

2023/1

TESEV
BRIEFS

**Environmental Protection
and Climate Change
Budgets of
Metropolitan Municipalities**

TESEV Briefs aim to share with the public different opinions and recommendations on issues that are under TESEV's working areas.





Public Expenditures Monitoring Platform

Nurhan Yentürk (*Bilgi University Center for Civil Society Studies*)

Berkay Hacımustafa (*Cooperation for Environment, Climate and Health*)

Yakup Kadri Karabacak (*Initiative for Freedom of Expression*)

Ezgi Ediboğlu Sakowsky (*Istanbul Policy Center*)

Işık Baştuğ (*Kadıköy Municipality Climate Ambassadors*)

Melda Karademir (*Kadıköy Municipality Climate Ambassadors*)

Gökçen Kunter Karaduman (*KENT LAB Urban Strategies and Local Practices*)

Yağız Eren Abanus (*Center for Spatial Justice*)

Ece Baykal Fide (*Green Thought Association*)

Gökçen Bayram (*Green Thought Association*)

Özüm Çelik (*Green Thought Association*)

Meltem Düzel Ayrıl (*Green Thought Association*)

Burcu Genç (*Green Future Association*)

Global warming and the climate crisis are driven by a range of factors, including the decrease in air flows due to dense concrete-based construction and buildings in urban spaces paired with the increase in urban heat island effects due to asphalt structures, the traffic caused by the excessive use of fossil fuel vehicles like cars and trucks, increasing air pollution due to the housing and transportation of a growing population, the increase in greenhouse gas emissions caused by the transportation of food etc. from distant regions to satisfy the needs of the large urban populations, the decrease in forested and wooded areas, and the growing need for cooling (air conditioning) that is paralleled by temperature increases. Meanwhile, people living in urban spaces are more severely affected by the impacts of the climate crisis because cities are most affected by heat waves, rising sea levels, irregular rainfall, floods, water scarcity and food crises. Therefore, local governments have critical roles in combating climate change.

This study firstly aims to classify the environmental protection and climate change (EPCC) goals stated in the 2022 performance programs of the 14 metropolitan municipalities (MM) with the highest expenditures in Turkey and their affiliated institutions (AF) (water and sewerage departments and transportation administrations)

The performance goals of the 14 MMs with the highest budgets for the year 2022 and their AFs were analyzed and coded one by one, and the budget allocated for EPCC in 2022 was calculated. On average, the ratio of the MMs and AFs' EPCC budgets to their total annual budgets is around 25% in 2022, the amount they allocate for EPCC thus falling short of a quarter of their total budgets.

according to mitigation, adaptation, waste, and other environmental goals and to examine the budget allocated to these targets. The study, also, evaluates the pros and cons of the budgets allocated by the 14 metropolitan municipalities to mitigation, adaptation, waste, and other goals and develops concrete policy recommendations for areas in which budgets should be increased/decreased.

Yentürk (2020) presents a calculation of the budget allocated for Environmental Protection and Climate Change (EPCC) for 2012 and the 2018-2020 period. In 2021, the method used in Yentürk (2020) was improved to calculate the EPCC budget for 2021. This study aims to calculate the EPCC budgets of 14 MMs and their AFs for 2022 and compare them with the 2021 monitor.

Based on the classification, the performance goals of the 14 MMs with the highest budgets for the year 2022 and their AFs were analyzed and coded one by one, and the budget allocated for EPCC in 2022 was calculated. On average, the ratio of the MMs and AFs' EPCC budgets to their total annual budgets is around 25% in 2022, the amount they allocate for EPCC thus

falling short of a quarter of their total budgets. Another finding of these calculations is that there has been a nominal increase with the current price in the 14 MMs and their AFs' EPCC budgets since 2018. However, when looking at the fixed price of 2018, it turns out that there was no increase between 2018 and 2020, while there has been a decrease in 2021 and 2022. When calculated with the fixed prices of 2018, while the 2021 EPCC budget is 13 billion 422 million TL, there is a decrease to 12 billion 105 million TL in the 2022 EPCC budget. In other words, there is a decrease in the EPCC budget in fixed prices from 2018 to 2022, and the expenditures of local governments on EPCC have melted and decreased in the face of inflation. This melting has become even more significant in 2022. In the context of the worsening environmental and climate crisis, the fact that the budget allocated to EPCC is eroding in the face of inflation is unacceptable.

Table 1 shows the shares of mitigation, adaptation, waste, and other environmental goals in the EPCC budgets of the 14 MMs and their AFs, arranged in descending order according to the share allocated to mitigation.

Table 1: DISTRIBUTION OF EPCC-RELATED BUDGETS OF THE 14 METROPOLITAN MUNICIPALITIES AND THEIR AFFILIATED INSTITUTIONS %, 2022

	MITIGATION	ADAPTATION	WASTE	OTHER
ISTANBUL MM and AFs	51	24	22	3
ANKARA MM and AFs	49	30	20	1
KONYA MM and AFs	41	36	20	6
GAZIANTEP MM and AFs	36	38.7	24.7	0.52
KOCAELI MM and AFs	32	39	28	1
MERSIN MM and AFs	25	25	38	12
BURSA MM and AFs	25	50	15	11
ANTALYA MM and AFs	16	39	44	1
KAYSERI MM and AFs	14	65	19	2
BALIKESIR MM and AFs	11	50	34	5
IZMIR MM and AFs	8	43	44	5
MANISA MM and AFs	8	56	35	8
ADANA MM and AFs	3	65	15	17
MUĞLA MM and AFs	0.33	32.7	66.6	0.33

Source: www.kahip.org, Annex 1

Examining the 2022 performance programs, one finds that Istanbul leads the metropolitan cities allocating over 25% of their total 2022 EPCC budget to mitigation. Istanbul is followed by Ankara, Konya, Gaziantep, Kocaeli, Mersin, and Bursa. In 2022, Konya and Kocaeli are also among the metropolitan cities allocating more than 25% to mitigation. In 2021, Konya and Kocaeli had allocated a very low share to mitigation. The metropolitan cities that allocated the lowest shares to mitigation in both 2021 and 2022 are Balıkesir, İzmir, Manisa, Adana, and Muğla.

Among the cities allocating more than 25% to mitigation, Gaziantep, Kocaeli, Mersin, and Bursa have a large mitigation share that is nonetheless lower than their adaptation share.

Bursa and Mersin's mitigation share is lower than the share they allocated for waste goals. Among the MMs whose 2022 budgets were analyzed, Istanbul, Ankara and Konya stand out as the MMs with the largest mitigation share who at the same time allocate more resources to mitigation than to adaptation and waste goals. In 2021, this had only been the case for Gaziantep, a positive picture largely aided by the fact that Gaziantep had allocated considerable resources to its solar power plant in that year. Rail system investments contribute significantly to the high mitigation shares of Istanbul and Konya in 2022. Meanwhile, the purchase of low-emission natural gas and electric buses and goals to increase energy efficiency play an important part in Ankara's 2022 mitigation budget.

MITIGATION

Given the significant impact they have on global warming and the climate crisis, cities should be expected to allocate more resources to mitigation goals. It is as striking as deplorable that the shares allocated for mitigation in the performance goals of 11 out of the 14 analyzed MMs and AFs are lower than the shares of adaptation or waste goals. Table 2 analyzes the areas in which MMs define their mitigation goals. These include transportation-based mitigation goals such as rail systems and bicycle lanes, renewable energy generation, renewable energy use and energy efficiency, goals related to agriculture and livestock mitigation, and mitigation management.

The most important result seen in Table 2 is that the most significant share of the mitigation goal budget, which already makes up for a low share in the EPCC budget, is allocated to the rail system. In other words, as can be seen from the last two rows of Table 2, of the 14 MMs and their AFs' total mitigation budget of 14 billion 260 million TL a share of 11 billion 563 million TL is used for the rail system. 9 billion 225 million TL of this share is the rail system budget allocated by Istanbul MM and its AFs. In percentages, this means that 81% of the mitigation budget comes from the rail system budget, and the rail system budget of Istanbul MM and its AFs alone accounts for 65% of the mitigation budget of all 14 MMs and AFs. The main reason for the increase in the mitigation budget of the 14 MMs and their AFs from 5 billion 590 million TL in 2021 to 14 billion 260 million TL in 2022 is the increase in the rail system budget of Istanbul MM and its AFs by

around 7 billion TL. The second main reason for the increase, as mentioned above, is the 1 billion 492 million TL budget allocated to renewable energy use and efficiency by Ankara MM and its AFs. Here, the main purpose of the rail system is to solve the transportation problem and it is not known how much of the energy used by the rail system actually comes from fossil fuels. This makes the resources allocated directly to renewable energy use and energy efficiency by Ankara all the more important.

When Table 2 is analyzed in terms of metropolitan cities, it is seen that 7 out of the 14 cities (Istanbul, Konya, Kocaeli, Bursa, Antalya, Kayseri, Adana) have allocated almost all of their mitigation goal budget to the rail system. For the MMs, the transition to the rail system arguably serves transportation rather than mitigation goals. That said, it should of course be emphasized that indirectly, the rail transportation network has an important impact on mitigating carbon emission. However, considering that electricity for the rail system may have been generated from fossil fuels, it can be concluded that the rail system contributes to mitigation goals in a very indirect manner. Budgets should be allocated to mitigation areas other than the rail system.

Unlike 2021, 8 of the 14 metropolitan cities (Antalya, Istanbul, Izmir, Kocaeli, Konya, Ankara, Balıkesir, Bursa) have a low budget for bicycle lanes. While the number of metropolitan cities allocating budget for the bicycle lanes has increased, the budget allocated has not.

Table 2: 14 METROPOLITAN MUNICIPALITIES, MITIGATION BUDGETS IN 2022 PERFORMANCE PROGRAMS, TL

	MITIGATION SHARE OF TOTAL IN %	RAIL SYSTEM AND BICYCLE LANES, TL	GENERATION OF RENEWABLE ENERGY, TL	USE OF RENEWABLE ENERGY AND ENERGY EFFICIENCY, TL	AGRICULTURE-RELATED MITIGATION, TL	LIVESTOCK-RELATED MITIGATION, TL	MITIGATION MANAGEMENT, TL	TOTAL
ISTANBUL MM and AFs	51	9,224,914,470	2,394,340	208,815,273	0	0	3,902,100	9,440,026,183
ANKARA MM and AFs	49	579,500,000	500,000	1,492,420,000	0	0	1,500,000	2,073,920,000
KONYA MM and AFs	41	575,980,000	350,000	320,000	500,000	0	0	577,150,000
GAZIANTEP MM and AFs	36	1,820,000	368,419,800	85,170,000	0	0	0	455,409,800
KOCAELI MM and AFs	32	575,607,000	16,600,000	1,030,000	27,950,000	0	0	621,187,000
MERSIN MM and AFs	25	89,285,000	23,504,000	118,500,000	5,807,000	10,231,000	500,000	247,827,000
BURSA MM and AFs	25	167,546,500	550,000	0	0	0	3,626,900	171,723,400
ANTALYA MM and AFs	16	185,500,000	15,000,000	500,000	0	0	0	201,000,000
KAYSERI MM and AFs	14	52,300,000		12,900,000				65,200,000
BALIKESIR MM and AFs	11	1,462,500	30,752,564	19,436,734	0	0	150,000	51,801,798
IZMIR MM and AFs	8	69,793,000	2,500,000	173,692,996	12,618,000		950,000	259,553,996
MANISA MM and AFs	8		34,655,000	18,288,500				52,943,500
ADANA MM and AFs	3	39,150,000	0	750,000	0	0	0	39,900,000
MUĞLA MM and AFs	0.33	0	750,000	601,000	0	300,000	940,000	2,591,000
TOTAL 14 MM and AFs		11,562,858,470	495,975,704	2,132,424,503	46,875,000	10,531,000	11,569,000	14,260,233,677
TOTAL EXCL. ISTANBUL		2,337,944,000	493,581,364	1,923,609,230	46,875,000	10,531,000	7,666,900	4,820,207,494

Source: www.kahip.org, Annex 1



Of the 14 MMs and their AFs' total mitigation budget of 14 billion 260 million TL a share of 11 billion 563 million TL is used for the rail system. 9 billion 225 million TL of this share is the rail system budget allocated by Istanbul MM and its AFs. In percentages, this means that 81% of the mitigation budget comes from the rail system budget.

When the 2022 performance programs are examined, it is seen that these metropolitan cities have a small budget of 21 million 275 thousand TL on bicycle lanes. If metropolitan cities would increase their budgets for bicycle lanes and promote this area, this would have a net positive impact on mitigation goals.

Analysis of the share of renewable energy generation in the mitigation budget shows that Gaziantep has allocated 80%, Manisa 65%, Balıkesir 60%, and Muğla 29% of their mitigation budgets for renewable energy generation in 2022. Ankara, Antalya, Balıkesir, Gaziantep, Izmir, Kocaeli, Konya, Manisa, and Muğla have allocated budget for solar power plants. Especially Gaziantep, Manisa, and Balıkesir have allocated a significant amount of their mitigation budgets for solar power plants. The other MMs have allocated rather small resources. However, it should be emphasized that the favorable climatic conditions in many of the metropolitan cities analyzed are very suitable for setting up of solar power plants. Most of the metropolitan cities allocated small budgets for solar energy and the generation of energy from sludge and/or methane gas. Energy generation from landfill gas has not been on the agenda of metropolitan cities. In metropolitan cities with large populations, Energy production from waste segregation and

landfill gas can be an important energy source. It should be noted that energy should not be generated from waste through wild burning. However, even where wild burning is avoided, energy generation from landfill is criticized for its high cost and the risk of producing toxic gases. The main approach should be based on circularity and compliance with zero waste principles.

Ankara allocates 72% of its mitigation budget to energy efficiency and renewable energy use. Its performance programs include goals for increasing energy efficiency, geothermal-supported agriculture, purchasing electric buses, and developing urban agriculture. When compared to the other MMs, Istanbul, Izmir, Mersin, and Gaziantep have allocated relatively larger budgets to renewable energy use and energy efficiency. Their goals include providing transportation with low-emission buses, ensuring efficient use of energy in municipal buildings and municipal parks, gardens, and enterprises, reducing electricity costs in various areas, using renewable energy in treatment plants, the cleaning of buses and similar services, as well as developing biological waste segregation. The other metropolitan cities also allocate budgets for renewable energy use and energy efficiency, but as Table 2 shows, these budgets are rather small. It is very important

that MMs allocate budgets to this area and increase their respective budgets. In fact, renewable energy use and energy efficiency form a goal area in which great leaps forward can be made by developing human capital and raising awareness.

Supporting existing agricultural activities in the immediate surroundings of metropolitan cities and providing incentives and trainings to the public regarding urban agriculture can be considered as contributing to mitigation, especially since it will eliminate the use of fossil fuel required by remote transportation. That's why, by reducing remote transportation, urban agriculture is therefore also included in the mitigation goals in the area of renewable energy use and energy efficiency. In this context, some metropolitan cities have invested in sub-areas such as establishing farmers' markets, providing training and support to producers (Ankara, Gaziantep, Izmir, İstanbul, Kocaeli, Konya, Mersin, Muğla), and greenhouse farming based on geothermal and solar energy (Ankara, Izmir). In the remaining MMs, however, no budget is allocated to these areas. More budget should be allocated for the use of solar energy in agricultural production. Although geothermal energy is accepted as a type of renewable energy, it can harm the environment if it mixes with freshwater resources during its extraction and if the chemical gases that emerge after extraction are not returned to the ground through re-injection. For this reason, the opinions of the local community, relevant NGOs, and scientists specialized on the topic should be given importance in the production, use, and supervision of this type of energy.

Apart from these, agricultural and livestock activities targeting mitigation must be designed in a very specific manner. For example, such activities can be supporting organic agriculture practices and composting in agriculture, as well as livestock practices that improve the feed and breed efficiency of ovine animals which would in turn help to reduce methane gas emissions. In 2022, Izmir, Kocaeli, and Mersin are the three only metropolitan cities whose budget in this area reaches the range of millions of TL. In Table 2, it is noteworthy that Konya and Muğla have budgets, albeit very small, for mitigation in relation to agriculture and livestock. In the other 9 metropolitan municipalities, no budget is allocated to this topic. For medium-sized cities that contribute to agricultural production and livestock activities it is important to allocate budgets for measures to reduce methane gas emissions in agriculture and animal husbandry, and to support composting practices and organic farming in agriculture.

The category of mitigation management featured in Table 2 comprises budgets allocated to goals like the preparation and dissemination of climate change action plans and greenhouse gas measurement studies. These were included in the mitigation goals since it is necessary to first measure greenhouse gas emissions and make an action plan in order to achieve mitigation. A climate action plans is considered as a goal which, once drawn up, does not require a new budget for a while. However, to guarantee internalization, implementation, and dissemination of the climate action plans, resources should be allocated in the budget every year for measuring greenhouse gases

and updating the data. It is noteworthy that only 7 metropolitan cities have a mitigation management budget.

ADAPTATION

Table 3 displays the areas which the 14 MMs and their AFs focus on in their adaptation goals. Looking at the last rows of Table 3, the most important share of the budget allocated for adaptation by the 14 MMs and AFs concerns the goal of constructing drinking water facilities. Drinking water supply is one of the traditional services provided by the water and sewerage departments, which are AFs of the MMs. In the face of increasing drought and water scarcity that occur because of global warming and the climate crisis, water supply is an important area with respect to adaptation. When the construction of drinking water facilities, construction of agricultural irrigation facilities and operation of these irrigation and drinking water facilities are considered together, it is seen that 62% of the total adaptation budget is related to facility construction and operation.

Excluding irrigation, green spaces make up the largest share of the remaining budget. While the priority with green spaces should be their carbon sink function, the 14 MMs' activity reports indicate that MMs' focus is on grass planting and maintenance. However, grass is an extremely water-intensive cover and its share in adaptation expenditures cannot be separated. Therefore, it should be kept in mind that budgets in this area include a goal that may

in fact run counter to adaptation. Metropolitan municipalities should abandon grass planting and switch to ground covers that need little water and fit local conditions. Excessive water consumption should be avoided by traditional meadows and lawns. Urban forests are not specifically mentioned in the performance goals. A budget for urban forests should be added.

Conservation of biodiversity and endemic species, organized and biological pest control are included in green spaces and sinks. While the goals of protecting biodiversity and endemic species were included in the 2021 performance programs of Ankara (protecting the number of Angora cats, goats, and rabbits, which are all endemic species) and Balıkesir (identifying the plants growing in the Balıkesir flora according to districts, carrying out promotional activities such as books, brochures, etc., identifying economically valuable plants in the flora by starting land surveys, protecting red corals), they do not figure in the two cities' performance programs in 2022. In 2022, Istanbul (biodiversity-related activities), Izmir (research, coordination and awareness-raising activities on biodiversity and ecology) and Muğla (biodiversity conservation and enhancement) allocated budgets for this topic. Overall, very limited resources are allocated to the conservation of biodiversity and endemic species. Metropolitan cities should allocate budgets to this sub-area.

Table 3: 14 METROPOLITAN MUNICIPALITIES, ADAPTATION BUDGETS IN 2022 PERFORMANCE PROGRAMS, TL

	ADAPTATION SHARE OF TOTAL IN %	CONSTRUCTION OF DRINKING WATER FACILITIES	CONSTRUCTION OF AGRICULTURAL IRRIGATION FACILITIES	OPERATION AND MAINTENANCE OF WATER / IRRIGATION FACILITIES	RAINWATER HARVESTING	WATER EFFICIENCY	GREEN AREAS AND SINKS (INCL. GRASS)	ADAPTATION OF AGRICULTURE AND LIVESTOCK	EARLY WARNING SYSTEMS/ FLOODS	TOTAL
KAYSERI MM and AFs	65	79,121,000		150,461,800		53,000	58,250,000	18,201,200		306,087,000
ADANA MM and AFs	65	366,350,000	13,000,000	192,080,000	0	20,500,000	195,111,000			787,041,000
MANISA MM and AFs	56	124,641,346	22,704,000	112,545,102	0	4,175,000	66,027,000	12,805,500	56,963,533	399,861,481
BURSA MM and AFs	50	79,591,282	0	118,297,795	0	13,229,212	132,990,137	0	2,037,137	346,145,563
BALIKESIR MM and AFs	50	21,572,881	0	70,925,252	0	5,775,115	126,866,400	8,800,000	750,000	234,689,648
IZMIR MM and AFs	43	136,698,100		346,194,500	118,322,948	3,903,000	702,969,000	13,303,000	93,655,598	1,415,046,146
KOCAELI MM and AFs	39	350,878,944	7,000,000	291,252,292	0	8,506,407	80,350,000	9,200,000	912,854	748,100,497
ANTALYA MM and AFs	39	405,473,000	0	18,520,000	0	19,500,000	28,350,000	0	0	471,843,000
GAZIANTEP MM and AFs	38.7	231,620,000	0	100,000	0	55,500,000	201,771,000			488,991,000
KONYA MM and AFs	36	177,655,000	0	161,615,000	0	60,000	129,600,000	0	450,000	469,380,000
MUĞLA MM and AFs	32.7	3,000,000	0	238011000	0	0	5,650,000	800,000	10,620,000	258,081,000
ANKARA MM and AFs	30	742,484,000	1,000,000	266,908,000	0	9,552,000	251,050,000	0	0	1,270,994,000
MERSIN MM and AFs	25	57,698,960	17,010,000	115,292,343	0	23,607,000	31,043,000	0	0	244,651,303
ISTANBUL MM and AFs	24	1,497,209,000	0	928,901,137	0	140,450,596	1,578,470,777	90,465,080	211,895,203	4,447,391,793
TOTAL 14 MM and AFs		4,273,993,514	60,714,000	3,011,104,221	118,322,948	304,811,330	3,588,498,314	153,574,780	377,284,325	11,888,303,431
TOTAL EXCL. ISTANBUL		2,776,784,514	60,714,000	2,082,203,084	118,322,948	164,360,734	2,010,027,537	63,109,700	165,389,122	7,440,911,638

Source: www.kahip.org, Annex 1



Metropolitan municipalities should abandon grass planting and switch to ground covers that need little water and fit local conditions. Excessive water consumption should be avoided by traditional meadows and lawns. Urban forests are not specifically mentioned in the performance goals. A budget for urban forests should be added.

In Ankara, Izmir, and Kayseri, chemical forms of pest control were filtered out to include only the budgets for biological means of pest control in the adaptation goals. In the context of vector control or pest control, budget should be furnished for biological instead of chemical forms of control.

In 2022, as in 2021, rainwater is included in the facilities for inclusion in the sewerage system as a task of sewerage departments in all metropolitan cities except Izmir. In the framework of climate change adaptation, the aim is to allocate budget for the storage and reuse of rainwater. In the context of the danger of drought due to the climate crisis and water and food security, rain harvesting is a practice which cities must absolutely resort to and which should be on the agenda of metropolitan municipalities.

Water efficiency is an area to which all metropolitan cities except Muğla have allocated budgets. That said, the budgets allocated for water efficiency are very low. While efficient use of water requires technical investments such as leakage and loss monitoring, which is performed by almost all of the examined metropolitan municipalities, and software investments such as SCADA, this also is an area where significant results can be achieved with lower budgets as it involves training and awareness raising. Awareness raising should be

directed towards municipal employees as well as citizens. A review of the 2022 performance programs shows that only a few metropolitan cities (Istanbul, Izmir) reuse wastewater for vehicle and facility maintenance.

Water efficiency also includes the sub-area desalination of seawater. This goal only figures in the 2021 performance program of Izmir Metropolitan Municipality. Desalination can give rise to undesirable impacts in terms of combating the climate crisis and sustainability. Desalination should always be considered within the specific conditions of each region, making sure that desalination practices comply with sustainability criteria. It is recommended that especially MMs on the coastline embrace this goal. But before this, other practices such as water saving and rainwater harvesting should be adopted.

Table 3 shows that there are 6 metropolitan cities that include the construction of agricultural irrigation facilities in their 2022 goals. It is a fact that the agricultural sector is one of the most water consuming sectors. Instead of wild irrigation methods, methods that use less water, such as drip irrigation, should be adopted and promoted for the irrigation of agricultural lands. No budget should be allocated for the construction of agricultural irrigation facilities that are based on wild irrigation techniques. Drip irrigation should

also be used in parks and gardens. Kocaeli and Manisa have included these goals in their 2022 Performance Programs.

An important adaptation goal in Table 3 is related to the budget allocated to adaptive agriculture and livestock. This area covers a number of sub-areas, e.g., supporting heat-adaptive agricultural practices and combating erosion, desertification and drought. Besides, adaptive agriculture and livestock covers also goals such as increasing soil fertility, supporting adaptive livestock breeding and protecting animal health. As seen in Table 3, only 7 metropolitan municipalities have goals that address this broad topic. Medium-sized metropolitan municipalities with a high propensity for agricultural production need to increase their budgets for agricultural adaptation in order to counter the impacts of the climate crisis. In addition, it would be good to support a transition from water-intensive to less water-intensive crops and to provide information and training on these issues. Protection of animal health is a goal that can be more frequently observed among the MMs. However, as mentioned earlier, the goal of protecting animal health and supporting livestock activities should go hand in hand with methane gas reduction goals.

Resources allocated for combating floods and high water, early warning systems and heat waves are classified as a separate area under the adaptation goal. Metropolitan cities should definitely allocate resources for early warning systems. Likewise, it is important to allocate resources for combating floods and

rehabilitating streams with nature-based solutions. Similarly, it is essential to allocate resources to raise public awareness, take measures and warn the public regarding these climate events. Table 3 shows that 8 MMs have allocated budget to this area.

WASTE

The waste goal is traditionally at the top of the budget allocations of metropolitan cities, and especially of the water and sewerage departments. The last two rows of Table 4 show that construction of solid and liquid waste facilities accounts for 45% of the total waste budget, while waste collection and management accounts for 41%. Construction of treatment plants and waste efficiency and recovery only account for 14% of the total waste budget.

Looking at the totals in the last two rows of Table 4, the largest share of the budget is allocated to waste collection. The construction of liquid waste facilities and constructions undertaken for the inclusion of rainwater in the sewerage system has the second largest share. Istanbul's waste budget alone accounts for 52% of the waste budget of the 14 metropolitan cities.

In the 14 metropolitan cities analyzed, the budget allocated for the construction of treatment plants makes up for only 12% of their total waste budget. It is important to allocate budget for the construction of treatment plants. However, with a view to the mucilage occurrences in the Marmara Sea, it is key to emphasize that these plants

Table 4: 14 METROPOLITAN MUNICIPALITIES, WASTE BUDGETS IN 2022 PERFORMANCE PROGRAMS, TL

	WASTE SHARE OF TOTAL IN %	CONSTRUCTION OF SOLID WASTE FACILITIES	CONSTRUCTION OF LIQUID WASTE FACILITIES	CONSTRUCTION OF TREATMENT PLANTS	WASTE COLLECTION /MANAGEMENT	WASTE EFFICIENCY/ RECOVERY	TOTAL
MUĞLA MM and AFs	67	1,800,000	11,800,000	237,130,000	274,558,000	0	525,288,000
ANTALYA MM and AFs	44	0	225,775,000	242,531,000	69,705,000	0	538,011,000
IZMIR MM and AFs	44	0	592,131,052	188,389,602	649,372,000	12,167,000	1,442,059,654
MERSİN MM and AFs	38	1,000,000	46,261,014	1,318,811	325,670,155	190,000	374,439,980
MANISA MM and AFs	35	25,175,000	79,597,846	35,397,500	85,030,571	22,998,200	248,199,118
BALIKESİR MM and AFs	34	4,000,000	50,513,266	28,495,507	59,793,194	18,244,470	161,046,437
KOCAELİ MM and AFs	28	174,930,000	88,146,539	12,320,129	233,225,178	26,179,755	534,801,601
GAZİANTEP MM and AFs	25	32,832,700	221,970,000	3,750,000	52,180,000	1,490,000	312,222,700
İSTANBUL MM and AFs	22	942,953,500	919,794,123	390,747,929	1,771,798,341	7,170,794	4,032,464,687
ANKARA MM and AFs	20	0	444,986,000	25,300,000	363,491,000	10,000,000	843,777,000
KONYA MM and AFs	20	0	204,045,000	0	59,500,000	20,300,000	283,845,000
KAYSERİ MM and AFs	19	0	0	6,300,000	35,696,000	46,201,000	88,197,000
BURSA MM and AFs	15	6,280,900	70,130,168	13,416,486	12,039,550	550,000	102,417,104
ADANA MM and AFs	15	0	168,470,000	15,000,000	1,560,000	0	185,030,000
TOTAL 14 MM and AFs		1,188,972,100	3,123,620,008	1,200,096,965	3,993,618,989	165,491,219	9,671,799,282
TOTAL EXCL. İSTANBUL		246,018,600	2,203,825,885	809,349,036	2,221,820,648	158,320,425	5,639,334,595

Source: www.kahip.org, Annex 1



Construction of solid and liquid waste facilities accounts for 45% of the total waste budget, while waste collection and management accounts for 41%. Construction of treatment plants and waste efficiency and recovery only account for 14% of the total waste budget.

should be advanced biological treatment plants and not traditional deep discharge plants. In the performance programs, it is not clearly indicated whether the planned treatment plants belong to the former or the latter category. For this reason, the budget allocated for the construction of all types of treatment plants was taken into consideration in this study. It was observed that Antalya, Istanbul and Izmir allocated significant resources to this issue. Ankara, Konya, and Muğla have also allocated resources for treatment facilities.

Solid waste facility construction includes the construction of landfills and garbage and other solid waste disposal facilities. With the exception of Istanbul and Kocaeli, metropolitan cities' main budget for solid waste is related the collection of garbage and other types of waste. Gaziantep and Manisa allocated a small budget for the construction of solid waste facilities. In the other metropolitan cities, no budget has been allocated for additions or improvements to solid waste facilities in 2022.

Waste efficiency and recovery stands out as the most important area in Table 4. This area comprises a range of sub-areas, including waste sorting, waste reduction, reuse, distribution of zero waste bins, wastewater recovery, and waste conversion and recovery, as well as education, awareness raising and audit activities. The last row of Table 4 shows how

few resources are allocated to waste efficiency goals. It is important to increase the budget allocated to waste efficiency in all metropolitan cities and to target waste recycling with a higher budget than waste collection.

OTHER GOALS

Other environment-related expenditures are allocated an average budget of around 5% of total EPCC expenditures (Table 1). This goal includes budgets allocated for the cleaning of cities, squares, public markets, coastal areas, beaches with nature protection and environmental awareness trainings, care of street/stray animals, air pollution measurement and environmental laboratories. In some metropolitan cities, cleaning expenditures were included in general procurement goals along with other materials and could not be disaggregated. However, when the goals in the performance programs are analyzed separately, it can be said that metropolitan cities are most sensitive to cleaning and stray animals.

One of the areas classified as part of other environment goals is raising awareness and organizing trainings. Local governments can organize activities to reinforce the climate change and environmental awareness education included in the school curriculum of the Ministry of National Education. In this context, resources should be allocated to organize activities for children, youth,

... budgets allocated for the generation and use of renewable energy, energy efficiency, agricultural and livestock greenhouse gas mitigation, greenhouse gas measurement, preparation and implementation of climate action plans, rainwater recovery, efficient use of water, adaptive agriculture and livestock activity, climate-related disaster/flood early warning systems, and waste efficiency and recovery are almost non-existent.

teachers, and parents to raise awareness on nature protection, ecology, and environmental awareness at municipal community centers. Greater budgets should be allocated for the sub-areas measurement and monitoring and environmental laboratories.

CONCLUSION

In 2022, MMs and AFs allocated only 25% of their total budgets for EPCC. When these EPCC budgets are examined, it is seen that municipalities stick to a traditional understanding of municipal work, spending their budgets mainly to solve transportation problems, to find new water source, for the collection of solid and liquid waste, and for mostly grass-based green space design and landscaping in areas largely closed to human use. Other than these, budgets allocated for the generation and use of renewable energy, energy efficiency, agricultural and livestock greenhouse gas mitigation, greenhouse gas measurement, preparation and implementation of climate action plans, rainwater recovery, efficient use of water, adaptive agriculture and livestock activity, climate-related disaster/flood early warning systems, and waste efficiency and recovery are almost non-existent.

In the past decades, Turkey has responded to poverty in urban areas and made progress in the field of social municipal work. Considering the effects of global warming and the climate crisis on cities and, vice versa, the contribution of cities to this crisis, this study highlights the lack of items necessary for a real fight against climate change in the budgets examined. The study emphasizes that municipalities, whether metropolitan or not, are overdue to face the urgent need of adopting a “green municipalism” that addresses the goals currently missing and it must be proposed as a mainstream item for their agendas, calling on all local governments to urgently take action against the climate crisis.

NOTES

1. For a detailed list of the classification, see www.kahip.org
2. For Yentürk (2020) İklim Pahası, see <https://bilgiyay.com/wp-content/uploads/2020/09/İKLİM-PAHASI-150920-TESLİM-2.pdf> .
3. https://www.kahip.org/wp-content/uploads/2021/11/CKID-RAPOR-121121_.pdf .
4. <https://www.kahip.org/wp-content/uploads/2022/10/CKID-301022sonsite.pdf> . Also see Annex 1.
5. For the references made to the 2021 data in this study, see https://www.kahip.org/wp-content/uploads/2021/11/CKID-RAPOR-121121_.pdf
6. The metropolitan cities named in parentheses are those that have allocated resources for the topic.
7. See <https://yesilgazete.org/acikta-yada-tesiste-yakmak-copten-yakarak-kurtulabilir-miyiz/> The lack of resources allocated for circularity and zero waste will be discussed in the section on waste.
8. <https://www.wwf.org.tr/?10120/Jeotermal-enerji-tehdit-olmasin>
9. The importance of the contribution of methane to greenhouse gas emissions and the role of agriculture in producing methane is also recognized in the 2021 IPCC report. https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf
10. However, in some metropolitan cities, as in Ankara, this work is carried out through subsidiaries. It was stated earlier that subsidiaries could not be included in the scope of the review.
11. <https://yesilgazete.org/desalinasyon-susuz-kentlere-care-mi-akgun-ilhan/>

How to Cite:

KAHİP. 2023. “Environmental Protection and Climate Change Budgets of Metropolitan Municipalities” TESEV Briefs 2023/1.

This brief was translated from its Turkish original by Sebastian Heuer

<https://www.tesev.org.tr/tr/research/Environmental-Protection-and-Climate-Change-Budgets-of-Metropolitan-Municipalities/>

Copyright © January 2023

All rights reserved. No part of this publication may be reproduced by electronic or mechanical means (photocopies, downloading, archiving, etc.) without the permission of the Turkish Economic and Social Studies Foundation (TESEV).

The views expressed in this publication are those of the authors', and may not correspond in part or in full to the views of TESEV as an institution.

TESEV would like to thank the Friedrich Ebert Stiftung for their support for this publication.

