

Increase in the amount of precipitation on heavy rain days

**maximum %59**

Increase in rainfall intensity

**maximum %13**



### DROUGHT

Longest droughty duration

**maximum 57**



### SEA LEVEL RISE

**45-75 cm**

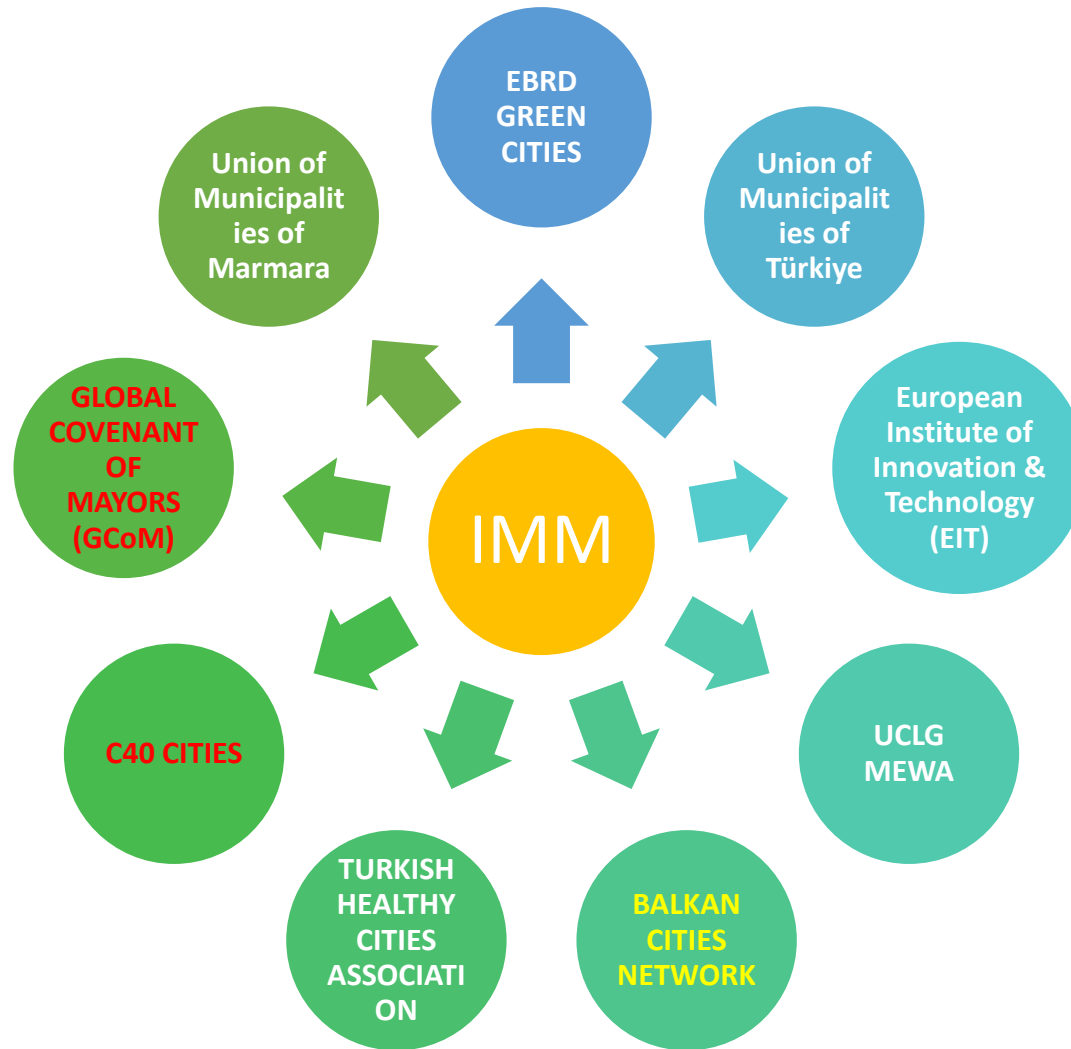


### URBAN HEAT ISLAND

Additional increase in average temperature due to intense urbanization

**1 - 2 °C**

# National and International Networks



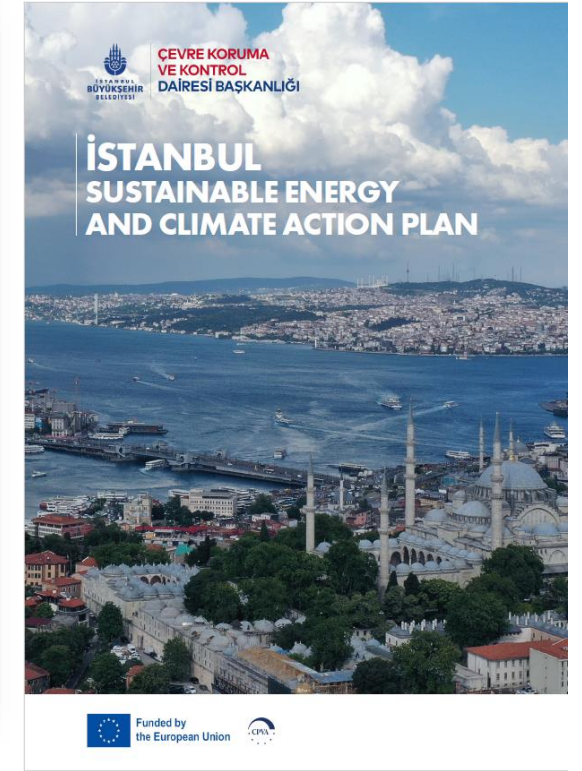
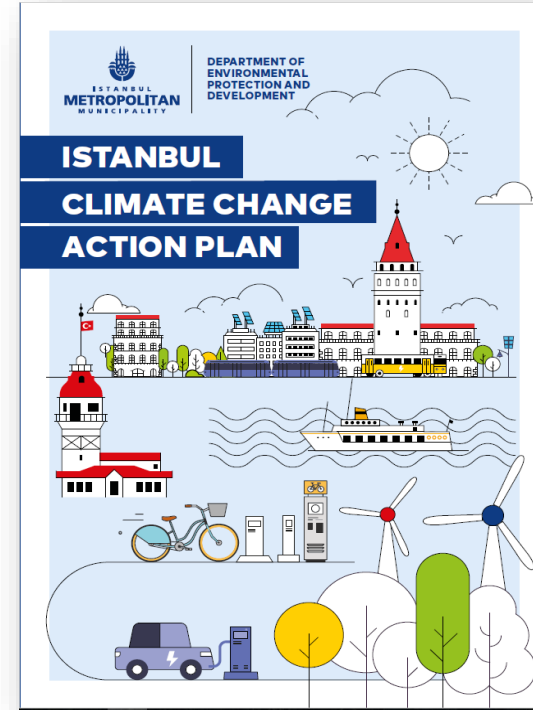
## Deadline 2020 / C40 Cities Climate Leadership Group

- Mayor of IMM, Mr. Ekrem İmamoğlu, signed the **Deadline 2020 Commitment** at the **C40 Mayors Summit** in Copenhagen in October 2019.
- Committed to be C-neutral and resilient city by 2050.



## Istanbul Climate Works (CAP and SECAP)

- Within The Deadline 2020 Commitment and GCoM and C40 memberships, IMM prepared:
  - Climate Change Action Plan (CAP)
  - Sustainable Energy and Climate Action Plan (SECAP)

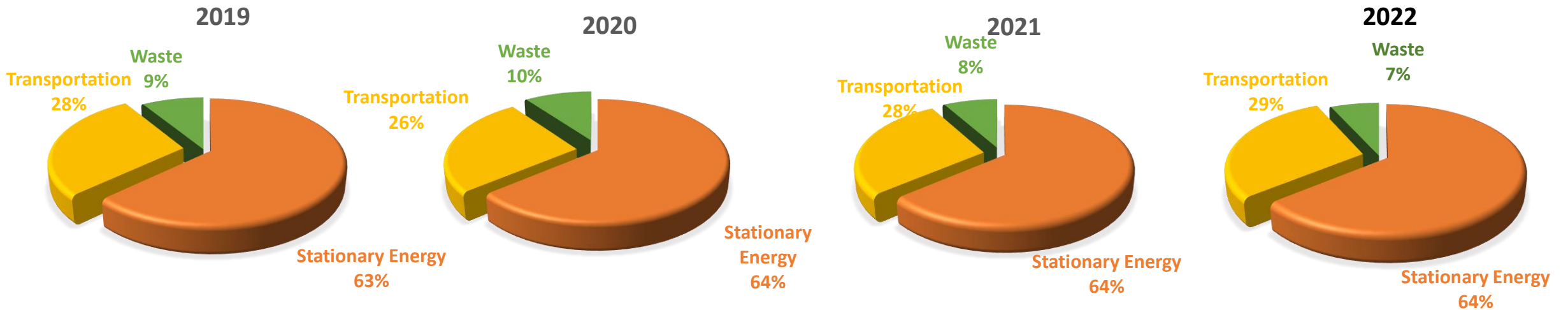


- The plans can be accessed via: <https://cevre.ibb.istanbul/>

# Relationship Between Action Plans



# Sectoral Distribution of Greenhouse Gas Inventory of İstanbul in 2019, 2020, 2021 and 2022



<b>2019 TOTAL Emissions</b>	<b>50,888,653 tCO<sub>2</sub>e</b>
Emissions per capita	3.3 tCO <sub>2</sub> e

<b>2020 TOTAL Emissions</b>	<b>47,880,005 tCO<sub>2</sub>e</b>
Emissions per capita	3.1 tCO <sub>2</sub> e

<b>2021 TOTAL Emissions</b>	<b>50,637,989 tCO<sub>2</sub>e</b>
Emissions per capita	3.2 tCO <sub>2</sub> e

<b>2022 TOTAL Emissions</b>	<b>51,202,666 tCO<sub>2</sub>e</b>
Emissions per capita	3.2 tCO <sub>2</sub> e



## Istanbul Sustainable Energy and Climate Action Plan (Istanbul SECAP)

- **SECAP** studies were carried out under the EU Project “**EU4 Energy Transition Covenant of Mayors in the Western Balkans and Turkey**”
- The Project is funded by **European Union** and the **German Federal Ministry of Economic Cooperation and Development**.
- SECAP studies were carried out under the coordination of **IMM Environmental Protection and Control Department, Climate Change Directorate** with **Lithuania's Central Project Management Agency (CPMA)** as project executive .



## Istanbul Sustainable Energy and Climate Action Plan (Istanbul SECAP)

- **PROJECT SCOPE:** Within the scope of the project, **technical support** and **capacity support** will be provided as consultancy services on the development of the “Sustainable Energy and Climate Plan” (SECAP) to Istanbul Metropolitan Municipality and Bağcılar Municipality.
- **PROJECT DURATION:** Total duration **48 months** ( 1 March 2021- 28 February 2025)
  - 2021-2023: Preparation of SECAP
  - 2023-2025: Implementation of SECAP



## Istanbul SECAP Focuses on 4 Main Sectors

Stationary  
Energy

Transportation

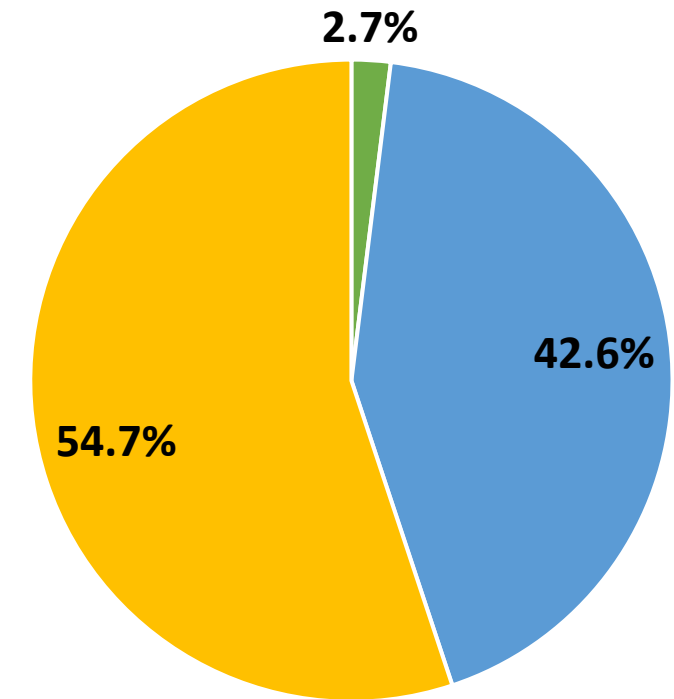
Waste

Water-  
Wastewater



## Istanbul SECAP: Institutional Emission Inventory

- **The first institutional emission inventory** related to SECAP (**2019 base year**) was prepared by the technical staff of the IMM Climate Change Directorate in 2022.
- The institutional inventory includes emissions from all buildings and facilities of IMM, 28 subsidiaries and 2 affiliates.



IMM's institutional GHG emission amount is approximately **3%** of Istanbul's total GHG emission amount

**Total emission amount:**  
 1,544,908 tCO<sub>2e</sub>  
**Emission amount per capita:**  
 20.1 tCO<sub>2e</sub>

■ Waste   ■ Transportation   ■ Stationary Energy

# Istanbul SECAP Adaptation Works: Vulnerability Maps

• Four regional vulnerability maps for Istanbul were prepared in the frame of SECAP:

- **Habitat Quality**,
- **Heat Islands Effects**,
- **Coastal Floods and**
- **Urban Floods**



Figure 1: Habitat Quality

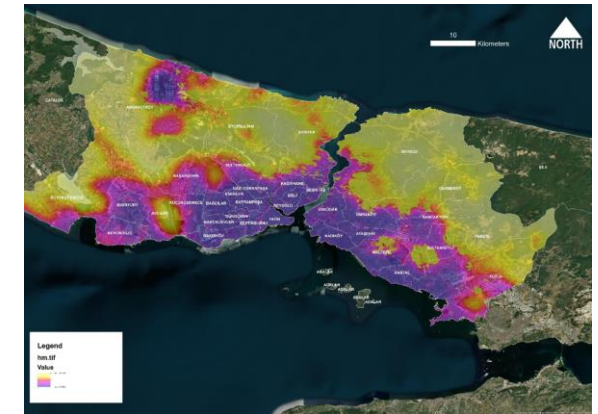


Figure 2: Heat Mitigation Index (HMI)

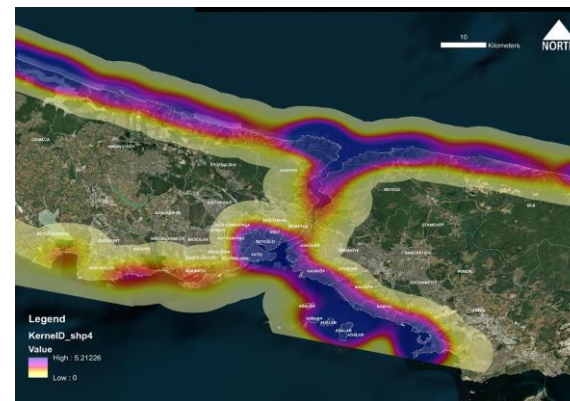


Figure 3: Coastal Vulnerability

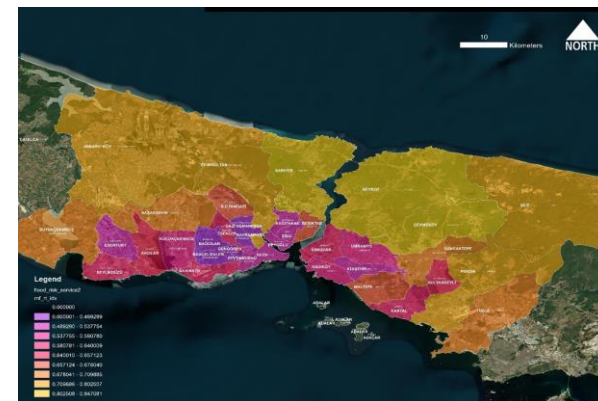


Figure 4: Pluvial Flooding Vulnerability

## Stationary Energy & Buildings Sector

	2019-2023	2023-2024
<b>Number of IMM Buildings with Solar Power Plants on Their Roofs</b>	<b>22</b>	<b>87</b>
<b>Total Power of Solar Power Plants Installed in IMM Buildings</b>	<b>4193 kWp</b>	<b>16008 kWp</b>
<b>Number of IMM Buildings with Energy Audits</b>	<b>21</b>	<b>22</b>
<b>Number of IMM Buildings Receiving ISO50001 Energy Management Certificate</b>	<b>5</b>	<b>24</b>



## Transportation Sector

	2022	2023
Rail System length (km)	297	328
Number of electric public transport vehicles (taxis and buses, respectively) (units)	75 & 40	125 & 40
Bicycle path length (km)	339,15	



Electric buses in service in the Princes' Islands



Istanbul became the city with the most subway constructions (10) in the world at the same time.



Rail vehicle developed by IBB, TRAM34



Women's use of public transportation was encouraged with «AnneKart»



We provide service with a total of 50 Sea Taxis, 5 of which are electric-hybrid, the first electric vehicles used in maritime transportation in Istanbul.

## Waste Sector

**2019**

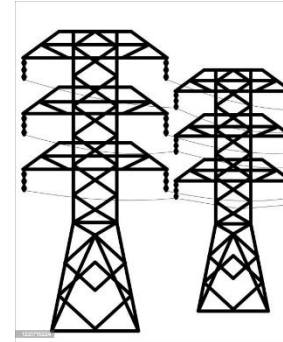
**477,608 MWh** of electricity  
produced from waste



**2,75 x**

**2023**

**1,316,908 MWh**  
of electricity produced from waste



We generated electricity equivalent to the electricity needs of **2.5 million people** annually and prevented the emission of **4.5 million tons of CO<sub>2</sub>e** into the atmosphere with our **new renewable energy investments** to support our carbon neutral waste management targets and reduce energy dependency.



- **Kemberburgaz and Kömürcüoda Biomethanization Facilities and Waste Incineration and Energy Generation Facility** were came into operation **between 2019 and 2022**.



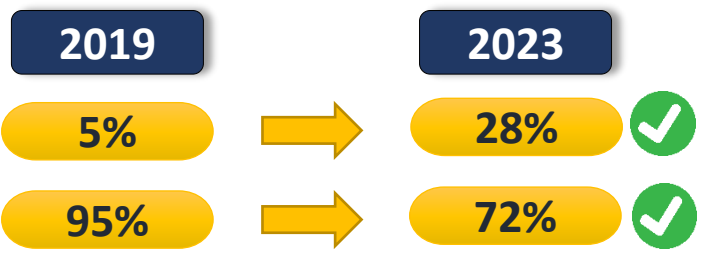
*Kemberburgaz Biomethanization Facility*



*Waste Incineration and Energy Generation Facility*

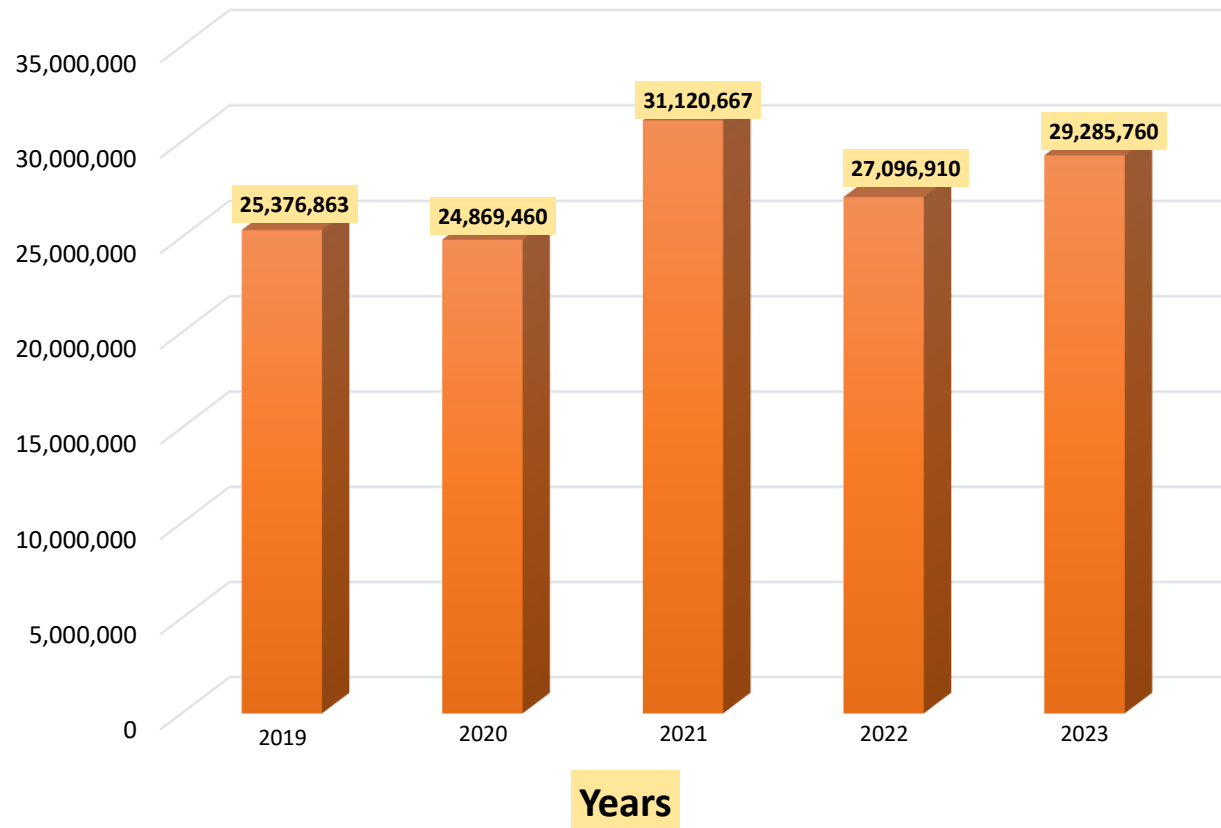
**Ratio of Waste came to Waste Recycling Facilities**

**Ratio of Waste sent to Landfill**

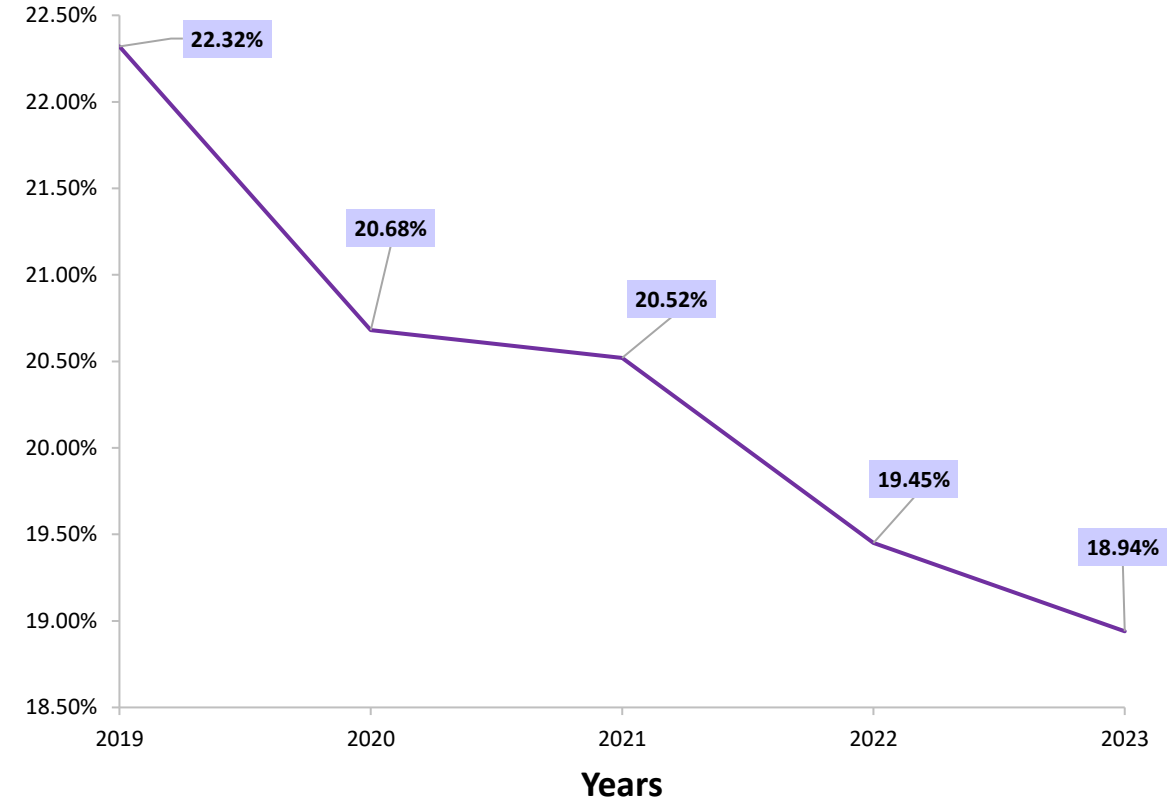


## Water & Wastewater Sector

### Amount of Recovered Advanced Treated Wastewater (m<sup>3</sup>/year)



### Water Loss-Leakage Rate (%)



## Water & Wastewater Sector

- In Kadıköy and Üsküdar, where floods had a negative impact on daily life in the past, **stormwater and wastewater collection systems were separated in 2020.**
- As a result of the investments, flood and overflow problems were prevented in these important districts.

### Stormwater Collection System Length (km)

2019

4.600



2021

5.112



## Istanbul Green City Action Plan (Istanbul GCAP)

- IMM aims for an **environmentally sensitive and sustainable future** for İstanbul with its **green development investments**.
- **Green City Action Plan Memorandum** was signed with the **European Bank for Reconstruction and Development (EBRD)** for the sustainable development of the city.
- Thus İstanbul has been joined the EBRD's green cities platform.
- GCAP studies have been started in May, 2023.



## EU MISSIONS: NET ZERO CITIES



“Climate City Contract” including “Commitments”, “2030 Action Plan”, and “2030 Investment Plan” will be submitted by September 16, 2024.

Istanbul has been selected as one of the **100 leading cities** committed to being a **climate-neutral and smart city by 2030**.



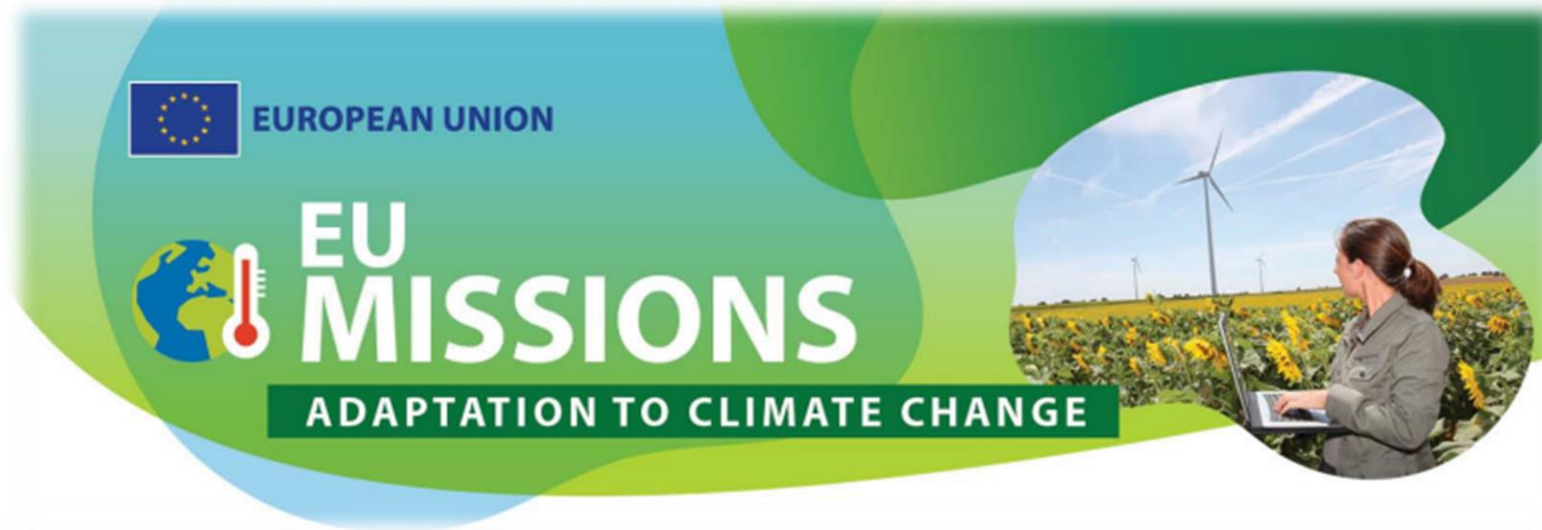
## NZC PILOT CITY: Green and Carbon Neutral Building Transition Guide- Istanbul Model

- İstanbul has been selected as a **pilot city** with the **Build4GreenIST** Project (Green and Carbon Neutral Buildings Transition Guide: İstanbul Model).
- The Project mainly focuses on:
  - to prepare a guide to ensure that buildings renewed within the scope of urban transformation or earthquake prone are green and carbon neutral.

**Build4GreenIST**



## EU MISSIONS: ADAPTATION TO CLIMATE CHANGE



- IMM is among the 301 signatories of “**EU Missions: Adapting to Climate Change**”.
- The Adaptation Mission is a network that supports cities to be resilient to climate change.



ISTANBUL  
**METROPOLITAN**  
MUNICIPALITY

**DEPARTMENT OF  
ENVIRONMENTAL  
PROTECTION AND  
DEVELOPMENT**

**Thank you**

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