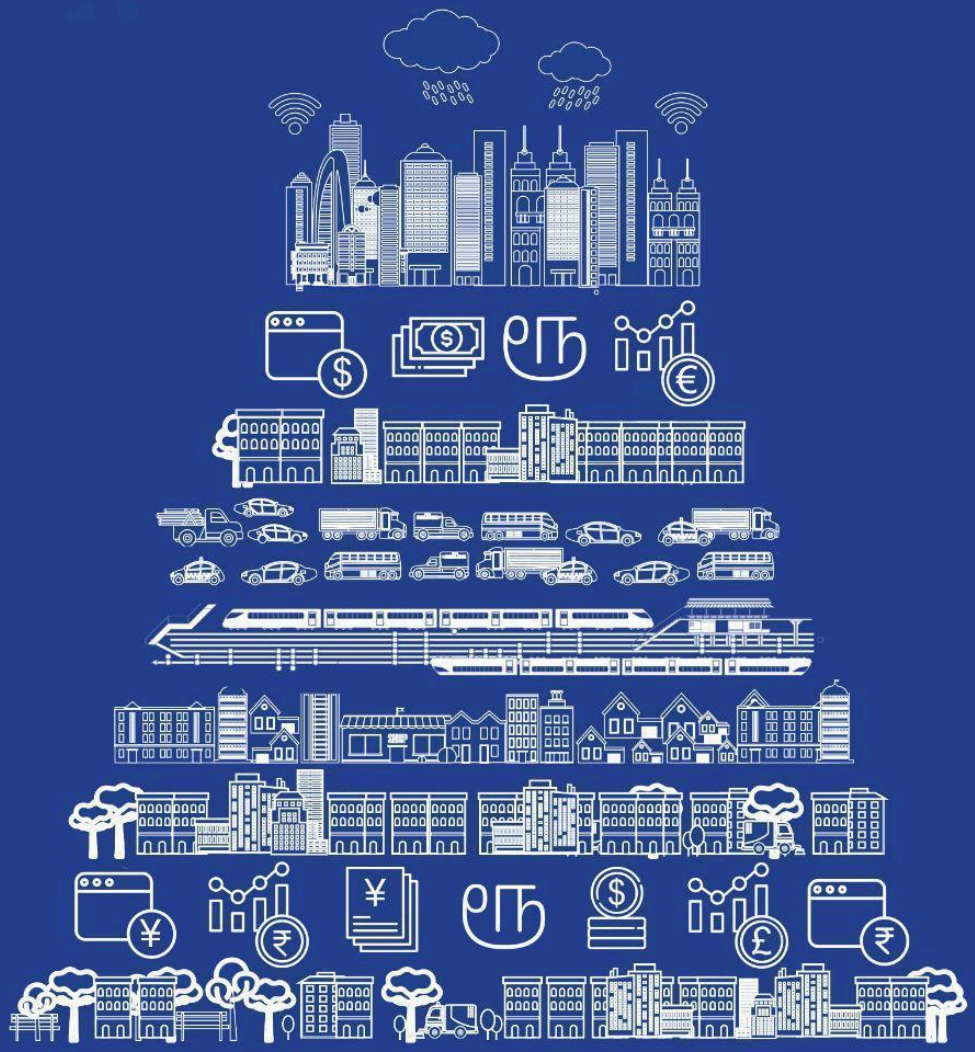

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Greater Chennai Corporation
Climate Budget Report
2025-2026

GREATER CHENNAI CORPORATION

CLIMATE BUDGET REPORT
2025-26

A collaborative effort between the Greater Chennai Corporation and C40 Cities

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1. Introduction

"Climate budgeting is a governance system that ensures that a city's climate commitments are at the heart of its policies, actions, and spending decisions[1]"

Climate budgeting is a structured effort by a city government to consciously adopt practices that reduce climate impacts through responsible spending and tracking of climate-related expenditures. Through this process, cities break down longer term climate goals into yearly targets and identify practical actions towards achieving these goals.

Several Indian states are leveraging climate budgeting to mobilize resources and drive the implementation of their State Action Plans on Climate Change. Many cities world-wide have also started adopting climate budgets. The figure below highlights some of them:

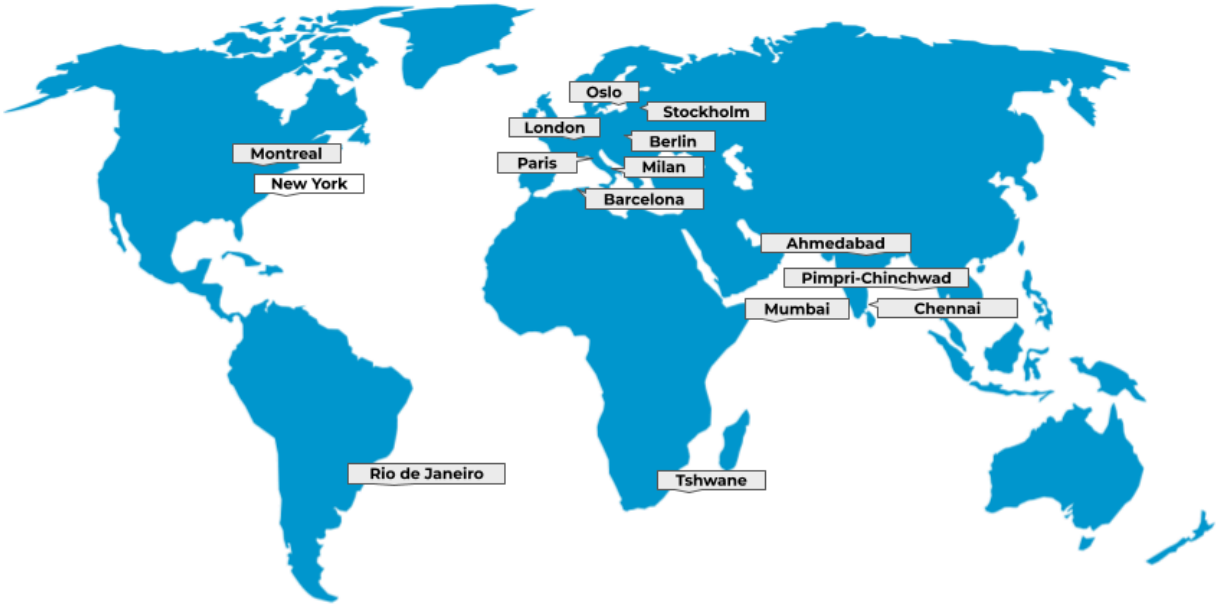

Figure 1: Cities actively working on climate budgeting. (Source- C40 Cities)

GCC's climate budget – structure and process

The Hon'ble Chief Minister of Tamil Nadu Thiru. M.K.Stalin launched the Chennai City Climate Action Plan (CCAP) in June 2023, outlining Chennai's path to climate resilience and carbon neutrality[2] by 2050. Jointly prepared by the Greater Chennai Corporation (GCC) and the Department of Environment, Forests and Climate Change in collaboration with C40 Cities, the plan aligns with Tamil Nadu's State Action Plan on Climate Change and India's net-zero goal for 2070.

[1]C40 Cities . (2023, June). Climate budgeting: What it is, what it isn't, and how it works- https://www.c40knowledgehub.org/s/article/Climate-budgeting-What-it-is-what-it-is-not-and-how-it-works?language=en_US

[2] Carbon neutrality means when the amount of carbon dioxide taken out of the atmosphere is identical to the amount released, where there is no net release of CO2. (The Climate Change Glossary Tamil Nadu)

One of the key action points highlighted by CCAP is undertaking climate budgeting (both within and outside the Greater Chennai Corporation) to ensure a streamlined focus on climate-related projects. Climate budget offers a way for cities to turn their climate commitments into funded and measurable actions and projects by embedding climate targets and considerations into regular budgeting. This also helps the city to identify and allocate definite funding sources towards achieving its climate goals and targets.
Starting from the financial year 2025-26, Chennai will undertake climate (green) budgeting as a part of its governance. This marks a monumental step towards effectively implementing the Climate Action Plan.

Climate budgeting is a structured mechanism to help GCC achieve objectives laid down in the CCAP. These objectives are:

1. Categorise climate change-relevant projects into ‘implementation on-going’ or ‘implementation proposed’ in each of the departments within the GCC.
2. Clarify every department’s role and significance in implementing identified projects/ plans.
3. Map the identified projects to the sectoral GHG emission inventory and risk assessment for the city, and identify gaps in sectoral focus.
4. Provide orientation in future project identification concerning sectoral priorities.
5. Enlist potential opportunities for availing funds from alternate sources, including state, national, and international funding sources for projects. with high climate change relevance.
6. Prepare a specific budget required for actions not taken up by the implementing departments, such as overarching capacity-building efforts and information, education, and communication (IEC) activities.

Figure 2: Climate Budgeting Sensitization Workshop for 130+ GCC Staff Members – October 24, 2024

The first climate budget report has been developed collaboratively by Greater Chennai Corporation and C40 Cities. Climate budgeting in the Greater Chennai Corporation is anchored by the Financial Management Unit (FM Unit). The climate budget preparation process for this year can be grouped under three main activities:

- **Process changes (September- October 2024):**
    - The Financial Management Unit, GCC incorporated detailed instructions and guidance into the annual budget circular (FAC. NO: B1/3100/2024) to formally embed the climate budget within the existing budgeting process.

- A climate budget template was integrated into GCC's existing budget proposal submission system within its Enterprise Resource Planning (ERP) system. This allows departments to align budget line items with CCAP goals and provide details on the climate relevance and positive impacts of both existing and new expenditures.
- Comprehensive guidance was issued on completing the climate budget template, including explanations of CCAP goals, targets, and department-specific project examples to support effective implementation.

- **Sensitisation:** In order to effectively implement a climate budget, all stakeholders across departments need to have a thorough understanding on climate change and the role of cities in addressing it. To this end, the FM Unit along with C40 Cities, conducted workshops and custom 1:1 training sessions with relevant departments.
  - **Workshop on Climate Mainstreaming as a vehicle for accelerating climate targets and considerations (October 2024):** This workshop was conducted with staff members across departments to provide an introduction to climate change and an overview of CCAP and the city's long term targets. It also delved into the departments' role in achieving these targets and how to develop a climate budget.
  - **Customised discussions with relevant departments (November 2024-January 2025):** 1:1 consultation sessions were held with the staff of 11 key departments and stakeholders in the process including Superintendent Engineers (SE), Executive Engineers, Assistant Executive Engineers, Assistant Engineers and other department staff. These sessions aimed to reiterate the concepts of climate change, highlight the key objectives listed in the CCAP, and identify aligned, completed, ongoing, and proposed activities with climate relevance, specific to every department's context.
- **Planning and data collection (January 2025):** The departments submitted budget proposals, identifying climate-relevant aspects of the proposals and mapping them to the long term climate goals of the city.
- **Categorisation:** This year, the focus is on capital expenditure directed towards climate adaptation, mitigation and resilience. All project works are categorised into direct and enabling actions. The direct actions are further divided into quantified and non-quantified actions. Greenhouse gas emissions savings have been estimated for the direct quantified actions. For all the actions, their categorisation, climate relevance, key performance indicators, and co-benefits have been specified. More information on the categorisation process can be found in the ***Climate Budget*** section.
- **Climate budget report preparation (February-March 2025):** The climate budget has been developed in close collaboration with all relevant departments. The announcement of GCC producing this report was made by the Hon. Mayor, alongside the main budget on March 19, 2025. The findings were presented to the Greater Chennai Corporation leadership.

The Greater Chennai Corporation (GCC) has allocated Rs. 3,190.61 crore for capital expenditure in FY 2025–26, of which the estimated capital expenditure for climate-relevant activities is Rs. 1,341.2 crore (42.04% of the capital budget).

The total estimated capital cost of the identified climate-relevant activities in the budget, across their full implementation period (the cumulative expenditure required to plan, construct, and complete these activities over multiple financial years) is Rs. 7,200.53 crore.

Urban Flooding and Water Scarcity (62.24%), Waste Management (26.15%) and Sustainable Mobility (9.96%) are the sectors that account for a major share of the climate budget spending, reflecting the priority accorded by GCC to flood resilience, waste management and mobility. Initiatives under adaptation[3]make up the largest share (62.8%), followed by initiatives under mitigation (37.07%) and resilience (0.13%) aligning with the current focus). More details are available in the *Assessment section*. Detailed information about each of the climate actions can be found in *Annexure II.*

2. Chennai Climate Action Plan

The implementation of the Chennai Climate Action Plan (CCAP)[4] offers an opportunity to not only reduce the city's contribution to GHG emissions, but also ensure climate justice. The CCAP provides a roadmap for the GCC and other stakeholders to take coordinated actions and continuously monitor progress to ensure a dynamic approach towards achieving climate goals. The intent is to embed climate-change thinking in GCC's institutional culture and the city's governance. The CCAP takes a holistic view of current policies and recommends actions to bring about positive changes in compliance with India's climate commitments and the United Nations Sustainable Development Goals (SDGs).

The city of Chennai adopted an inclusive and participatory approach to the development of the CCAP, to ensure fairness and accessibility in the design and delivery of urban climate policies, programmes, and services. A detailed institutional mapping identified key stakeholders for decision-making, implementation, and monitoring, including state agencies, GCC departments, academia, and NGOs. Each stage of the CCAP preparation included stakeholder consultations. Over 200 meetings and group consultations were conducted. Additionally, one-on-one consultations shaped the major CAP strategies. Between December 2021 and August 2022, key workshops covered climate action planning, vulnerability assessments, mitigation and adaptation strategies, and consultations with the Smart Cities Corporation Limited, the state Department of Environment, Climate Change and Forestry, and technical experts.

Chennai is committed towards becoming a "Resilient and Proactive Chennai" by achieving carbon neutrality[5] and 'water balance'[6] by 2050. To realize this vision, the CCAP outlines a roadmap with clear short-, medium-, and long-term mitigation and adaptation strategies.

This section summarises updates on the Climate Action Plan's knowledge base, including - the Greenhouse Gas (GHG) inventory, the emission scenarios, the Climate Change Risk Assessment, the priority action sectors and objective.

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[3] Definitions of adaptation, mitigation and resilience
[4] Chennai Climate Action Plan gist, report
[5] "Carbon neutrality means achieving net zero carbon dioxide emissions at a global scale through the balance of residual carbon dioxide emissions with the same amount of carbon dioxide removal."- Chennai Climate Action Plan
[6] "Water balance refers to the equilibrium between rainfall, evapotranspiration, runoff, and changes in soil storage. It plays a crucial role in the distribution and survival of plants and animals, even in areas where water is believed to be abundant." – (Ecology of Insular Southeast Asia, 2006)

Greenhouse Gas Inventory Update 2022-23

GCC in collaboration with C40 has conducted three greenhouse gas inventories (2015-16, 2018-19 and 2022-23), with the 2018-19 inventory serving as the Climate Action Plan's baseline. A Greenhouse Gas (GHG) Inventory is a crucial tool for tracking emissions, identifying key sources, and informing climate action planning. In alignment with the Global Protocol for Community-Scale Greenhouse Gas Inventories (GPC) BASIC standards, the GHG Inventory provides a comprehensive emissions profile for the Greater Chennai Corporation (GCC) area, serving as the foundation for targeted mitigation strategies under the Chennai Climate Action Plan (CCAP). The inventory helps policymakers prioritize interventions and monitor progress toward emissions reduction goals.

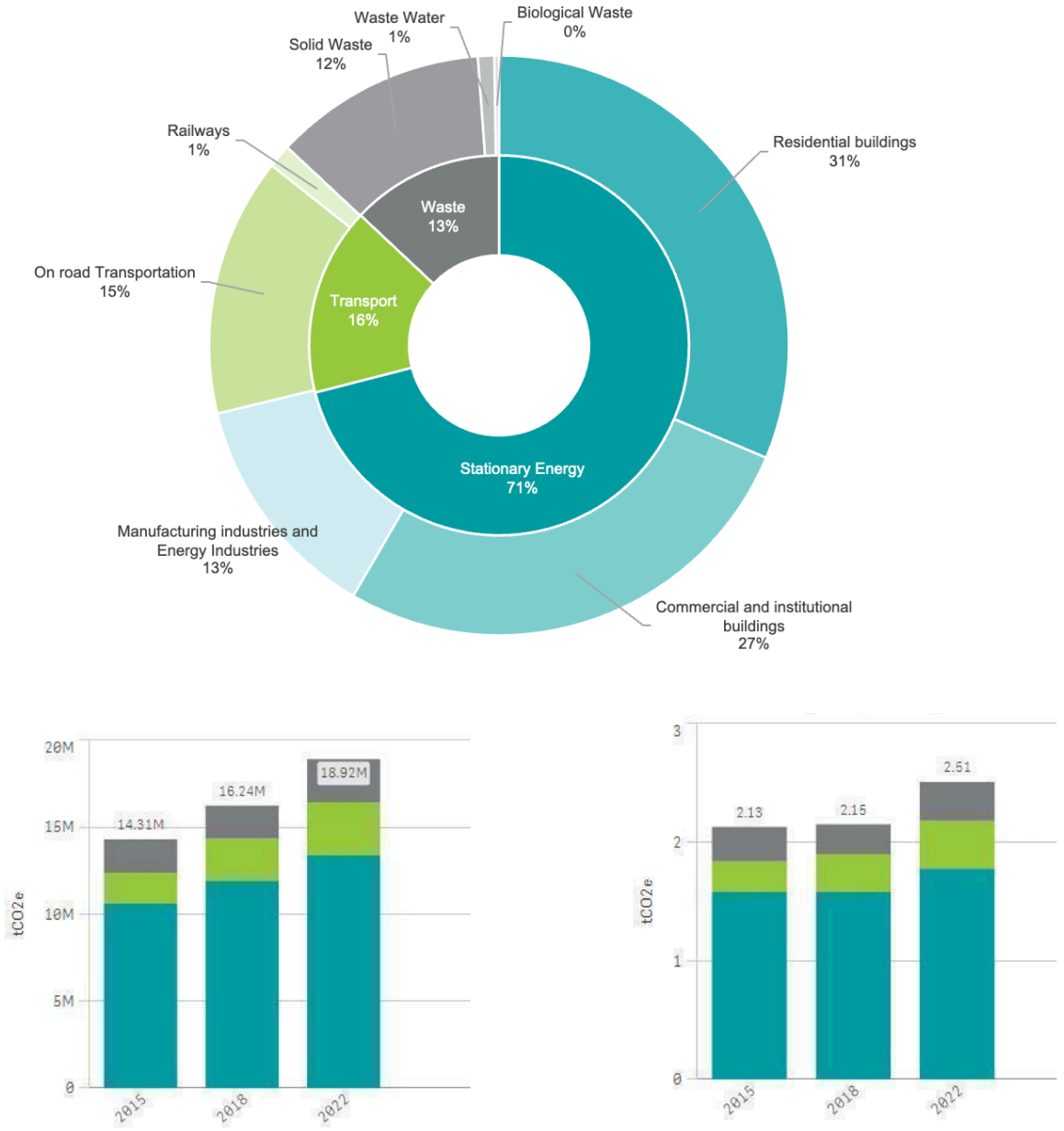


Figure 3: Chennai 2022-23 Greenhouse Gas Inventory (Source: C40 Cities, GCC)[7]

[7]C40 Cities, Greenhouse gas emissions interactive dashboard (City: Chennai to be entered), https://www.c40knowledgehub.org/s/article/C40-cities-greenhouse-gas-emissions-interactive-dashboard?language=en_US

The 2022-23 inventory records total emissions of 18.92 million tonnes of CO_2e, with per capita emissions at 2.4 tonnes. The stationary energy sector is the largest contributor, accounting for 71% of total emissions due to energy consumption in buildings and power generation. Transportation accounts for 16%, dominated by on-road vehicles, while the waste sector accounts for 13%, primarily from solid waste disposal.

This growth in emissions from 2018 is linked to population expansion, urbanization, and rising energy demand. The stationary energy sector has seen a notable rise in emissions due to greater electricity consumption, with the residential and commercial sectors accounting for over two-thirds of the emissions. The transport sector remains heavily reliant on fossil fuels, with diesel and petrol vehicles contributing 90% of its emissions. Meanwhile, emissions from the waste sector are primarily driven by landfill methane emissions. The GHG inventory preparation process also involved updating the 2018-19 and 2015–16 inventories to ensure data consistency, enable valid comparisons, and establish a solid base for tracking Chennai's progress toward emissions targets. Regular GHG inventory updates will be crucial for tracking trends and informing policy decisions. With each update, the city improves the availability and granularity of data across all sectors. Further enhancing stakeholder capacity in emissions accounting and data management will also be beneficial.

Emission scenarios

In order to achieve the carbon neutrality goal by 2050, it is important to understand the potential impact of various degrees of action, enabling data-informed decision making. To determine the mitigation pathways and targets that Chennai needs to adopt to achieve Chennai's Climate Vision, GCC modelled four GHG emission scenarios through C40's Pathways tool until 2050. The four scenarios are explained below:

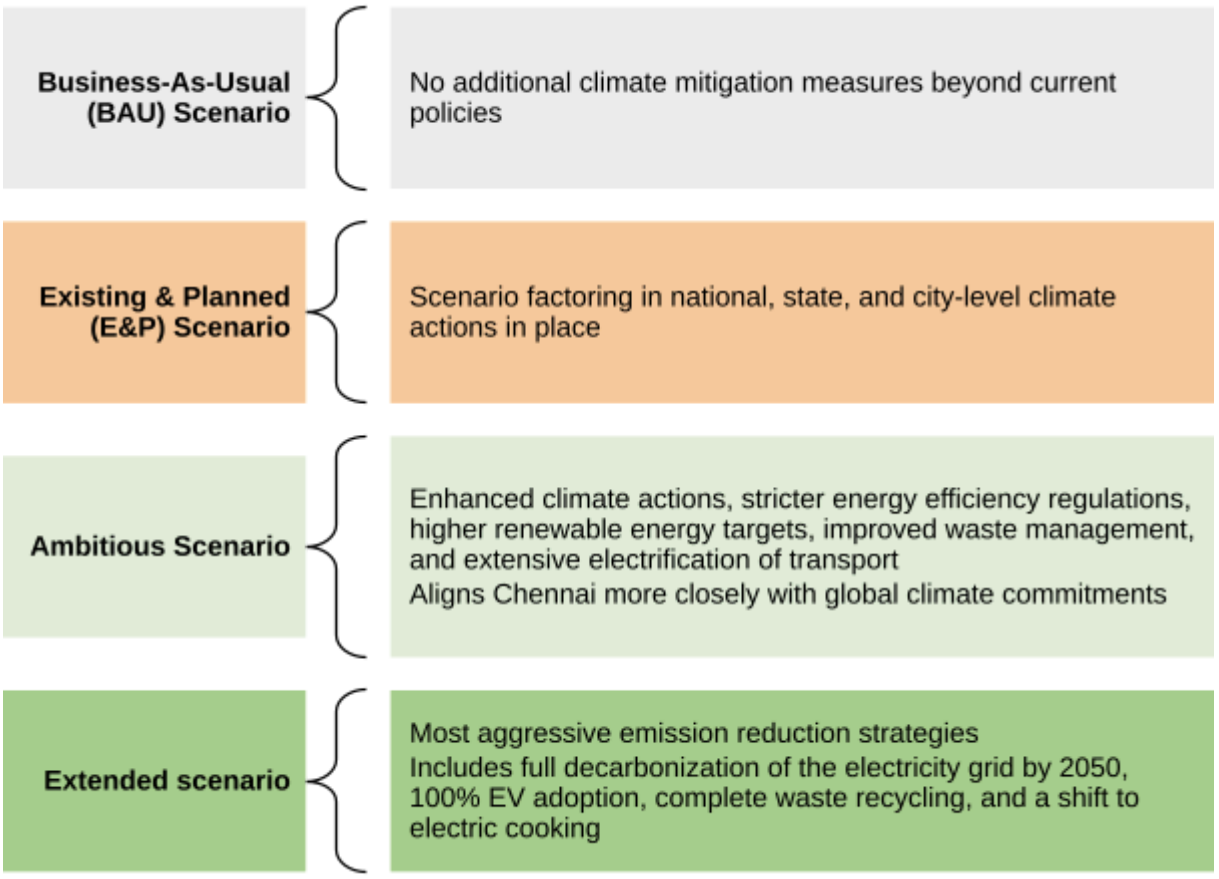


Figure 4: Description of emission scenarios

The graph below compares projected GHG emissions in 2050 across four scenarios and includes 2018-19 levels for reference.

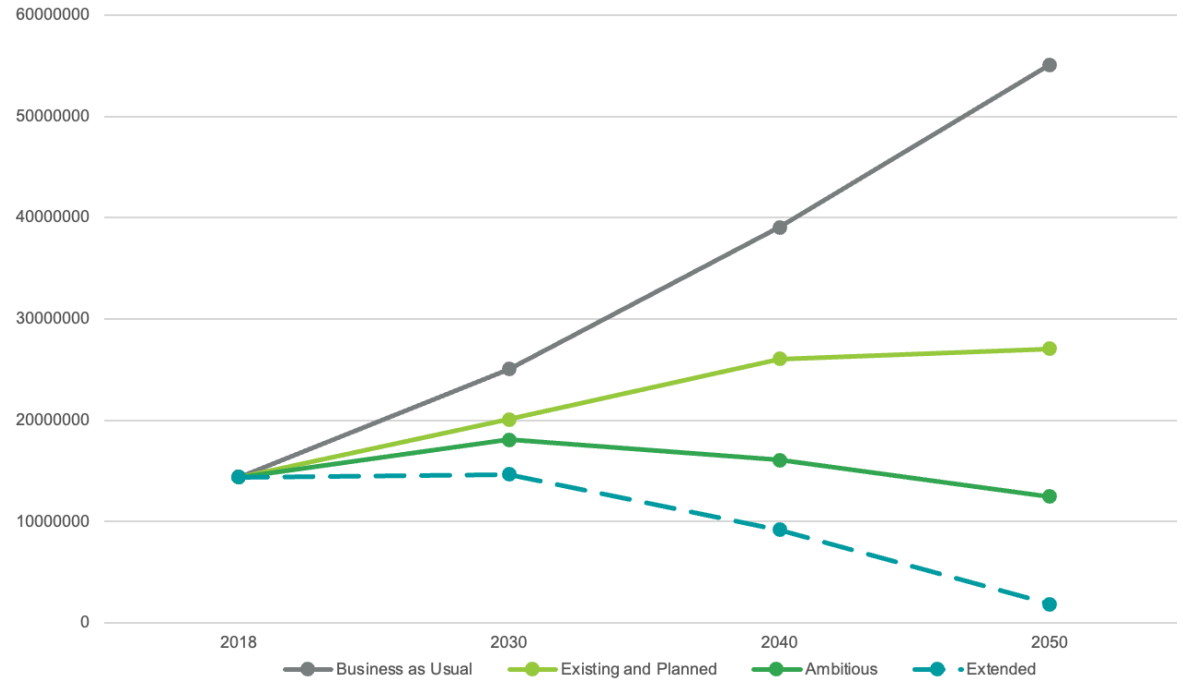


Figure 5: Projected emissions under each scenario (Source: Chennai Climate Action Plan, chapter 5)

By 2050, if no action is taken (BAU scenario), emissions are projected to nearly quadruple from 2018 levels, reaching 55.08 million tCO_2e by 2050 due to high population and GDP growth. In the Existing and Planned (E&P) scenario, emissions would still rise to 27.08 million tCO_2e, whereas the Ambitious scenario could limit them to 12.5 million tCO_2e by 2050. The Extended scenario adopts more aggressive strategies, projecting a 2% increase by 2030, and thereafter, reductions of 36% by 2040 and 87% by 2050, compared to 2018 levels.

These projections account for population growth, rising per capita incomes (driving increased spending on vehicles and appliances), and various national, state, and local policies. They offer decision-makers insights into how current programs impact emissions and emphasize the need for stronger action.

Using these scenarios, GCC, in the Chennai Climate Action Plan, has set citywide GHG targets of 1% increase in emissions by 2030, 40% decrease in emissions by 2040, and 92% decrease in emissions (net zero) by 2050 compared to 2018 emission levels. These targets align with the highest goals of the Paris Agreement, to limit global temperature rise below 1.5 degrees C.

Among the climate-aligned actions this year, biomining of legacy waste is a key short-term intervention identified in the Chennai Climate Action Plan (CCAP) to reduce waste-related emissions. The city has completely transitioned from sodium vapor streetlights to energy-efficient LED lights (since 2019), contributing to potential energy savings and emission reductions. This initiative continues to operate this year as well. While GCC does not directly operate bus services, its investments in pedestrian infrastructure, bus shelters, and integrated traffic management systems support the city's goal of shifting 80% of trips to non-motorized and public transport. Additionally, green and energy-efficient building

interventions under the Model and Smart Schools Project serve as an important pilot initiative, offering insights for scaling up sustainable building practices across the city.

Chennai's Climate Change Risk Assessment (CCRA)

To systematically identify, assess, and prioritise climate risks, a Climate Change Risk Assessment (CCRA) was undertaken as part of the development of the Chennai Climate Action Plan (CCAP) (Chennai Climate Action Plan, chapter 4). The assessment identified major climate hazards, evaluated the vulnerability of populations and critical infrastructure, and projected how these risks may intensify under future climate scenarios. Its findings serve as the basis for targeted adaptation strategies, helping the city prioritise climate investments for adapting to climate events and to safeguard lives, livelihoods, and assets.

Using the C40 CCRA framework, the assessment analysed historical climate data, future projections, spatial mapping, and socio-economic vulnerabilities. It integrated GIS-based hazard mapping, critical infrastructure assessments, and stakeholder consultations to develop a comprehensive risk profile for Chennai. The assessment identified five priority climate hazards that pose significant risks to Chennai's population, infrastructure, and economic systems, with key findings.

1. **Urban Flooding-** Chennai faces pluvial (surface water) flooding risks due to high-intensity Northeast Monsoon rains, a flat terrain, increasing built-up areas, encroachment on natural flood buffers, and the need for strengthened drainage systems. This can disrupt infrastructure, thereafter displacing low-lying communities, increasing health risks due to water contamination, and affecting economic activities. Climate change is expected to intensify extreme rainfall events, with flood intensity projected to rise. By 2051, projections show that 31.6% of Chennai's land area could be inundated during a 1-in-10-year flood event if no mitigative actions are taken. (CCAP, pg 87)
2. **Extreme Heat and Heatwaves-** Chennai is experiencing rising temperatures and prolonged heatwaves, exacerbated by global climate change, urbanization, and reduced natural cooling. The Urban Heat Island effect amplifies heat stress, particularly in dense built-up areas. with concrete structures. This could lead to rising cases of heat exhaustion, dehydration and heat strokes, particularly among vulnerable groups, and reduce worker productivity, especially in construction and transport sectors. Cooling demand will rise, straining energy systems. By 2050, maximum temperatures could increase by 1.9°C, with longer and more intense heatwaves. (CCAP, pg 90)
3. **Sea-Level Rise (SLR) and Coastal Flooding-** Chennai is vulnerable to sea-level rise, threatening settlements, infrastructure, and groundwater reserves in coastal areas. Contributing factors include global warming, melting ice caps, and coastal ecosystem loss. Key risks by the year 2100, in a high emissions scenario, include coastal erosion, saltwater intrusion into freshwater sources, and intensified storm surge, exacerbating cyclone impacts, which could affect 215 low-lying slum settlements. IPCC AR6 projects a sea-level rise of up to 134.29 cm by 2100. (CCAP, pg 88)

4. **Water Scarcity and Drought-** Erratic monsoons, groundwater over-extraction, and encroachment on surface water bodies threaten water security, impacting low-income communities and peri-urban food supply. Climate change may worsen droughts, deplete groundwater, and intensify resource competition.

5. **Air Pollution and Climate-Linked Health Risks-** Chennai is experiencing deteriorating air quality, with climate change intensifying pollution episodes. Major contributors include vehicular emissions, industrial activities, construction dust, and waste burning. Extreme heat and temperature inversions trap pollutants, increasing risks of respiratory diseases (asthma, bronchitis, COPD), cardiovascular issues, and heat-related mortality. Without intervention, air quality will decline further, especially during heatwaves, harming public health and economic productivity.

Chennai's Climate Hazard Profile underscores the increasing severity and interconnected nature of climate risks. GCC can use this information to guide policy, infrastructure investments, innovative nature-based solutions and community resilience-building for a proactive climate adaptation strategy.

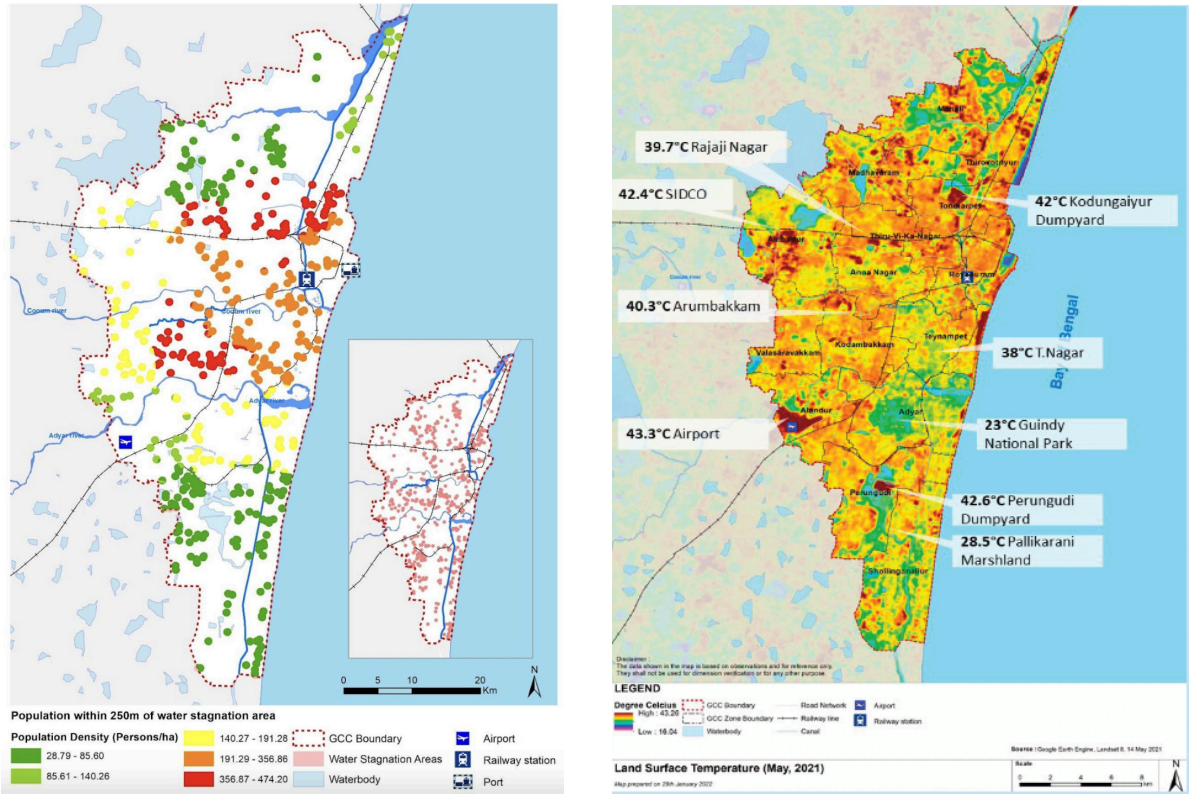


Figure 6: Chennai's climate hazard profile maps (Source: Chennai Climate Action Plan, chapter 4)

This year's budget focuses on **flood resilience,** with over 240 km of stormwater drains being constructed across Zones 1, 2, 3, 6, 7, 8, 12, 14, and 15, designed to handle up to 72 mm of rainfall per hour. 44 ponds with a combined 1.5 million cubic metre capacity are being rejuvenated to strengthen urban water resilience. The Trustpuram Canal is being upgraded to enhance flood prevention and improve water redirection. The Kadapakkam Lake restoration is expected to double its water capacity. Open Space Reservation (OSR) lands are set to become Sponge Parks, and rainwater harvesting systems will be installed in public parks to boost groundwater recharge. These water body restoration and greening projects will support resilience to both flooding and extreme heat.

Priority sectors and objectives

To achieve its vision, the CCAP presents a roadmap to the city, with clearly identified mitigation and adaptation strategies in the short, medium, and long term, focusing on six key sectors:

Mitigation		Electrical Grid and Renewable Energy	Enabling access to reliable, affordable, and zero-emission energy for all residents.
		Building Energy	Making all buildings energy efficient
		Transport	Moving towards sustainable mobility
		Waste Management	Efficient, effective, and resilient waste-management system
Adaptation		Urban Flooding and Water Scarcity Management	From a water-reactive to a water-proactive Chennai
		Vulnerable population and Health	Climate Proofing for All

Figure 7: CCAP sectors

The adaptation strategy focuses on increasing coping capacity towards climate risks, especially for disadvantaged and vulnerable groups. The city's mitigation strategy focuses on reducing emissions.

As a part of CCAP, specific goals, objectives and example actions were identified. Key performance indicators (KPIs) were also mapped to track progress towards these objectives. The table below outlines the sectors, objectives and indicators. Detailed sectoral targets are listed in the Annexure 1.

Priority sector 1		Priority sector 2		Priority sector 3	
Electrical grid and renewable energy		Building Energy		Sustainable Mobility	
1.1	1.2	2.1	2.2	3.1	3.2
100% Renewable Power Grid	**Decentralized energy storage and generation**	**Energy- efficient appliances and equipment**	**Energy-efficient building design**	**Fuel shift to less polluting energy sources**	**80% of all trips by walking, cycling, or public transit**
% share of total grid electricity from coal	% of total residential & commercial buildings with solar PV installed	% of high-efficiency appliances in existing and new commercial buildings % of high-efficiency appliances in existing residential buildings % of high-efficiency appliances in new residential buildings	% of new construction efficiency through retrofitting building envelopes	% passenger automobiles electrified	% mode share for public transport and NMT

% share of total grid electricity from renewables		% share of Commercial cooling system technology (% of high-efficiency chillers) Residential cooling system technology (% of high-efficiency chillers) % share of LED lighting in commercial and residential buildings			% MTC bus fleet electrified	
Priority sector 4		**Priority sector 5**			**Priority sector 6**	
Waste Management		**Urban Flooding and Water Scarcity**			**Vulnerable Population and Health**	
4.1	**4.2**	**5.1**	**5.2**	**5.3**	**6.1**	**6.2**
100 % segregation of waste at source and 100% collection coverage	**100 % decentralised waste processing**	**Efficient storm water management system to prevent pluvial flooding**	**Conservation of natural water ecosystem and water resource management**	**Improved Disaster risk reduction**	**Provision of climate-pro of housing for vulnerable population**	**Building climate-resilient health systems for all**
% of segregated waste collected at source	% of paper recycled	% of arterial and sub-arterial roads covered with stormwater drainage network as feasible	% of green cover in the city	% of the population with access to information on disaster risk reduction measures	# of slums located in high-flood risk areas	% of the population with access to health infrastructure
% of waste collected and transported for processing	% of plastic recycled	% of properties with rainwater harvesting systems as feasible			% of slum households having access to safe, resilient, and affordable basic services	% of the population with access to information on the impact of climate change on human health
	% of organic waste composted	% of households with access to reliable water supply				

Figure 8: KPIs corresponding to CCAP sectors and objectives (Source: Chennai Climate Action Plan, chapter 6)

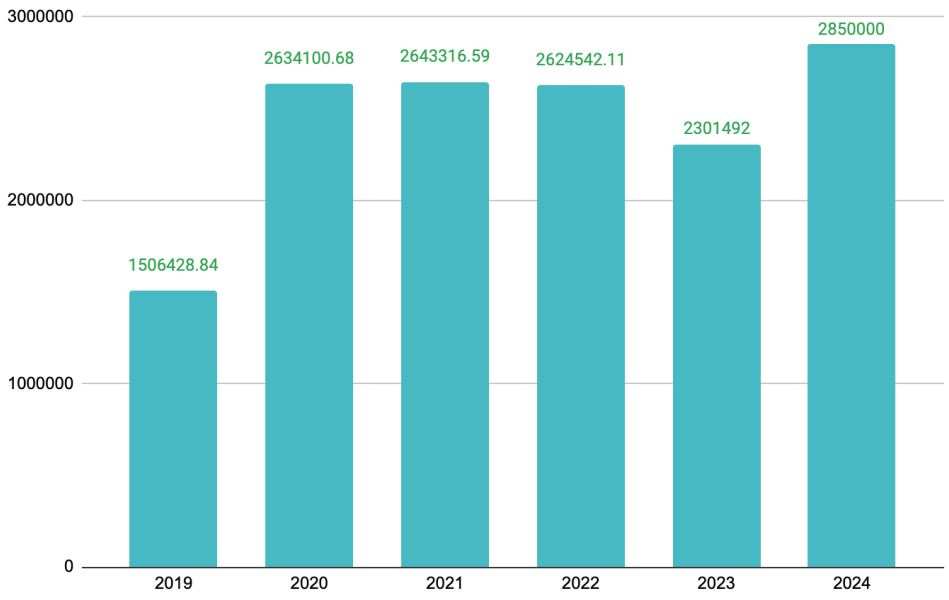
3. Overview of Completed Climate Initiatives

This section seeks to highlight existing initiatives and budget allocations within GCC that integrate climate considerations. While this is GCC's first climate budget, these initiatives demonstrate the city's prior efforts to address climate change. These initiatives are grouped under the sectors identified in the CCAP:

Priority Sector 1- Electrical grid and Renewable Energy

The electrical department has steadily expanded progress on increasing the generation of solar power through rooftop solar power generation in public buildings. By 2024, the generation has reached approximately 2.85 million kWh.

The graph given below shows this pattern:



Source: Electrical Department, Greater Chennai Corporation | All units are in kWh

Priority Sector 2- Building Energy

Smart and model schools: In Phase 1, GCC is developing 40 smart and model schools with integrated innovative amenities. As of now, 18 schools have rainwater harvesting facilities. Sustainable construction techniques used include[8]:

- Cool roof tiles with high solar reflective index
- Solar panels
- Building oriented with east-west alignment to reduce heat retention
- UPVC see-through acrylic windows to ensure natural lighting; 8 feet windows are included in some schools for the same purpose.
- Use of light-coloured paint to reflect natural light
- Autoclaved Aerated Concrete (AAC) blocks used for construction, which are lightweight, durable, and eco-friendly.

[8] (i) civil infrastructure; (ii) pedagogical innovation; (iii) capacity building of teachers and administrators; (iv) digital infrastructure and e-governance; (v) extra-curricular interventions (in sports, fine-arts, etc.); and (vi) partnerships with NGOs, corporate foundations.

- Use of LED lighting (more energy efficient than CFL bulbs)
- Improved green cover in selected schools
- High ceilings (12 feet high) for better ventilation and avoiding unnecessary use of air conditioning

These activities are also being done in Phase 2 of the Programme

Priority Sector 3- Sustainable Mobility

Use of Battery Operated Vehicles for Waste Collection- Greater Chennai Corporation has a large fleet of battery operated vehicles (BOVs) for waste collection. The city is aiming to further enhance the fleet, and create more charging infrastructure for the vehicles.

Pedestrian-friendly footpaths have been developed at Pondy Bazaar, to create a congestion-free shopping area. This initiative transforms the popular market area into a pedestrian plaza with wider, safer footpaths for elders and children. It encourages shoppers to walk after parking their vehicles elsewhere.

Public bike sharing system: A city wide bike-sharing system promotes fuel-free transportation for last-mile connectivity. Bicycle stations are located at 117 locations in the city, with 10 bicycles at every spot.

Priority Sector 4- Waste Management

Covered dustbins: Covered dustbins for wet and dry waste segregation have been installed at Pondy Bazaar's pedestrian plaza to promote responsible waste management.

Greater Chennai Corporation has a comprehensive door-to-door system for waste collection. The introduction of BOVs has helped improve the coverage of waste collection significantly. About 5400 Tricycles are in use for the reduction of dust bins on the road side.

Greater Chennai Corporation's waste processing infrastructure includes 23 bio-gas plants with a designed capacity of 8.94 MT per day and a Waste-to-Energy plant using BARC technology, processing biodegradable waste. The electricity generated from these plants powers streetlights and high-mast lights. Additionally, 196 composting facilities operate with a total designed capacity of 142.37 MT per day, contributing to sustainable waste management.

Priority Sector 5- Urban Flooding and Water Scarcity

The state government is focussed on the development of civic infrastructure in Chennai under Singara Chennai 2.0 and Chennai City Partnership Programme, which includes building storm water drains and public recreational spots. Pre-monsoon declogging works help mitigate the risks of intense rainfall. Now, GCC is leveraging the support of multilateral development funds for Integrated Stormwater Drainage near Kosasthalaiyar River (Asian Development Bank) and integrated rainwater harvesting works in Kovalam region (KfW).
Through the Chennai Rivers Restoration Project, Chennai is annually planting 2.5 lakh saplings, with the participation of volunteers of non-governmental organisations.

Priority Sector 6- Vulnerable Population and Health

The Health Department's ongoing interventions make a crucial contribution to the objective of building climate-resilient health systems, particularly for vulnerable communities.
During flood events, the department conducts 1,500–2,000 health camps, scaling up to 200 camps per day at peak times to provide basic screenings and free symptom-based medicines.

Awareness campaigns are done every monsoon through pamphlets and hoardings to educate residents on boiling water for consumption, preventing mosquito breeding, and safe water storage practices, with chlorine tablets distributed in slum areas for disinfecting water.
In summer, to combat heat-related illnesses, Oral Rehydration Solution (ORS) solutions are stocked at 140 Urban Primary Health Centres (UPHCs) and Health & Wellness Centres, as well as in public spaces like bus stands. These sustained efforts ensure quick medical response, disease prevention, and community awareness, strengthening the resilience of citizens.

4. Climate Budget

The climate budget report for FY 2025-26 presents the ongoing and newly proposed climate action measures within the city's capital works budget. It details departmental allocations, alignment with Climate Action Plan sectors and objectives, measures descriptions, project impacts (wherever available), budget allocations, funding sources, and key performance indicators. The climate budget report includes both ongoing projects, as well as the newly announced projects by the Honourable Mayor, Greater Chennai Corporation, as part of the budget announcements for FY 2025-26, which are climate relevant.[9]. Detailed information about the climate measures, including details such as contract period, total estimated cost, and project status are provided in the Annexures.

List of relevant departments with description of their roles and responsibilities

S. no.	Department	Description
1	**Financial Management Unit**	The role of the Unit is to prepare the GCC's budget, manage the receipt of loans and grants from the government, and oversee the expenses of the GCC. The unit is headed by a Financial Advisor deputed by the Finance Department of the Secretariat.
2	**Solid Waste Management**	The SWM department manages Chennai's solid waste, overseeing sweeping, door-to-door waste collection, segregation, transfer and disposal through decentralised processing facilities, incinerators, and landfills. Battery-operated vehicles are used for waste collection, while processing is handled through arrangements with third-party service providers.
3	**Storm Water Drain**	Given the city's flat terrain and vulnerability to sea level rise, the SWD department works to prevent water stagnation and ensure runoff during the monsoon. It constructs, upgrades, and maintains stormwater drains and canals through desilting while managing rainwater harvesting structures, temple tanks, and water body restoration.
4	**Parks and Playfields**	The Parks and Playfields Department enhances green cover to provide safe recreational spaces for children, and contribute to addressing heat, flooding and air pollution risks. It develops and maintains parks, playgrounds, and sports facilities such as gymnasiums, swimming pools, and skating rinks. The ambit of the department also includes open spaces and wastelands for green areas,

[9] Budget allocations for newly announced projects are guided by feasibility assessments.

		beautifying public areas like Marina Beach, and maintaining plantations along rivers, traffic islands, and medians.
5	**Special projects and works**	This department executes strategic projects funded by the Smart City Mission, Singara Chennai 2.0, and international agencies such as the World Bank (WB), Japan International Cooperation Agency (JICA), and Agence Francaise De Development (AFD). This department anchored the preparation of Chennai's Climate Action Plan (CCAP). Key initiatives of the department include constructing and upgrading underground utilities, pedestrian infrastructure, smart schools, intelligent transport systems, road upgrades, heritage building restoration, integrated parking, and improved public amenities like toilets, bus stops, and dustbins.
6	**Electrical**	The Electrical Department is responsible for installing and maintaining streetlights and lighting across all GCC buildings, including schools, hospitals, parks, and burial grounds. It operates a remote monitoring system for automated streetlight operation and has installed transformers at solid waste processing facilities. The department also provides emergency power solutions, including mobile high-mast vehicles, portable high masts with generators, and submersible motors for uninterrupted subway power backup. It also manages telecom right-of-way approvals, organises cable wires, and collects track rent for overhead cable TV wires.
7	**Bus Route Roads**	The Bus Routes Department constructs and maintains roads, including interior roads, bus routes, and concrete roads, along with pedestrian footpaths and parking facilities. It plays a key role in developing and upgrading road infrastructure to ensure smooth traffic flow and manage noise and air pollution. The department also maintains bus shelters, road medians, and traffic islands to enhance urban mobility and public convenience.
8	**Mechanical Engineering**	The Mechanical Engineering Department supports the SWM department by maintaining vehicles for waste collection, garbage levelling, and city cleaning, including the Marina Beach and traffic medians. It also manages equipment for municipal operations such as fogging, animal rehabilitation, desilting, stormwater drain maintenance, tree pruning, fallen tree removal, aerial streetlight repairs, school bus operations, and mobile toilets.
9	**Bridges**	This department constructs flyovers, bridges, culverts, and railway overbridges to improve traffic flow and pedestrian movement. It also builds subways for road and rail coordination and manages routine bridge maintenance while promoting clean construction and efficient waste management.
10	**Buildings**	Construction and maintenance of buildings for public usage are undertaken by the buildings department. This department establishes and monitors toilets, GCC schools, office buildings, health centres, hospitals, vehicle depots, crematoriums, community halls, *Anganwadis* and kitchen sheds, noon meal scheme buildings, shopping complexes for street vendors, and other such buildings.
11	**Health**	The Public Health Department of GCC provides healthcare through 140 Urban Primary Health and Wellness Centres and runs disease control programs, diagnostic centers, AYUSH clinics, and a Slum Health Programme. It manages veterinary public health, environmental sanitation, burial grounds, and birth/death certification. A dedicated Information, Education and Communications cell conducts awareness campaigns in schools, slums, workplaces, and public spaces. National and state health programmes, including maternal and child health initiatives, are actively implemented.

Sources of funds

The table given below maps each fund source to the CCAP objective that it caters to and the broader categorisation of funds.

CCAP sector	CCAP Objective		External Aid	Centrally Sponsored Scheme	State Govt. Fund	Corporation Fund
Electrical grid and renewable energy	1.1	100% Renewable Power Grid				
	1.2	Decentralized energy storage and generation				
Building Energy	2.1	Energy- efficient appliances and equipment				Capital Budget
	2.2	Energy-efficient building design		Smart City Scheme		
Sustainable Mobility	3.1	Fuel shift to less polluting energy sources				Capital Budget
	3.2	80% of all trips by walking, cycling, or public transit			Chennai City Partnership (World Bank Fund)	Capital Budget
Waste Management	4.1	100 % segregation of waste at source and 100% collection coverage		Swachh Bharat Mission - 2.0		Capital Budget
	4.2	100 % decentralised waste processing		Swachh Bharat Mission - 2.0		
Urban Flooding and Water Scarcity	5.1	Efficient storm water management system to prevent pluvial flooding	KfW Bank - Storm Water Drain - Kovalam; Asian Development Bank - Storm Water Drain - Kosasthalaiyar	Smart City Scheme	Singara Chennai 2.0; State Disaster Mitigation Fund; Vada Chennai Valarchi Thittam	Capital Budget; Vada Chennai Valarchi Thittam
	5.2	Conservation of natural water ecosystem and water resource management		AMRUT - 2.0	Special Fund	Capital Budget
	5.3	Improved Disaster risk reduction			Infrastructure and Amenities Fund	Capital Budget

Vulnerable Population and Health	**6.1**	**Provision of climate-proof housing for vulnerable population**				
	6.2	**Building climate-resilient health systems for all**				

Given below is a list of sources of funds under which GCC undertakes climate relevant activities:

Name of Fund	Description
Chennai City Partnership (World Bank)	World Bank-supported project for sustainable urban mobility.
Swachh Bharat Mission 2.0	Garbage-free and open defecation-free cities; solid waste management and sanitation.
Capital Budget	Infrastructure and service delivery projects by GCC, including roads, storm drains, and public buildings.
Smart City Scheme	Central scheme to improve urban life through smart energy, water, environment, mobility, and technology.
KfW Bank – Kovalam Storm Water Drain	Integrated stormwater drainage system for climate resilience.
Singara Chennai 2.0	State scheme for beautification and modernization including green spaces and public amenities.
Asian Development Bank – Kosasthalaiyar Storm Water Drain	Climate-resilient flood protection infrastructure with sustainable operations.
State Disaster Mitigation Fund	Projects focused on disaster risk reduction and enhancing city resilience.
Vada Chennai Valarchi Thittam	Urban development fund for North Chennai; includes stormwater drain construction.
AMRUT 2.0	Ensures universal access to water and sewerage; rejuvenates water bodies and green spaces.
Special Fund	Supports rejuvenation of city canals.
Infrastructure & Amenities Fund	Promotes urban growth with funding for drainage, roads, water sources, and sustainability.

Key Climate Actions- FY 2025-26

Construction of storm water drains and culverts

Rejuvenation of ponds

Source: Storm Water Drain Department, GCC

Construction of ponds

Source: Storm Water Drain Department, GCC

Reclamation of legacy waste through biomining at Kodungaiyur dumpsite

Source: Solid Waste Management Department, GCC

Complete streets project. *Source: The Print, 2024*

Health walk way. *Source: The Hindu (Tamil), 2024*

Sponge Parks, rainwater harvesting systems at parks

Source: Greater Chennai Corporation (X account)

Restoration of Biodiversity and Eco System Services in Kadapakkam Lake

Source: Greater Chennai Corporation (X account)

Categorisation of actions

The climate impact of budgeted activities from various departments, aligned with CCAP action sectors and objectives, was assessed, categorized, and grouped into the following action types:

Direct Actions – Quantified (DA-Q): These planned activities directly reduce greenhouse gas emissions, with potential reductions quantified using methodologies from the Greenhouse Gas Protocol for Cities (GPC) and the Handbook on GHG Emissions Quantification for Climate Budgeting. Where possible, national and local emission factors

(e.g., India GHG program's road transport factors and TANGEDCO's weighted average emission factor) are incorporated for accuracy. Calculations are done using the City Inventory Reporting and Information System (CIRIS) tool.

Examples: Electrification of municipal vehicles, installation of solar panels on municipal buildings, waste segregation and recycling.

Direct Actions – Not Quantified (DA-UQ): These planned activities support long-term climate adaptation, resilience, or future emissions reductions, though their impacts cannot yet be quantified. Such activities enhance infrastructure and service delivery while contributing to climate action targets.

Example: Improving access to water sanitation, public health systems, and disaster relief measures.

Enabling Actions (EA): These include institutional measures that create a supportive environment for climate action, such as policies, regulations, feasibility studies, environmental impact assessments, or pilot projects. They also include research and development initiatives that drive climate innovation.

Climate measures and corresponding actions

Action items are categorised as actions targeted towards adaptation, mitigation and resilience, represented by icons. The key below explains these icons.

Table 1: Adaptation, Mitigation and Resilience

Term	Description	Icon
Adaptation	Actions that help cope with climate change effects, such as constructing barriers against rising sea levels or adopting high temperatures or drought-resistant crops. (BBC)	
Mitigation	Human interventions to reduce the sources or enhance the sinks of greenhouse gases. (IPCC)	
Resilience	The capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation. (IPCC)	

The following sections provide a list of all climate relevant activities undertaken by GCC. Potential emissions are presented in tonnes of carbon dioxide equivalent (tCO2e). This is a globally accepted standard measure of greenhouse gas emissions of all types.

Direct, quantified actions (DA-Q)

Table 2: List of direct, quantified actions

Sno	Budget Activity	Alignment with CCAP Sector & Objective	Potential GHG emissions reduced/avoided (tCO2e) - annual	Climate relevance, co-benefits and Key Performance Indicators (KPIs)
Solid Waste Management				
1	Reclamation of legacy waste through biomining at Kodungaiyur and Perungudi dumping grounds	*Waste Management* **4.2** - 100% decentralised waste processing	**41,28,416**	Biomining involves the processing of solid waste at dumpsites, reducing emissions from landfill sites. **KPIs:** % of legacy waste remediated, % of recyclable waste diverted from dumpsite. **Co-benefits:** Improved soil quality, improved air quality, promoting circular economy.
2	Windrow composting at Perungudi ground		**33,555**	Windrow composting prevents organic waste from reaching the landfill and breaks down biodegradable materials into nutrient rich compost. **KPIs:** % of organic waste diverted from landfill, compost produced annually **Co-benefits:** resource conservation, promoting circular economy, job creation
Mechanical Engineering				
2	CNG operated mini trucks (15 numbers)	*Sustainable Mobility* 3.1 Fuel shift to less polluting energy sources	**25.974**	Being a cleaner-burning fuel than diesel, CNG engines reduce emissions of greenhouse gases (GHGs, nitrogen oxides, and particulate matter, thereby lowering environmental impact.
3	CNG operated recovery vehicles (3 numbers)	*Sustainable Mobility*	**4.14**	

4	CNG operated water tankers (6 numbers) 	3.1 Fuel shift to less polluting energy sources	**9.7344**	**KPIs:** % of vehicle fleet transitioned to alternate fuel. **Co-benefits:** Improved air quality, public health benefits, reduced noise pollution.
Electrical				
5	100% energy saving LED street lights. 	*Building Energy* 2.1 Energy-efficient appliances and equipment	250.34	LED lights are energy efficient and fully recyclable **KPI:** % share of LED lighting in streetlights and public buildings. **Co-benefits:** Improved public safety, cost savings.
Buildings				
6	Upgradation / Construction of smoke free LPG system crematorium 	*Building Energy* 2.1. Energy-efficient appliances and equipment	**2237.97**	LPG crematoriums are a less polluting alternative to the traditional wood based crematoriums. **KPIs:** % of high-efficiency equipment in crematoriums and burial grounds, expected reduction in pollutants, decrease in firewood use. **Co-benefits:** Improved resource efficiency, reduced operational costs, Improved air quality.
	Total		**41,64,499.1584**	

Direct, not quantified actions (DA-UQ)

Table 3: List of direct, not quantified actions

Sr No	Budget activity	Alignment with CCAP sector & Objective	Climate relevance, co-benefits and Key Performance Indicators (KPIs)
Solid Waste Management			
1	Information, Education, and Communication (IEC) activities on Swachch Bharat Mission – Appointment of animators and supervisors	*Waste Management* **4.1** - 100% segregation of waste at source and 100% collection coverage Also aligned to cross-cutting priorities on IEC and Capacity Building in CCAP	IEC activities promote behaviour change among Chennai residents, encouraging clean surroundings and safe sanitation practices **KPI:** Population and area outreach, number of communities/ SHGs involved, % of segregated waste collected at source. **Co-benefits:** Improved access to information, social inclusion, shift to sustainable behaviours, public health benefits, promoting circular economy
2	Plastic baling centres to be established in 10 zones	*Waste Management* **4.2** - 100% decentralised waste processing	Plastic baling diverts waste from landfills by compressing it for efficient transport and recycling **KPI:** Plastic waste baled and recycled per year, recycling arrangements made, % plastic waste diverted from landfill **Co-benefits:** Promotion of circular economy, job creation, resource conservation
Mechanical Engineering			
3	Purchase of Mechanical Sweepers for road cleaning (8 numbers)	*Waste Management* **4.1.**100% segregation of waste at source and 100% collection coverage	These ride-on sweeping and suction machines reduce reliance on manual labour and help minimize the settling of road dust and particulate matter. **KPI:** Waste collected per machine, area/ length of road cleaned **Co-benefits:** improved air quality, public health benefits, quality of life

Storm Water Drain			
4	Construction of storm water drains and culverts 	*Urban flooding and water scarcity* **5.1** Efficient storm water management system to prevent pluvial flooding	Enhance the city's stormwater drainage capacity to manage current and predicted future rainfall intensity. **KPI:** % of arterial and sub-arterial roads covered with stormwater drainage network as feasible, reduction in missing links/water stagnation locations **Co-benefits:** Decreased instances of flooding, public health benefits
5	Rejuvenation of ponds 	*Urban flooding and water scarcity* **5.2** Conservation of natural water ecosystem and water resource management	Enhancing pond storage capacity will reduce flooding and mitigate urban heat. **KPI:** % of green cover, reduction in water stagnation locations, increase in flood retention capacity, and improvement in water quality. **Co-benefits:** Decreased instances of flooding, quality of life, biodiversity improvement
6	Restoration of Biodiversity and Eco System Services in Kadapakkam Lake. 	*Urban flooding and water scarcity* **5.2** Conservation of natural water ecosystem and water resource management	Restoration efforts will mitigate floods, enhance biodiversity and ecosystems, and help adapt to urban heat. **KPI:** Increase in green cover, flood retention capacity, and improved water quality **Co-benefits:** Decreased instances of flooding, public health benefits, quality of life, biodiversity improvement
7	Constructing new canal in Trustpuram 	*Urban flooding and water scarcity* **5.1** Efficient storm water management system to prevent pluvial flooding	This canal prevents flooding by redirecting water to other city canals. **KPI:** Total canal length, water flow capacity, and reduction in water stagnation points. **Co-benefits:** Decreased instances of flooding, public health benefits

Special Projects			
8	Green and energy efficient building interventions for phase 2 construction of model and smart schools 	*Building Energy* 2.1 Energy- efficient appliances and equipment 2.2 Energy- efficient building design;	Energy efficient design, appliances, and sustainable construction materials and practices reduce electricity use and keep school buildings cooler. **KPI:** % of construction efficiency through retrofitting building envelopes, % share of LED lighting and high efficiency appliances in public buildings, % electricity consumption from solar power, rainwater harvesting capacity, green spaces, indoor environmental quality **Co-benefits:** Better access to social infrastructure, improved resource efficiency (energy and water), public health benefits, improved study environment
9	Complete streets 	*Sustainable Mobility* 3.2. 80% of all trips by walking, cycling, or public transit	Wider footpaths and pedestrian and bicyclist-friendly streets designed to promote non-motorised transport **KPI:** Total length and number of pedestrian infrastructure projects, number of NMT users. **Co-benefits:** Shift to sustainable behaviours, public health benefits, quality of life, improved air quality
10	Redevelopment of Villivakkam tank 	*Urban flooding and water scarcity* 5.2 Conservation of natural water ecosystem and water resource management	This conservation effort aims to enhance biodiversity and improve groundwater recharge in the city. **KPI:** Increase in green cover, improved water quality, enhanced rainwater harvesting capacity, citizen/tourist footfall. **Co-benefits:** Improved water quality, decreased instances of flooding, better access to social infrastructure, job creation.

Parks and Playfields			
11	Construction of new parks and completing ongoing park constructions 	*Urban flooding and water scarcity* 5.2 Conservation of natural water ecosystem and water resource management	Parks expand green cover across the city, enhancing heat and flood resilience. **KPI:** Number of parks, % of green cover in parks, increase in permeable surfaces. **Co-benefits:** Better access to social infrastructure, improved air quality, public health benefits, quality of life.
12	Construction of new sponge parks 	*Urban flooding and water scarcity* 5.2 Conservation of natural water ecosystem and water resource management	Sponge parks absorb water to prevent flooding, increase green cover, act as carbon sinks, and mitigate urban heat island effects to improve local microclimate. **KPIs:** Number of sponge parks, volume of rainwater harvested, % increase in green cover. **Co-benefits:** Decreased instances of flooding, biodiversity improvement, public health benefits, quality of life.
13	Rainwater harvesting systems in all parks 	*Urban flooding and water scarcity* 5.2 Conservation of natural water ecosystem and water resource management	Rainwater harvesting enhances ground water recharge and prevents flooding **KPIs:** Number of parks with RWH systems, total rainwater harvesting capacity. **Co-benefits:** Reduced flooding, resource conservation, improved water security, public health benefits
Bus Route Roads			
14	Footpaths for pedestrians 	*Sustainable Mobility* 3.2 80% of all trips by walking, cycling, or public transit	Develops pedestrian-friendly spaces to improve public transport access, and reduce dependence on private vehicles. **KPIs:** Length and locations of pedestrian infrastructure, % mode share for public transport and NMT, and population within 400m walk of a public transportation option. **Co-benefits:** Shift to sustainable behaviours, better access to social

			infrastructure, public health benefits,quality of life.
15	Bus shelters construction 	*Sustainable Mobility* 3.2 80% of all trips by walking, cycling, or public transit	Improves public transport accessibility for citizens. **KPIs:** Number of bus shelters constructed/ upgraded, % mode share for public transport and NMT. **Co-benefits:** Better access to social infrastructure, improves air quality, public health benefits, quality of life.
Bridges			
16	Construction of pedestrian bridges to enable easy access to public transport 	*Sustainable Mobility* 3.2 80% of all trips by walking, cycling, or public transit	Safe pedestrian infrastructure enhances walkability, reduces congestion, and improves public transport access. **KPIs:** % mode share for public transport and NMT, population within 400m walk of public transportation option **Co-benefits:** Shift to sustainable behaviours, better access to social infrastructure, public health benefits, quality of life, reduced congestion
17	Constructing measures to prevent water stagnation in bridge construction • High level bridge at Chinna Nolambur in place of existing low lying bridge to facilitate easier water flow  	*Urban Flooding and Water Scarcity* 5.1 Efficient storm water management system to prevent pluvial flooding 5.3 Disaster risk reduction	Improves flood resilience by enhancing water flow, reducing waterlogging, and ensuring infrastructure durability during extreme weather. Strengthens stormwater management and flood resilience of bridges. **KPIs:** Improved drainage efficiency and stormwater runoff, reduction in instances of water stagnation and flooding, fewer disruptions during monsoons, increased water flow capacity, and reduced flooding at the bridge site **Co-benefits:** Better access to infrastructure

18	Adoption of certain environment friendly practices in bridge construction: Use of M-sand and flyash 	Waste Management 4.2 - 100% decentralised waste processing	Sustainable bridge construction reduces resource extraction, promotes use of recyclable materials, and lowers C02 emissions. **KPIs:** Number of projects implementing sustainable material and waste management practices, amount of construction waste diverted from landfills and recycled, percentage of m-sand and fly ash replacing conventional materials. **Co-benefits:** Improved resource efficiency, promotion of circular economy, and improved air quality.
Buildings			
19	Proposed Construction of Flood Relief Centre 	*Urban flooding and water scarcity* **5.3** Disaster risk reduction	Flood relief centres support vulnerable populations during disasters. **KPIs:** Percentage of the population with access to disaster relief centres. **Co-benefits:** Improved access to data for informed decision-making, enhanced social inclusion, and improved public health.
20	Bus terminus and bus stand construction 	*Sustainable Mobility* 3.2 80% of all trips by walking, cycling, or public transit	Improves public transport accessibility for citizens. **KPIs:** Percentage mode share for public transport and NMT, increase in passenger capacity and daily footfall, and improved multimodal integration. **Co-benefits:** Improved air quality, better access to social infrastructure, improved urban health and quality of living

Enabling Actions (EA)

Table 4: List of enabling actions

Sr No	Budget activity	Alignment with CCAP Sector and Objective	Key performance indicators and description
1	Appointment of Consultant for Environmental Monitoring and Social Survey Reclamation of Perungudi dumping ground through Bio-mining	*Waste Management* **4.2** - 100% decentralised waste processing	Facilitates effective planning and execution of the bio-mining project while identifying and mitigating climate risks. **KPIs:** Timely and comprehensive monitoring and surveys, compliance with environmental and social safeguards. **Co-benefits:** Improved access to data for informed decision-making, reduced pollution, social inclusion.
2	Construction and Demolition Waste Management Guidelines 2025.	*Waste Management* **4.2** - 100% decentralised waste processing	This guideline aims to ensure systematic C&D waste management, reducing landfill burden, and promoting recycling. **KPIs:** Number of C&D waste generators served, volume of C&D waste collected and processed, % C&D waste recycled or reused, time taken for C&D waste plan approvals, revenue from service charge **Co-benefits:** Improved resource efficiency, promotion of circular economy, public health benefits

Assessment:

The estimated capital expenditure on climate relevant activities for the financial year 2025-26 is Rs. 1341.2 crore. The total estimated capital cost of these climate-relevant activities, across their full implementation period—that is, the cumulative expenditure required to plan, construct, and complete these activities over multiple financial years—is Rs. 7,200.53 crore.

Allocation by Departments

Department	BE 2025-26 (Rs. crore)	% of climate budget
Storm Water Drainage	803.19	59.89%
Solid Waste Management	350.00	26.1%
Special Projects	63.76	4.75%
Electrical	1.91	0.14%
Buildings	8.54	0.64%
Bus Route Roads	80.27	5.99%
Bridges	22.03	1.64%
Mechanical Engineering	1.50	0.11%
Parks and Playfields	10.00	0.75%
Total	**1341.2**	**100%**

Allocation by action type

The allocations across direct- quantified, direct- non-quantified and enabling actions are given here.

Action Impact	BE 2025-26 (in Rs. crore)	% allocation in climate budget
Direct Actions-Quantified	358.69	26.74%
Direct Actions-Non-quantified	981.55	73.18%
Enabling Actions	0.96	0.07%
Total	**1341.2**	**100.00%**

Allocation by action impact

Action Impact	BE 2025-26 (in Rs. crore)	% allocation in climate budget
Mitigation	497.1	37.07%
Adaptation	842.3	62.8%
Resilience	1.8	0.13%
Total	**1341.2**	**100%**

*Note: While some actions contribute to multiple impacts, their primary impact has been considered for this classification.

CCAP Sectoral Allocation

CCAP Sector	BE 2025-26 (Rs. crore)	% of climate budget
Electrical grid and renewable energy✡	-	-
Building Energy	22.08	1.65%
Sustainable Mobility	133.56	9.96%
Waste Management	350.81	26.15%
Urban Flooding and Water Scarcity	834.75	62.24%
Vulnerable Population and Health✡✡	-	-
Total	**1341.2**	**100.00%**

CCAP Objective wise Allocation[10]

CCAP Sector	CCAP Objective	BE 2025-26 (Rs. crore)	% of climate budget
Building Energy	2.1 Energy- efficient appliances and equipment	4.97	0.37%
	2.2 Energy- efficient building design	17.11	1.28%

[10] Sectors and objectives without budget allocated in this year: 1.1 100% Renewable Power Grid; 1.2 Decentralized energy storage and generation; 6.1 Provision of climate-proof housing for vulnerable population; 6.2 Building climate-resilient health systems for all

Sustainable Mobility	3.1 Fuel shift to less polluting energy sources	0.69	0.05%
	3.2 80% of all trips by walking, cycling, or public transit	132.87	9.91%
Waste Management	4.1 100% segregation of waste at source and 100% collection coverage	3.72	0.28%
	4.2 100% decentralised waste processing	347.09	25.88%
Urban Flooding and Water Scarcity	5.1 Efficient storm water management system to prevent pluvial flooding	704.46	52.52%
	5.2 Conservation of natural water ecosystem and water resource management	109.87	8.19%
	5.3 Disaster risk reduction	20.42	1.52%
Total		1341.2	100.00%

☼The city's electrical grid and renewable energy sector initiatives are managed by other agencies in the city. While no new allocations are planned in this financial year, completed climate actions in this sector are documented in the 'Overview of Completed Climate Initiatives' section.

☼☼Although housing for vulnerable populations pertaining to objective 6.1 falls outside the GCC's direct purview, the Health Department's climate-related activities pertaining to objective 6.2 are funded as needed, often through revenue expenditures. Developing formal climate expenditure estimates for these activities is a recommended best practice.

5. Way Forward

Chennai city is committed to reducing its share of greenhouse gas emissions by 40% by 2040, and achieving emissions neutrality by 2050 in its Climate Action Plan. The city has identified key sectors and objectives, recognizing that incremental, consistent and targeted actions are required over a period of time. Climate budgeting helps the city to break down long term targets identified in the CCAP into smaller action items that can be implemented in the short, medium and long term.

In fact, the climate budget plays a key role in accelerating progress towards the goals specified in the Chennai City Climate Action Plan. The proposed projects for the year 2025-26 are largely focused on the following sectors:

While GCC's climate-relevant investments in the current year are concentrated in above-mentioned sectors, the Corporation has previously implemented projects in other areas, including electrical grid and renewable energy, and vulnerable populations and health, as highlighted in Chapter 3. Going forward, GCC will continue to maintain focus across all climate action sectors, supported by structured processes to generate and sustain ideas on climate adaptation, mitigation, and resilience.

The first year of climate budgeting focused on stakeholder engagement, introducing climate change concepts, establishing a structured process, and laying the groundwork for long term institutionalisation of climate considerations. In the following years, some of the best practices that can be adopted by departments within GCC to fine tune the process are:

1. Deepening understanding on concepts related to climate change, aspects that come under the ambit of climate budgeting, and impact of actions as reflected in the greenhouse gas inventory and climate change risk assessment.
2. Systematically recording quantitative and qualitative data on the nature and extent of climate-relevant components of projects in templates customized to departments.
3. Brainstorm new and improved climate actions, and consider broad priorities for future budget cycles.
4. Reviewing projects with a climate lens from the ideation stage.
5. Identifying indicators to measure progress and establishing a system for monitoring and evaluating project impact over the years.

Climate budgeting is a key component of Chennai's broader climate action implementation and mainstreaming strategy. Current initiatives include developing a climate governance framework for the city, integrating CCAP into the 3rd Metropolitan Master Plan, and strengthening data-driven decision-making through the latest GHG inventory update. The Climate Investment Opportunities Diagnostic (CIOD) project, supported by the International Finance Corporation (IFC) Advanced Practices for Environmental Excellence (APEX) framework, will assess GHG reduction targets, investment needs, and funding sources while developing a Green Investment Pipeline. Leveraging these interconnected efforts, in collaboration with key stakeholders like the Department of Environment, Forest and Climate Change (DoEFCC), Tamil Nadu Green Climate Company (TNGCC), Chennai Metropolitan Development Authority (CMDA), Tamil Nadu Generation and Distribution Corporation (TANGEDCO), and others, can enhance climate action, optimize resource allocation, drive strategic investments, and build long-term resilience for Chennai. As the process matures, collaboration with these stakeholders is also envisaged to achieve joint results on proposed and new projects.

As the saying goes, "The journey of a thousand miles begins with a single step." GCC's Climate Budget 2025-26 marks the first step towards a financially, environmentally and socially sustainable future for Chennai.

6. Annexures

Chennai Climate Action Plan Targets

Mitigation (Goal: Carbon Neutrality by 2050)							
Sectors	**Sectoral Vision**	**Objectives**	**Target Parameters**	**Targets**			**Estimated Percentage Reduction in Carbon Emissions**
				2030	**2040**	**2050**	
Electrical Grid and Renewable Energy	All residents have access to reliable, affordable and zero-emission energy	**100 percent Renewable Power for Grid**	Percentage share of total grid electricity from coal	33%	25%	0%	38%
			Percentage share of total grid electricity from renewables	39%	67%	93%	4.6%
			Revision in the net-tariff policy	yes			
		Decentralized energy storage and generation	Percentage of total residential & commercial buildings with solar PV installed	2%	5%	10%	2.7%
Building Energy	Making all buildings energy efficient	**Energy-efficient appliances and equipment**	Percentage of high-efficiency appliances in existing and new commercial buildings	40%	60%	100%	<1%
			Percentage of high-efficiency appliances in existing residential buildings (Mid-range energy efficient and High-range energy efficient)	40% Mid & 5% High	60% Mid & 10% High	80% Mid & 20% High	
			Percentage of high-efficiency appliances in new residential buildings (Mid-range energy efficient and High-range energy efficient)	20% Mid & 20% High	30% Mid & 40% High	40% Mid & 60% High	
			Percentage share of Commercial cooling system technology (% of high-efficiency chillers)	40%	80%	80%	3.3%

Mitigation (Goal: Carbon Neutrality by 2050)							
Sectors	**Sectoral Vision**	**Objectives**	**Target Parameters**	**Targets**			**Estimated Percentage Reduction in Carbon Emissions**
				2030	**2040**	**2050**	
			Residential cooling system technology (% of high-efficiency chillers)	40%	60%	85%	
			Percentage share of LED lighting in commercial and residential buildings	10%	50%	80%	<1%
			No. of households provided credit support for upgrading appliances to energy efficient ones	1000	5000	25000	
		Energy-efficient building design	Percentage of new construction efficiency through retrofitting building envelopes	40%	60%	100%	28.3%
			Notification of the ECBC Code and cadre of trained professionals ready	yes			
			Cadre of trained service providers for retrofitting existing building stock	yes			
			Percentage of new eligible buildings as per ECBC-compliance	100%	100%	100%	
			Public database of certified energy usage created	yes			
			Percentage of new residential buildings with Solar Water Heating Systems installed	30%	50%	70%	

Mitigation (Goal: Carbon Neutrality by 2050)							
Sectors	**Sectoral Vision**	**Objectives**	**Target Parameters**	**Targets**			**Estimated Percentage Reduction in Carbon Emissions**
				2030	**2040**	**2050**	
			Percentage of new affordable housing which is climate resilient	100%	100%	100%	
Transportation	Moving toward sustainable mobility	Fuel shift to less polluting energy sources	Percentage Electrification of passenger automobiles	3%	10%	20%	1.6%
			Percentage Electrification of MTC bus fleet	15%	50%	100%	7.5%
			Percentage of private vehicles dependent on ethanol blending	13%	22%	23%	
		80 percent of all trips by walking, cycling, or public transit	Percentage mode share for public transport and NMT	15%	17%	20%	2.6%
			Percentage of population within 400m walk of public transportation option (e.g., bus, metro, light rail)	60%	100%	100%	
			Percentage of residents using public transport or walking/cycling	40%	60%	80%	
			Integrated road design standards developed	yes			
			DPRs for Development of dedicated bicycle highways	yes			
Waste Management	Efficient, effective, and resilient waste	100 percent segregation of waste at source and 100 percent collection coverage	Percentage of segregated waste collected at source	80%	80%	100%	7%
			Percentage of waste collected and transported for processing	80%	80%	100%	7%

Mitigation (Goal: Carbon Neutrality by 2050)							
Sectors	Sectoral Vision	Objectives	Target Parameters	Targets			Estimated Percentage Reduction in Carbon Emissions
				2030	2040	2050	
	system		IEC strategy prepared and disseminated	yes			
		100 percent decentralized waste processing	Percentage of legacy waste remediated	100%	100%	100%	
			Percentage of paper recycled	80%	80%	100%	2.5%
			Percentage of plastic recycled	20%	60%	100%	
			Percentage of organic waste composted	60%	67%	70%	6.4%

Adaptation (Goal: Water Balance by 2050)						
Sectors	Sectoral Vision	Objectives	Target Parameters	Targets		
				2030	2040	2050
Urban Flooding and Water Scarcity	From a water-reactive to a water-proactive Chennai	Efficient stormwater management system to prevent pluvial flooding	Percentage reduction in water stagnation locations	100%	100%	100%
			Percentage of arterial and sub-arterial roads covered with stormwater drainage network as feasible	50%	70%	100%
			Percentage of properties with rainwater harvesting systems as feasible	100%	100%	100%
			Percentage of households with access to reliable water supply	95%	100%	100%
			Percentage of properties connected to sewer network	100%	100%	100%
		Conservation of natural water ecosystem and	Percentage of green cover in the city	25%	33%	35%
			No. of blue and green infrastructure sites developed	25	50	75

Adaptation (Goal: Water Balance by 2050)						
Sectors	**Sectoral Vision**	**Objectives**	**Target Parameters**	**Targets**		
				2030	**2040**	**2050**
		water resource management	Percentage increase in per capita green space	25%	33%	40%
		Disaster risk reduction	Percentage of the population with access to information on disaster risk reduction measures	100%	100%	100%
			Percentage of population with access to disaster relief centres within their ward	100%	100%	100%
			Percentage of disaster relief centres turned climate resilient	100%	100%	100%
Vulnerable Population and Health	Climate Proofing for All	Provision of climate-proof housing for vulnerable population	Number of slums located in high-flood risk areas	150	100	0
			Percentage of slum households having access to safe, resilient, and affordable basic services	50%	80%	100%
			Increase in no. of households availed credit/loan via credit societies for heat resilient housing	2%	5%	8%
		Building climate-resilient health systems for all	Percentage of the population with access to health infrastructure (Basti Clinic)	60%	80%	100%
			Percentage of the population with access to information on the impact of climate change on human health	100%	100%	100%
			Percentage of health facilities turned climate resilient	100%	100%	100%

Detailed description of climate measures in each of the GCC Department

Solid Waste Management			
1	DA-Q	**Reclamation of legacy waste through biomining at Kodungaiyur and Perungudi dumping grounds** Current status - Ongoing Overall project cost- Kodungaiyur- Rs. 640.83 crore (2025-27) Perungudi- Rs. 347.67 crore (2022-25)	Under Swachh Bharat Mission 2.0, biomining ensures the sustainable treatment of aged and unscientifically managed legacy waste. Excavated waste is treated with bio-culture and deodorizer to regulate moisture and pathogens before separation into recoverable materials like soil, stones, and recyclables. Inorganic waste, including plastics and tyres, is recycled, while high-calorific waste is repurposed as Refuse Derived Fuel (RDF) for cement factories. This process prevents soil pollution by stopping heavy metals from leaching into the soil and improves air quality by reducing hazardous emissions. Additionally, it supports the circular economy through material recovery and reuse. The Kodungaiyur dumping ground biomining project is a 2 years long project (6 packages)- Total waste- 6652505 MT - Area- 251.9 acre. Waste processed till date- 4,41,386 MT. Contractors- Zigma, Ramky and Ascent The Perungudi dumping ground biomining project is a 3 years long project (6 packages)- Total waste- 2756810.42 MT i.e. 3063122.69 cu.m. - Area- 237.95 acres. Waste processed till date- 24,34,739 cum and 20,87,199 cum disposed. Packages 3, 4, 5 are completed in Perungudi, and for Packages 1, 2, 6, biomining is in progress. Contractors- Westart and Zigma. A total 94.09 lakh MT lakh MT of waste will be removed from 489.85 acres. Waste recycling rates are projected at 25.74% in Kodungaiyur and 66% in Perungudi. In FY 2025-26, 33,26,253 MT is planned to be removed from the Kodungaiyur dumping ground and 444293.1 MT from Perungudi dumping ground i.e. a total waste quantity of 3770546.1 MT shall be removed. The legacy waste is estimated based on a drone survey conducted in these sites, and preparation of a Detailed Project Report. As fresh waste has started coming in recently,

			it is likely that more waste may be reclaimed than estimated. Anna University is the Project Management Unit monitoring the projects. Excavation of waste and transportation of excavated waste will be done through tippers to the drying and turning platform (windrow platform for 10 days), and during the process of drying more than 80 mm boulders shall be removed from the waste. After 10 days dry waste is transported through conveyor belt to a trommel machine where waste shall be segregated into different fractions like good earth, plastics, rags, metals, boulders, etc. Contractors are responsible for disposal, recycling and coprocessing.
2	DA-Q	**Windrow composting at Perungudi ground** Current status- Planning stage (Mayor Announcement) Overall project cost- Rs. 14 crore	2 windrow compost plants, each with a capacity of 50 metric tonnes, will be set up in Perungudi dumping ground. Windrow composting involves piling organic waste materials in long rows (windrows) and turning them periodically to aerate the compost and facilitate decomposition. Windrow composting is a proven efficient and eco-friendly solution for managing organic waste and producing high quality compost.
3	DA-UQ	**Information, Education, and Communication (IEC) activities on Swachch Bharat Mission – Appointment of animators and supervisors** Current status- Ongoing Overall project cost- Rs. 4.44 crore	Under the Swachh Bharat Mission, the city is outsourcing the appointment and training of 200 animators and 15 zonal supervisors to lead sanitation awareness campaigns. These efforts focus on waste segregation, highlighting the impacts of open defecation, and driving large-scale ‘Jan Andolan’ for sustained behavior change. Key objectives include: ● Maintaining Open Defecation Free (ODF) status across all GCC wards. ● Encouraging waste reduction, recycling, and reuse for a cleaner city. ● Mainstreaming safe sanitation practices, including hygiene awareness, toilet maintenance, and preventing manual scavenging. ● Embedding sustainable sanitation behaviors into public consciousness for long-term environmental and health benefits.

4	DA-UQ	**Plastic baling centers to be established in 10 zones** Current status- Planning stage (Mayor Announcement) Overall project cost- Rs. 22.25 crore	Plastic baling centers will be established in 10 zones to reduce plastic waste at landfill sites.Plastic baling involves using machines (balers) to compress loose plastic waste into dense, rectangular blocks (bales). This process significantly reduces the volume of plastic waste, making it easier and more cost-effective to store, transport, and process for recycling.
5	EA	**Appointment of Consultant for Environmental Monitoring and Social Survey Reclamation of Perungudi dumping ground through Bio-mining** Current status or progress- Ongoing Overall project cost- Rs. 2.78 crore	Environmental monitoring for the bio-mining project aims to assess and mitigate the project's environmental and social impacts during implementation. It enhances project benefits, reduces risks, and identifies best practices for future projects. Key functions include: ● Identifying and mitigating environmental and social risks. ● Building contractor capacity to meet environmental and social requirements. ● Minimizing impact on affected communities as per Tamil Nadu government's Environmental and Social Management Framework. Monitoring process: ● Identifying and engaging with key stakeholders, including communities impacted by the project as well as those influencing project outcomes (beneficiaries, civil society, organised groups). ● Conducting a socio-economic survey to assess affected families, area demographics, and vulnerable populations. These steps ensure sustainable project execution with minimal environmental and social disruption.
6	EA	**Construction and Demolition Waste Management Guidelines 2025.** Dated - 14/02/2025	Greater Chennai Corporation's Construction and Demolition (C&D) Waste Guidelines ensure systematic collection, storage, and disposal of building materials, debris, and rubble. The guidelines define waste generators into micro, small, and bulk categories, outlining disposal responsibilities and service charges. Occupiers must obtain prior approval for C&D waste management plans and apply in advance, specifying waste type and quantity. Waste dumping in restricted areas such as roads and low-lying

			regions is prohibited, and hazardous materials are not to be mixed with the C&D waste. Unauthorized C&D waste left uncollected for 7 days will be removed by GCC, with costs and penalties recovered from the occupier. Services for transportation and processing can be availed through GCC-authorized vendors, and at authorized locations given in the guidelines. GCC now has capacity to process 800 MT of C&D waste each at Kodungaiyur and Perungudi dumpsites.
Storm Water Drains			
7	DA-UQ	**Construction of storm water drains and culverts (236 work packages across schemes)** Overall project cost- Rs. 5553.3 crore Current status or progress- Ongoing	Storm water drains and culverts construction is funded by ADB, KfW, State Mitigation Fund, Singara Chennai 2.0 as well as the city's own funds. Over 1168kilometres of stormwater drains have been built in Zones 1,2,3,6,7,8, 12, 14, 15 with capacity to handle 68 – 72 mm of rainfall per hour. This infrastructure is expected to benefit over 50 lakh residents in flood prone areas. Chennai is just 2 metres above the mean sea level; therefore, low lying areas are prone to floods during monsoon. The city's terrain necessitates effective stormwater drainage to prevent water stagnation, especially in low lying areas.
8	DA-UQ	**Rejuvenation of ponds (60 work packages across schemes)** Overall project cost- Rs. 140.55 crore Current status or progress- Ongoing	The Storm Water Drainage (SWD) department plans to rejuvenate 60 ponds with a combined storage capacity of 1496916.428 cubic metres, expected to benefit over 8 lakh residents. Key ponds include Manali Eri, Madhavaram Periyathoppu Lake and Periya Sathira Kulam. Rejuvenating ponds will reduce flood risk and enhance the ground water level in the surrounding areas.

9	DA-UQ	**Restoration of Biodiversity and Eco System Services in Kadapakkam Lake.** Overall project cost- Rs. 58.33 crore Current status or progress- Ongoing	The lake restoration project aims to double water capacity from 1.1 to 2.2 cubic metres, mitigating floods and enhancing biodiversity. The plan includes: ● Establishing a cycle track and walking path around the lake. ● A 2 hectare forest with native tree species. ● Desilting and deepening the lake ● Including shallow ponds in the inlet area to improve water retention.
10	DA-UQ	**Constructing new canal in Trustpuram** Overall project cost- Rs. 16.8 crore Current status or progress- Ongoing	The Trustpuram canal seeks to prevent flooding by redirecting excess water to other city canals. It has a capacity of 27.2 cubic metres per second. To relieve water stagnation, the canal passes from Arcot Road through: ● Vanniar Street, Choolaimedu ● Bajanai Koil Street, Abith Nagar (below Sankarapuram New Bridge) ● Sakthi Nagar 4th Street and Basha Street (Choolaimedu) ● Arumbakkam Virugambakkam Canal near Nelson Manickam Road, Mehta Nagar (Nungambakkam)
Parks and Playfields			
11	DA-UQ	**Construction of new parks and completing ongoing park constructions** Overall project cost- Rs. 6.01 crore Current status or progress – Ongoing	The department is establishing 30 new parks and completing 14 ongoing projects to enhance green cover and create inclusive play spaces in the city. Besides, a budget is allocated for the repair and improvement of 300 parks.

12	DA-UQ	**Construction of new sponge parks** Current status - Ongoing	Sponge parks convert open spaces into water-retention zones, absorbing excess rainwater, preventing surface runoff, and recharging groundwater. The sponge parks will incorporate tarpaulin-based underground storage to maximize rainwater conservation.
13	DA-UQ	**Rainwater harvesting systems in all parks** Overall project cost- Rs. 60 crore Current status or progress - Planning stage (Mayor announcement)	To enhance groundwater recharge, rainwater harvesting systems will be set up by GCC in all the parks within their administrative boundary.
Special Projects			
14	DA-UQ	**Green and energy efficient building interventions for phase 2 construction of model and smart schools** Overall project cost- Rs. 49.37 crore Current status or progress – Ongoing **Phase 2:** **Work in progress in 6 Schools** (Buddha Street, Jones Road at Saidapet, Puliyur, Maduvinkarai, KR Koil-West Mambalam, Athipet); 10 % of physical work	Under the AFD / CITIIS fund, some existing GCC schools at various locations are being transformed into Model & Smart Schools. The project focuses on six key areas: 1. Civil infrastructure 2. Pedagogical innovation 3. Capacity building of teachers and administrators 4. Digital infrastructure and e-governance 5. Extra-curricular activities (sports, fine-arts, etc.) 6. Partnerships with NGOs, corporate foundations. Sustainable Features of Smart Schools Phase 1 of the project is complete (28 schools), and Phase 2 is ongoing (10 schools with 2 schools overlapping from the previous phase). Sustainable construction materials and practices being adopted include: **Cool roof solutions:** High solar reflective index tiles to minimize heat absorption. **Solar energy integration:** Solar panels to reduce reliance on conventional energy.

		complete (Project started in January 2025, to be completed in June 2026)	**Building orientation:** 50% of buildings aligned east-west to reduce heat retention. **Energy-efficient lighting:** LED lighting for energy efficiency instead of CFL bulbs. **Natural lighting and ventilation:** UPVC acrylic windows (including 8-foot windows) to maximise daylight and reduce dependence on artificial lighting. **Heat-reducing construction materials:** Lightweight Autoclaved Aerated Concrete (AAC) blocks for better insulation and durability. **Light-colored paint:** Increases reflectivity and reduces heat absorption. **High ceilings (12 feet):** Enhances ventilation and reduces air conditioning use. **Green cover:** Landscaping and pavered footpaths to increase heat absorption. **Rainwater harvesting:** Water conservation and groundwater recharge. **Locally procured materials:** Used to reduce material transportation-related emissions
15	DA-UQ	**Complete streets** Overall project cost- Rs. 132.14 crore Current status or progress: Ongoing- Work in progress in MC Road, KNK Road, Thiruvottiyur High Road, Washermanpet Metro Station, Arunachaleshwar Koil Street, Race Course Road (between 2023-26)	The project aims to develop affordable and climate-resilient public infrastructure which also enhances Chennai's urban landscape, and promotes: ● Wide footpaths and dedicated cycling infrastructure ● Pedestrian-friendly design integrated with transit corridors, schools, and parks ● Underground utility planning for seamless infrastructure ● Neighborhood-specific projects to enhance local identity Key components include: ● Stakeholder engagement to align project goals with community needs. ● Enhancing primary streets along transit corridors. ● Integrating networks with schools and parks. Implemented under the Sustainable Urban Services Program (SUSP), the project covers six neighborhoods in Chennai: Anna Nagar, Thiruvotriyur-Tondiarpet-George Town, Nungambakkam, Mylapore, Velachery, and Adyar. The total planned road length is 11.6 km, with 5 km already completed.

16	DA-UQ	**Redevelopment of Villivakkam tank** Contract Period: Overall project cost- Rs. 7.9 crore Current status or progress – Ongoing- 78% physical progress achieved	GCC is developing Villivakkam Tank into a key tourism and recreational hub under a Public Private Partnership (PPP) mode. Key Features: • A recreational park with expected daily footfall of 1,500 people increasing to 3,000 on peak days. • A pond of 50,000 cubic meter capacity across 8.5 acres, improving groundwater recharge and supporting aquatic life. The project is expected to generate 1,200+ jobs, boost SMEs & MSMEs in civil works, architecture, sculptures, murals, event management, fabrication, amusement and water rides, boat manufacturing, stage performances, music, and retail, including shopping and food courts.
Electrical			
17	DA-Q	**100% energy saving LED street lights.** Overall project cost- Rs. 8.19crore Current status- Ongoing (Annual work-budget provision) Contract Period:2023-25	Since 2018, Chennai has adopted LED lighting for streetlights and public buildings. In the upcoming financial year, all planned installations will continue using LED lights, providing a sustainable alternative to sodium vapor lamps. LED conversion process started in 2014 and was completed in 2018 (status: all projects completed) Total number of lights in Chennai city at present: 301969 (20 Watts to 900 Watts range) During the period from 2023-25 total of 8083 no. of LED fittings were provided at total estimated cost of Rs. 8.19 cr. .

Bus Route Roads			
18	DA-UQ	**Footpaths for pedestrians** Overall project cost- Rs. 257.57 crore Current status or progress - Ongoing	Additionally, 16 health walkways and a disabled-friendly beach access pathway at Thiruvanmiyur are planned, ensuring universal access and reinforcing the city's commitment to a pedestrian-friendly infrastructure. Pedestrian friendly interventions include resurfacing damaged roads, upgrading footpaths, constructing pedestrian plazas, installing tactile paving for visually impaired pedestrians, and enhancing street lighting. Footpaths are being constructed along all new roads, with improvement projects planned across various stretches. Ongoing projects will build or upgrade approximately 11.4 km of footpaths, designed in accordance with the Complete Streets Framework Toolkit developed by Institute for Transportation and Development Policy (ITDP) India to ensure accessibility, safety, and sustainability.
19	DA-UQ	**Bus shelters construction** Overall project cost- Rs. 22.69 crore Current status or progress-ongoing	To further prioritise public transport and improve passenger convenience, four bus bays are planned at key bus transit hubs, facilitating smoother traffic flow and reducing congestion around high-traffic bus stops. Based on safety and accessibility audits conducted at over 500+ bus stops by Gender Lab and 100+ bus stops by ITDP, 71 bus shelters will be renovated to enhance commuter safety and accessibility. Chennai's first 3D-printed bus shelter was built at Marina Beach in the year 2024, showcasing an innovative approach to urban transit infrastructure. GCC is expanding this initiative by installing 81 more new 3D-printed shelters across the city. These shelters are quick to assemble, easily relocatable, and equipped with IoT-enabled security cameras, enhancing both efficiency and commuter safety.
Mechanical Engineering			
20	DA-Q	**CNG operated mini trucks (15 numbers)** Overall project cost- Rs. 1.2 crore	To reduce air pollution, the Chennai Corporation will gradually replace diesel and petrol vehicles with CNG and electric vehicles. Fifteen CNG-operated mini trucks with 3.8 cu.m hopper capacity - one for each zone- will be procured to handle small encroachments, support government functions,

		Current status or progress – Vehicles deployed and being operated across allocated zones (2024-25)	address public grievances, clear debris and garden waste, and assist in disaster relief efforts. These vehicles will replace diesel-run trucks, offering a cleaner and more sustainable alternative. They comply with the latest BS-VI emission norms set by the Regional Transport Office, Chennai.
21	DA-Q	**CNG operated recovery vehicles (3 numbers)** Overall project cost- Rs. 1.07 crore Current status or progress- Vehicles handed over to the police department (2024-25)	Three CNG-operated recovery vehicles will be procured to remove broken-down vehicles from roads and transport them to depots, replacing traditional diesel-run vehicles for a more sustainable alternative.
22	DA-Q	**CNG operated water tankers (6 numbers)** Overall project cost- Rs. 1.8 crore Current status or progress - Vehicles deployed and being operated across allocated zones (2024-25)	The Greater Chennai Corporation is procuring six CNG-powered water tankers to support urban greening efforts. These tankers, each with a 9,000-litre capacity, will be used for watering plants in parks, along road medians, and other green spaces across the city. They comply with the latest BS-VI emission norms set by the Regional Transport Office, Chennai.
23	DA-UQ	**Purchase of Mechanical Sweepers for road cleaning (8 numbers)** **Overall project cost- Rs. 6 crore (capital cost)**	Mechanical sweepers with a 4 cu.m capacity will be procured, with operation and comprehensive maintenance covered for seven years. These machines are essential for clearing sand deposited along road medians and play a crucial role in dust mitigation. Each sweeper has a lifespan of 2.5 lakh kilometers over 10 years and can collect 1 to 1.5 tonnes of waste per day.

		Current status or progress - Ongoing. 4 vehicles received & operating; 4 others to be received soon (2024-2025 (O&M upto 2031))	
Bridges			
24	DA-UQ	**Construction of pedestrian bridges to enable easy access to public transport** Overall project cost- Rs. 4.27 crore (2 projects) Current status or progress – Footbridge at Railway Colony – Ongoing, 43% of the work completed Skywalk with escalators – Completed; open to public Cable-stayed suspension skywalk – Ongoing, 75% completed	Recent projects include a steel foot overbridge near AJS Nidhi School, connecting to Alandur Metro Station; a footbridge at Railway Colony 3rd Street (Division 106, Zone XIII), a skywalk with escalators linking Mambalam Railway Station to T. Nagar Bus Terminus; and a cable-stayed suspension skywalk connecting Phase I and II of Tholkappia Poonga in Division 171, Zone XIII. These bridges are designed for a lifespan of over 75 years. Pedestrian and vehicular bridge planning is based on extensive user surveys, including pedestrian counts (daily, hourly, gender-based, and seasonal variations), origin-destination patterns, usage frequency,public feedback, and accident history data. All surveys, feasibility studies, and skywalk alignments adhere to Indian Roads Congress (IRC) guidelines.
25	DA-UQ	**Constructing measures to prevent water stagnation in bridge construction** • Construction of high level bridge at Chinna Nolambur Overall project cost-	To prevent water stagnation in bridge construction, key measures are being in bridge construction and repairs. The low-lying Chinna Nolambur bridge, originally prone to flooding, is being elevated from 3 metres to 6 metres to allow better water flow and reduce flood risk.

		Rs. 42.7 crore Current status or progress – Ongoing Chinna Nolambur Bridge – 55% of the work completed	
26	DA-UQ	**Adoption of certain environment friendly practices in bridge construction:** • Use of M-sand and flyash • Construction and demolition waste management Use of M-Sand and Fly Ash: M-sand used in construction; fly ash used in filling	In line with the Tamil Nadu M-Sand Policy 2023, M-Sand / Crushed Sand is being adopted as an alternative to river sand for construction activities. This transition supports zero waste mining, prevents river ecosystem damage and offers higher compressive strength. Fly ash, an industrial by-product from thermal power plants, is used in brick manufacturing, reducing cement consumption, and lowering carbon emissions while improving concrete strength and durability. M-sand has been utilised in 24 recent bridge projects, and fly ash in 8 projects. Currently, construction and demolition waste (i.e., excess earth), is stored during construction. The construction and demolition waste is diverted to the processing plant.
Buildings			
27	DA-Q	**Upgradation / Construction of smoke free LPG system crematorium** Overall project cost- Rs. 3.07 crore (3 projects) Current status or progress	Fifty modern LPG-based crematoriums will be established and upgraded across 15 zones of GCC. This year's planned projects include upgrading the smoke-free LPG crematorium at Suriya Narayana Street, Kasimedu (Division 43, Zone 4), constructing new LPG crematoriums at GKM Colony Main Road (Division 64, Zone 6) and Thangal Burial Ground (Division 67, Zone 6). The LPG crematorium’s burning temperature is anywhere between 800 degree celsius and 1200 celsius, and reduces the burning time significantly (60-90 minutes as compared to 3-6 hours in wood-based crematoriums). The calorific value of LPG (46 - 51 J / KG of LPG) compared to wood (15 - 20 MJ / KG of wood), indicates its higher energy performance and energy potential. While 15-25 kg of LPG is used per

		All projects in progress (varying periods between January and December 2025)	cremation, around 250 - 400 kg of wood is used traditionally - showing that LPG is much less resource intensive than wood-based cremation. LPG Smoke-Free Crematorium Process- An LPG crematorium ensures efficient, eco-friendly cremation through controlled combustion. Preparation & Loading – The body is placed on a refractory platform in a sealed chamber for heat efficiency. LPG Ignition & Combustion – LPG is ignited to produce high temperatures (800°C–1,000°C) for rapid incineration. Controlled Air Supply – Oxygen regulation ensures complete combustion and minimizes fuel wastage. Emission Control – A secondary chamber burns gases at up to 1,200°C, reducing smoke and pollutants. Cooling & Ash Collection – After 60–90 minutes, the system cools, and ashes are collected for final processing.
28	DA-UQ	**Proposed Construction of Flood Relief Centre** Overall project cost- Rs. 1.8 crore Current status or progress- Planning stage	A relief centre is planned to be set up at Kosappur Chetty Medu in Div - 17, Zone - 02 as a part of flood mitigation efforts. These centres will provide food, medical aid, and other essential support to residents during floods.
29	DA-UQ	**Bus terminus and bus stand construction** Overall project cost-	The proposed projects include the expansion of Madhavaram Bus Terminus on MRH Road (Division 25, Zone 3) and the construction of a new bus stand at Vinayagapuram (Division 30, Zone 3).

		Rs. 3.68 crore (2 projects) Current status or progress- Ongoing	

GHG emission quantitative calculations methodology

Solid Waste Management department

1. **Reclamation of legacy waste through biomining at Kodungaiyur and Perungudi dumping grounds**

In this activity, 73.78 lakh MT of waste will be removed from a total area of 482.56 acres over the life cycle of these projects.

In FY 2025-26, 33,26,253 MT is planned to be removed from the Kodungaiyur dumping ground and 444293.1 MT from Perungudi dumping ground i.e. a total waste quantity of 3770546.1 MT shall be removed.

The CIRIS tool[11] supports calculation of the direct release of landfill gas (methane gas) in the atmosphere, for waste deposited at the landfill site in a given year using the methane commitment method[12]. This method requires the factors of waste disposed of at the landfill and the percentage of degradable organic carbon within that waste, which is then used to calculate the potential methane generation. Removing that waste from the landfill site will lead to an equivalent GHG emissions saving.

The average composition of Greater Chennai Corporation Waste (FY 2020-21)[13] is as follows -

[11] https://www.c40knowledgehub.org/s/article/City-Inventory-Reporting-and-Information-System-CIRIS?language=en_US

[12] https://ghgprotocol.org/sites/default/files/ghgp/standards/GHGP_GPC_0.pdf (8.3.2, Pg 82)

[13] City solid waste management Action plan and Annual Report 2020-2021

Waste Type	Waste Composition	Percentage
Dry Waste	Plastics	9.63%
	PET bottles	1.01%
	Wood	0.41%
	Paper	7.99%
	Tetra Pack	1.09%
	Rubber	0.55%
	Rags and Cloths	4.33%
	Glass	2.66%
	Construction and demolition waste	5.05%
	Metals	0.13%
	Inerts	19.58%
	Leather	1.57%
Incineration	Biomedical waste	0.08%
	Household hazardous waste	0.07%
	Sanitary Napkins	0.00%
Wet Waste	Biodegradable waste	28.03%
	Horticultural waste	9.58%
	Coconut shells	5.52%
	Banana leaves/stem	2.71%

Assumptions:

Landfill gas collection efficiency	0%
Proportion of landfill gas collected used as energy source	0%
Management of landfill	Unmanaged (≥5 m deep)

Calculations in CIRIS Tool:

Total waste deposited in landfill metric tonnes	37,70,546		
Degradable organic carbon in year of deposition (DOC)	0.1222		
Methane generation potential (L0)	0.039		
Methane generated, tCH4	1,47,443		
Source	**Total GHGs (metric tonnes CO_2e)**		
	CH_4	**N_2O**	**Total**
Direct release of landfill gas to atmosphere	41,28,416	Trace	41,28,416

Therefore in FY 2025-26, potential emission reduction by removal of 37.7 lakh MT landfilled waste is 41,28,416 tCO2e.
Note: This is an estimate. A detailed on-ground investigation is required to determine exact emission savings, factoring in the composition of legacy waste, especially the proportion of recyclable material.

2. **<u>Windrow composting at Perungudi dumpsite</u>**

Specifications:

Capacity of the compost plant- 50 MT/day

Number of plants- 2

Assumptions:

Number of days running in a year- 365

Capacity utilisation of the plant- 100%

Waste treated annually= Capacity of the compost plant X Number of plants X Number of days running in a year = 50 X 2 X 365 = 36500 MT

The calculations were done in the CIRIS tool considering the same waste composition and assumptions as the previous calculation. Greenhouse gas emissions saving is achieved by reducing waste reaching the landfill, but at the same time, some C02 and N20 emissions take place from biological processes such as composting.

CIRIS Calculations:

Source		Total GHGs (metric tonnes CO2e)		
		CH4	N2O	Total
Direct release of landfill gas to atmosphere		39,964	Trace	39,964

Source	Total GHGs (metric tonnes CO2e)		
	CH4	N2O	Total
Composting	4,088	2,321	6,409

Therefore in FY 20225-26, potential emission reduction by taking up windrow composting = Emissions from direct release of landfill gas to the atmosphere - Emissions from composting = 39964- 6409 = 33555 CO2e.

Mechanical Engineering Department

For all vehicle procurement activities, the Activity, Share, Intensity, Fuel (ASIF) model[14] has been utilised as per the GPC Protocol has been used. It is based on factors of Activity i.e. Distance traveled by type of vehicle using type of fuel and Emission factors i.e. Mass GHG emissions per unit of fossil fuel production.

At a city wide level, Emissions= Activity X Mode Share X Intensity X Fuel

For individual actions, Emissions = Activity data X Emission Factor

3. Purchase of CNG Operated Mini Truck with Tipper

Specifications:

Number of CNG Trucks to be procured = 15

As shared by GCC, these vehicles run for 30 km per day, for 26 days in a month.

Calculations:

	CNG Vehicle	Units	Diesel Vehicle	Units	Source
Gross Vehicle Weight	2880		2805	kg	Ashok Leyland[15]
Loading capacity	1246		1500	kg	
Emission factor (kg CO2 /km)	0.122	kg CO2/km	0.307	kg CO2/km	CNG- ICCT[16] Diesel- India GHG Programme 2015[17]

[14] https://ghgprotocol.org/sites/default/files/ghgp/standards/GHGP_GPC_0.pdf (7.3.1, pg 74)
[15] https://www.ashokleyland.com/lightvehicles/smallcommercialvechicles/bada-dost-cng/specification?&productId=1643
https://www.ashokleyland.com/lightvehicles/smallcommercialvechicles/dost-plus/specification
[16] https://theicct.org/wp-content/uploads/2024/10/ID-238-%E2%80%93-LCV-FC-India_final.pdf (pg 15)
[17] https://indiaghgp.org/sites/default/files/Road%20Transport%20Technical%20Paper.pdf (pg 310)

Activity (average annual use) (30 km X 26days X 12 months)	9360	km	9360	km	
Emissions (Activity X Emission factor)	1141.92	kg	2873.52	kg	
Emissions in tonnes per vehicle (Emissions/ 1000)	1.14192	tCO2e	2.87352	tCO2e	
Total emissions (emissions per vehicle X 15)	17.1288	tCO2e	43.1028	tCO2e	

Potential emission reduction by switching to CNG trucks = Emissions in tonnes from replaced diesel trucks - emissions in tonnes from procured CNG trucks

= **25.974 tCO2e annually**

4. Purchase of CNG operated Recovery vehicle

Specifications:

Number of CNG operated Recovery vehicles procured = 3

As shared by GCC, these vehicles run for 50 km per day, for 20 days in a month

Calculations:

Parameters	CNG Vehicle	Units	Diesel Vehicle	Units	Source
Fuel efficiency	11	km/l	8	km/l	Trucksdekho[18], Trucksfloor[19]

Gross Vehicle Weight	11120	kg	10700	kg	
Loading capacity/ Payload	7000	kg	6900	kg	
Emission factor	0.655	kg CO2/km	0.77	kg CO2/km	NITI Aayog[20]
Activity (average annual use) (50 X 20 X 12)	12000	km	12000	km	
Emissions (Activity X Emission factor)	7860	kg	9240	kg	
Emissions in tonnes per vehicle (Emissions/ 1000)	7.86	tCO2e	9.24	tCO2e	
Total emissions (emissions per vehicle X 3)	23.58	tCO2e	27.72	tCO2e	

Potential emission reduction by switching from diesel trucks to CNG trucks = Emissions in tonnes from replaced diesel trucks - emissions in tonnes from procured CNG trucks

= **4.14 tCO2e annually.**

5. CNG Operated Water Tanker

Specifications:

[18] https://trucks.cardekho.com/en/trucks/sml-isuzu/

[19] https://trucksfloor.com/en/compare/sml-isuzu-supreme-gs-3335-vs-sml-isuzu-samrat-gs-cng

[20] https://www.niti.gov.in/sites/default/files/2024-02/LNG%20in%20M%26HCV%20segment_07022024_updated_0.pdf (pg 70)

Number of CNG operated water tankers to be procured = 6

As shared by GCC, these vehicles run for 100 km per day, for 26 days in a month,

Calculations:

Parameters	CNG Vehicle	Units	Diesel Vehicle	Units	Source
Fuel efficiency	7	km/l	6.5	km/l	Trucksdekho[21]
Gross Vehicle Weight	16371	kg	16020	kg	
Emission factor	1.25	kg CO2/km	1.302	kg CO2/km	NITI Aayog[22]
Activity (average annual use) (100 X 26 X 12)	31200	km	31200	km	
Emissions (Activity X Emission factor)	39000	kg	40622.4	kg	
Emissions in tonnes per vehicle (Emissions/ 1000)	39	tCO2e	40.6224	tCO2e	
Total emissions (emissions per vehicle X 6)	234	tCO2e	243.7344	tCO2e	

Potential emission reduction by switching from diesel trucks to CNG water tankers = Emissions in tonnes from replaced diesel tankers - emissions in tonnes from procured CNG tankers

[21] https://trucks.cardekho.com/en/trucks/tata/1612-g-lpt, https://trucks.cardekho.com/en/trucks/tata/1512-lpt

[22] https://www.niti.gov.in/sites/default/files/2024-02/LNG%20in%20M%26HCV%20segment_07022024_updated_0.pdf (pg 70)

= **9.7344 tCO2e annually.**

Electrical Department

6. 100% conversion of sodium vapour street lights to energy saving LED lights

Specifications (Source- GCC):

In the year 2025-26, 1610 Nos. of LED Lights (48W – 828 Nos., 90W to 120W – 182 Nos. and 150W – 600Nos.) are proposed to be procured for the required dark spot areas.

Average watt of electricity used,

Electricity consumption from LED bulb = 48, 120 and 150 watt respectively

Equivalent electricity consumption from sodium vapour lamp = 70, 150 and 250 watt respectively

TANGEDCO weighted average emission factor 2022-23 = 0.7469 tCO_2/MWh

Assumptions:

The lights are run for 11 hours, 365 days in a year

Calculations for FY 2024-25:

	48 W	120 W	150 W	Unit
Electricity consumption of LED bulb	48	120	150	W
Equivalent electricity consumption of sodium vapour lamp	70	150	250	W
Electricity saving (Electricity consumption by sodium vapour lamp- electricity consumption of LED bulb)	22	30	100	W

Annual savings in electricity consumption (Electricity saving X 11 X 365/ 1000000)	0.08833	0.12045	0.4015	MWH
GHG emissions saving for a single lamp (Annual savings in electricity consumption X TANGEDCO weighted average emission factor)	0.0659	0.0899	0.299	
For all lamps				
Numbers procured	828	182	600	
Annual savings in electricity consumption (MWH)	73.13	21.924	240.9	MWH
GHG emissions saving (tCO2e annually)	54.57	16.37	179.4	tCO2e

LED lights procured = Potential emission reduction by switching to LED lights = GHG emissions saving from 48 W bulbs+ GHG emissions saving from 120 W bulb+ GHG emissions saving from 150 W bulb

=54.57+ 16.37+ 179.4 = 250.34 tCO2e annually

Buildings Department

7. Upgradation / Construction of smoke free LPG system crematorium

Specifications (Source- GCC):

Quantity of resources used per cremation- LPG - 15 - 25 kg (For Lpg), wood- 250 - 400 kg

Calorific value- LPG- 51 MJ/KG, wood- 20 MJ/KG

Average cremations per month- 3500 at all 46 crematoriums

Thus, 76 monthly cremations are considered at each crematorium

Annual average crematoriums assumed in the 3 LPG crematoriums = 76 X 3 X 12 = 2736

Calculations:

	LPG	Unit	Wood	Unit	Source
Quantity of wood/fuel used per cremation	25	kg	400	kg	GCC
Calorific Value (in TJ/kg)	0.0000510	TJ/kg	0.00002	TJ/KG	GCC
Heat energy released (Quantity of wood/fuel used per cremation X Calorific Value)	0.001275	TJ	0.008	TJ	
CO2 Emission factor	63100	kg/TJ	112000	kg/TJ	GHG Protocol- Emission Factors from Cross Sector Tools 2017
CO2 Emission in kg (Heat energy released X CO2 emission factor)	80.4525	kg	896	kg	
CO2 Emission in tonne	0.0804525	tonne	0.896	tonne	
CH4 emission factor	5	kg/TJ	300	kg/TJ	GHG Protocol- Emission Factors from Cross Sector Tools 2017
CH4 Emission in kg (Heat energy released X CH4 emission factor)	0.006375	kgCO2e	2.4	kgCO2e	
CH4 Emission in tonne	0.000006375	tC02e	0.0024	tC02e	
N20 emission factor	0.1	kg/TJ	4	kg/TJ	GHG Protocol- Emission Factors from Cross Sector Tools 2017
N20 Emission in kg (Heat energy released X N20 emission factor)	0.0001275	kgCO2e	0.032	kgCO2e	

N20 Emission in tonne	0.0000001275	tCO2e	0.000032	tCO2e	
Total annual emissions in tCO2e per cremation (C02 emission in tonne+ CH4 emission in tonne+ N20 emission in tonne)	0.0804590025	tCO2e	0.898432	tCO2e	
Total emissions ((Total emissions in tCO2e per cremation X Number of cremations)	220.1358308	tCO2e	2458.109952	tC02e	

Savings in greenhouse gas emissions from replacing wood based crematoriums to LPG crematoriums = Total annual emissions from wood crematoriums - total annual emissions from LPG crematoriums = 2458.109952- 220.1358308 = 2237.974121

This is Greater Chennai Corporation's first climate budget report, developed in collaboration with C40 Cities, a maiden effort in embedding and aligning climate adaptation, mitigation, and resilience priorities into routine budgeting. It is envisaged to continue releasing annual climate budget reports moving forward.

Key Points to note:

- Amounts reflected in the climate budget are sourced from the original proposed budget document of GCC for the year 2025-26, and have been verified in concurrence with relevant departments.
- Activity alignment with climate goals follows thematic areas and indicators in the Chennai Climate Action Plan.
- The process followed for climate budgeting is based on the globally accepted guide "*A step-by-step guide to climate budgeting*" developed by C40, a standard resource used for climate budgeting. This document is being used to develop climate budgets by cities belonging to the C40 Cities network worldwide, including Mumbai and Ahmedabad.
- Greenhouse gas emission calculations follow the *Greenhouse Gas Protocol for Cities* and *Handbook on GHG Emissions Quantification for Climate Budgeting* which are standard resources used globally, with national and local emission factors incorporated in calculations.

- Only those proposed budget items that have a distinct connection with climate adaptation, mitigation, and resilience efforts highlighted in the CCAP have been considered for the purpose of this report. Budget items that may have even the slightest amount of ambiguity in terms of their contribution to climate impact have been excluded.
- Key terminology such as adaptation, mitigation and resilience are based on *definitions followed by the Tamil Nadu government*, and the project works implementation follow central and state government prescribed guidelines or standards, specified in the descriptions.
- The primary criterion for including initiatives in the climate budget is their direct contribution to addressing climate change. Line items have been included only if their climate benefits are significantly more beneficial than potential environmental impacts from the process of establishing the infrastructure or system (e.g., material use in stormwater drain construction). The intent of this document is to make climate budgeting a mainstream activity in the routine functioning of the Greater Chennai Corporation, with improvements / enhancements expected in future reports.

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