



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD



CLIMATE CHANGE STRATEGY AND ACTION PLAN

ANNUAL IMPLEMENTATION REPORT
FINANCIAL YEAR 2022/23

Making progress possible. Together.

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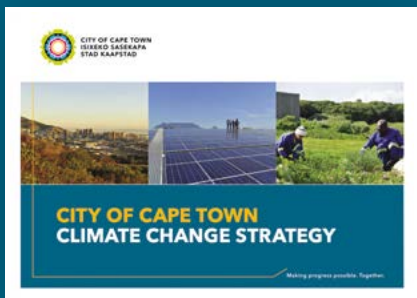
Cover photograph:
Cape Town rooftop PV.

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INTRODUCTION

This is the second annual progress report on the implementation of the City of Cape Town Climate Change Strategy and Action Plan. The Climate Change Strategy was adopted by Council in May 2021, and the Climate Change Action Plan (CCAP) - a detailed programme-level implementation plan of the strategy - was approved by the City Manager in August 2021. Subsequently, a monitoring and evaluation framework was developed and approved, with the aim of tracking both progress against the actions contained in the action plan and monitoring trends in indicators that have been developed to assess whether medium-term outcomes related to the goals of the strategy and action plan are being achieved. During 2022, the first annual progress report was completed for the financial year 2021/22 and was presented to the City's administrative and political leadership.



City of Cape Town Climate Change Strategy:

<https://bit.ly/CCT-ClimateChangeStrategy>

City of Cape Town Action Plan Implementation Report:

www.capetown.gov.za/ClimateChangeActionPlan

This report will cover the following:

- ✓ A short overview of the local and global context since the previous progress report
- ✓ An assessment of progress towards the achievement of 97 of the 101 programme-level actions contained in the CCAP. The remaining four Climate Change Leadership Review actions will be assessed through triennial reviews, to take place during 2023/24ⁱ
- ✓ An assessment of progress against a set of 49 medium-term outcome indicators linked to the goals of the Climate Change Strategy and Action Plan

This report was written in August and September 2023 and was intended to cover the previous financial year – between July 2022 and June 2023. However, in order to ensure that key current events are included in this report, some of the matters discussed in the Context section may include events that have occurred up until the time of drafting. In addition, the implementation of actions occurs over a number of financial years, and therefore some sections may include a discussion of processes that were initiated during previous financial years.

This reporting process is intended to serve multiple purposes. First, it aims to determine whether the CCAP is on track and whether it requires amendment or updating – the action plan is intended to be a ‘living’ document that is updated regularly to reflect any changes in the City’s approach to climate change response. Second, the process aims to identify any significant implementation gaps so that these can be addressed and additional support – for example, technical assistance or external finance – can be sought. Third, this process is intended to promote transparency and openness regarding the City’s climate change response work, and therefore to support our existing reporting commitments through the CDPⁱⁱ and to our international partner organisations. Finally, this report aims to provide information to City staff and other local and regional stakeholders in order to ensure that those working on activities related to climate change response remain up to date and informed on the progress that the City is making.



- ⁱ These actions target important strategic areas that need to be pursued by multiple departments through multi-stakeholder collaboration. The actions are in highly transversal areas where it is important for the City to show leadership as an organisation in a city-wide CCAP.
- ⁱⁱ CDP was initially established as the ‘Carbon Disclosure Project’ and is a not-for-profit organisation that runs a global climate change response disclosure system for investors, companies, cities, states and regions. It is the main reporting platform for C40 cities.

CONTEXT

Since the previous year's reporting, a number of significant events have occurred locally, nationally and internationally. Climate change response is a very fast-moving area of work, and therefore any policy document or report will necessarily be somewhat out of date by the time it is published. As a result, this section of the annual progress report will provide a much-needed updated context in which the City's implementation progress should be situated.

CLIMATE GOVERNANCE

INTERNATIONAL CLIMATE CHANGE ENGAGEMENTS

The United Nations Framework Convention on Climate Change (UNFCCC) 28th Conference of the Parties, or COP28, will be hosted in Dubai (United Arab Emirates) and will be held from 30 November to 12 December 2023. Entitled 'Unite. Act. Deliver', COP28 seeks to deliver a transformational COP of action for all by working towards reducing emissions by 43% by 2030. The conference marks the halfway point between adopting the 2015 Paris Agreement and meeting the 2030 Climate Change action targets. COP28 will witness the first Global Stocktake, in which countries' progress made against the Paris Agreement will be evaluated. A delegation from South Africa will be attending COP28.

Anticipated areas of discussion and negotiation at COP28 include the Loss and Damage Fund – first launched at COP27. The fund – financed by high-income countries – aims to assist middle- and lower-income nations to cover the cost of damages due to natural disasters as well as to implement adaptation interventions. Information on the establishment of the fund has been limited to high-level informal notesⁱⁱⁱ from the closed negotiation meetings held by the Transitional Committee.



*The Loss and Damage Fund, launched at COP27 in 2022, is a main area of discussion at COP28.
Photos by UNClimateChange.*

Co-chaired by South Africa and Finland, the committee is responsible for drafting a guiding plan for the operationalisation of the funding arrangements and the new fund to be considered and adopted during COP28. Some of the discussion areas outlined in the informal notes include funding arrangements, sources of funding, scope of the fund, ensuring country ownership, access, delivery modalities and triggers, and privileges and immunities. Owing to limited details about its funding arrangements to date, concerns remain high regarding the fund's feasibility.

Another key area of discussion will be the move towards higher ambition greenhouse gas (GHG) emission reduction measures and differing levels of achievement to date. As a result of South Africa's current heavy reliance on coal, the country's engagement at COP28 is essential in supporting the transition to renewable energy.

ⁱⁱⁱ Notes can be accessed at: <https://unfccc.int/process-and-meetings/bodies/constituted-bodies/transitional-committee/transitional-committee-other-meeting-documents>

Various international engagements leading up to COP28 took place during 2023. These include the Copenhagen Climate Ministerial programme, the 6th Urban 20 (U20) Mayoral Summit, the 2023 G7 Ministers' Meeting on Climate, Energy and Environment, the Global Financing Pact Summit, the G20 Summit and the 15th Annual BRICS Summit. One highlight from these events included discussions at the U20 Mayoral Summit on the need to overhaul development finance in support of climate action, especially adaptation measures for Global South cities. Another key highlight was the G7 ministers committing to support subnational governments in sharing best practices and promoting city-to-city cooperation relating to local climate action.

The Summit for a New Global Financing Pact, which was attended by SA President Ramaphosa, presented a practical roadmap enabling developed countries to reallocate part of their international reserve assets to low-income countries through multilateral development banks, thus easing low-income countries' debt and freeing up funds for climate action. The 18th G20 Summit, held under the theme of 'One Earth, One Family, One Future', focused on, among other priorities, climate financing, energy security and green hydrogen. Finally, the 15th Annual BRICS Summit also took place in South Africa, and partnering towards a Just Transition was one of the key discussion priorities.

At a regional level, the Africa Climate Summit, hosted by the Government of Kenya in Nairobi, took place in September 2023, and occurred in parallel with the Africa Climate Week. This was one of several events globally leading up to the UN Climate Ambition Summit, which took place in New York City in September 2023 as a forum to showcase to the world the 'first movers and doers' who are accelerating climate action. The 2023 summit focused on the unprecedented levels of acceleration, action and cooperation that are needed to keep the goal of limiting global warming to 1,5 °C alive and create a more equitable and climate-resilient global economy based on renewable energy.



*The Africa Climate Summit in Nairobi called for accelerated climate action and cooperation.
Photos by UNClimateChange.*

NATIONAL CLIMATE CHANGE LEGISLATION AND POLICY DEVELOPMENT

Legislation and policy development

The National Climate Change Bill was introduced to the National Assembly by the Minister of Forestry, Fisheries and the Environment in February 2022, and has since undergone extensive public consultation in all nine provinces. The Portfolio Committee on Forestry, Fisheries and Environment conducted public hearings until mid-June 2023 and is currently in the process of deliberating on the inputs and comments received on

the bill, before compiling final recommendations on the bill through a committee report that will be tabled to the National Assembly for consideration. The Climate Change Bill will serve as the country's statutory framework in responding to climate change. When it comes into effect, the Climate Change Act will define the roles and mandates of all sectors at a local, provincial and national scale to ensure that role players are empowered to respond to climate change and implement adaptation and mitigation measures.

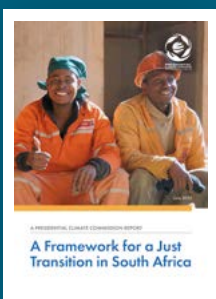
Carbon tax increases came into effect in January 2023, increasing from R144/t to R159/t of carbon dioxide equivalent. In addition, the carbon fuel levy for 2023/24 also increased by 1 c to 10 c/l for petrol and 11 c/l for diesel from April 2023. This increase has had an impact on major carbon taxpayers, and created a domino effect on the price of fuel and electricity. These increases are in addition to extensions made to the three phases outlined in the Carbon Tax Act directing the implementation of the tax.

The Department of Mineral Resources and Energy is currently in the process of reviewing and updating the 2019 Integrated Resource Plan (IRP). The draft IRP that was due in March 2023 was presented to Cabinet on 13 September 2023. Cabinet, however, decided that further consultation and consequently additional revisions were needed before the draft could be approved and released for public comment. Once revisions are made, the draft document will be presented to Cabinet for a second time for final approval and then published for public comment. The IRP is meant to be updated every two years as a 'living' document that outlines South Africa's plan for electricity infrastructure and capacity development, focusing on electricity demand, supply and cost.

The Framework for a Just Transition in South Africa

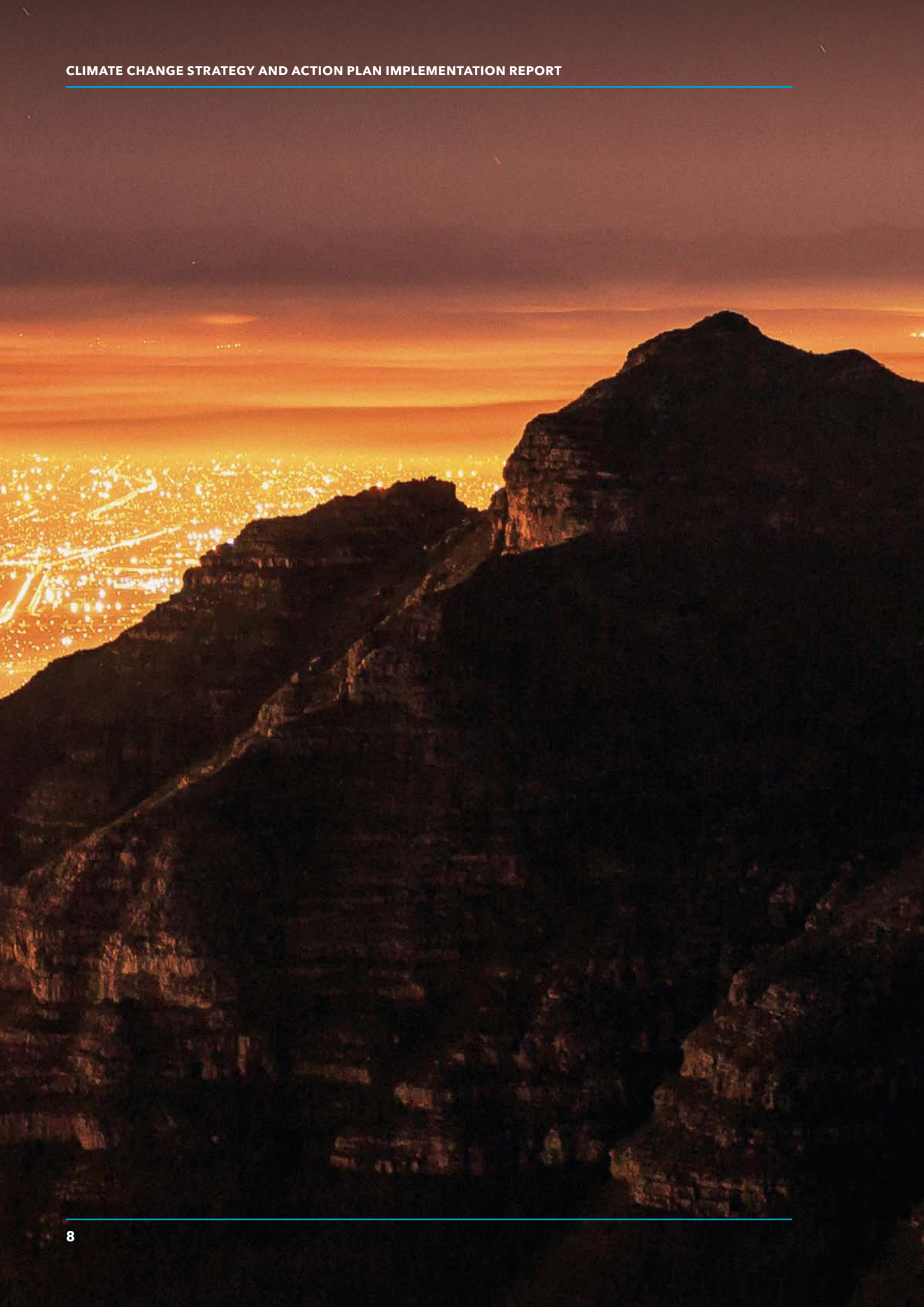
Globally, much attention is being paid to ensuring that the transition towards cleaner energy takes place in a way that is fair, equitable and inclusive, with a particular focus on the livelihoods of those currently working in the fossil fuel value chain. At the same time, it is recognised that the most vulnerable groups – economically and socially – are disproportionately at risk from the impacts of climate change, and so climate change response programmes must prioritise the needs of these populations.

The Framework for a Just Transition in South Africa ('the Framework') was developed by the Presidential Climate Commission (PCC) and approved by Cabinet during September 2022. The framework provides a shared vision and guidelines to collectively achieve an equitable and climate-resilient transition across government spheres and sectors. The framework defines a Just Transition as one that "... aims to achieve a quality life for all South Africans, in the context of increasing the ability to adapt to the adverse impacts of climate, fostering climate resilience, and reaching net-zero GHG emissions by 2050, in line with best available science".



The framework is available here:

<https://www.climatecommission.org.za/publications/design-addition-and-amendment-to-just-transition-framework-with-dedication-to-pcc-secretary>





The role of the Presidential Climate Commission

The PCC was established in December 2020, comprising government ministers and representatives from major stakeholder groups in South Africa, including business, labour, civil society, research and academic institutions, youth and traditional leadership. The concept of the PCC emerged at South Africa's 2018 Presidential Jobs Summit, when social partners agreed that a statutory body should be established under the Presidency to "maximise the opportunities for creating new and quality jobs in the context of a Just Transition to a low-carbon economy and climate-resilient society".

The PCC is supported by a secretariat that advances its agenda by commissioning research and policy work, arranging robust dialogue and consultation processes, and preparing strategic communications. The commission meets on a quarterly basis, whereas ad hoc working groups like the Finance and Governance Committee, Net-Zero Pathways, Monitoring, Evaluation and Reporting, and Climate Finance meet more frequently.

During the reporting year, the City of Cape Town Executive Mayor, Alderman Geordin Hill-Lewis, was appointed as one of two local government representatives onto the PCC, through a consultation process with the South African Local Government Association (SALGA). In this role, the City of Cape Town is playing a crucial part in ensuring that the needs and challenges of local government are considered.

The most recent focus of the commission's work has been the preparation of recommendations on the energy transition (specifically the electricity generation mix and governance) and Just Energy Transition Investment Plan (JET-IP) which is 5-year plan (2023-2027) that sets out the scale of need and the investments required to achieve the decarbonisation commitments in South Africa's Nationally Determined Contribution (NDC).

WESTERN CAPE PROVINCIAL CLIMATE CHANGE POLICY DEVELOPMENT

During 2023, the Provincial Government of the Western Cape finalised the development of the Implementation Plan for the updated Western Cape Climate Change Response Strategy: Vision 2050 (WCCCRS) that was published during 2022. The WCCCRS sets out the Western Cape's vision to achieve net-zero emissions and climate resilience for the province by 2050, supported by the Implementation Plan, which provides details of the response actions outlined in the strategy, identifies role players, specifies time frames for action implementation and outlines a monitoring and evaluation framework.

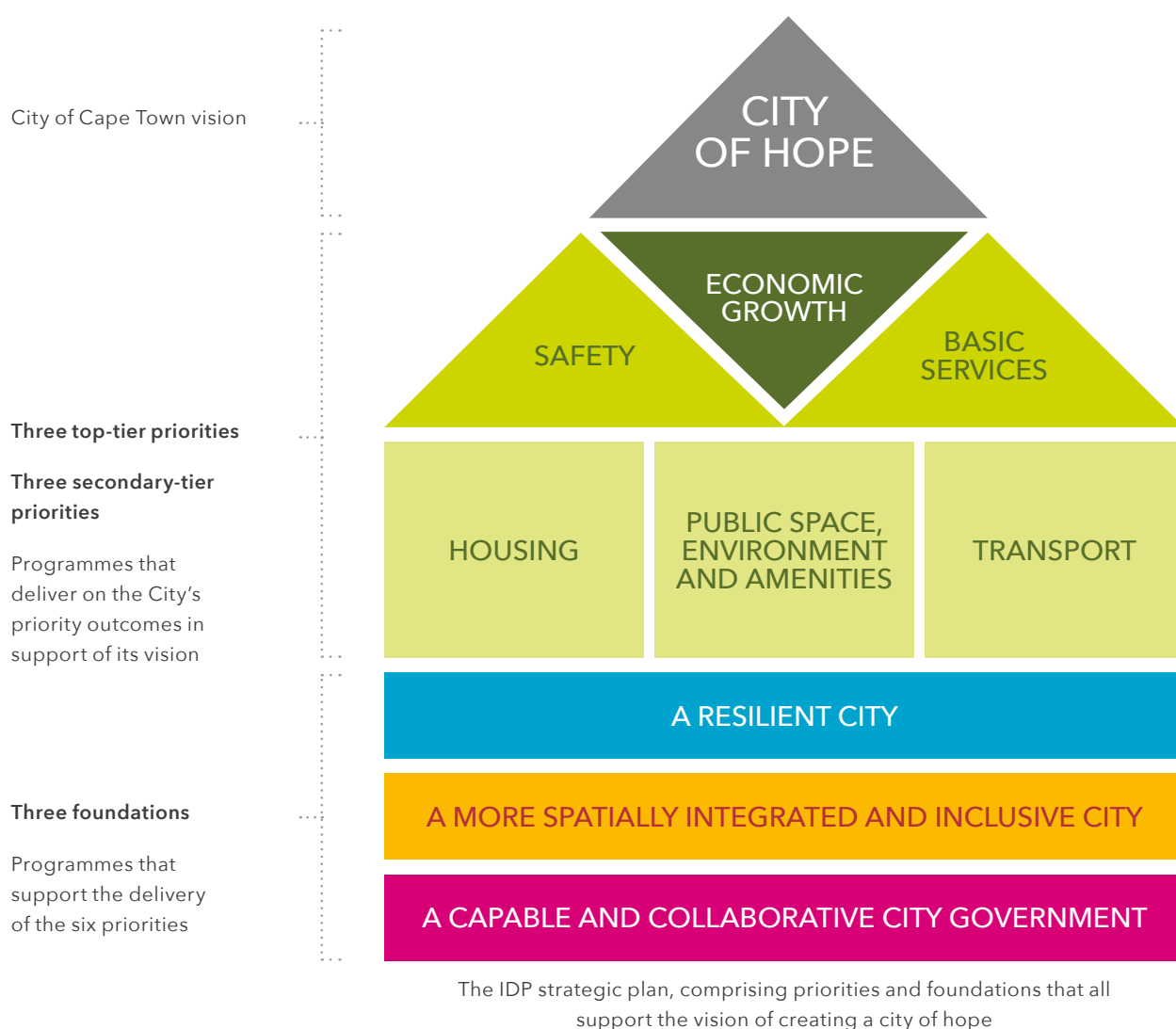
In addition, updated climate change trends and projections for the Western Cape were published as part of the Western Cape SmartAgri Plan. The update covers the 23 agro-climatic zones across the province, and is a result of a review done on the climate science evidence base that informed the development of the plan in 2016. The SmartAgri Plan serves as the guiding framework for climate change response and implementation for the agricultural sector.

CITY OF CAPE TOWN CLIMATE CHANGE INSTITUTIONAL ARRANGEMENTS AND MAINSTREAMING

As noted in the previous progress report, during 2022, an organisational realignment process took place, following a Council resolution in December 2021 to create a new macro structure at the start of the new political term of office. The monitoring, evaluation and reporting of the Climate Change Strategy and Action Plan was consolidated under the newly established Future Planning and Resilience (FPR) Directorate. During 2022/23, additional organisational realignment took place, with the City's Integrated Risk Management

and Business Continuity Management functions joining the directorate to form an updated Risk and Resilience Department. The merging of these functions means that there will be increased opportunities for mainstreaming climate risk considerations into the City's integrated risk management processes.

During 2021/22, climate change response was integrated and mainstreamed into the City's Integrated Development Plan (2022–2027), which includes a dedicated programme on climate change planning and monitoring under one of three foundational priorities, called 'a resilient city'. The Risk and Resilience Department is continuously exploring how to further integrate climate change response into the Integrated Development Plan (IDP) reporting process, building on the institutional progress that was achieved in the previous year.



RESPONDING TO SOUTH AFRICA'S ENERGY CRISIS

The energy system, globally and locally, is rapidly transforming due to the impacts of technology change, regulatory change and climate change. These changes are affecting every aspect of how energy is generated, distributed and used. In the South African context, changes in the electricity system are being accelerated as a result of the severity of load-shedding. Since 2019, there has been an unprecedented escalation in load-shedding (with regular stage 3 and stage 4 load-shedding, often rising to stage 5 and 6 in 2022/23).

Although the City of Cape Town has been able to protect City supply area customers from up to two stages of load-shedding, ongoing high levels are severely disruptive to the local economy, its future growth and the broader well-being of Cape Town's residents. This challenge requires the City of Cape Town to actively engage with and appropriately intervene in both mitigating load-shedding and navigating the changing energy landscape to the benefit of all residents and businesses.

Over the reporting year, the City of Cape Town has developed a draft Energy Strategy to provide a framework for navigating these changes to the benefit of residents and businesses in the short, medium and long term. The City's vision is to achieve energy security for a prosperous Cape Town by having a resilient energy system that functions to provide residents and businesses with the energy services they need to thrive. The Energy Strategy takes a 2050 view, with key priorities and programmes implemented in a three-phase approach to enable and drive change within the energy system over time:

- ✓ Short term (by 2026): Increase capabilities to mitigate up to four stages of load-shedding
- ✓ Medium term (by 2031): Transition to a financially sustainable electricity utility with enhanced operations and asset management practices
- ✓ Long term (by 2050): Transforming the energy system to be carbon neutral

Action to advance the goals of the draft Energy Strategy is further driven by the City's Mayoral Priority Programme on Energy Security for Economic Growth which aims to end load-shedding over time in Cape Town and offer four stages of load-shedding protection by the end of the mayoral term of office in 2026. At the national level, a new Ministry of Electricity was created in March 2023 to deal with the country's energy crisis. The ministry is expected to facilitate the coordination of the numerous departments and entities involved in the crisis response, work with Eskom leadership to turn around the performance of existing power stations and accelerate the procurement of new generation capacity.



The City is developing an Energy Strategy to navigate the changing energy landscape to the benefit of all citizens and businesses.



Working towards a resilient energy system is a key priority in Cape Town.

GREENHOUSE GAS EMISSIONS

THE STATE OF CAPE TOWN'S GREENHOUSE GAS EMISSIONS

Cape Town's GHG emissions are reported to the CDP annually. Consistent with global best practice, the data are drawn from a GHG inventory prepared according to the methodology of the Global Protocol for Community-Scale Greenhouse Gas Emissions Inventories (GPC). The CDP reviews the quality of the annual submissions and in November 2022 awarded the City of Cape Town an 'A-rating' for its 2022 submission. Cape Town was the only African city to receive this rating in 2020 and 2021.

The most recent inventory update was completed in June 2023 (based on 2021 data) (see figure 1). The data clearly show the profound impact of the Covid-19 pandemic on the economy and movement patterns still prevailing in that period. The drop in total citywide emissions was primarily attributable to a 4% drop in transport emissions and a 10% drop in commercial and industrial electricity emissions, due to various levels of restrictions related to Covid-19. A similar effect owing to extended periods of high levels of load-shedding – which curtailed 10% of electricity sales – can be expected in 2022. Some of this effect is anticipated to be permanent because of the resulting acceleration in the uptake of small-scale embedded generation (SSEG) in Cape Town in response to load-shedding. Although load-shedding has continued to be severe in 2023, continued migration into the city and possible success in measures to bring more capacity into the grid could see a rebound in emissions in 2024 and beyond, depending on the technology of new generating capacity locally and nationally.

Sectoral emissions shares remained much the same (as shown in figure 2). Transport remained the largest emitting sector but electricity consumption by the residential, commercial and industrial sectors is half of all GHG emissions.

Trends in absolute emissions by sector still show the impacts of the Covid-19 pandemic, as shown in figure 3.

A more detailed exploration of Cape Town's energy and carbon emissions can be found in the City's latest Cape Town State of Energy and Carbon report, produced by the City's Sustainable Energy Markets Department. The report, updated every five years, profiles the City's energy system in detail, and directly supports the goal of a data-driven and evidence-led administration. It informs the City's GHG inventory and climate mitigation planning and can be utilised by decision-makers, researchers and planners. It is published on the City's website in [publication form](#) and in data form on the City's [Open Data Platform](#).



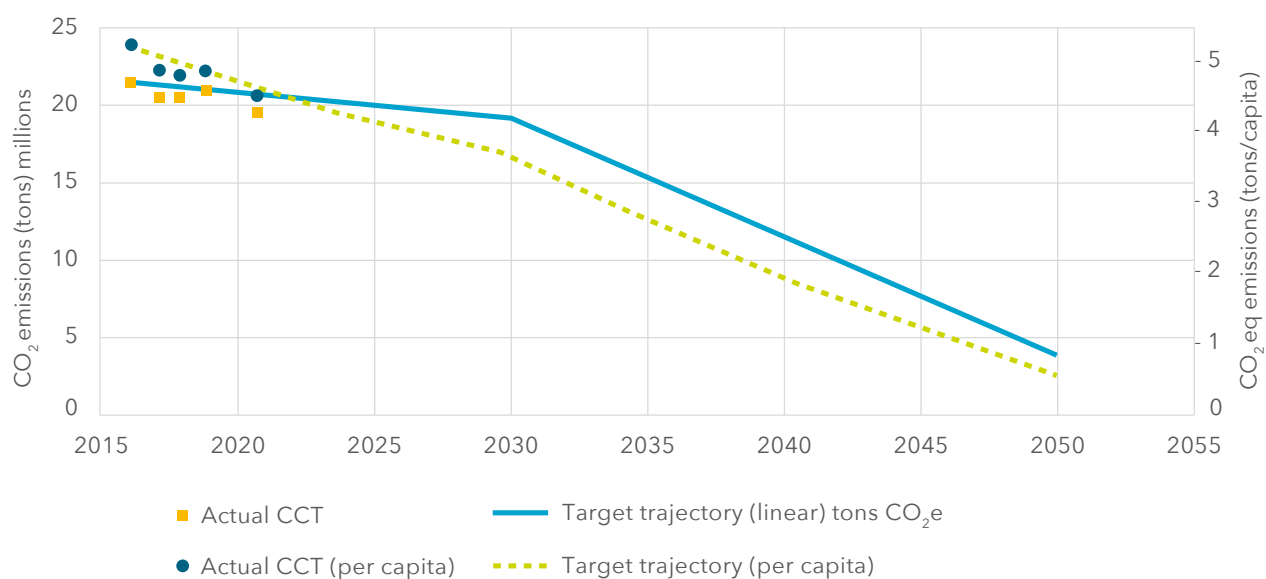


Figure 1: City of Cape Town city-wide GHG emission reduction targets

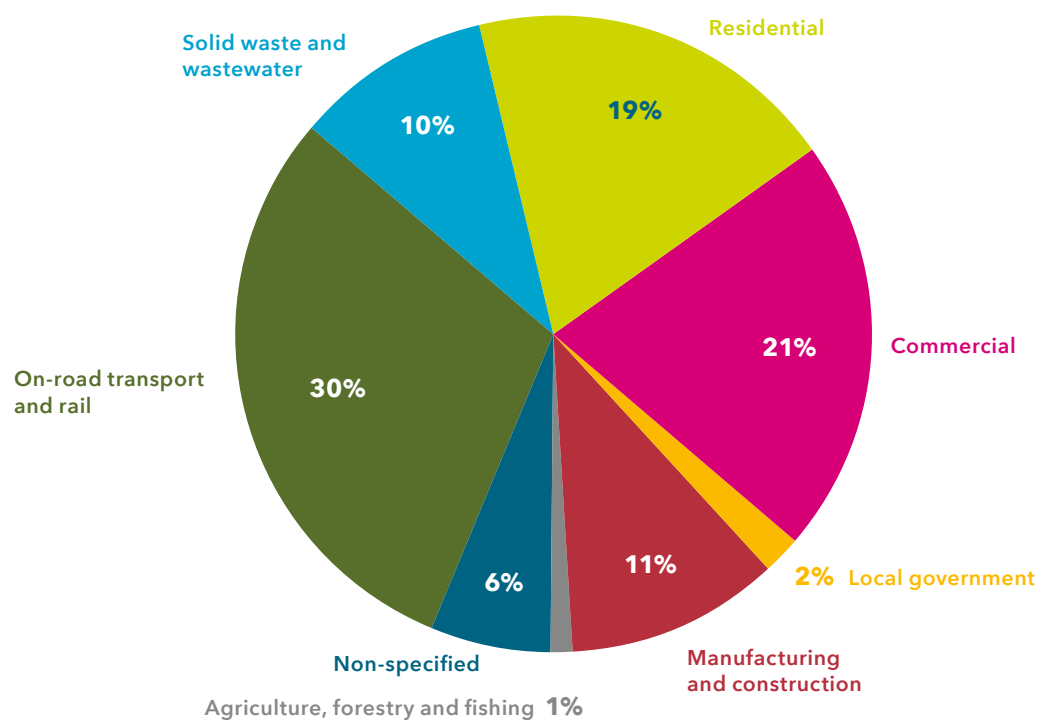


Figure 2: Sectoral GHG emissions contributions for Cape Town (2021)

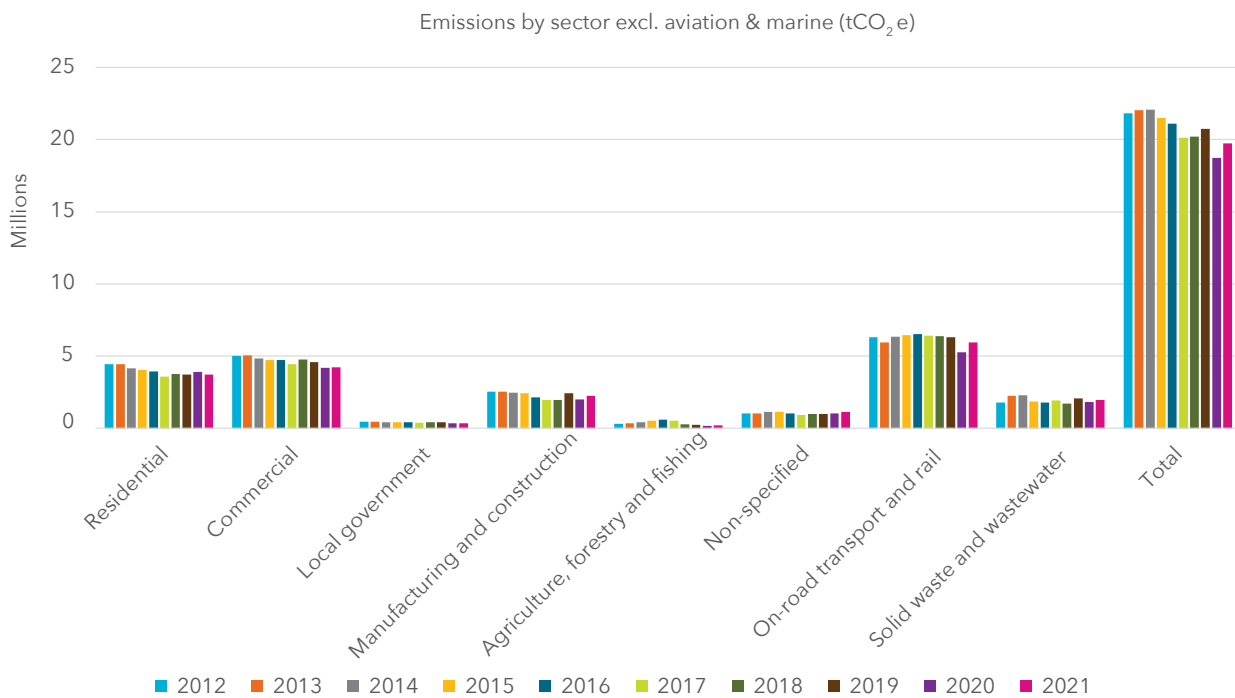


Figure 3: Sectoral trends in GHG emissions – City of Cape Town

CAPE TOWN'S CARBON EMISSIONS REDUCTION TARGETS

As part of its 2021 CCAP, Cape Town adopted a 'science-based target' (SBT) for GHG emission reduction. These SBTs have emerged from collaboration by a number of organisations to bring consistency and integrity to claims by subnational entities to align with the goals of the Paris Agreement through their target-setting processes. Currently, three main methodologies are recognised and are being integrated into the CDP reporting and evaluation process. As a C40 city, Cape Town adopted the C40 Deadline 2020 Framework, which assigns a decarbonisation trajectory according to the socio-economic typology allocated to a member city. Primarily based on income, this reflects a city's state of economic development and resulting capacity to transition in the short term.

Cape Town is a 'late peaking developing city' in this typology system, meaning modest growth to 2030 at the margin of the emissions reduction target envelope, followed by rapid reduction in absolute emissions thereafter. The City set targets within this typology envelope through a comprehensive technical process that was presented to the Executive Management Team in September 2020. This supplemented an extensive scenario-based decarbonisation modelling exercise undertaken during the CCAP planning phase, with additional analysis including benchmarking and an assessment of uncertainty in the sectoral emissions systems of electricity and buildings, transport and waste.

The City's 2030 and 2050 emission reduction targets, informed by this process, are summarised as follows with progress status:

Target	Target year	Baseline emissions (2016)	Emissions in most recent reporting year (2021)	Target trajectory emissions	% of target achieved
9,4% absolute cut in emissions (off a 2016 baseline)	2030	21 252 347 tCO ₂ e	19 755 320 tCO ₂ e	19 252 347 tCO ₂ e	74,9%*
81% absolute cut in emissions (off a 2016 baseline)	2050	21 252 347 tCO ₂ e	19 755 320 tCO ₂ e	4 000 000 tCO ₂ e	8,7%

**Not representative because of Covid-19 impact*

Although a 9,4% (2 MT) absolute emissions cut by 2030 may seem modest in the context of the Paris Agreement – which requires global average cuts of 40–60% – Cape Town's population growth must be accounted for. If the current 2% annual population growth rate persists, which is likely, this equates to a 30% decrease in per capita emissions, which is appropriately challenging for the current economic circumstances in the local context.

A high share of the target has seemingly been achieved, but an upturn in economic growth, diesel generator use in response to load-shedding and continued population growth could change the picture considerably on even a five-year view. The key driver in the next seven years is electricity supply and demand. As shown in figure 4, the requirements for shifts in the electricity sector depend on transport and waste emissions. If emissions from these two sectors increase modestly or decline slightly, it is estimated that attaining the target will require a net 10% energy efficiency improvement, combined with a 7% clean electricity supply (from locally procured or produced renewable generation, including SSEG). Population indexed growth in transport and waste emissions would, however, require either a higher energy efficiency of 22% or a higher renewable electricity share of 20%. The foundation of the City's direct contribution to this 2030 target is through enabling the supply of renewable electricity from 250 MW of utility-scale solar PV capacity procured either by the City or wheeled to customers. The City issued a tender for 200 MW of renewable generation in 2022, to be connected to its own network.

The severity of load-shedding over the past two years is driving planning and implementation at a higher rate – potentially leading to the City attaining 15–20% renewable electricity share in the medium term, subject to overcoming regulatory constraints. Even dispatchable thermal capacity sited locally will have lower emissions than the current grid average. If, however, in another scenario, national capacity programmes turn out to be successful and constrain local capacity, the benefit will be seen, although diluted, in lower grid emissions. The worst case is a deepening national crisis but where regulatory, procurement and legal constraints frustrate the local measures currently in progress. At this stage, however, there is reason to be optimistic that the load-shedding crisis, although damaging in the short term, will drive an outcome where the local electricity system becomes more resilient and the interim carbon target is exceeded even if transport and waste emissions increase significantly for the time being.

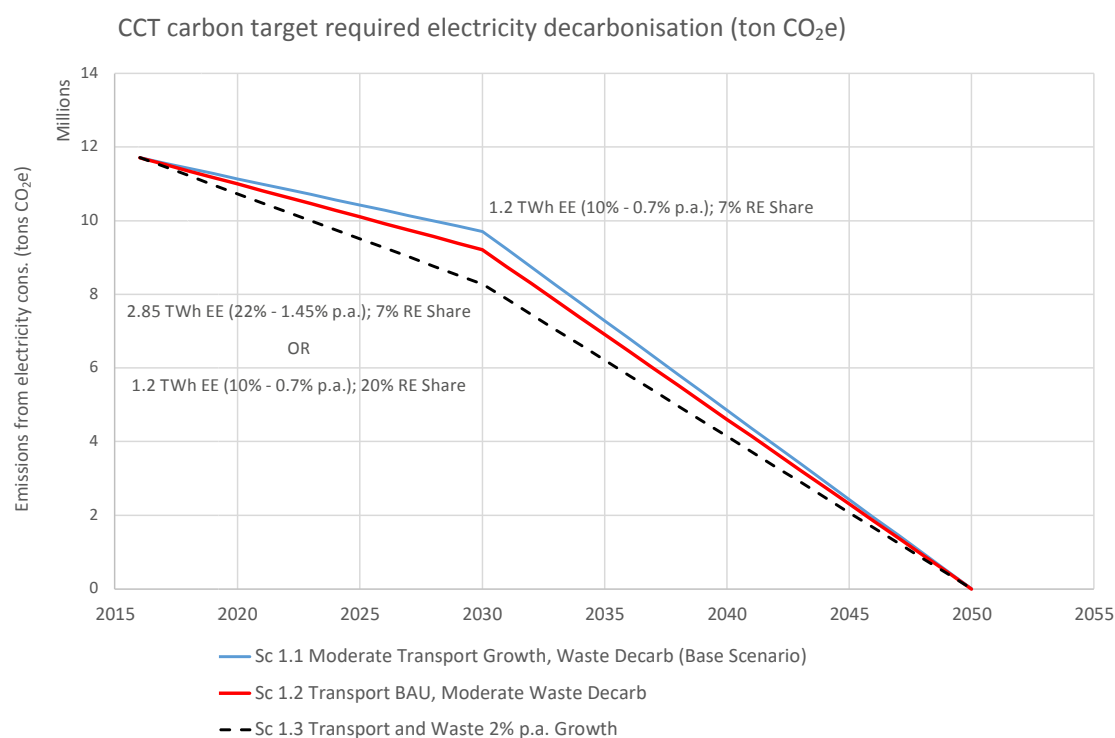


Figure 4: Contribution of electricity to City of Cape Town’s 2030 GHG emission reduction target for three scenarios of transport and waste emissions growth

THE ROLE OF LOCAL GOVERNMENT IN THE JUST ENERGY TRANSITION

It is important to recognise that municipalities carry substantial risk from the transition but also present significant opportunities to both accelerate the transition and make it more just. South Africa is highly urbanised, and most economic activity takes place in urban areas. Accordingly, emissions generated by cities are a significant proportion of national emissions. In addition, municipalities interface with customers and collect revenue; the stability of the national system relies on urban utilities providing reliable services and collecting revenue.

A just energy transition must therefore protect residents of towns and cities from unaffordable electricity tariff increases, protect residents and businesses from the impacts of load-shedding and leverage every possible opportunity for job creation in urban areas to offset job losses in the fossil fuel value chain. Many of the job opportunities that could be created as a result of the many infrastructure investments needed for the just urban transition, such as renewable energy projects, will likely occur in or near to cities.

The City of Cape Town has actively participated in the consultation processes associated with the JET-IP over the reporting year – both at a technical level and via the Mayor’s participation in the PCC sessions. Furthermore, Cape Town is actively making input towards the development of a Municipal JET Project Finance programme (co-led by the PCC and SALGA), which aims to assist municipalities in identifying and finalising municipal-level JET plans and tangible projects to that effect. Cape Town been selected as one of the eight municipalities in 2023 to pilot this programme and share its learnings.



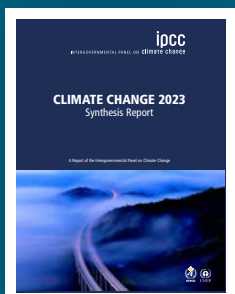


CLIMATE SCIENCE

IPCC SIXTH ASSESSMENT REPORT CYCLE

The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6) cycle is currently in process and builds on the work of the previous AR5, which was released between 2013 and 2014. A number of key outputs have been produced within this cycle. Three special reports were released between 2018 and 2019, and included the Special Report on Global Warming of 1,5 °C (October 2018), which significantly informed the development of the City of Cape Town Climate Change Strategy and Action Plan, the Special Report on Climate Change and Land (August 2019) and the Special Report on the Ocean and Cryosphere in a Changing Climate (September 2019). The Methodology Report on Short-lived Climate Forcers (SLCF) is currently in progress as of 2023.

Reports by Working Group I (The Physical Science Basis), Working Group II (Impacts, Adaptation and Vulnerability) and Working Group III (Mitigation of Climate Change) were released between 2021 and 2022. Each of these reports includes a summary for policymakers. The Synthesis Report (Climate Change 2023: Synthesis Report) was released on 20 March 2023 in order to inform the 2023 Global Stocktake under the UNFCCC, including a summary for policymakers and a set of headline statements. The overall trajectory of climate change projections in AR6 does not differ substantially from those of AR5; however, these have been significantly refined and updated based on the latest models and observations, and include a greater degree of certainty than previous assessment reports.



The Synthesis Report is available here:

https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_FullVolume.pdf

Some key headline findings of the Synthesis Report are summarised below:¹

- ✓ Human activities, principally through emissions of GHGs, have unequivocally caused global warming, with global surface temperature reaching 1,1 °C above 1850–1900 in 2011–2020.
- ✓ Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred. Human-caused climate change is already affecting many weather and climate extremes in every region across the globe. This has led to widespread adverse impacts and related losses and damages, particularly to vulnerable communities that have historically contributed the least to current climate change.
- ✓ Adaptation planning and implementation has progressed across all sectors and regions, with

documented benefits and varying effectiveness. Despite progress, adaptation gaps exist and will continue to grow at current rates of implementation.

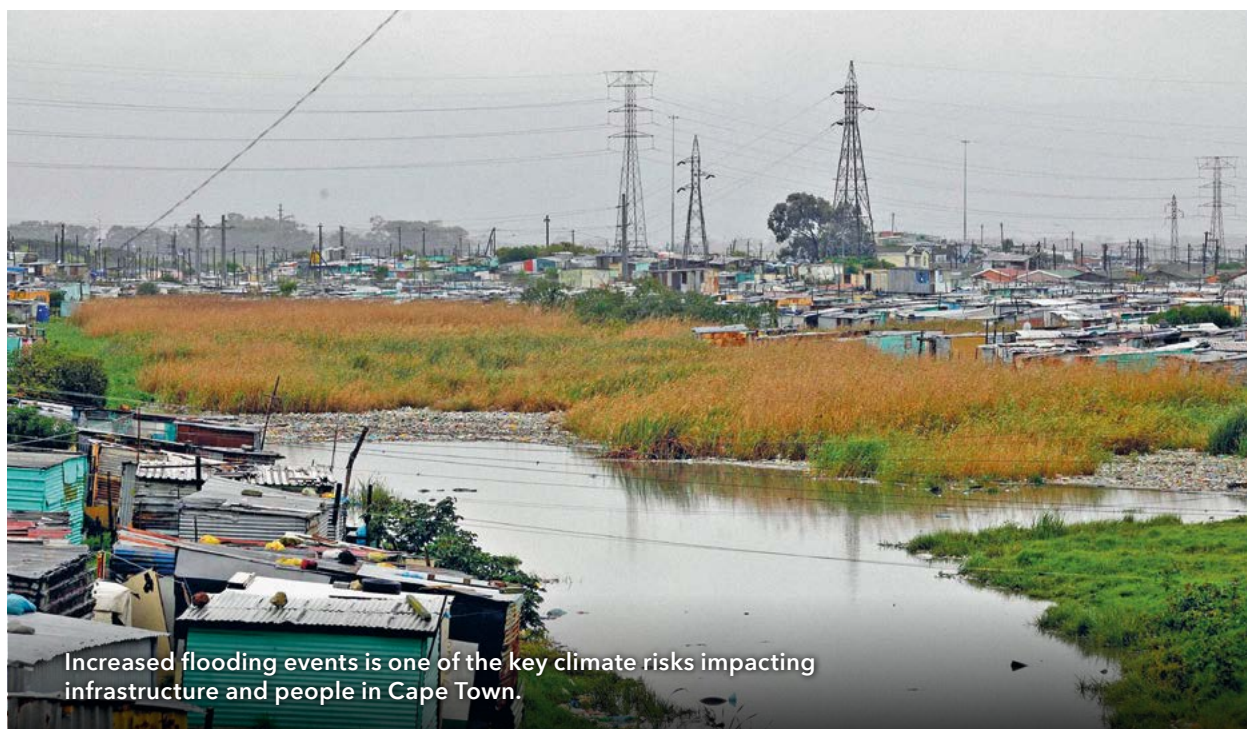
- ✓ Policies and laws addressing mitigation have consistently expanded since AR5. However, global GHG emissions in 2030 implied by nationally determined contributions announced in October 2021 make it likely that warming will exceed 1,5 °C during the 21st century and make it harder to limit warming to below 2 °C.
- ✓ Continued GHG emissions will lead to increasing global warming, with the best estimate of reaching 1,5 °C in the near term in considered scenarios and modelled pathways. Every increment of global warming will intensify multiple and concurrent hazards. Deep, rapid and sustained reductions in GHG emissions would lead to a discernible slowdown in global warming within about two decades, and also to discernible changes in atmospheric composition within a few years.
- ✓ For any given future warming level, many climate-related risks are higher than assessed in AR5, and projected long-term impacts are up to multiple times higher than currently observed. Risks and projected adverse impacts and related losses and damages from climate change escalate with every increment of global warming.
- ✓ Some future changes are unavoidable and/or irreversible, but can be limited by deep, rapid and sustained reduction in global GHG emissions. The likelihood of abrupt and/or irreversible changes increases with higher global warming levels. Similarly, the probability of low-likelihood outcomes associated with potentially very large adverse impacts increases with higher global warming levels.
- ✓ Adaptation options that are feasible and effective today will become constrained and less effective with increasing global warming. With increasing global warming, losses and damages will increase and additional human and natural systems will reach adaptation limits.
- ✓ Limiting human-caused global warming requires net-zero CO₂ emissions. Cumulative carbon emissions until the time of reaching net-zero CO₂ emissions and the level of GHG emission reductions this decade largely determine whether warming can be limited to 1,5 °C or 2 °C (high confidence).
- ✓ All global modelled pathways that limit warming to 1,5 °C with no or limited overshoot, and those that limit warming to 2 °C, involve rapid and deep and, in most cases, immediate GHG reductions in all sectors this decade.
- ✓ If warming exceeds a specified level such as 1,5 °C, it could gradually be reduced again by achieving and sustaining net negative global CO₂ emissions. This would require additional deployment of CO₂ removal, compared to pathways without overshoot, leading to greater feasibility and sustainability concerns.
- ✓ Climate change is a threat to human well-being and planetary health, and there is a rapidly closing window of opportunity to secure a liveable and sustainable future for all. The choices and actions implemented in this decade will have impacts now and for thousands of years.
- ✓ Deep, rapid and sustained mitigation and accelerated implementation of adaptation actions in this decade would reduce projected losses and damages for humans and ecosystems, and deliver many co-benefits, especially for air quality and health. Delayed mitigation and adaptation action would lock in high-emissions infrastructure, raise risks of stranded assets and cost escalation, reduce feasibility, and increase losses and damages.
- ✓ Accelerated and equitable action in mitigating and adapting to climate change impacts is critical to sustainable development. Mitigation and adaptation actions have more synergies than trade-offs with the Sustainable Development Goals.

- ✓ Prioritising equity, climate justice, social justice, inclusion and Just Transition processes can enable adaptation and ambitious mitigation actions and climate-resilient development. Adaptation outcomes are enhanced by increased support to regions and people with the highest vulnerability to climatic hazards; integrating climate adaptation into social protection programmes improves resilience.
- ✓ Effective climate action is enabled by political commitment, well-aligned multi-level governance, institutional frameworks, laws, policies and strategies and enhanced access to finance and technology.
- ✓ Finance, technology and international cooperation are critical enablers for accelerated climate action. If climate goals are to be achieved, both adaptation and mitigation financing would need to increase manifold.

EXTREME EVENT ATTRIBUTION STUDIES

Extreme event attribution is a growing area of climate science. The goal of these studies is to scientifically determine whether, and to what extent, extreme weather events are linked to climate change. It is important to note that climate change is not the cause of extreme weather events. Rather, climate change significantly increases the frequency and intensity of extreme weather events, meaning that these occur more often and more severely than in a hypothetical world in which climate change was not occurring.

Since 2014, the World Weather Attribution (WWA) initiative has developed and implemented methods to conduct extreme event attribution quickly but thoroughly. This is in order to address the challenge posed by the traditional scientific publishing model in which “scientific studies, going through peer-review, are usually published a year or longer after an event occurred, when the public has moved on and questions about rebuilding or relocating have been answered without taking scientific evidence on the role of climate change into account.”²







During 2022/23, a number of very high profile extreme weather events occurred across the globe, including severe fires, intense heatwaves and significant flooding. Analyses conducted by the WWA initiative during the year under review included the following:

- ✓ Climate change more than doubled the likelihood of extreme fire weather conditions in May and June 2023 in Eastern Canada (August 2023)
- ✓ Extreme heat in North America, Europe and China in July 2023 made much more likely by climate change (July 2023)
- ✓ Limited net role for climate change in heavy spring rainfall in Emilia-Romagna, Italy (May 2023)
- ✓ Extreme humid heat in South Asia in April 2023, largely driven by climate change, detrimental to vulnerable and disadvantaged communities (May 2023)
- ✓ Extreme April heat in Spain, Portugal, Morocco and Algeria almost impossible without climate change (May 2023)
- ✓ Human-induced climate change increased drought severity in Horn of Africa since 2020 (April 2023)
- ✓ Vulnerability and high temperatures exacerbate impacts of ongoing drought since 2019 in Central South America (February 2023)
- ✓ Climate change made record-breaking early season (November and December 2022) heat in Argentina and Paraguay about 60 times more likely (December 2022)
- ✓ Climate change exacerbated heavy rainfall between May and October 2022, leading to large-scale flooding in highly vulnerable communities in West Africa (November 2022)
- ✓ High temperatures exacerbated by climate change made 2022 northern hemisphere droughts more likely (October 2022)
- ✓ Climate change likely increased extreme monsoon rainfall between June and August 2022, flooding highly vulnerable communities in Pakistan (September 2022)
- ✓ Without human-caused climate change, temperatures of 40 °C during July 2022 in the UK would have been extremely unlikely (July 2022)
- ✓ Climate change increased heavy rainfall between May and June 2022, hitting vulnerable communities in eastern Northeast Brazil (July 2022)

In addition, during the past year, the group has highlighted a lack of sufficient data or high levels of uncertainty in climate models in some regions which meant that it was difficult to determine whether or not climate change had an impact on these events. The following analyses highlight that challenge:

- ✓ Limited data prevent assessment of role of climate change in deadly May 2023 floods affecting highly vulnerable communities around Lake Kivu (June 2023)
- ✓ Limited data and high levels of uncertainty make it difficult to assess the role of climate change in extreme rainfall associated with Cyclone Gabrielle over Aotearoa, New Zealand's East Coast (March 2023)
- ✓ Food crisis in Central Sahel in 2022 driven by chronic vulnerability with uncertain role of climate change (November 2022)

Full details of all the studies mentioned above, including the methodology used, are available on the WWA website: www.worldweatherattribution.org

SIGNIFICANT WEATHER AND CLIMATE EVENTS

Extreme weather events are a feature of South Africa's climate, and it is not unusual for one or more extreme events to occur each year across the country. As noted in the earlier Climate Science section, it is not always straightforward to determine whether individual extreme events are linked to climate change or are simply due to natural variations in weather patterns.

However, the IPCC AR6 WG1 Report notes that, "Regional changes in the intensity and frequency of climate extremes generally scale with global warming. New evidence strengthens the conclusion from the IPCC Special Report on Global Warming of 1,5 °C that even relatively small incremental increases in global warming (+0,5 °C) cause statistically significant changes in extremes on the global scale and for large regions. In particular, this is the case for temperature extremes, the intensification of heavy precipitation including that associated with tropical cyclones, and the worsening of droughts in some regions".³ As a result, it is reasonable to anticipate that extreme weather events will increase in both intensity and frequency as climate change continues.

GLOBALLY SIGNIFICANT WEATHER EVENTS

Extreme heat, heatwaves, drought and wildfires

During 2022/23, a number of globally significant extreme weather events took place which made news headlines around the world. These included a number of unprecedented heat events that were also linked to severe wildfires in a number of different areas.

The northern hemisphere's summer of 2023 was intensified by very warm ocean surface temperatures in the Pacific and Atlantic oceans due to the effects of climate change, coupled with El Niño conditions. Severe heatwaves occurred in July 2023, breaking records across large parts of Europe, China, North America and North Africa. During June 2023, recorded Antarctic sea ice also reached its lowest extent since satellite observations began, at 17% below average, and the Antarctic broke the July temperature record of 8,7 °C, with anomalously high winter temperatures.

Scientists noted that 3 July 2023 was the hottest day ever recorded, as the global average temperature reached 17,01 °C, surpassing the August 2016 record of 16,92 °C.⁴ Early August 2023 also saw a new global ocean temperature record of 20,96 °C, according to European Union climate observatory data.⁵

The months of June and July 2023 brought extreme heat and heatwave conditions to much of Europe. These heightened heat conditions contributed to severe wildfires that occurred in Greece and the Swiss Alps. The El Niño phenomenon caused extreme marine heatwaves around Ireland, Britain and the Baltic states. Cities across much of Italy were on red alert due to scorching heat, with temperatures in parts of the country reaching up to 46 °C. Late July 2023 saw firefighters battling to contain nearly 1 400 wildfires across Italy, with neighbouring Greece experiencing days of continuous wildfires, devastating the environment, significantly deteriorating air quality and causing several deaths. The north-west Xinjiang region of China exceeded 52 °C, breaking the 2017 high temperature record of 50,6 °C.

North America also experienced severe heat conditions – in the United States, very high temperatures were recorded in the southern states, particularly Florida; and in the south-west of the country, particularly California, with Death Valley peaking at 53 °C. In early July 2023, Canada suffered unprecedented wildfires linked to high summer temperatures, with an estimated loss of 6,5 million hectares of forest. More than

100 million Canadians were placed under air quality warnings, with smoke and poor air quality also affecting much of the northern United States, including major cities such as Detroit, New York, Minneapolis and Chicago. At the time, these cities were ranked as having the world's worst air quality by a Swiss air quality monitor.⁶

Similarly, the African continent also experienced extreme weather events in 2023. In North Africa, some regions in Algeria experienced temperatures around 51 °C as a consequence of heat dome conditions in July 2023. In the country's north-west region, firefighters struggled to contain wildfires, with areas east and south-east of the country's capital, Algiers, experiencing their deadliest wildfires. In the Tunisian capital of Tunis, temperatures reached 49 °C. These conditions were influenced by the Mediterranean heatwave which swept across large parts of Europe.

Early 2023 also saw parts of East Africa in the grips of severe drought conditions. Ethiopia, Kenya and Somalia have endured five failed consecutive rainy seasons since October 2020, with scientists noting that climate change made the drought conditions experienced in the Horn of Africa 100 times more likely to occur.⁷ This is due to the region's long rainy season from March to May not occurring as normal, and short rains being experienced from October to December.

Extreme rainfall, flooding and storm events

During 2022/23, sub-Saharan Africa witnessed a devastating storm event, with Cyclone Freddy causing significant damage to both Madagascar and Mozambique. Cyclone Freddy has been documented as one of the strongest cyclones ever recorded in the southern hemisphere; this is discussed in more detail in the next section.

Asia experienced one of the worst monsoon seasons⁸ during June 2023, causing major flooding events in parts of India, South Korea, Japan and China. Scientists observed that monsoon patterns have been shifting since the 1950s, with longer dry spells interspersed with heavy rain. During early September 2023, extreme flooding events were also experienced in parts of southern Europe. Record-breaking rainfall accompanied Storm Daniel, which severely affected Greece and also Bulgaria and Turkey.

The central region of Greece⁹ experienced 600 to 800 mm of rainfall within a 24-hour period, which led to major rivers throughout Greece breaking their banks and inundating towns and roads. In South America, several parts of Brazil¹⁰ experienced torrential rain between February and September 2023. The combination of ongoing earlier heavy rains, saturated soils and hilly terrain contributed to the severity of each consecutive flood event and the consequential impacts. All of these flooding events led to the displacement of people, loss of and damage to homes and infrastructure, loss of agricultural land and several deaths.

Various parts of Africa¹¹ experienced extreme flooding during the first half of 2023, including Ghana, Algeria, Ethiopia, Somalia, the Democratic Republic of the Congo and parts of southern Africa. Significant flooding events¹² occurred early in September along the coast of Libya as a result of high rainfall that accompanied Storm Daniel. This high rainfall caused two major dams in Derna to collapse, which resulted in floodwaters completely inundating and sweeping away several residential areas and partially destroying the City of Derna. Reports indicate that these dams were known to be vulnerable as a result of decades of poor maintenance. As of 14 September, the death toll had exceeded 11 000, and up to 30 000 people were displaced; estimates suggest that the number of deaths may reach 20 000, as many people remain missing.¹³

Other impacts include a three-day closure of four of the country's oil ports, the destruction of main bridges, the closing of hospitals and mortuaries, and a state of disaster being declared in three areas of the country. The event is thought to be the second-deadliest dam failure in history, after the 1975 Banqiao Dam failure in China, demonstrating the devastating effects of extreme weather interacting with vulnerable infrastructure.

CYCLONE FREDDY

Tropical Cyclone Freddy developed on 6 February 2023 off the coast of north-west Australia, and embarked on a unique 7 200 kilometre¹⁴ journey across the entire Indian Ocean on its way to Madagascar, becoming one of only four systems to ever do so.

After making first landfall along the east coast of Madagascar on 21 February, the cyclone moved across the island and the Mozambique Channel to hit southern Mozambique on 24 February, where it moved inland over Zimbabwe. Instead of dissipating over land, as would usually be the case, it changed direction and moved back across the Mozambique Channel, passing the south-eastern coast of Madagascar on 5 March. It made landfall in Mozambique on 11 March for a second time before moving inland over Malawi from 12 to 14 March, after which it finally dissipated.¹⁵ Between February and March, the cyclone travelled a total distance of more than 8 000 kilometres and lasted for a record-breaking duration of 38 days to become the longest-lasting tropical cyclone.

The Africa chapter of the IPCC AR6 report projects that warmer sea surface temperatures caused by human-induced climate change will lead to longer and more intense tropical cyclones. In an article published by Daily Maverick, Professor Francois Engelbrecht¹⁶ explained that a warming world and consequently warmer tropical oceans – including regions such as the Mozambique Channel – is creating favourable conditions for longer lasting tropical cyclones.

Freddy's movement back across the Mozambique Channel after making first landfall in Mozambique is said to possibly be due to the slow-moving pace of the tropical cyclone. More specifically, Freddy stalled from 24 February to 2 March, which allowed a sizeable portion of the storm's circulation to remain over the warm waters of the Mozambique Channel.¹⁷ During this loop back, the tropical cyclone underwent two rapid intensification cycles, each being preceded by an increase in heavy rainfall, also attributed to slow movements.

This occurred despite Freddy weakening to a tropical storm when it made a second landfall in Mozambique, and resulted in peak rainfall measurements¹⁸ of between 400 to 800 mm over parts of southern Mozambique; 400 mm over Madagascar; and rainfall figures between 300 and 450 mm within a 24-hour period were measured in certain areas of Malawi. This aligns with AR6 projections of tropical cyclones having more intense rainfall and higher wind speeds with increasing global warming, and a projected increase in exposure of urban populations to tropical cyclones in the African region.

Freddy also became the first tropical cyclone to undergo seven separate rapid intensification cycles during its lifespan, in addition to generating the highest accumulated cyclone energy ever recorded in the southern hemisphere, which the World Meteorological Organisation¹⁹ compared to an average full hurricane season in the North Atlantic. The tropical cyclone left a trail of catastrophic impacts across four of Africa's most vulnerable and least developed nations, becoming the third deadliest tropical cyclone ever recorded in the southern hemisphere and the second-deadliest in the south-west Indian Ocean.

HEAVIER THAN AVERAGE RAINFALL AND SEVERE FLOODING IN THE WESTERN CAPE REGION

During 2023, rainfall records showed that early winter rains were significantly above average in the Western Cape. The well-above-average rainfall for March 2023 (usually one of the driest months of the year) was as wet as an average winter month for the region. For example, at least 200 mm of rain fell at the Newlands station in March 2023 and more than 1 244 mm at the Molteno Reservoir station in the City Bowl. As indicated in table 1, this is more than triple the long-term average values for March.

Table 1: Preliminary rainfall records for March 2023 (data records are from [SAWS](#), [SAEON](#), [CoCT](#), [Elsenburg](#) and the [Southern African Science Service Centre for Climate Change and Adaptive Land Management](#) [SASSCAL], [Weathernet](#))²⁰

Station	Location	Institution (s)	March 2023 rain (mm)	March average	June average
Newlands	Newlands Forest	CCT, DWS	200	46	290
Woodhead	Back Table	CCT, DWS, SAWS	275	55	240
Molteno Reservoir	Cape Town City Bowl	SAWS	124	30	145
Slangkop	Kommetjie	SAWS	98	25	75
Atlantis	-	SAWS	62	15	80
Grabouw	-	SAWS	162	40	165
Jonkershoek	Outside Stellenbosch	SAWS, DWS	169	42	185
Kirstenbosch	-	SAWS	204	38	250
CT-AWS	Cape Town airport	SAWS	95	18	90
Paarl	-	SAWS	114	23	155
Constantiaberg	At the mast	SAEON	209	-	-
Landroskop	Near Boland hike hut	Elsenburg	250	-	-
De Poort	Top of Du Toitskloof Pass	SASSCAL	286	-	-
Veldreserwe	Worcester	Elsenburg	140	11	601

The University of Cape Town's Climate System Analysis Group (CSAG) indicated that by June 2023, the Western Cape had seen the highest cumulative rainfall since 1976, with total rainfall from January 2023 to June 2023 at various locations across the region being the highest on record.²¹ In particular, in June 2023, parts of the Western Cape region experienced monthly rainfall of between 200 and 500 mm. These records support the rainfall forecast issued by the South African Weather Service, which indicated above-normal rainfall for most parts of the country during the winter months (June-July-August) through to early spring (August-September-October).

Consequently, the national Department of Water and Sanitation reported that the high rainfall in the region has resulted in the significant recharge of dams and other water reservoirs. According to the City of Cape Town weekly water dashboard, as of September 2023, the dam levels of the Western Cape Water Supply System (WCWSS) stood at over 100%. This figure is significantly higher than the same period in 2022, when the WCWSS total storage was at approximately 85% and concern was raised about the possible need for water restrictions during 2023.



Various storm and flooding events in 2023 required metro-wide storm response coordination in Cape Town.

Unfortunately, this above-average rainfall has also contributed to incidences of extreme flooding during the 2023 winter season, including parts of KwaZulu-Natal, the Northern Cape, the Eastern Cape and the Western Cape. During June 2023, heavy rainfall resulted in widespread extreme flooding in various parts of the Western Cape. The town of Citrusdal, located in Cederberg District Municipality, was cut off from the rest of the province after floodwaters washed away the main access road, leaving many people in the municipality needing to be rescued and relocated, and dependent on relief services. In the town of Wolseley, located in the Breede Valley Municipality, the Western Cape Police Dive Unit had to rescue at least 54 people trapped in their homes by floodwaters, and communities in the Theewaterskloof Municipality and Saldanha Bay had to be evacuated to community halls.

Flooding incidents were also experienced in Paarl in the Drakenstein Municipality,²² where the historic event of the Berg River exceeding the 100-year flood line contributed to the extreme flooding of roads, industrial and residential areas, homes and shopping centres. This flooding followed similar impacts experienced in December 2022 as a result of a thunderstorm that occurred in Paarl. The storm was accompanied by strong winds, damaging hail and heavy rainfall, leading to a record-breaking 40 mm²³ measured in a 24-hour period.

In the city of Cape Town, heavy rainfall caused the Jakkalsvlei Canal, the Lourens River and the Keyser River to burst their banks, causing major flooding in the area. This also resulted in power outages across the city, evacuations, damage to roads and infrastructure, and damage to hospitals and residential properties. Stormwater flooding also affected various informal settlements located in Philippi, Strand, Gugulethu, Mfuleni, Masiphumelele and Khayelitsha.

According to an assessment²⁴ done by the Western Cape's Department of Environmental Affairs and Development Planning, the damage across the Western Cape amounted to R703,3 million. This total includes damage to the agricultural sector estimated at R500 million, and infrastructure damages estimated at R181,8 million. The cost to individual municipalities for damage to municipal infrastructure is estimated at R21,5 million. This includes R4,4 million for Overstrand, R1,4 million for Theewaterskloof, R350 000 for Swartland, R8 million for Cederberg, R435 000 for Drakenstein, R5,6 million for Stellenbosch and R1,4 million for the city of Cape Town.

Finally, in late September 2023, a strong cut-off low was experienced in the Western Cape, leading to further extensive flooding. The South African Weather Service issued an orange level 6 weather warning for high rainfall and disruptive winds for the coastal parts of the Western Cape on 23 September, which was upgraded to a level 9 warning on 24 September. Within the city, the Lourens and Eerste rivers burst their banks, leading to severe flooding in the Strand, Somerset West and Gordon's Bay areas, particularly in informal settlements.²⁵ A major incident was declared due to the particularly severe impacts in the Sir Lowry's Pass Village and Rasta Kamp informal areas.²⁶

More significant damage occurred in other parts of the province, with many towns and smaller settlements experiencing severe inundation, and being cut off temporarily as a result of flooded roads and collapsed or damaged bridges. Widespread electricity outages and damage to electrical infrastructure occurred, leading to Eskom temporarily suspending load-shedding in the coastal parts of the Western Cape to allow for repairs to take place safely. At the time of writing this report, a full assessment of the damage had not yet been completed.



Above-average rainfall contributed to incidences of extreme flooding during the 2023 winter season.

PROGRESS AGAINST THE GOALS AND ACTIONS OF THE CLIMATE CHANGE STRATEGY AND ACTION PLAN

OVERVIEW OF INDICATOR FRAMEWORK

A set of indicators have been developed in order to monitor and evaluate the City's progress towards achieving the medium to longer-term goals of the Climate Change Strategy and Action Plan. These indicators are intended to measure longitudinal changes and trends from the baseline and to observe both quantitative and qualitative medium-term outputs and outcomes.

These indicators are also designed to meet the principles of SMART indicators - to be specific, measurable, achievable, reliable and time-bound. As a result, some of the indicators included in this report have been selected on the basis of their fulfilment of SMART criteria due to factors such as data availability and ability for the relevant department to report accordingly. In future years, additional indicators may be included that provide a more comprehensive assessment of outcomes if improved data sources become available.

The indicator framework for the CCAP was established through an extensive internal departmental engagement process and includes a comprehensive set of 49 progress indicators across 37 goals. The indicator set consists of 23 new CCAP indicators and 26 indicators that are aligned with existing reporting processes and requirements. The indicators can be summarised into the following categories:

- ✓ Service Delivery Budget Implementation Plan (SDBIP) indicators: Performance-based indicators and targets that City departments monitor and report on, on a quarterly or annual basis
- ✓ Circular 88 Indicators: indicators that the City is required to monitor and report on to National Treasury
- ✓ New CCAP Indicators: indicators that have been drafted for the purpose of tracking goals across the Strategic Focus Areas and Cross-cutting Work Areas of the Climate Change Strategy and Action Plan

In some cases, targets for indicators have been set as part of a directorate or departmental business plan/ SDBIP process. These have been included in this report where they are available. Baseline data have been included where available; however, for new CCAP indicators that were developed for the previous report as well as for new 2021/22 SDBIP indicators, 2021/22 was the first year of reporting and therefore will serve as the baseline year for this report and future reports.

A separate indicator framework was not developed for the 101 actions of the CCAP; reporting on progress towards these actions takes the form of updates to the status of the action, as well as more detailed descriptive progress updates that provide a summary of the work that took place during the reporting year.

SUMMARY OF PROGRESS TOWARDS CLIMATE CHANGE STRATEGY AND ACTION PLAN GOALS DURING 2022/23

As noted above, 49 progress indicators have been developed in order to track medium-term progress against the 37 goals of the Climate Change Strategy and Action Plan. As this is only the second year of reporting, it is sometimes difficult to determine trends in these indicators, as progress is expected to occur over the medium term and year-to-year changes may not always be evident.

However, the following trends have been determined for the medium-term progress indicators:

Progress indicator trend	Number of indicators
No change	20
Improved	17
Declined	5
Qualitative indicator	7

Note that where an indicator is linked to a target, if a target has been met or exceeded in both 2021/22 and 2022/23, this is captured as 'no change' in this report, even if the actual figures differ, as this indicates a stable trend of target achievement. Also note that some indicators are qualitative in nature and it is therefore not possible to determine a clear trend for these indicators. It is important to note that 'no change' is not a negative assessment. During 2021/22, many indicators showed good results - therefore 'no change' indicates continued good performance.

SUMMARY OF PROGRESS TOWARDS CLIMATE CHANGE ACTION PLAN ACTIONS DURING 2022/23

The CCAP consists of 101 programme-level actions across ten Strategic Focus Areas and five Cross-cutting Work Areas. The following table provides an indication of the trend in the status of these actions since these were approved August 2021.

Action status	Number of actions as of August 2021	Number of actions as of 30 June 2022	Number of actions as of 30 June 2023
New (concept)	19	7	6
New (in planning)	23	14	13
Expansion of existing programme	27	23	22
Implementation	32	50	54
Completed	0	2	2
On hold	0	4	3
Cancelled	0	1	1

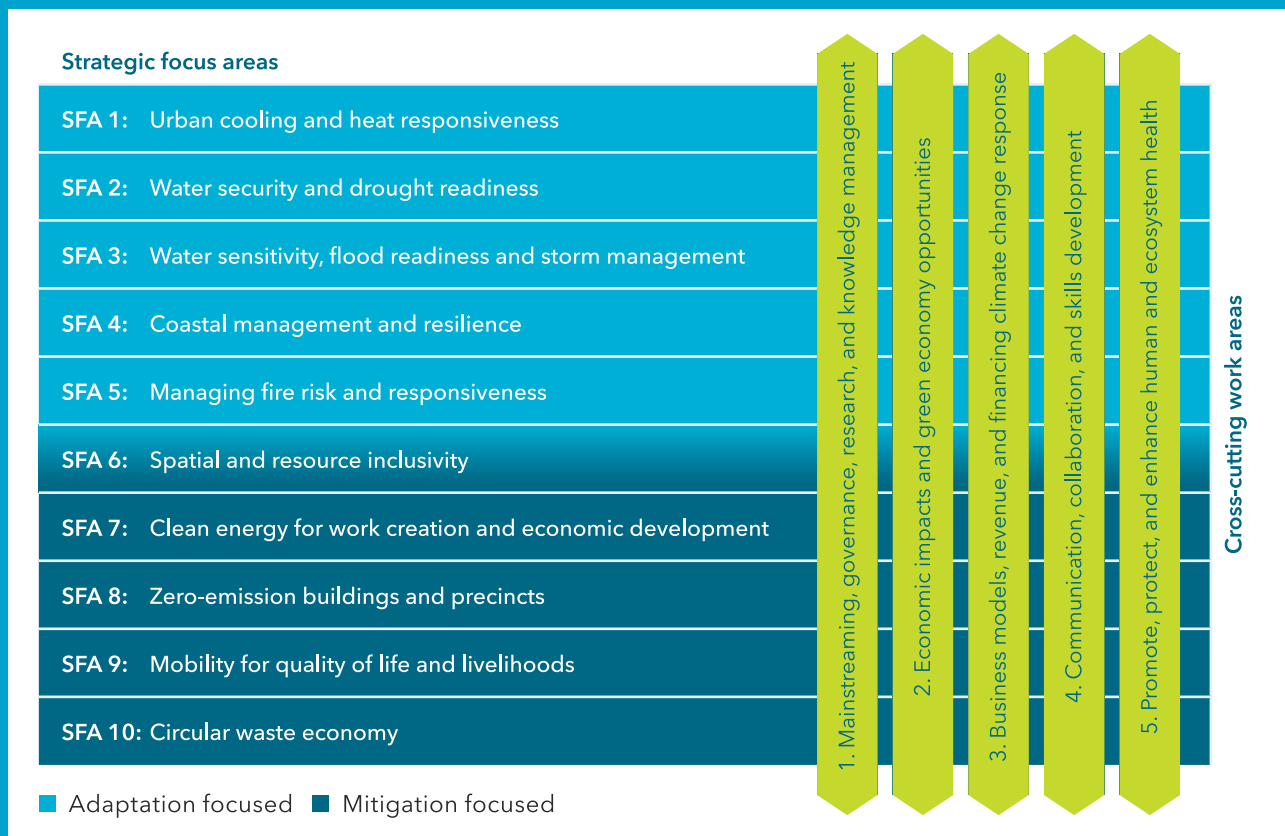
During the reporting year, the number of actions categorised as implemented increased from 50 to 54 actions. Although three actions remain on hold - meaning that they are temporarily paused while the approach to implementation is reassessed or due to appropriate mechanisms for implementation not currently being available - one action has moved from being on hold to the concept stage as work on this action has been reinitiated. No further actions have been cancelled. A total of 19 actions are now categorised as 'new (concept)' or 'new (in planning)', with three having moved into more advanced phases.

Although the pace of progress has slowed since the first annual implementation report, overall there is a trend of gradual but continued process. More than half of the actions are now in the implementation phase and, as many of these actions are complex multi-year programmes, it is anticipated that these will remain at the implementation stage for a number of years. In addition, it must be noted that some actions may never be completed as they are ongoing programmes that will continue to roll out for the foreseeable future.



IMPLEMENTATION PER STRATEGIC FOCUS AREA AND CROSS-CUTTING WORK AREA

Implementation per Strategic Focus Area (SFA) and Cross-cutting Work Area (CCWA) is detailed in the following section of the report. Each section provides an overview of key progress at the action level during the 2022/23 financial year as well as progress against the goals set to measure medium-term outcomes.



STRATEGIC FOCUS AREA 1: URBAN COOLING AND HEAT RESPONSIVENESS

OVERVIEW

Cities around the world are increasingly becoming more aware of heat-related risks to public health and safety, infrastructure, critical operations and service delivery. Implementing initiatives aimed at urban cooling and heat responsiveness is becoming essential to ensure business continuity, effective service delivery and to reduce risks to public health and well-being.

Reporting on this Strategic Focus Area covers two goals:

- ✓ **GOAL 1:** Reduce immediate risks to health during heatwaves and high heat days
- ✓ **GOAL 2:** Proactively reduce heat impacts on the city through urban greening

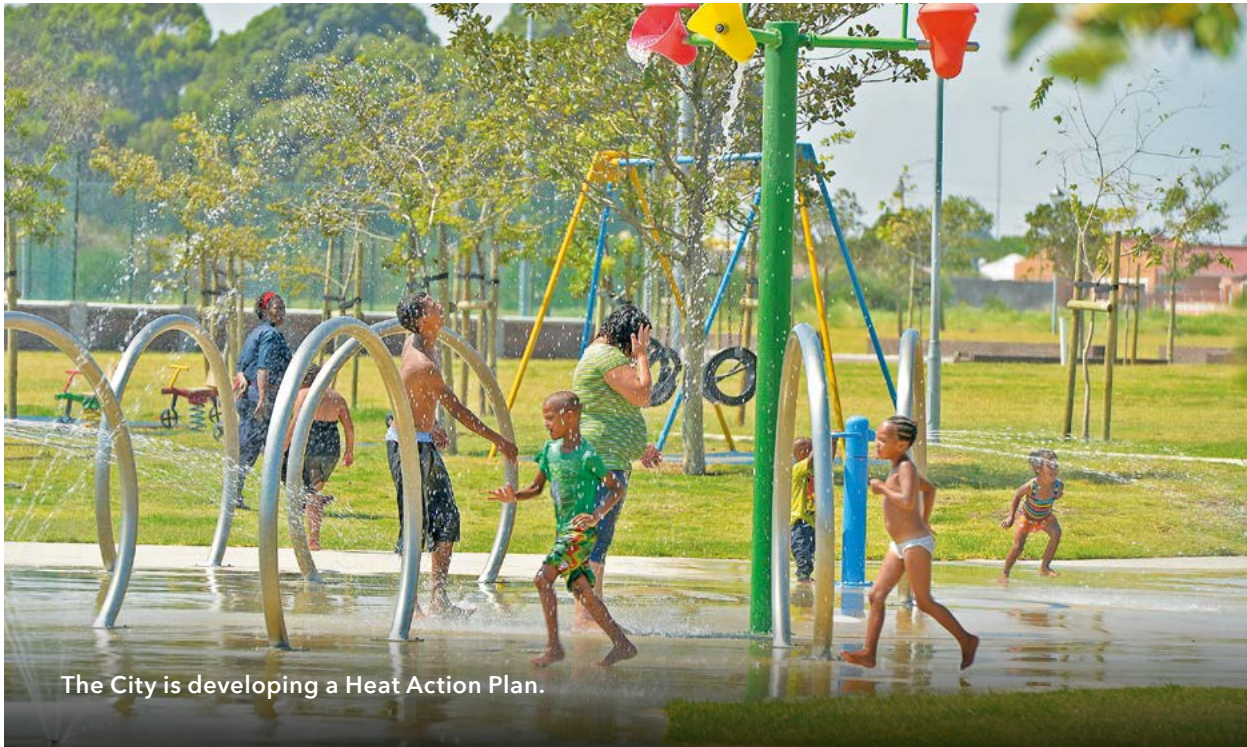
PROGRESS DURING 2022/23

Work areas contributing to urban cooling and heat response in the city continued to advance during 2022/23. The finalisation and approval of the Urban Forest Policy during the reporting year is one of the key developments that will guide tree management and decision-making regarding tree planning. This will contribute to reaching the City's urban forest goals and ultimately improve urban greening.

The policy prioritises a transversal approach to tree planting and management, and highlights the value of trees in creating a more liveable city, and configuring to climate change adaptation, mitigation and resilience. To support the effective management of the urban forest, the City is currently piloting a Mobile Tree Collector Application which forms part of the ArcGIS Collector Mobile Solutions. This GIS mobile application aims to improve tree information management, tree risk assessments, tree planting and maintenance, and to increase public engagement.



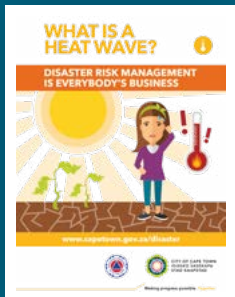
Tree planting initiatives continued to be implemented across the city during the reporting year, with the overall objective of increasing tree canopy cover, increasing shade and reducing the urban heat island effect. These initiatives include greening low-income areas, engaging in numerous smaller public partnerships for project implementation at the neighbourhood level and implementing greening projects as part of a partnership with ICLEI (Local Governments for Sustainability). During the reporting year, 64% of the trees issued were in bag sizes of 100 litres and above, which contributed to greater impact in terms of the shade created wherever the trees were planted, in addition to improving tree survival rates.



During 2022/23, the development of the Heatwave and High Heat Day Action Plan also continued, including consultation with key City departments, international experts on extreme heat planning and response implementation, and online engagements with representatives of officials in C40 cities who are leading heat responsiveness in their respective cities. The plan will undergo final consultation during the first half of 2023/24, and will then be submitted to the relevant authority for approval.

Initial scoping of actions in the plan was also initiated, including exploring the development of a communication campaign, initial discussions on establishing heat health thresholds for Cape Town and engaging in discussions with officials from the City of Austin in Texas, in order to learn from their experience in running a cooling centre programme.

Finally, work was initiated on the drafting and publication of 'Urban Green', which will be the third publication planned for the series of Green Infrastructure Programme (GIP) Best Practice Guidelines. The guideline will include key topics such as neighbourhood-level greening, establishing a green roof or roof garden, establishing a green wall or vertical garden, protecting and enhancing the city's Biodiversity Network and network of green assets, and planting trees to maintain and enhance the urban forest.



See here for the City's heat wave information booklet:

https://resource.capetown.gov.za/documentcentre/Documents/Graphics%20and%20educational%20material/3.1_Heatwave_Leaflet_ENGL%20-%20FINAL.pdf

In addition, the City's Green Infrastructure Network (GINet) continued to be a tool to inform planning towards urban greening. In 2022/23, the GINet was included as an informant in the approved Metropolitan Spatial Development Framework (MSDF) and the District Spatial Development Frameworks and Environmental Management Frameworks (DSDFs/EMFs), and incorporated as a spatial layer on the City's CityMap Viewer.

PROGRESS INDICATORS

GOAL 1: Reduce immediate risks to health during heatwaves and high heat days

Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Reduced risks to health during heatwave and high heat days	Number of real-time heat-monitoring network sensors operating	0	0	0
	Date of approval of most recent Heatwave and High Heat Action Plan	New indicator	Action plan has been drafted as of 30 June 2022 but has not yet been approved	Action plan has been drafted and consulted as of 30 June 2023 but has not yet been approved

GOAL 2: Proactively reduce heat impacts on the city through urban greening

Medium-term outcome	Indicator name	Baseline	Target	Update as of 30 June 2022	Update as of 30 June 2023
Reduced heat impacts on the city through urban greening	Number of trees planted in line with Urban Forestry Plan	2 414 (2020/21)	2 000	2 582	2 334

STRATEGIC FOCUS AREA 2: DROUGHT READINESS

OVERVIEW

Drought remains a significant risk for Cape Town, as climate change projections show strong indications of a hotter and drier future. Consequently, drought readiness programmes are a key pillar of the City's climate change response work, and account for the majority of the City's capital budget spending on climate resilience.

Reporting on this Strategic Focus Area covers two goals:

- ✓ **GOAL 3:** Reduce demand for water to protect water resources and ensure sustainability of supply
- ✓ **GOAL 4:** Work to augment and increase water supplies to achieve 99,5% assurance of supply

PROGRESS DURING 2022/23

Implementation of the City's water demand management programmes continued during the year under review. Water demand management measures have been in place in Cape Town since the early 2000s, and significant gains in the implementation of water demand management infrastructure and technology were made during the 2015–2018 drought period.

Pressure management and zone metering remains one of the most effective tools that the City has to manage water demand effectively. This allows the City to supply water at a pressure that minimises leaks, reduce water pressure during drought periods in order to reduce overall demand and monitor zones to detect unusually excessive consumption that may indicate major leaks or pipe bursts. During the 2022/23 financial year, an additional four district metered areas (DMAs) and seven pressure management zones (PMZs) were established. These include Sacks Circle DMA, Montague Gardens DMA, Mount Rhodes PMZ, Bridgewater PMZ, Penhill PMZ, Triangle DMA, Summer Greens PMZ, Killarney Gardens DMA, Kenridge PMZ, Hout Bay (Baviaanskloof PMZ) and Hout Bay (Scottsville PMZ). The PMZ coverage now sits at approximately 71% and 12 new zones were designed for implementation in 2023/24.

Maintenance of water infrastructure is another key part of the water demand management programme in order to prevent water loss due to damaged infrastructure. During 2022/23, 6 346 km of water distribution networks were surveyed for leaks by visual means and listening sticks, resulting in a saving of approximately 4,5 ML per day. In addition, the treated effluent reuse programme continued to be implemented, with 6,56% of treated effluent being reused in the 2022/23 financial year, equating to an annual volume of 1 361,5 ML per day.

In the year under review, 492 Expanded Public Works Programme (EPWP) job opportunities were also created across 49 suburbs related to water demand management education and communication. Awareness-raising efforts were carried out in 13 high-consumption affluent suburbs, and pamphlets, brochures, booklets distributed to 166 848 residential households. Awareness raising was also conducted for 804 new homeowners and 230 schools.

Work also continued on the implementation of the City's new Water Programme. The programme includes a number of different interventions aimed at increasing water resilience, including desalination, groundwater use and recharge, water reuse and invasive species management.



Water demand management education and communication.

A number of significant projects moved forward in both the planning and implementations aspects of this programme. Work areas that are in advanced planning stages include desalination, water reuse and surface water augmentation. The City is in the process of entering into a water supply agreement with the national Department of Water and Sanitation for the Berg River to Voëlvlei Augmentation Scheme, which aims to deliver water by 2026. In 2022/23, the City also completed a study investigating the possibility of diverting excess winter water from the Lourens River, which has now been identified as part of the longer-term adaptable programme.

During 2022/2023, a revised area of the Port Industrial Park (PIP site) close to the Cape Town Harbour was made available for the establishment of the desalination plant. A supplementary feasibility study, completed in December 2022, showed that a more cost-effective desalination plant of 70 MLD capacity could be constructed on the revised site. A feasibility study was conducted at Witsands, showing that a plant with a capacity of between 60 and 180 MLD was feasible. Considering the advantages and disadvantages of both the Port Industrial Park and Witsands proposed desalination sites, the City decided to move ahead at the PIP site and an Environmental Impact Assessment (EIA) was initiated for the site in May 2023, expected to conclude in late 2024.

In order to support the desalination programme, in 2021/22 the Water Research Commission was appointed to facilitate and manage an expert independent advisory panel to review all feasibility reports and to make recommendations, which continued during 2022/23. In 2022/23, the Government Technical Advisory Centre appointed a transaction advisor to assist with evaluating the feasibility reports and to advise on the most effective and efficient project procurement and delivery method. This process will continue during 2023/24.

Work to further develop water reuse projects continues in 2022/23. Detailed design on the Faure New Water Scheme was completed; however, the project was delayed by six months to accommodate the extensive public participation process. It is anticipated that the documentation phase of the design will be completed during 2023/24. In addition, the water use licence for the Faure New Water Scheme has been submitted to the national Department of Water and Sanitation and has been approved; amendments to the licence will be submitted in the following year. Phase 4 of the stakeholder engagement and public consultation process commenced in 2022/23, including a public campaign for water reuse which launched in September 2023. As part of the new Water Programme's adaptable projects, a citywide Water Reuse Study – investigating reuse options beyond 2035 – is under way and earmarked for completion by the end of 2023.

The development of groundwater infrastructure continued in 2022/23, and included the commencement of the drilling of three production boreholes at the Table Mountain Group Aquifer and the equipping of one borehole. Construction of electrical upgrades and an acid dilution system for the Atlantis aquifer and the drilling of a monitoring, exploration and production borehole at the Atlantis aquifer were completed during 2022/23; the equipping of 17 boreholes also commenced. Four wellfields on the Cape Flats aquifer are currently under development and construction of various supporting infrastructure for these wellfields continued during 2022/23, including the continued construction of the recharge treatment works.

The City has also undertaken studies during 2022/23 that consider the feasibility of hydropower at its different plants and will look to implement or upgrade where appropriate, as part of a programme of supporting resilience to load-shedding and reducing the carbon footprint of the water and sanitation function.



The development of groundwater infrastructure continued in 2022/23.



Water infrastructure maintenance and investment is a key priority in Cape Town's climate resilience goals.



High altitude alien clearing.

Finally, invasive species clearing in key catchment areas and aquifer recharge areas is a key tool for increasing water supply by reducing the amount of water lost to water-intensive invasive tree species. Between April 2019 and June 2023, 43 191 hectares of invasive species were cleared as part of the invasive species removal programme of the Greater Cape Town Water Fund (GCTWF) (both within and outside the boundaries of the city), including 29 822 hectares of initial clearing and 13 369 hectares of follow-up. Together, this has resulted in 13,8 billion litres per year, or 38 ML per day, being made available for use. During 2022/23, 8 948 hectares were also cleared in the City of Cape Town's priority sub-catchments, exceeding the initial target of 7 870 ha.

PROGRESS INDICATORS

GOAL 3: Reduce demand for water to protect water resources and ensure sustainability of supply

Medium-term outcome	Indicator name	Baseline	Target	Update as of 30 June 2022	Update as of 30 June 2023
Reduced water demand	Total per capita consumption of water (litres per capita per day)	136,2 litres per capita daily (June 2020) 149,9 litres per capita daily (June 2021)	190 litres per capita daily	150 litres per capita daily	160,5 litres per capita daily. An increase has occurred following the low levels achieved during the drought. However, this remains well below the target.

GOAL 4: Work to augment and increase water supplies to achieve 99,5% assurance of supply

Medium-term outcome	Indicator name	Target	Update as of 30 June 2022	Update as of 30 June 2023
Increased water supply to achieve target of 99,5% assurance of supply	Total augmented water capacity in mega litres per day (MLD)	20 MLD (2022/23)	The maximum yield of the Table Mountain Group Aquifer is 18,4 MLD, with sustainable yield at 15 MLD. Invasive species clearing has added 31 MLD to the supply system.	A total of 23,923 MLD has been achieved by end of 2022/23 quarter 4. The maximum yield of the Table Mountain Group Aquifer is 18,4 MLD, with sustainable yield at 15 MLD. Invasive species clearing has added 5,52 MLD to the supply system.

STRATEGIC FOCUS AREA 3: WATER SENSITIVITY, FLOOD READINESS AND STORM MANAGEMENT

OVERVIEW

Although Cape Town is projected to experience a hotter and drier future, flooding will remain a risk, particularly during intense rain events which are projected to continue to occur into the future and possibly increasing in intensity over time. Programmes that address flood risk will therefore continue to be implemented alongside drought readiness programmes, with a particular focus on improving catchment management through green and hybrid infrastructure solutions which also support a water-sensitive city approach. During 2022/23, the city experienced above average rainfall at levels last seen in around 2011, accompanied by unusually cold temperatures. At the same time, significant summer rainfall occurred due to the presence of several cut-off low systems, with intense rainfall occurring in December 2022 and March 2023,²⁷ causing flooding throughout the Western Cape. The past season's rainfall highlights the significant variability of Cape Town's climate, and emphasises the need for flood risk management and planning to take place alongside water-resilience planning.

Reporting on this Strategic Focus Area covers two goals:

- ✓ **GOAL 5:** Proactively reduce flood risk through the implementation of a water-sensitive city strategy or plan
- ✓ **GOAL 6:** Take action to reduce flood risk and storm damage through disaster mitigation approaches

PROGRESS DURING 2021/22

During 2022/23, this work area continued to achieve progress, particularly regarding the Liveable Urban Waterways Programme. This programme aims to restore and rehabilitate waterways in Cape Town, with a focus on transforming poor quality waterways into dignified open spaces that provide recreational spaces for local communities, restoring ecological functions and reducing flood risk. Five projects in the Sand River catchment completed the concept design phase, including three co-design workshops, and progressed into the detailed design phase. The Vygekraal River corridor upgrade project was also added to the programme in early 2023, and this project is now in the concept design phase, with one co-design workshop having been completed.

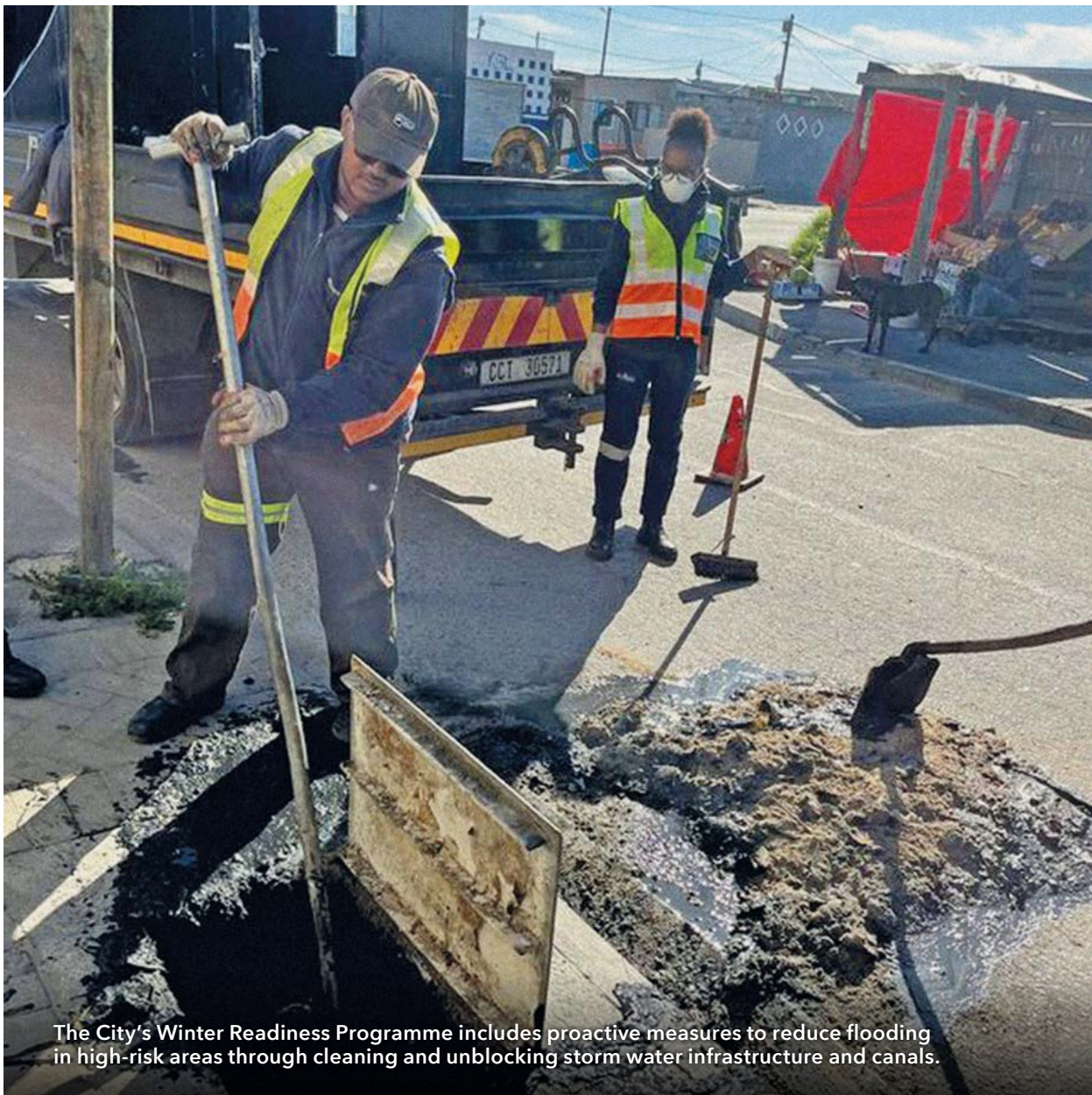
The C40 Cities Finance Facility (CFF)-supported project looking at green infrastructure options for improved waterway and catchment management commenced in 2022/23. A significant amount of work was completed, including the appointment of a senior project advisor, the drafting and advertising of the specialist studies terms of reference, the evaluation of tenders, the appointment of consultants and the official ceremonial launch of the cooperation. A compendium of case studies related to Liveable Urban Waterways (LUW) was published and copies were distributed to key role players. Material was produced for the City website, and the digital version of the case studies will be available on the website in the 2023/24 financial year.

Planning for the initiation of a comprehensive stormwater master planning process has commenced, including revised flood line determination, risk assessments and an assessment of the feasibility of developing early warning systems for flooding. This work will commence in 2023/24 as part of a longer-term eight-to-ten-year process that will eventually cover all of the City's catchments. However, the development of a water-sensitive City strategy or plan is currently paused, following the completion of a benchmarking exercise in 2021/22, owing to a shift in priorities towards the implementation of the Mayor's Priority Programme on Water Quality. Looking ahead, the City will seek technical assistance from international partners in order to support the further development of this work area.



The City's Liveable Urban Waterways Programme aims to restore and rehabilitate waterways in Cape Town.

Implementation of the City's Winter Readiness Programme continued as usual, including proactive measures to reduce flooding in high-risk areas through cleaning and unblocking storm water infrastructure and canals. During the heavy rainfall in June and the consequent flooding across the city, the Winter Readiness Task Team coordinated vital response and mitigation measures in areas most affected. This included providing over 5 000 flood kits, relocating 500 families to higher ground and coordinating the provision of humanitarian relief to more than 6 000 people. As a result of damage caused by the flooding, the Disaster Risk Management Centre, in collaboration with the Provincial Disaster Management Centre, coordinated a financial assessment of the damaged road infrastructure across the city in order to apply for funding for repairs through the provincial government. Other key areas of work included the Water Demand Unit and the Winter Readiness Task Team initiating the development of the Integrated Flood Standard Operating Procedure that will guide responses by relevant departments so as to maintain consistency.



The City's Winter Readiness Programme includes proactive measures to reduce flooding in high-risk areas through cleaning and unblocking storm water infrastructure and canals.

PROGRESS INDICATORS

GOAL 5: Proactively reduce flood risk through the implementation of a water-sensitive city strategy or plan				
Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Reduced flood risk through implementation of flood alleviation projects identified by catchment, stormwater and river management plans	Number of catchment forums established	0 (2021/22)	One formal catchment forum is in place (Hout Bay) and one more is in the process of being established (Diep River). Various Friends groups and Protected Area Advisory Committees are in place, which partially perform some roles of catchment forums.	Five forums are currently in place. During the 2022/23 FY, four forums were established: Wildevölvlei, Sand River and Lourens River, and the Diep River Estuary Management Forum. Three forums will be established during 2023/24, including the Diep River and Zeekoe Catchment.
	Length of waterways rehabilitated or restored in the previous financial year	380 m (2021/22)	2021/22 FY – 380 m completed	2022/23 FY – 1 180 m completed

GOAL 6: Take action to reduce flood risk and storm damage through disaster mitigation approaches				
Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Reduced flood and storm damage through disaster mitigation approaches	Number of formal and informal structures affected by flooding during the previous financial year*	14 931 (2021/22)	14 931	10 668**

* This number is affected by the intensity and frequency of severe weather events and may vary greatly from year to year.

** During 2022/23, only one high-impact rainfall event was experienced, in June 2023, resulting in a smaller number of total structures affected compared to 2021/22. During 2021/22, several smaller rainfall events were experienced in different areas across the city that had an impact on both informal and formal structures.

STRATEGIC FOCUS AREA 4: COASTAL MANAGEMENT AND RESILIENCE

OVERVIEW

Cape Town's coastline is a valuable asset to the city's economy, tourism and recreation. The impacts of climate change-induced pressures (such as sea-level rise, storm surges and coastal erosion) combined with human-induced pressures (such as urban development close to the coastline) have already started to compromise the natural dynamic functions and state of the coast and its coastal ecosystems.

Reporting on this Strategic Focus Area covers two goals:

- ✓ **GOAL 7:** Promote coastal resilience to the benefit of both coastal communities and coastal ecosystems
- ✓ **GOAL 8:** Put in place effective cooperative and empowering mechanisms for addressing complex coastal management issues in the context of climate change

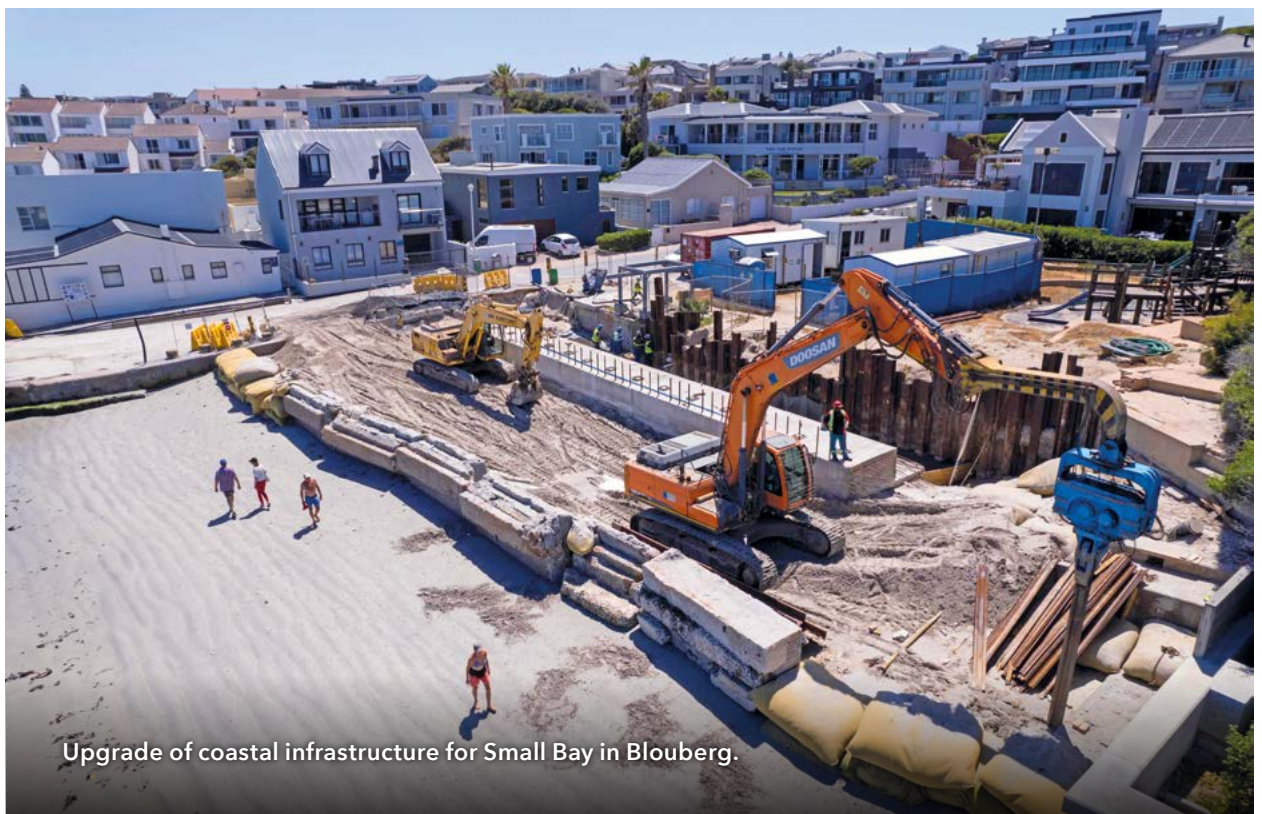
PROGRESS DURING 2022/23

During 2022/23, the City continued to implement and enforce its regulatory frameworks, consisting of the City of Cape Town's Coastal By-law, the City's Coastal Management Line (CML) and the Coastal Edge. A key development in the coastal regulatory environment of the City was the finalisation of the Urban Development and Coastal Edge Review that was part of the mandatory ten-year review of the MSDF and DSDF. Following the outcome of the review, and as per Council resolution, the Coastal Edge and CML will be amended at two locations along Cape Town's coastline. The City's Coastal Management branch has therefore initiated an engagement process with the Department of Environmental Affairs and Development Planning.

During the reporting year, the Coastal Management Branch initiated the development of a Coastal Risk and Vulnerability Study. The study will be conducted by City staff, and aims to provide a framework from which to improve the strategic planning surrounding the City's coastal assets. The next phase, following the outcome of the vulnerability assessment, will be the prioritisation of interventions based on the vulnerability of specific coastal nodes and assets by taking into account socioeconomic benefits and opportunities, project complexities, capacity and budget.

The Coastal Management Branch continued to plan for and implement coastal defence measures along high-risk areas across the city, including dune rehabilitation projects. Dune systems in the city continue to be managed according to the City's Dune and Beach Maintenance Management Plan, and major dune rehabilitation projects are currently under way in several coastal areas including Table View, Fish Hoek, Gordon's Bay and Glencairn. Dune rehabilitation in Table View commenced in July 2022, including the re-profiling and stabilisation of 3 km of dunes with specialised wind netting (totalling 162 000 cubic metres of sand), and the propagation of approximately 400 000 plants for planting during 2023. Since the installation of the wind netting, windblown sand onto the main road and surrounding infrastructure has reduced considerably and a number of other benefits have been realised, including improved sea views and enhanced experiences for recreational users.

In addition, coastal repairs, maintenance and upgrade work continues to be planned and implemented across various locations. Examples of the work being undertaken include the upgrade of coastal infrastructure for Small Bay in Blouberg, which consists of the construction of a seawall, road repairs and the relocation of the sewer line. In addition, a detailed condition assessment that was completed during August 2022 found that it



was essential to undertake proactive repair works to specific portions of the Sea Point sea wall, which will be undertaken in two phases planned for the 2023/24 and 2024/25 financial years. Progress on the Muizenberg Beachfront upgrade included the incorporation of public comments in the preliminary design, with a detailed design planned for between January and October 2023.

To ensure that coastal management decision-making is based on the best available evidence, the City conducted and initiated studies that will also be critical to inform development proposals along the City's coastline. These include undertaking studies for wave and sediment dynamics, overtopping and wave reflection studies to inform the design of the Muizenberg Beachfront upgrade. A similar study was undertaken to inform the proposed Strandfontein Nodal Development Framework, which aims to guide the development of the existing pavilion area, resort and surrounds into the Strandfontein Urban Node. The framework proposes the inclusion of residential and retail opportunities, recreational facilities inclusive of a picnic area and walkways, a public space for hosting markets and the rehabilitation of the natural environment through stabilising the dune area, reinstating the riverbed and raising the tidal pool wall.

Finally, during 2022/23, an application was made to the Infrastructure Investment Programme for South Africa for research to support long-term coastal decision-making in relation to climate change. This research, if approved, would include the development of an updated sea-level rise and extreme wave run-up model for the City of Cape Town, consisting of a citywide assessment of sea-level rise, extreme wave run-up levels and coastal erosion risk for the present day, mid-future and far future periods. The study would also include the development of a pipeline of coastal resilience infrastructure projects, including green infrastructure, 'grey infrastructure and a hybrid approach combining both green and grey infrastructure'. The outcomes of the application process were not finalised during 2022/23, and it is anticipated that a decision will be made in 2023/24.

PROGRESS INDICATORS

GOAL 7: Promote coastal resilience to the benefit of both coastal communities and coastal ecosystems					
Medium-term outcome	Indicator name	Baseline	Target	Update as of 30 June 2022	Update as of 30 June 2023
Increased coastal resilience for the benefit of coastal communities and coastal ecosystems	Number of coastal notices issued per year in terms of City's Coastal By-law	3 (2021/22)	N/A	3	12 (2022/23)
	Percentage of coastline with protection measures in place	6,20% (2021/22)	6,27%*	6,20%	6,20%

* The intention is not to exceed the target of 6,27%. In doing so, this implies more infrastructure is being located in risk areas, requiring more protection. This would be indicative of poor decision-making.

GOAL 8: Put in place effective cooperative and empowering mechanisms for addressing complex coastal management issues in the context of climate change

Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Effective cooperative and empowering mechanisms are in place to address complex coastal management issues related to climate change	Proportion of quarterly provincial coastal committee meetings attended (% of meetings held) per year	100%	100%	100%

STRATEGIC FOCUS AREA 5: MANAGING FIRE RISK AND RESPONSIVENESS

OVERVIEW

Fire poses a risk to both the natural environment and communities living at the urban or natural interface and in informal settlements. Climate change that leads to increased hot, dry and windy conditions – all of which are projected to increase in both the mid and far future – increases the risk of intense wildfires. Although the link between informal settlement fires and climate factors is less clear, there is evidence that strong winds – prevalent in Cape Town’s summer months – have the potential to significantly exacerbate the spread of informal dwelling fires.

Reporting on this Strategic Focus Area covers one goal:

- ✓ **GOAL 9:** Proactively reduce fire risk and the impact of fires on communities and natural areas

PROGRESS DURING 2022/23

Weather-related events had a noteworthy impact on planning and implementation of measures to reduce the risk and impacts of fires on communities and natural areas during the reporting year. Slight increases in both vegetation and residential fires across the city were observed during October 2022 to January 2023, which were likely caused by very hot and windy weather conditions, in addition to possible contributions due to the impacts of load-shedding. In contrast, as a result of earlier and heavier rainfall experienced across Cape Town during February and April 2023, only one planned ecological burn could be implemented during the reporting year.

During 2022/23, various activities continued to be implemented in support of reducing the risk of urban fires and the impact of these fires on communities. These activities included the Fire and Rescue Service’s Fire Life Safety section conducting ongoing public safety education programmes for businesses, religious institutions, informal settlements, schools and senior citizen care facilities, in addition to the roll-out of a public information campaign on radio and in community newspapers. The Disaster Risk Management Centre



The City launched a fire mitigation pilot project which coated 300 informal structures in Overcome Heights in a fire-retardant substance.



The City undertakes ongoing planning for ecological burns and alien-clearing activities to reduce wildfire risk and the impact of wildfires.



also continued to implement the Fire Wise Programme, which reached 90 schools and provided fire safety guidance and awareness to residents in 22 high-risk informal settlements.

In order to address the risk of fires caused by load-shedding mitigation measures – such as generators, lithium-ion batteries and building with a solar installation – the Fire and Rescue Services initiated a process to integrate responding to fires caused by load-shedding mitigation infrastructure into incident management plans. During the reporting year, the DRMC also launched a fire mitigation pilot project in Overcome Heights informal settlement. The project aims to help limit the spread of fire and minimise the risk of injury, death and damage to infrastructure, property and the environment by coating 300 informal structures in a fire-retardant substance.

During 2022/23, various measures were implemented to reduce wildfire risk and the impact of wildfires. These include ongoing planning for ecological burns and alien-clearing activities. However, only one planned ecological burn was implemented in the Blaauwberg Nature Reserve, due to the onset of earlier and heavier than expected rainfall during the months planned for burns. All other planned ecological burns will be carried over to the 2023/24 season.

Fire and Rescue Services also forms a key part of the festive season safety planning, which requires increased preparedness and defences. Resources utilised and programmes implemented during the festive season period (2022/23) include aerial support, seasonal resources and firefighters, and ongoing partnerships with agencies that focus on fighting wildfires, such as partnerships with Table Mountain National Park and its affiliates, assistance from the City's Disaster Risk Management Volunteer Corps and Mutual Aid Agreements with neighbouring municipalities.



In addition, the Fire and Rescue Services continued responding and preparing for both urban fires and wildfires through activities such as maintaining predetermined response plans, ongoing maintenance and servicing fire hydrants, enlarging the department's fleet to include additional fire engines, water tankers, skid units, rescue and aerial vehicles, and the employment of 109 seasonal firefighters to ensure an effective response during the peak wildfire season.

Finally, work began on the implementation of affordable and safe energy solutions for low-income and informal households includes the finalisation of the procurement process for a survey of households' and communities' perceptions of alternative energy services, which will commence during 2023/24. Various advances were also made towards investigating options for the provision of a Free Basic Alternative Electricity subsidy, including the finalisation of the project concept and costing model for the provision of the subsidy. In addition, the City is partnering with the South African National Energy Development Institute (SANEDI) to investigate options for a suitable vending system for the delivery of the proposed Free Basic Alternative Energy (FBAE) token to qualifying residents.

Awareness programmes focusing on energy use in low-income and informal households also continued to be implemented during the reporting year. These include awareness sessions under the Let's ACT at Home and the Smart Living programmes which include training on smart cooking, home safety and basic sustainability concepts related to energy, water, waste and the environment. The programmes reached various audiences including schools, women, cooks at early childhood development centres (ECDC), urban agriculture groups, food kitchens and new homeowners.

PROGRESS INDICATOR

GOAL 9: Proactively reduce fire risk and the impact of fires on communities and natural areas				
Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Reduced fire risks and impacts on communities and natural areas	Number of dwellings in informal settlements affected by structural fires annually	1 968 informal dwellings affected (2021/22)	1 968 informal dwellings affected	6 324 informal dwellings affected*

* The increase in the number of informal structures destroyed is largely due to one major fire incident spreading to and affecting multiple structures. As an example, during 2022/23, nine fire incidents (from the over 3 000 informal structure fire incidents responded to) resulted in over 900 informal structures being destroyed.

STRATEGIC FOCUS AREA 6: SPATIAL AND RESOURCE INCLUSIVITY

OVERVIEW

Spatial planning has been identified as a key mechanism for implementing both the adaptation and the mitigation programmes. A compact, efficient and accessible urban form supports reduced transport emissions and offers the opportunity to put in place measures to increase urban resilience, while promoting access to economic opportunities.

Reporting on this Strategic Focus Area covers two goals:

- ✓ **GOAL 10:** Densify mass transit routes through mixed-use developments that support public transport and include social housing
- ✓ **GOAL 11:** Ensure low-income residents are climate resilient and have equitable access to essential services

PROGRESS DURING 2022/23

A number of different work areas progressed during the year under review. Most significantly, the revised MSDF and DSDFs were approved by Council in January 2023 and gazetted in March 2023. These revised frameworks included further consideration of climate change risk. Work was also initiated, and is currently under way, to gazette the DSDFs as Environmental Management Plans under NEMA (the National Environmental Management Act), as well as to declare and gazette the Urban Development Edge and Coastal Development Edge.

An investigation into the nature, scope, benefits and applicability of an Incentive Overlay Zone (IOZ) commenced. The purpose of the IOZ is to influence the rate and location of development activity in pursuit of a desired built form – as articulated by the City’s spatial frameworks – in development focus areas (DFAs). This process will continue into 2023/24. In addition, the implementation of parking reduction ratios in areas well served by public transport continued (known as PT areas); proposed maps underwent public comment and were subsequently implemented. This process allows applicants to benefit from fast-tracked administrative processes for deviations from parking requirements and therefore support transit-oriented development.

An urban sustainability pilot project has also been initiated, under the heading ‘Potsdam Sustainability Campus’. The vision of this project is to create a City-owned ‘living lab’ for experimentation with a wide range of sustainable practices, materials and technologies to physically demonstrate the positive impacts of various innovative approaches coupled with integrated design-thinking. This cross-departmental/governmental learning environment will highlight how a sustainable and transversal approach can help the City to achieve the SDGs and climate action targets. The project aims to inform citywide policies, planning and projects while also addressing local area needs in the north of the city, particularly Dunoon, the adjacent economic corridor, and Table Nature Reserve and Diep River.

Progress continued to be made in the City’s portfolio of catalytic precinct projects. Although each precinct is currently at a different stage of progression, during 2022/23 the focus of the programme shifted from master planning – which is now substantially in place – to focus on project packaging and enablement of a pipeline of projects. This will ensure that projects are ready for implementation by the City, other public sector partners or to be released to the private sector for implementation. These precincts include the Bellville CBD,

Foreshore Gateway precinct, Philippi Opportunity Area, Diep River station precinct, Athlone CBD, Claremont CBD and the four sites involved in the C40 Reinventing Cities initiative.

During the year under review, progress was also made on inclusionary housing. The development of an Affordable Housing Policy – an amalgamation of two existing policy development processes (the Social Housing Policy and the Inclusionary Housing Policy) – has been initiated. This will support the implementation of the Mayoral Priority Programme on Land Release for Affordable Housing.

In addition, several key achievements in the Land Release for Affordable Housing programme took place, most notably the release of four land parcels that were taken to the market, yielding 3 431 residential opportunities. Council also approved a set of guidelines for the determination of reduction in price – against market value – with respect to proposed disposals of City-owned land for combined housing developments.

Finally, during the year under review, work was initiated that considered approaches for promoting energy security for backyard dwellers. In conjunction with the Resilient Cities Network, a workshop and consultation was held which focused on sharing knowledge and experiences between key stakeholders and prioritising and aligning government stakeholders' roles and responsibilities for the proposed solutions. Possible solutions that were workshopped included increasing resilience at a household level through the extension of the FBAE subsidy, and the development of a load-shedding-resilient community hub that would provide supplementary energy access. These ideas will be further refined and investigated in 2023/24.

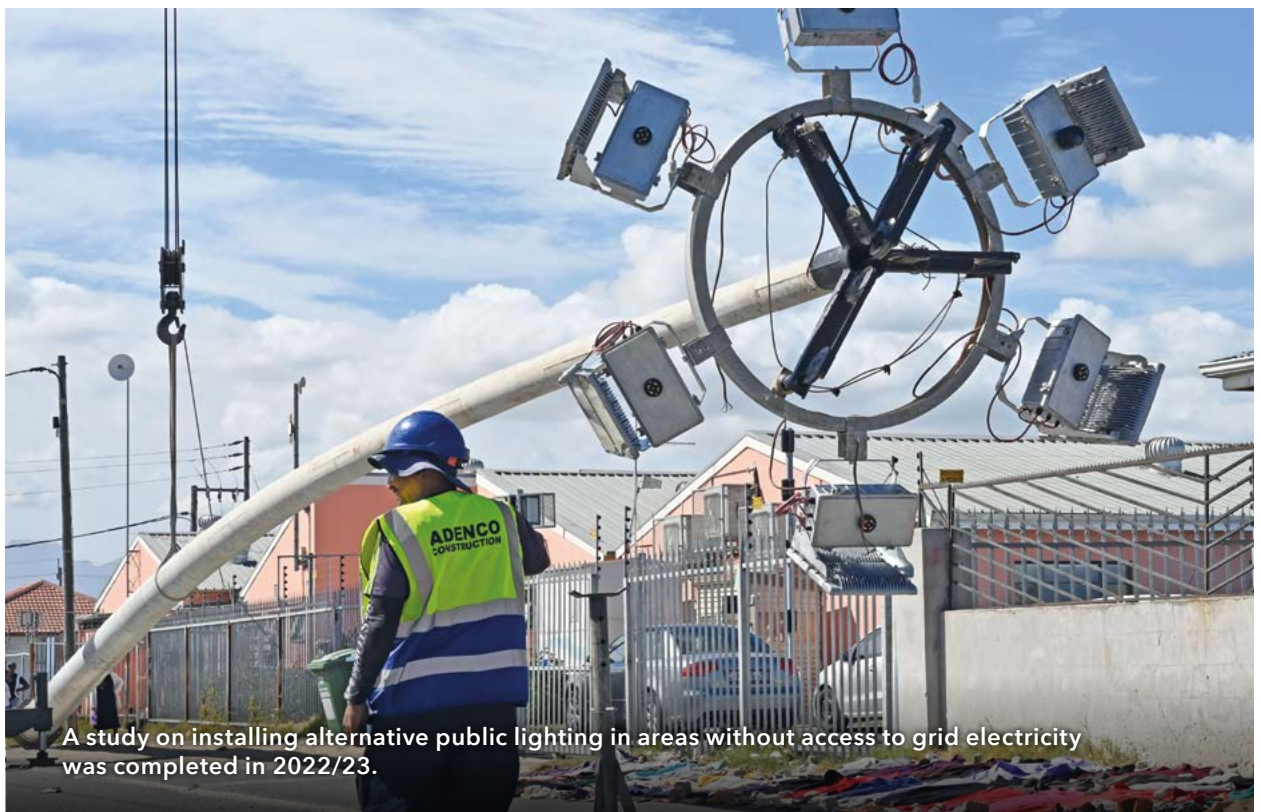
A study on alternative public lighting was also completed by GreenCape in 2022/23, focusing on areas without access to grid electricity. The study found that solar-powered lighting, although having a higher initial cost, would have the most benefits in terms of both job creation and quality of the service. GreenCape will further develop this work in 2023/24, including the design of a pilot study and the development of financial and maintenance plans.

PROGRESS INDICATOR

As of 2022, it has not been possible to devise a suitable indicator to report on goal 10 due to limitations in data availability. Indicator development will take place over the next one to two years in conjunction with the relevant department and will be reported on in future versions of this report.

GOAL 11: Ensure low-income residents are climate resilient and have equitable access to essential services				
Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Improved climate resilience and access to essential services for low-income residents	Percentage of households living in informal dwellings	18,6% (2020)	16,6 % (2021)	16,7 % (2022)*

* General Household Survey 2022



STRATEGIC FOCUS AREA 7: CARBON-NEUTRAL ENERGY FOR WORK CREATION AND ECONOMIC DEVELOPMENT

OVERVIEW

Energy diversification to enhance security of supply for economic growth is one of the key programmes under the City's Mayoral Priority Programme and in the current Integrated Development Plan (2022-2027). Making Cape Town's energy system more resilient and better able to deliver reliable, affordable and carbon-neutral energy is critical for the economic growth needed in order for more Capetonians to participate meaningfully in the economy and for their families to prosper.

Over the reporting year, the City of Cape Town has developed a draft Energy Strategy to provide a framework for navigating the rapidly transforming energy landscape to the benefit of residents and businesses in the short, medium and long term. The Energy Strategy takes a 2050 view with key priorities and programmes implemented in a three-phased approach to enable and drive change in the energy system over time, with the long-term vision of transforming the energy system to be carbon neutral (by 2050).

Reporting on this Strategic Focus Area covers three goals:

- ✓ **GOAL 12:** Move as quickly as prices and opportunities allow towards 100% clean electricity supply by 2050
- ✓ **GOAL 13:** Get technologically and commercially ready to operate the metropolitan distribution grid of the future
- ✓ **GOAL 14:** Minimise the economic cost of energy transition through maximising energy efficiency and developing a regional value chain for carbon-neutral molecular fuels

PROGRESS DURING 2022/23

The 2022/23 reporting year has seen continued progress of actions towards these goals. The City's increasing focus on achieving energy security in response to the ongoing national energy crisis has led to decisive steps to implement its energy diversification programme through initiatives such as the City's renewable energy own-build projects, SSEG programme, wheeling pilot and independent power producer (IPP) programmes. Since the development of the CCAP, significant changes have been announced at a national level to alleviate policy blockages and constraints and unlock new generation in the electricity sector. The City's current efforts on this relates to addressing challenges associated with the procurement from small-scale embedded generators and surpluses from wheeling customers.

A notable highlight has been the issuing of a second (dispatchable) IPP tender in April 2023 to procure 500 MW from IPPs, which will be key in mitigating load-shedding and diversifying Cape Town's energy supply. The City is still in the evaluation phase of the embedded IPP Programme (200 MW), with Cost Estimate Letters^{iv} having been issued to bidders. Other larger own-build activities include the Atlantis 7 MW solar photovoltaic (PV) facility, for which the engineering, procurement and construction tender was re-advertised.

^{iv} This is the cost of connecting an IPP to the grid.



The City's own-build energy generation activities include the development of the Atlantis 7 MW solar photovoltaic (PV) facility.

This will be followed by a second solar PV plant in Paardevlei, Somerset West, which could yield between 30 and 50 MW; this project is moving into the feasibility phase with support from the C40 Cities Finance Facility and GIZ^v for the required specialist studies. The Battery Energy Storage System (BESS) Roadmap, which was under development over the reporting year, has informed the selection of pilot sites, subject to techno-economic analysis to be conducted in the 2023/24 financial year.

A three-year 25 c/kWh incentive on the feed-in (export) tariff for SSEG customers aims to stimulate the installation industry and the energy resilience of small businesses in particular. The City also continued initiatives to promote the uptake of SSEG in the form of awareness campaigns on SSEG systems and the process of registration, SSEG webpages, an SSEG 'Newsflash' newsletter for installers and SSEG installer events. An online application system for registering and authorising SSEG is also in development at the time of reporting. The City has in the meantime been rolling out SSEG systems at municipal facilities; the tender to enable the procurement of these systems at three sites, totalling 1,56 MW, was awarded and installation has commenced. The City's wheeling pilot that includes 25 generators, 40 customers and a proposed total of 355 MW to be wheeled is ongoing and currently at the agreement signing stage.

The roll-out of City campaigns aimed at promoting energy efficiency, such as the Electricity Savings Campaign and the Energy Water and Waste Forum have also continued - these are detailed in reporting on Strategic Focus Area 8 (Buildings) and Cross-cutting Work Area 4 (Communication). The process of developing a 'Power Heroes' programme is ongoing and aims to not only encourage demand flexibility in industry, but also support the overall reduction of load through energy efficiency in all sectors to take the pressure off the national grid.

^v The German Development Cooperation agency, Gesellschaft für Internationale Zusammenarbeit.

Efforts to strengthen the City's energy planning work during the reporting year included the completion of various studies and modelling exercises. Examples include two least-cost optimisation electricity capacity expansion studies: Electricity Pathways for Cape Town study 1, which modelled long-term energy mix scenarios; and study 2, focusing on the energy security problem posed by load-shedding. A study funded by the International Finance Corporation (IFC) on load-shedding response options using a dispatch model provided a valuable addition to this evidence base. The Energy Strategy, which will guide decision-making for the future energy system in Cape Town, also progressed to the public participation process and is currently in the final drafting phase.

Load-shedding is accelerating private and public investment in local generation and storage. Continued load-shedding of the severity seen during the reporting year may even lead to embedded renewables with capacity approaching the minimum system load and supported by utility-scale storage in the near to medium-term future. This variable renewable energy resource combined with the surpluses from wheeling contracts and rapidly increasing SSEG are one of the factors driving the need for transition of the utility to a distribution system operator (DSO), supplied directly by transmission grid connections and embedded generation. This DSO will undertake local grid management, optimising supply and demand balance including the efficient utilisation of renewables, peak demand and ramp management, and other ancillary services on the local grid. This has led to much effort and investment in an advanced distribution management system (ADMS) and the highly detailed GIS-linked asset master data required to support it.

PROGRESS INDICATORS

GOAL 12: Move as quickly as prices and opportunities allow towards 100% clean electricity supply by 2050					
Medium-term outcome	Indicator name	Baseline	Target	Update as of 30 June 2022	Update as of 30 June 2023
More accessible and affordable clean energy that constitutes an increasing share of the City's electricity supply	Share of City-enabled renewable energy of the total electrical energy supplied to the City's distribution grid	0,08% (2020)	7% (2030)	0,08% (2020)*	0,13% (2021)*

GOAL 13: Get technologically and commercially ready to operate the metropolitan distribution grid of the future				
Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Increased resilience of the City electricity utility business while maintaining grid reliability in the face of transitioning disruption	Total capacity of approved, grid-tied and commissioned SSEG installations	60,7 MVA (total end 2020/21)	80,2 MVA	107,8 MVA



Mayor Geordin Hill-Lewis engaging solar industry stakeholders on SSEG application systems.



The City is rolling out SSEG systems at municipal facilities.

GOAL 14: Minimise the economic cost of energy transition through maximising energy efficiency and developing a regional value chain for carbon-neutral molecular fuels

Medium-term outcome	Indicator name	Baseline	Target	Update as of 30 June 2022	Update as of 30 June 2023
More energy-efficient Cape Town economy that enables energy data transparency and carbon-neutral products	Electricity intensity of the city's economic output	19,7 kWh electricity supplied/thou (2021 ZAR real GDP 2018)	15 (2030)	19,7 kWh electricity supplied/thou (2021 ZAR real GDP 2018)*	15,2 kWh electricity supplied/thou (2021 ZAR real GDP 2018)**
	Number of energy data sets on City's Open Data Portal	16 (2022)	30 (2025)	16*	20

* Baseline data provided as progress as this reporting is happening in the same year that the indicator was developed. Updated 2022/23.

** Residual Covid-19 effect for 2021.

STRATEGIC FOCUS AREA 8: ZERO-EMISSION BUILDINGS AND PRECINCTS

OVERVIEW

The use of energy across commercial, municipal and residential buildings makes up the largest total contribution to GHG emissions in Cape Town. The City is committed to accelerating transformative climate action in the built environment – demonstrated through the net-zero carbon buildings goals embedded in the Climate Change Strategy and Action Plan. These commitments require net-zero carbon in operation for all new buildings on a citywide basis by 2030 and the pursuit of net-zero carbon for all existing buildings by 2050. To lead by example, the City has also committed to ensuring that – for its own operations – all new facilities are net-zero carbon in operation by 2030, and – to the extent that this is possible – to achieve the same for existing facilities.

Reporting on Strategic Focus Area covers three goals:

- ✓ **Goal 15:** All new buildings (residential, commercial and municipal) to be net-zero carbon by 2030
- ✓ **Goal 16:** All existing residential and commercial buildings to be retrofitted with energy-efficient technologies to be net-zero carbon in operation by 2050
- ✓ **Goal 17:** All existing municipal buildings (excluding industrial plants) to be net-zero carbon by 2030

PROGRESS DURING 2022/23

Key developments in pursuing net-zero carbon private buildings include the promulgation of edition two of SANS 10400-XA, which significantly increases the energy efficiency ambition of national building regulations. This shifts the focus away from the need for city-specific regulations towards supporting compliance with national regulation.

During the reporting year, all building control officers and plans examiners across the City's eight planning districts were trained in the updated SANS 10400-XA standard; additional training opportunities are continually being identified as a way of supporting greater compliance at the planning application stage. A study is under way to understand the current level of compliance with national building regulations and to determine where further input is required to enable buildings that are more efficient. Recommendations will be made as to how to improve ongoing enforcement and monitoring of regulations and to address any challenges or barriers to compliance. There is also continued internal support through the provision of technical expertise and assistance to City departments for new building and precinct catalytic projects regarding how they can incorporate net-zero carbon principles.

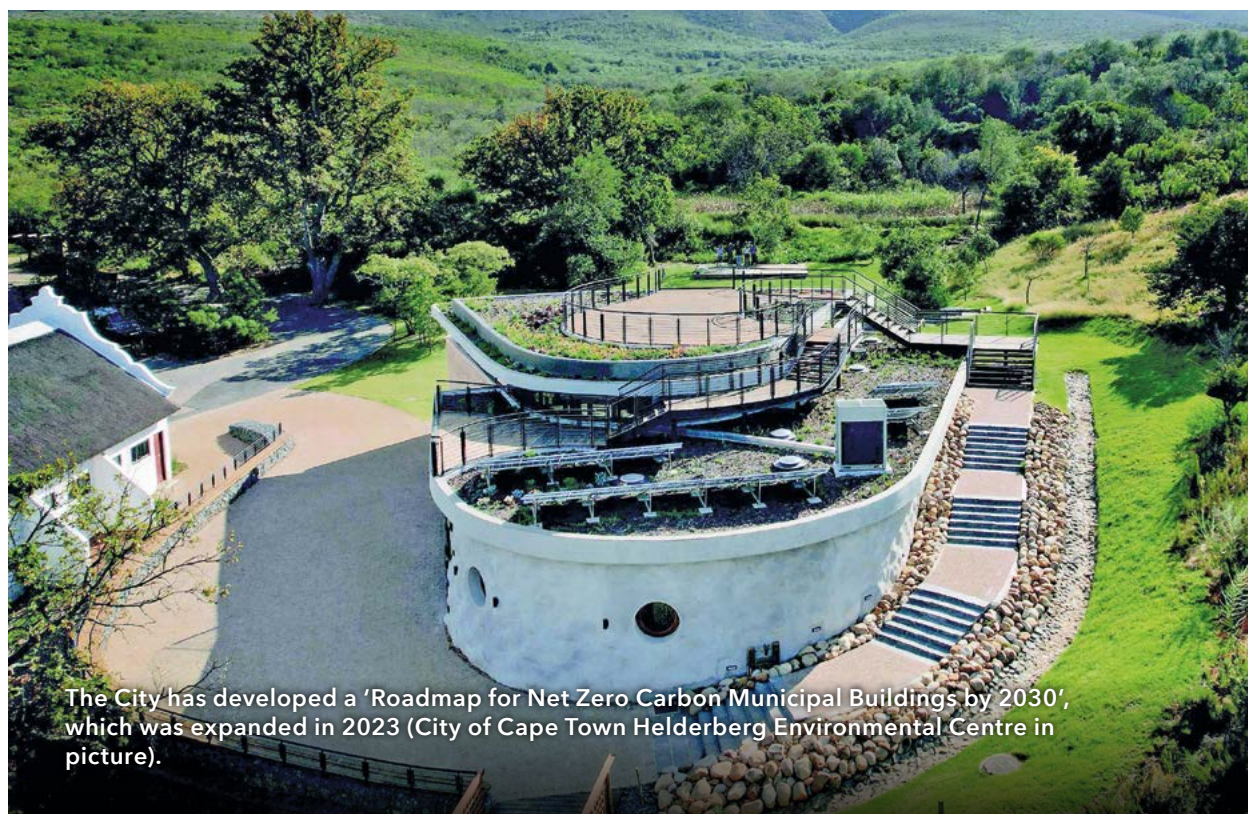
In terms of low-income communities, over the past several years, various measures have been incorporated into the design and delivery of state-subsidised housing in order to address sustainability and climate resilience. These include the provision of ceilings and insulation in order to ensure improved thermal comfort and efficiency, the installation of water management devices to promote water efficiency and improved orientation of buildings to maximise daylighting and reduce the impacts of heat. During 2023, an amendment was made to the housing subsidy quantum (approved by the national Department of Human Settlements), which allows for an amount of R20 300 for the provision of a 500 W solar system for each housing unit.



Key developments in pursuing net-zero carbon private buildings include the significantly increased energy efficiency ambition of national building regulations.



City of Cape Town Energy, Water and Waste Forum.



The City has developed a 'Roadmap for Net Zero Carbon Municipal Buildings by 2030', which was expanded in 2023 (City of Cape Town Helderberg Environmental Centre in picture).

The principle and specifications still need to be clarified with the provincial government in order to better understand the implementation of this new provision within the City. There is also an increasingly strong focus on the development of social housing in close proximity to transport nodes.

The City takes a holistic and system-wide approach in terms of more broadly facilitating and encouraging the uptake of energy efficiency and renewable energy property upgrades, which involves various projects described in SFA 7 to move towards increasing energy security and decarbonising the grid. In addition, the City continues to engage with property and energy market stakeholders and has implemented various awareness-raising initiatives during the reporting year. These include the ongoing hosting of the Energy, Water and Waste (EWW) Forum events, the activations of My Clean Green Home (Cape Town's first net-zero carbon home exhibition), the Let's ACT at Home exhibition at the Cape Town Building Centre, making available the Smart Home Disclosure form on City's website (which includes an interactive digital checklist), the dissemination and display of the Smart Office posters at City facilities, the development and distribution of SSEG information booklets and newsletters, SSEG installer events and much more.

Obtaining existing building energy data from external parties remains a challenge, and the City recognises the need to gain more insight into and understanding of existing building energy usage as well as levers that can influence change with existing building owners. Market and legislative drivers like private sector-led voluntary net-zero carbon commitments, financial incentives such as sustainability or EDGE-certified linked loans and load-shedding mitigation measures are currently supporting this goal.

In the municipal buildings space, the City continues to implement energy efficiency retrofits and has expanded the scope to include lighting systems and split-unit air conditioning systems. A total of 35 buildings underwent lighting retrofits with LED and occupancy sensors in 2022/23, which adds up to a total of 142 retrofitted buildings as of June 2023. Energy audits are ongoing and SmartFacility continues to be utilised for building performance monitoring and management.

A key focus area of the municipal buildings programme over the reporting year is the City's work towards issuing Energy Performance Certificates (EPCs) – a national building regulation which requires public buildings that meet the criteria (certain occupancies and larger than 1 000 m²) to have an EPC publicly displayed. The City of Cape Town is leading the country in EPC compliance by holding the most EPCs (69) for any public or private property portfolio – 44 of these were issued during 2022/23. The set up and management of an EPC forum, made up of representatives from the different directorates, was successful in the implementation of EPCs across the city. The engagement process significantly raised awareness of the role of energy efficiency and awareness of the City's net-zero goals for municipal assets among facility managers. EPCs are an important stepping stone towards the goal of net-zero carbon buildings because they pave the way for data collection and benchmarking.

Finally, a 'Roadmap for Net Zero Carbon Municipal Buildings by 2030', developed in 2022 and expanded in 2023, continues to drive work in in this area. The pathways to net-zero are well understood, with the drive being the implementation of extensive energy efficiency followed by the use of off-site renewables. Further work is required on monitoring energy efficiency and progress towards establishing greater efficiencies across the portfolio of assets. Significant work is under way in developing City-owned renewable generation projects to offset the City's operations (see SFA 7 for more detail) and procuring embedded solar PV for municipal buildings, with installation commencing at the time of reporting. During the year in review, the City received support from external assistance programmes run by the C40 Cities Finance Facility and IFC, to support the municipal net-zero carbon programme.

PROGRESS INDICATORS

GOAL 15: All new buildings (residential, commercial and municipal) to be net-zero carbon by 2030				
Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
All new buildings (residential, commercial) are designed and constructed to be net-zero carbon by 2030	Percentage of City of Cape Town building control officers, planners and examiners trained and capacitated on the SANS 10400: XA (2021) 2nd edition regulations	New indicator	0% (RFQ being developed post-June 2022)	100% of building control officers, planners and examiners have undergone training on SANS 10400: XA (2021) 2nd edition
	Improving data collection of building energy efficiency	New indicator	Investigations into data availability underway	Compliance study underway of 501 buildings to determine level of compliance of buildings plans with XA across all eight districts; study includes process case studies that address data collection and ongoing compliance



The City of Cape Town is leading the country in Energy Performance Certificates (EPC) compliance by holding the most EPCs for any public or private property portfolio.

GOAL 16: All existing residential and commercial buildings to be retrofitted with energy-efficient technologies to be net-zero carbon in operation by 2050

Medium-term outcome	Indicator name	Baseline	Update as of June 2022	Update as of 30 June 2023
More enabled residential and commercial sectors to achieve net-zero carbon building compliance through incentives, guidelines and disclosure	Total number of approved grid-tied installations commissioned (legalised) for the residential and commercial sectors	1 698 (residential = 1 349, commercial = 349)	2 487 (residential = 2 033, commercial = 453)	4 072 (residential = 3 509, commercial and industrial = 568)

GOAL 17: All existing municipal buildings (excluding industrial plants) to be net-zero carbon by 2030

Medium-term outcome	Indicator name	Baseline	Target	Update as of June 2022	Update as of 30 June 2023
All existing and new municipal buildings (excluding industrial plants and utilities) are retrofitted or designed and constructed to be net-zero carbon by 2030	Annual measured and verified electricity savings from energy efficiency projects in municipal operations	2020/21 savings target serves as baseline: 1 200 000 kWh	Savings target 2022/23: 1 600 000 kWh	1 625 270 kWh	1 784 112 kWh
	Share of zero-carbon electrical energy used by City-owned or leased buildings for public sector service and administrative function purposes	1%	100% (2030)	1%	1% (2021)

STRATEGIC FOCUS AREA 9: MOBILITY FOR QUALITY OF LIFE AND LIVELIHOODS

OVERVIEW

In recent years, the transport sector has consumed roughly half of the total energy used in Cape Town. Fossil fuels used by internal combustion engines are the second-biggest source of the city's emissions (after electricity consumption), contributing significantly to Cape Town's carbon footprint and local air pollution. It is also a net drain on the economy and exposes the local economy to volatile crude oil prices. The goals within this Strategic Focus Area focus on achieving a system of mobility in Cape Town that is not only carbon neutral but also enables an improved quality of life and livelihoods.

Reporting on this Strategic Focus Area covers the following four goals:

- ✓ **GOAL 18:** Through the City's role as the transport planning authority as well as the contracting authority for bus rapid transport (BRT) services, support the restoration, rehabilitation and expansion of the rail system to a carrying capacity of 30% above 2010 levels by 2030, and put in place a contingency for alternative mass transit infrastructure in the event that the rail system does not recover or ceases to be functional altogether
- ✓ **GOAL 19:** Integrate transport modes to improve efficiency and fast-track a modal shift from passenger kilometres by private vehicles to other modes (decreasing from 58% in 2016 to 23% in 2050)
- ✓ **GOAL 20:** Prepare for a scenario of complete transition to electric or alternative fuel-powered freight, bus, taxi and passenger vehicles by 2050
- ✓ **GOAL 21:** Develop and maintain indicators for GHG and local air pollutants from the transport sector, both citywide and for city operations, ensuring that they inform City transport planning, procurement and regulation

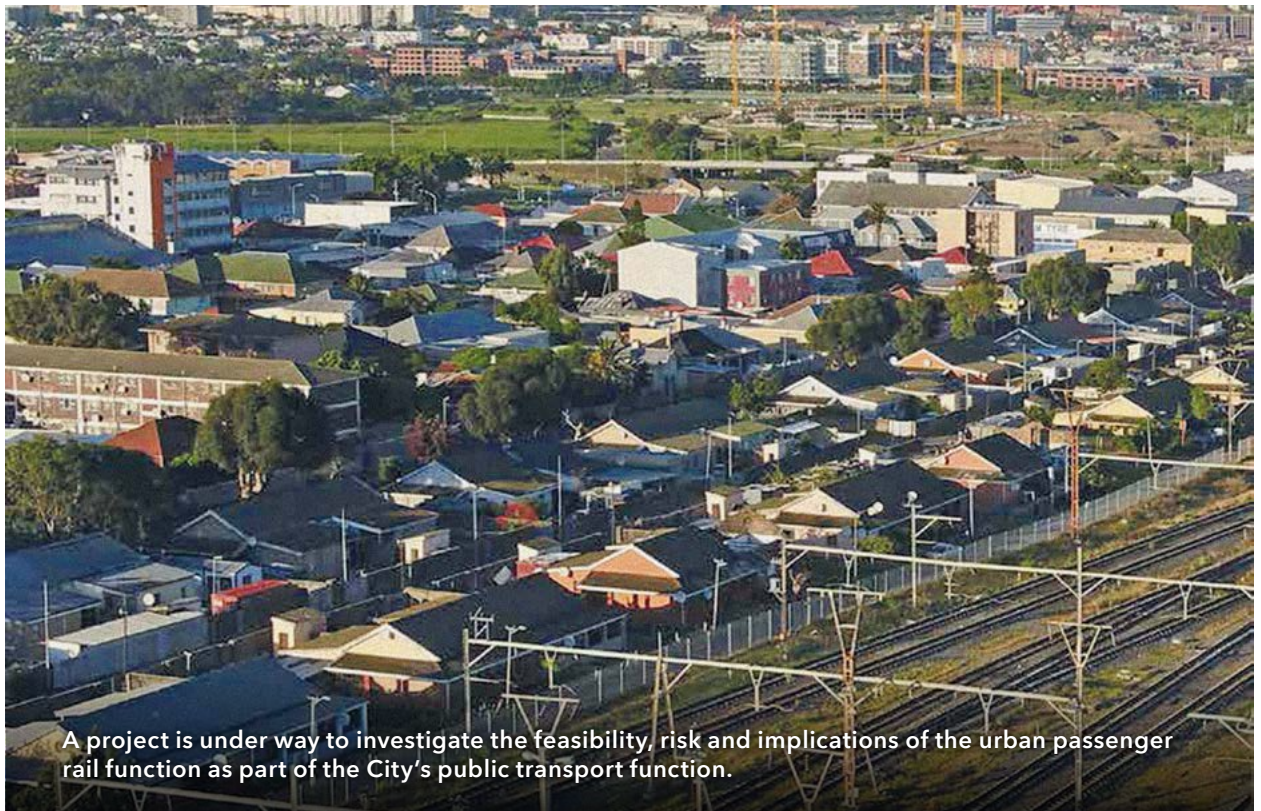
PROGRESS DURING 2022/23

During the year in review, the City completed the process to update its Comprehensive Integrated Transport Plan (CITP). The new CITP 2023–2028 sets out the plan towards the delivery of an integrated, intermodal and interoperable transport system and its related road and rail network. It aligns with the City's current Integrated Development Plan and the Municipal Spatial Development Framework.

The update and review of the Integrated Public Transport Network (IPTN) 2032 Plan also commenced in 2022/23. The new approach embraces critical uncertainties, including future scenarios where the provision of rail does not occur, with other modes addressing travel needs. The IPTN review also intends to include a more explicit focus on the importance of non-motorised transport (NMT). The Implementation Plan will consider incrementalism and approaches for incrementally increasing public transport efficiencies and therefore attractiveness.



During the year in review, the City completed the update of its Comprehensive Integrated Transport Plan (CITP 2023-2028).



A project is under way to investigate the feasibility, risk and implications of the urban passenger rail function as part of the City's public transport function.



The City rolls out a NMT planning and infrastructure programme on an annual basis.

Meanwhile, in the context of the ongoing sharp decline of passenger rail in Cape Town (and across South Africa), the City continues to explore and pursue the devolution of the rail service. A project is under way to investigate the feasibility, risk and implications of the urban passenger rail function as part of the City's public transport function. By the end of 2022/23, the first deliverable of the project, the Inception Report, was completed; and the second deliverable, the Rail Baseline Report, was under way. Furthermore, engagements with PRASA and relevant rail stakeholders are ongoing through relevant committees. Progress has also been made towards obtaining buy-in for the reinstatement of the Rail Enforcement Unit.

During the year in review, five new top priorities were identified as part of a prioritisation process of a study on congestion management to identify road sections where public transport users are affected most by congestion and to identify associated improvement interventions. The City's 'Future of Work' Programme, which included the development of remote and hybrid working guidelines for the City as an organisation, remains in place. The intention is to engage other large organisations to encourage the promotion of similar programmes citywide and share lessons learnt.

Strategic planning and implementation of the NMT implementation programme is ongoing and infrastructure projects in progress or completed in the 2022/23 reporting year include NMT facilities in Grassy Park and pedestrian facilities in various low-income areas. The development of the NMT Prioritisation Project is currently under way and the drafting of new NMT Strategy commenced in March 2023.

The City's planning and enabling work in transitioning to electric or alternative fuel-powered transport has continued to steadily progress over the reporting year. Following the feasibility study on alternative energy and zero-emissions bus technologies to inform future procurement decisions of MyCiTi buses (as reported on in 2021/22), an inter-directorate committee was established to unpack the financial implications of an electric bus fleet. It is anticipated that the next Multi-Year Financial Operational Plan and Medium Term Strategic Business Plan for Public Transport (MYFIN) will provide a definitive value of cost. In parallel, the City's corporate fleet Electric Vehicle (EV) Pilot Programme concluded at the end of the last reporting period. This was followed by an analysis, in partnership with GreenCape, of the data of the pilot project, including the financial benefits, the vehicle performance and if it was fit for purpose for the application it was utilised for within the City. The outcomes of the study will be consulted on further within the City for guidance on future considerations for transitioning to a zero- and/or low-emissions City fleet.



The City monitors the data of two solar powered public EV charging stations at municipal buildings.

The City also continues to collect and monitor the data of the two solar-powered public EV charging stations at municipal buildings. The stations employ the City's web-based SmartFacility data application/dashboard to collect data on charger use and customer behaviour, and to track and show the system's energy consumption in near real time. Since the project's first installation in December 2020 (until June 2023), the two EV chargers provided 33 700 km of emission-free driving that translates to just over 6 tCO₂e savings, while any excess solar energy has been consumed by the buildings.

The City, in collaboration with GreenCape and relevant EV task team stakeholders, has continued its citywide EV uptake-enabling activities. External multi-stakeholder engagements were conducted through the agency of the EV Task team (now chaired by the Western Cape Government), with national and local government, the local and international private sector and government agencies to discuss and create awareness of EV policies, strategies, and barriers and opportunities in the industry. The City is also in the process of exploring an approach for the integration of its first draft EV Framework into relevant strategic policy.

Finally, transport emission data management and improvement progress include the ongoing annual calculation of relevant emissions of the Urban Mobility Directorate. The analysis was done using the Enterprise Performance and Carbon Management (EPCAM) carbon footprint model and planning is under way to initiate a scoping process on the integration of the EPCAM model with other City data models, in close collaboration with other City key stakeholders.

PROGRESS INDICATORS

GOAL 18: Through the City's role as the transport planning authority as well as the contracting authority for bus rapid transport (BRT) services, support the restoration, rehabilitation and expansion of the rail system to a carrying capacity of 30% above 2010 levels by 2030, and put in place a contingency for alternative mass transit infrastructure in the event that the rail system does not recover or ceases to be functional altogether

Medium-term outcome	Indicator name	Baseline	Target	Update as of 30 June 2022	Update as of 30 June 2023
Rail system carrying capacity restored to 30% above 2010 levels by 2030 and contingency plans for alternative mass transit infrastructure developed	Modal split between private, public transport and walking by main mode to work	58% : 33% : 9%	N/A	58% : 33% : 9%	58% : 33% : 9%
	Provision of professional services to undertake an investigation enabling the City of Cape Town to support the restoration and sustainability of passenger rail services that align with the City's Comprehensive Integrated Transport Plan	New indicator in SDBIP	Phase 2: Baseline assessment of the City's rail system - 60% complete (2022/23)	The MOA for this contract was signed by both parties and the service provider was appointed	Phase 2: Baseline assessment of the City's rail system - 86% complete (2022/23)

GOAL 19: Integrate transport modes to improve efficiency and fast-track a modal shift from passenger kilometres by private vehicles to other modes (decreasing from 58% in 2016 to 23% in 2050)

Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Public transport share (including NMT) is maintained or increased	Modal split between private, public transport and NMT by main mode (weighted average of work and education combined)	45% : 29% : 26%	45% : 29% : 26%	45% : 29% : 26%
	Length of NMT paths built on an annual basis*	29,8 km (2020/21)	22,4 km	11,2 km

* The number of NMT kilometres constructed is derived from the sum of the lengths of the footways, cycle paths and shared facilities to be constructed, measured in terms of actual progress reported on the latest approved construction programmes. Note that projects in the NMT programme are procured and executed in phases depending on budget availability and that the length delivered per year varies depending on the phase of the project delivery cycle.

GOAL 20: Prepare for a scenario of complete transition to electric or alternative fuel-powered freight, bus, taxi and passenger vehicles by 2050

Medium-term outcome	Indicator name	Baseline	Target	Update as of 30 June 2022	Update as of 30 June 2022
Increased proportion of electric or alternative fuel-powered freight, bus, taxi, City fleet and passenger vehicles	Percentage of MyCiTi fleet which is low emissions*	0%	N/A	0%	0%
	Number of multi-stakeholder engagements to grow the e-Mobility ecosystem in the Western Cape	3 per annum	3 per annum	4	3

* Tracks the percentage of the City's MyCiTi (bus rapid transit service) buses that are electric or alternative fuel-powered.

GOAL 21: Develop and maintain indicators for GHGs and local air pollutants from the transport sector, both citywide and for city operations, ensuring that they inform City transport planning, procurement and regulation

Medium-term outcome	Indicator name	Baseline	Update as of June 2022	Update as of 30 June 2023
Improved climate change and air quality metrics for the transport sector are developed and adopted	Climate change and air quality metrics for the transport sector developed*	N/A	Carbon footprint developed as follows: 2018 = 35 220 tCO ₂ e 2019 = 36 306 tCO ₂ e 2020 = 29 948 tCO ₂ e	Urban mobility annual carbon footprint calculation: 32 041 tCO ₂ e (2021 data) Environmental index: Not yet developed

* This indicator assesses if a baseline carbon footprint measurement assessment and action plan for the Urban Mobility Directorate has been produced, updated and integrated, and if an environmental index (including air quality) has been developed to supplement the UDI.

STRATEGIC FOCUS AREA 10: CIRCULAR WASTE ECONOMY

OVERVIEW

The City recognises that landfilled organic waste is not only a contaminant of other potentially recoverable materials in the waste system, but is also a significant source of methane emissions in Cape Town, which has historically resulted in the waste sector being responsible for 10-11% of Cape Town's citywide GHG emissions. Furthermore, the organic waste resulting in this GHG contribution needs to be considered as part of the larger transition to a circular waste economy as a shared responsibility and in conjunction with supporting measures to reduce the disposal of any material to landfill. Many of the actions within this Strategic Focus Area aim to increase the understanding of the costs and benefits of – and resources required for – this transition, and to strengthen the evidence base and technical capacity.

Reporting on this Strategic Focus Area covers four goals focused on gaining economic benefits from waste and reducing its environmental impact:

- ✓ **GOAL 22:** Develop and implement an integrated waste management strategy that is financially feasible, and maximises material efficiency by prioritising waste avoidance, reduction, treatment and recycling in line with national targets
- ✓ **GOAL 23:** Reduce organic waste disposal to landfill (in line with Provincial Integrated Waste Management Plan targets) by 50% by 2022 and 100% from 2027 through better waste separation, treatment and utilisation
- ✓ **GOAL 24:** Increase diversion of recyclables from disposal to landfill by 40% by 2025, 55% by 2030, >70% by 2035 and 85% by 2050 through improved collection, waste separation and providing support to informal workers
- ✓ **GOAL 25:** Reduce the climate and environmental impact of waste disposal and wastewater treatment facilities by increasing biogas and landfill gas collection efficiency, treatment and utilisation

Achieving these goals, aligned with stringent national and ambitious provincial diversion targets, will require partnering with communities, business and the private sector, and accelerating various programmes.

PROGRESS DURING 2022/23

At a planning and policy level, the City's new Integrated Waste Management Plan (2022/23-2026/27) was adopted by Council in April 2022 and a Waste Strategy development process is under way. Work is also ongoing towards improving the waste management evidence base. An online application system has been implemented by the City for the accreditation of waste service providers and generators, and the continuous improvement of systems and processes to enhance solid waste diversion and disposal data management and reporting is under way.

During the year in review, various pieces of circular economy planning work was ongoing in collaboration with GreenCape. A Circular City Waste Scan, completed for the Urban Waste Management (UWM) Directorate, includes a waste materials flow baseline and a comprehensive list of waste and materials-related activities to consider. The final report, completed during the year in review, includes a shortlist of activities to help indicate investments, policy adjustments, resources and collaboration required for implementation, as well as a high-level cost-benefit analysis. This serves as a useful resource to inform UWM's plans going forward on circular economy approaches.



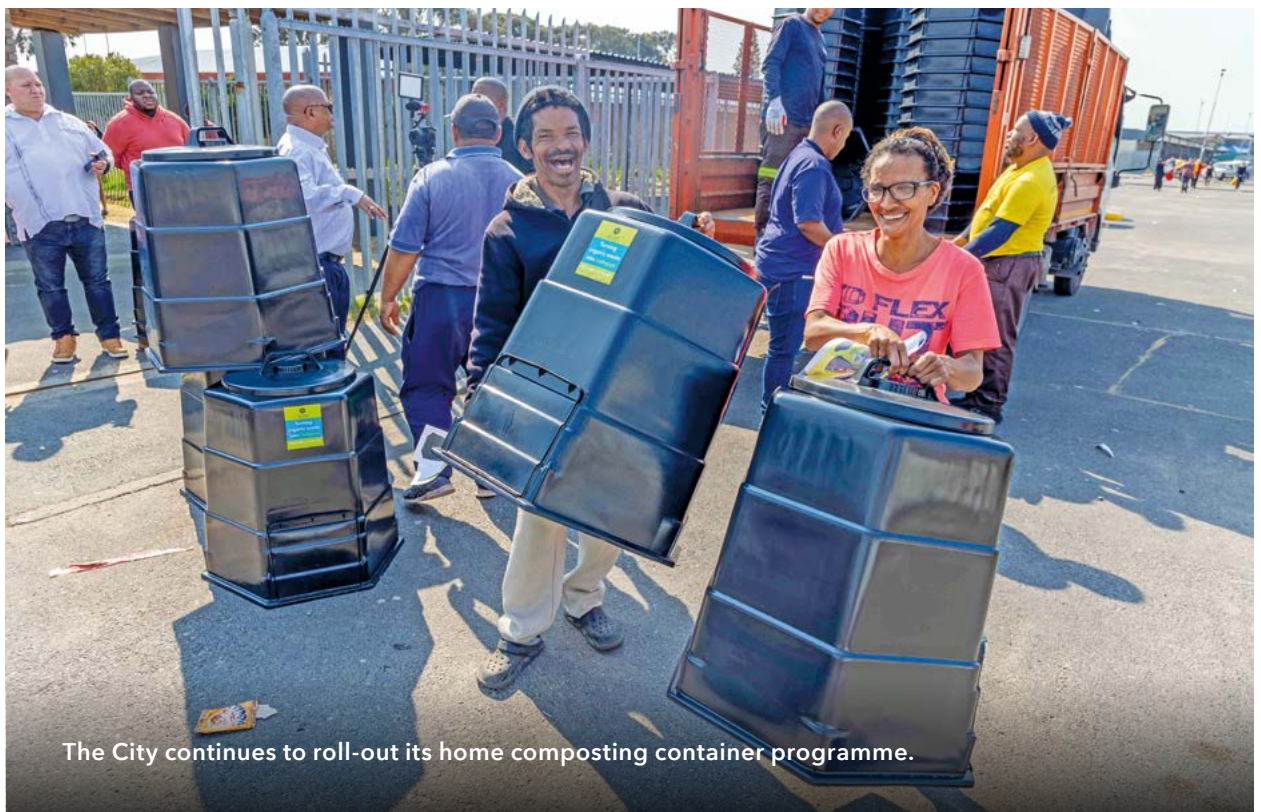
A Circular City Waste Scan report was completed for the Urban Waste Management Directorate during the year in review.

A project is under way to explore the unlocking of opportunities for the beneficiation of organic waste in Cape Town through innovative organic waste beneficiation technologies. Activities during the reporting year included industry events with relevant stakeholders to unpack the opportunities and barriers faced in the organic waste sector as well as an industry brief that outlines the opportunities, enablers, barriers and risks associated with high-value organic waste beneficiation technologies, notably black soldier fly farming and its place in waste beneficiation.

Work under the Western Cape Industrial Symbiosis Programme (WISP) has continued, which focused on one-on-one business engagements in 2022/23, resulting in 137 business engagements, of which the team provided support to 82 SMMEs. In addition, 56 new synergies were initiated through these engagements. The City will also be collaborating with GreenCape in 2023/24 to expand the activities of their Circular Economy Sector Desk to direct more focused attention to textile waste, due to growing recognition of the risk profile of the industry, the commitments to localise the clothing and textile industry, and the impact textiles have on landfill security.



The City, in collaboration with GreenCape, is engaging industry to unpack the opportunities and barriers faced in the organic waste sector, including those associated in high-value organic waste beneficiation technologies, notably black soldier fly farming.



The City continues to roll-out its home composting container programme.



Various waste-related awareness-raising and communication programmes are ongoing and included the launch of the City's new litter mascot, 'Bingo', as part of the 'Keep Cape Town Clean' campaign.



Coastal park landfill site - boasting a waste to energy project and the construction of a large material recovery facility.



The City has also initiated a number of programmes and pilots towards increased organic waste diversion. These include the following:

- ✓ Awareness campaigns encouraging organic waste generators to submit integrated waste management plans, including organic waste diversion
- ✓ Garden waste drop-off sites and chipping/composting thereof for reuse by private business
- ✓ Rolling out home composting containers (39 608 to date) to residents across the city, free of charge
- ✓ A number of trials for the diversion of food waste from landfill, with some completed, expanded or discontinued during the reporting year, depending on their feasibility. This includes trials on organic waste separation at source with fruit and vegetable traders and feeding schemes, and the setting up of pop-up food waste drop-off areas
- ✓ Ongoing development and maintenance of a waste recyclers map showing the location and contact details of private drop-off sites and organic waste collectors operating in Cape Town

Various waste-related awareness-raising and communication programmes are ongoing, including clean-up campaigns, drop-off and community exhibitions, collaboration with the My Clean Green Home exhibition activations, accredited training on waste to business, the production of online published postings, booklets (web-published) and the roll-out of the UWM Basket of Waste Services to various communities to provide an opportunity for residents to engage with representatives of the City. The City's litter mascot, 'Bingo', was also produced and introduced during the year in review, as part of the City's 'Keep Cape Town Clean' campaign.

The City also is in the process of planning and designing additional materials recovery facilities, which will enable larger scale expansion of and participation in the Think Twice dry waste collection service by residents. The roll-out of additional facilities is continuing. The new builders' rubble contract for continuous crushing at all sites is currently active and in 2022/23 a total of 203 849 tons of builders' rubble were reused at City landfill sites for cover, sloping and road building. The segregation of recyclables and organics and collection at municipal buildings and facilities requires further engagement to establish appropriate institutional structures and mechanisms for this work as the action relies on the buy-in of multiple departments. The UWM Directorate has initiated discussions with various City directorates running organic waste diversion programmes to encourage them to report on their programme successes and contribute data towards the City's waste diversion target.

Landfill gas infrastructure has been installed at the Bellville, Coastal Park and Vissershok landfill sites. Currently the landfill gas is being flared and the project is generating carbon credits as a registered Clean Development Mechanism project under the Programme of Activities (PoA). Phase 2 of the project focuses on utilising the landfill gas for electricity generation. Progress towards this goal includes the commissioning of a 2 MW engine at Coastal Park landfill in November 2022. Work has continued during 2022/23 on the development of biosolids beneficiation facilities (BBFs). The detail design of the Southern BBF (to be located at the Cape Flats wastewater treatment works) has been completed and split into two phases for implementation to ease budget constraints. Environmental authorisation has been received for the full scope of the project. In addition, a service provider was appointed during 2022/23 to commence a process of consolidating all historical studies relating to the individual BBFs and to provide a review of the current wastewater sludge strategy to ensure it is still applicable, given legislation changes, possible advances in technologies and updated economic and financial considerations.

PROGRESS INDICATORS

GOAL 22: Develop and implement an integrated waste management strategy that is financially feasible, and maximises material efficiency by prioritising waste avoidance, reduction, treatment and recycling in line with national targets				
Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Improved integrated waste management planning and implementation in line with national targets through the development of planning and financial mechanisms based on an improved evidence base	Finalisation of a new City of Cape Town Waste Strategy and annual reporting*	New indicator	Waste Strategy development at 50% (draft framework and action plans)	Waste Strategy Concept Note approved by Mayor. Establishment of drafting team concluded and drafting process under way.

* This indicator measures the percentage completion of the City of Cape Town Waste Strategy, and annual reporting.

GOAL 23: Reduce organic waste disposal to landfill (in line with Provincial Integrated Waste Management Plan targets) by 50% by 2022 and 100% from 2027 through better waste separation, treatment and utilisation

Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Reduced organic waste disposal to landfill in line with relevant provincial and national targets	Organic waste diverted by City programmes as a percentage of organic waste the City handles	26% (excluding wastewater sludge) 42% (including wastewater sludge)	26% (excluding wastewater sludge) 42% (including wastewater sludge)	24% (excluding wastewater sludge) 42% (including wastewater sludge)

GOAL 24: Increase diversion of recyclables from disposal to landfill to 40% by 2025, 55% by 2030, >70% by 2035 and 85% by 2050 through improved collection, waste separation and providing support to informal workers*

Medium-term outcome	Indicator name	Baseline	Target	Update as of 30 June 2022	Update as of 30 June 2023
Increased diversion of recyclables from disposal to landfill through improved collection, waste separation and support to informal workers	Percentage of waste diverted from landfill sites through Council waste-minimisation initiatives	21,34% (362 371 tons) ☒ Organics = 104 535 ☒ Builders' rubble reused = 222 094 ☒ Builders' rubble stockpiled = 434 411 (still to be reused)	14,9% (2022/23)	21,34% (362 371 tons) ☒ Organics = 104 535 ☒ Builders' rubble reused = 222 094 ☒ Builders' rubble stockpiled = 434 411 (still to be reused)	19,16% (317 496 tons) ☒ Organics = 95 091 ☒ Builders' rubble reused = 203 849 ☒ Builders' rubble stockpiled = 416 430 (still to be reused)

* For the purposes of this goal, 'recyclables' refer to any waste stream that can be diverted from landfill for beneficiation in the economy, including recyclable packaging, organic waste and builders' rubble.

GOAL 25: Reduce the climate and environmental impact of waste disposal and wastewater treatment facilities by increasing biogas and landfill gas collection efficiency, treatment and utilisation

Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Increased biogas and landfill gas collection, efficiency, treatment and utilisation	Landfill methane destruction (flaring and waste to energy consumption)	New indicator	☒ 361 287 tCO ₂ eq for Coastal Park landfill ☒ 78 139 tCO ₂ eq for Bellville landfill	Total certified emissions reductions (CERs) to date: ☒ 425 505 tCO ₂ eq for Coastal Park landfill ☒ 117 565 tCO ₂ eq for Bellville landfill
	Number of BFFs installations online	0 BFFs	0 BFFs are currently online as the programme is still in the design phase	0 BFFs currently online. Phase 1 of first BFF in design phase.

CROSS-CUTTING WORK AREA 1: MAINSTREAMING, GOVERNANCE, RESEARCH AND KNOWLEDGE MANAGEMENT

OVERVIEW

Mainstreaming is essential in order to make sure the City's climate change response is not seen as the responsibility of only one or two departments, but rather becomes a shared responsibility across all City departments and functions and is integrated into all relevant strategies, policies and plans.

Reporting on this Cross-cutting Work Area covers two goals:

- ✓ **GOAL 26:** Mainstream climate change responses into key City strategies, policies, processes and plans
- ✓ **GOAL 27:** Conduct and commission climate change-related research and ensure that the City remains up to date with emerging research in the field

PROGRESS DURING 2022/23

During 2022/23, the climate resilience assessment of the City's three-year capital project portfolio and the 10-year capital project portfolio was completed by GreenCape. This assessment examined the capital project portfolio in order to identify projects which are proactively creating resilience through their implementation; the assessment also identified gaps in the portfolio where further project development is required. A guidebook for project managers was also developed by GreenCape so as to support further integration of resilience considerations into programme and project planning in the future.

Work has also continued on mainstreaming climate change considerations into City policy processes. During the year under review, a number of policy instruments have incorporated climate change considerations as part of the development process. These include the following strategies, policies, plans and standard operating procedures (currently in various stages of development): the Energy Strategy, Vlei SOP, Air Quality Management Plan, FBAE Subsidy Policy, Floodplain and River Corridor Management Policy, Environmental Strategy, Fleet Management Strategy, Urban Design Policy, District Plan Reviews, Green Infrastructure Plan, Waste Strategy, and Water Policy.

A high-level review of the City's sector plans during 2022/23 indicated that climate change response has already been integrated to varying degrees. A more comprehensive review process will be conducted in 2023/24, and options for further integration will be explored during this process.

Climate change-related research remains an important focus area for the City. In order to more effectively manage the City's approach to climate change research, the research pipeline was further developed which identified key knowledge gaps related to actions with the CCAP. On the basis of this information, the City will approach key external funding and partner organisations for technical assistance to assist with addressing these research needs. In support of this, work was initiated to convene the Climate Change Response Community of Practice; it is planned that this will be convened during 2023/24, and will focus on knowledge sharing, management, research and mainstreaming.



During 2022/23, a climate resilience assessment of the City's three-year capital project portfolio and the 10-year capital project portfolio was completed.

The Knowledge Transfer Programme (KTP) continues to be implemented in partnership with the UCT African for Cities as per a memorandum of agreement for 2021-2024; this programme focuses on a range of topics, including those related to climate change response. The City's participation in the Cape Higher Education Consortium (CHEC) also continued during 2022/23. A research call was sent out during 2023 based on the critical research themes of the City, including themes related to resilience. A number of applications were received and the projects will be selected for funding support during 2023/24.

The City's online collaboration platform was also re-launched during 2022/23, with a new and improved interface and functionality. During the past year, several online collaboration processes were held in which members of the public as well as City staff were given the opportunity to submit innovative ideas for addressing urban challenges. The main engagement during 2022/23 was the 'Water and Sanitation Innovation Indaba' which focused on innovative solutions to water quality challenges in Cape Town.

Finally, during 2022/23, work continued on implementing activities to enhance the City's climate change data management approach. This involves various improvements to the SmartFacility programme, including improving system documentation and implementing bug fixes. Work took place to develop rate category load curves in order to support improved cost allocation in tariff development. The City also collaborated with the IFC on the development of a renewable energy accounting roadmap.

PROGRESS INDICATORS

GOAL 26: Mainstream climate change responses into key City strategies, policies, processes and plans				
Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Climate change response is mainstreamed into key City strategies, policies, processes and plans	Extent to which climate change response is mainstreamed into the City's Project Portfolio Management (PPM) process	Climate change adaptation/resilience considerations have been included in the City's PPM process as a screening item	A resilience assessment of the City's capital project portfolio has been carried out. The results of this assessment will inform future mainstreaming processes.	A guidebook has been developed to assist project managers to consider climate resilience in the project development process

GOAL 27: Conduct and commission climate change-related research and ensure that the City remains up to date with emerging research in the field				
Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Climate change-related research is commissioned and conducted and the City remains up to date with emerging research	Percentage of city areas for which a climate change hazard, vulnerability and risk assessment has been undertaken within the past five years	100%	100%	100%

CROSS-CUTTING WORK AREA 2: ECONOMIC IMPACTS AND GREEN ECONOMY OPPORTUNITIES

OVERVIEW

Climate change threatens to stagnate both local and global economic growth and development through both the impacts on international market competitiveness and the impacts of climate risks. Therefore, a shift in economic activities and decision-making is required through an approach that prioritises low carbon, resource efficiency and the prevention of the loss of ecosystem services and biodiversity.

Reporting on this Cross-cutting Work Area covers two goals:

- ✓ **GOAL 28:** Advance the local green products and services market, and reduce the risks of climate impacts on local economic development
- ✓ **GOAL 29:** Support the development of climate-resilient and carbon-neutral green economy through City operations

PROGRESS DURING 2022/23

Progress towards developing a greener economy in Cape Town continued during the reporting year through the implementation of activities focused on internal supply chain management processes and decision-making, facilitating investments in the local green economy, and green skills development and employment opportunities.

In addition to the continued implementation of the City's Green Procurement Action Plan, the further development of key priority actions in the plan were prioritised during the reporting year. These included the development of draft specifications for various material categories, draft guidelines for sustainable building procurement, draft sustainable design principles for various types of capital and infrastructure projects, and draft guidelines for recycled building materials. Work was also undertaken to investigate potential green alternatives for Spatial Planning and Environment Directorate stock items, in addition to research conducted for the replacement of glyphosate used as a herbicide in City operations.

The Atlantis Special Economic Zone (ASEZ) experienced significant developments over the reporting year. The Atlantis Special Economic Zone Company (ASEZCo) was listed as a provincial business enterprise, enabling the ASEZCo to fulfil its economic development mandate, establish a managing board, develop and implement a strategic plan, and submit its business and financial plans for the SEZ. The ASEZCo purchased 0,7 ha of privately owned land, and entered into two lease agreements and five site reservation agreements, with investors looking to settle in the SEZ. It also secured R89 million from the SEZ fund to implement civil infrastructure in Zone 1 of the SEZ.

During 2022/23, GreenCape, on behalf of the City, facilitated investment to the value of approximately R1,7 billion, mainly due to the construction of a new gigawatt battery storage manufacturing plant owned by Solar MD, which specialises in lithium-ion battery storage. The new facility will allow the company to double its annual battery production and double its staff component, contributing to job creation in the industry. In addition, the City continued to host green investment events and implement the Investment Incentives Policy to facilitate additional investments.



During 2022/23, the City continued to implement its invasive species and green jobs programme, including the employment of 129 EPWP participants under the Kader Asmal EPWP Skills Development Programme.

GreenCape also continued to participate in multiple global conference platforms and networks, which contributed to creating opportunities for the promotion of Cape Town as a green investment location and engaging in global policy and developments that could inform the City's approach to investments. Global networks participated in during the reporting year include the World Energy Cities Partnership and the International Clean Network (ICN). Key conferences attended include the UNFCCC COP27; and the Conference of Montreal, which engages participants on topics ranging from the economy and global leadership to sustainability, energy and innovation.

During 2022/23, the City continued to implement the invasive species and green jobs programme. Highlights of the Kader Asmal EPWP Skills Development Programme include the employment of 129 EPWP participants, which exceeds the target of 85 for the reporting year. Among these participants, 14 participants accepted permanent and long-term contracts with the City, and 34 participants accepted permanent and long term employment in other organs of state and private sector.

PROGRESS INDICATORS

GOAL 28: Advance the local green products and services market, and reduce the risks of climate impacts on local economic development

Medium-term outcome	Indicator name	Baseline	Target	Update as of 30 June 2022	Update as of 30 June 2023
Economic growth is stimulated through a climate-resilient local economy and the development of local green products and services markets	Value of green tech investments facilitated/ brought to Cape Town	R194 650 000	R1 billion	R600 000 000	R1 733 000 000
	Number of industry events hosted	19	11	9	16

GOAL 29: Support the development of a climate-resilient and carbon-neutral green economy through City operations

Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
A climate-resilient and carbon-neutral green economy is developed and supported through City operations	Number of job opportunities created as a result of the implementation of green job projects	3 811 (2021/22)	3 811	3279

CROSS-CUTTING WORK AREA 3: BUSINESS MODELS, REVENUE AND FINANCING CLIMATE CHANGE RESPONSE

OVERVIEW

Climate finance is an important mechanism for enabling the implementation of both mitigation and adaptation programmes and projects; the finance includes loans, grant funding and technical assistance. In addition, reviewing the way that the City does business – through its revenue model and other mechanisms – may offer important opportunities for responding to the various financial risks posed by climate change.

Reporting on this Cross-cutting Work Area covers two goals:

- ✓ **GOAL 30:** Investigate sources of climate finance and the use of innovative financial mechanisms to support climate change response and implement where feasible
- ✓ **GOAL 31:** Use financial mechanisms including business models, tariffs, investment and divestment to respond to climate change impacts and mitigation opportunities

PROGRESS DURING 2022/23

Since the previous reporting period, the Technical Partnerships Unit has been fully established and is now proactively working with internal and external stakeholders to identify City projects and secure climate-related funding for the City. The development of a technical assistance tracker and a donor database has been initiated in order to streamline processes and ensure effective tracking and reporting. In the year under review, numerous key pieces of technical assistance were in place to support the City's adaptation and mitigation programmes through the provision of expert advice and technical support; new technical assistance was also secured. This technical assistance includes:

- ✓ Two projects supported by the C40 Cities Finance Facility and co-funded by GIZ, one focused on developing a business case for the use of green infrastructure in catchment management and the other focused on the use of renewable energy in municipal buildings. This work was initiated in 2021/22 and will continue into 2023/24.
- ✓ Support from the IFC on several different work packages focused on building energy efficiency, developing an IPP Programme, and developing a strategy and roadmap for renewable energy accounting, pricing and promotion. This work was substantially delivered during 2022/23 and will close out during 2023/24.
- ✓ Support from the UK Partnering for Accelerated Climate Transitions (UK PACT) programme concluded during 2022/23. The programme delivered a number of work packages including a resilience analysis of the capital portfolio, undertaking a cost-benefit analysis of the City's Embedded Renewable Energy Generation Programme, providing planning inputs for a smart grid to support alternate service delivery, providing guidance on how to manage decentralised wastewater treatment and undertaking a feasibility assessment of alternative sanitation provision for informal settlements. The City also continues to receive expert support for the SSEG programme through support from the UK PACT Skills Share programme.
- ✓ During 2022/23, the City submitted applications to new funds. These included the Infrastructure



Launch event of the C40 Cities Finance Facility and GIZ supported City projects.

Investment Programme for South Africa (IIPSA), with a specific focus on flood risk planning and coastal resilience and adaptation; and the Climate Action Africa fund, with a focus on energy poverty alleviation, solar lighting and support for the City's Women and Girls Resilience Programme.

- ✓ The City has secured a grant from the Bill and Melinda Gates Foundation and is in the process of concluding a pilot project agreement with the Water Research Commission (WRC) in support of the City's innovative sanitation programme and associated Project Management Unit.
- ✓ Finally, concessional loan financing for Water and Sanitation capital projects has been secured from the AFD (French Development Bank). Discussions are under way with other development banks to finance energy-related projects.

The City also continued to support the divestment of financial assets from fossil fuels and investment in climate-friendly opportunities through the implementation of the City's Cash Management and Investment Policy. The policy outlines a list of prohibited investments which includes investments "in instruments which consist of assets and activities whose value is realised through the release of unmitigated high levels of carbon dioxide". Fund managers contracted by the City are required to annually certify that investments are managed in accordance with this policy. During 2022/23, a knowledge-sharing process was initiated as part of the City's commitment to the C40 'Divesting from Fossil Fuels, Investing in a Sustainable Future' accelerator, which requires members to take steps to divest from fossil fuels. Sessions will be held in 2023/24 in which pension fund managers in other C40 cities that have signed up to the accelerator will share their experiences regarding divestment and sustainable investment with fund managers in Cape Town.

Actions related to the investigation of special rating areas as a possible mechanism for funding climate change response remain on hold. This action will likely be reformulated in the future to include a

more expansive assessment of various possible innovative mechanisms for funding climate adaptation interventions, including various land-value capture mechanisms. Actions related to the use of insurance products as a mechanism for climate adaptation have also remained on hold. Based on previous research, it has been determined that future implementation of this action will focus on working with the City's insurance providers to better quantify insurance risk exposure to climate change-related events, and to determine if new or different insurance products are required to address any increased risk exposure. This work has not yet commenced.

PROGRESS INDICATORS

GOAL 30: Investigate sources of climate finance and the use of innovative financial mechanisms to support climate change response and implement where feasible				
Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Innovative financial mechanisms are implemented where feasible, and the City receives climate finance on an ongoing basis	Approximate rand value of climate change-related funding or finance received from external sources per year (incl. technical assistance, grants and loans)	New indicator	Technical assistance to the value of approximately R72,5 million was secured during the 2021/22 financial year	Technical assistance to the value of approximately R7,1 million was received during the 2022/23 financial year*

* This is in addition to technical assistance from the C40 CFF and UK PACT Skills Share of undisclosed amounts due to the confidentiality requirements of the funders.

GOAL 31: Use financial mechanisms including business models, tariffs, investment and divestment to respond to climate change impacts and mitigation opportunities				
Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Financial mechanisms are in place to respond to climate change impacts and opportunities	Number of financial mechanisms in place to respond to climate change	New indicator	One financial mechanism is in place - divestment from carbon-intensive investments has been included in the City's Cash Management and Investment Policy	One financial mechanism is in place - divestment from carbon-intensive investments has been included in the City's Cash Management and Investment Policy

CROSS-CUTTING WORK AREA 4: COMMUNICATION, COLLABORATION AND SKILLS DEVELOPMENT

OVERVIEW

Collaborative climate action across sectors, governments and different stakeholder groups – including communities – is a key accelerator in progress towards global and local climate change goals. This approach is driven and strengthened by enabling the development of appropriate skills across organisations to enhance planning and implementation, and ensuring access to effective climate change-focused communications platforms and tools that build knowledge, create awareness and increases preparedness.

Reporting on this Cross-cutting Work Area covers three goals:

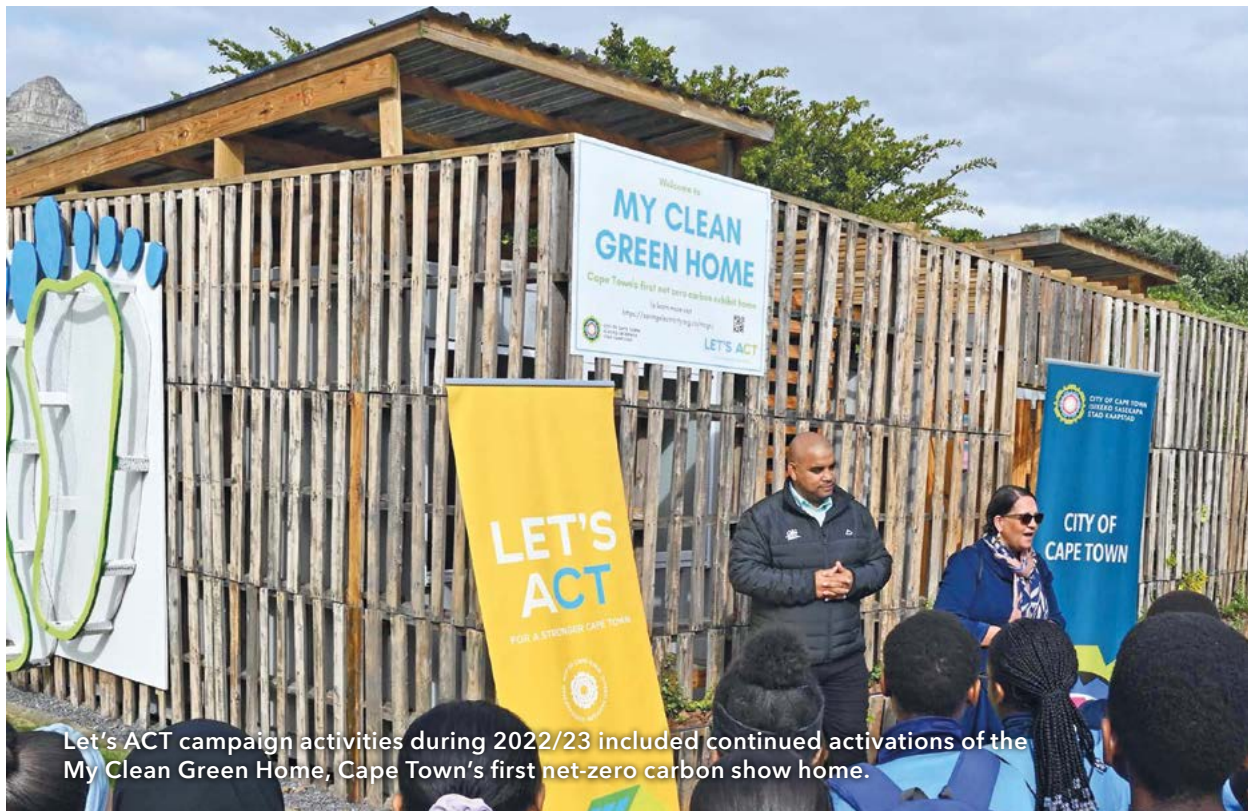
- ✓ **GOAL 32:** Ensure that Cape Town's residents, businesses, visitors and city officials receive timely, effective and appropriate climate change education, communication and training
- ✓ **GOAL 33:** Establish and maintain partnerships with local, regional and international organisations to support climate actions
- ✓ **GOAL 34:** Work with national government to collaboratively reform or devolve decision-making to support inclusive climate change action

PROGRESS DURING 2022/23

The City continued to implement various climate change communication and awareness initiatives through its communication campaign, 'Let's ACT. For a stronger Cape Town' and the Smart Living Campaign. The Smart Living Campaign focuses on promoting resource-efficient and sustainable behaviour change; Let's ACT serves as the City's 'umbrella' campaign and communication tool to enable and inform Cape Town's residents, communities, businesses and organisations to take on climate action, as well as a range of other proactive resilience and sustainability measures.

The focus of the Let's ACT campaign in 2022/23 was on reinforcing resource-efficient behaviours relating to energy and waste. Initiatives implemented during the reporting year as part of Let's ACT included a social media and radio campaign on winter readiness and energy-saving options, various campaigns and communication on SSEG, communication on the City's Draft Energy Strategy, continued activations of the My Clean Green Home (Cape Town's first net-zero carbon show home) and various waste-related mayoral campaigns. Let's ACT has also been rolled out on the City's solid waste management vehicle branding as part of the mayoral clean-up campaign and 'spring clean' efforts. In addition, a Let's ACT internal transversal working group was established to coordinate climate change-related communication across the City.

The Disaster Risk Management Centre continues to communicate early warning messages of extreme weather events through press releases and community WhatsApp groups. The City collaborated with the IFC on a set of energy-related projects during the reporting year, which included improving practices and City capacity relating to energy and emissions accounting. There has also been further progress in expanding and enhancing the City's GHG inventory and modelling capacity, which has contributed to a broader base of technical skills and tools available. More broadly, the integration of resilience into the City's leadership development programme and ongoing Smart Living Training aimed at City staff continues.



Let's ACT campaign activities during 2022/23 included continued activations of the My Clean Green Home, Cape Town's first net-zero carbon show home.

The City actively participates in and collaborates on various platforms and with a range of local and international stakeholders. The City continues to build on the progress and outcomes of the C40 Deadline 2020 and the C40 SA Buildings programmes, which both concluded in 2021 in terms of deliverables and technical support. This includes monitoring and evaluation activities related to the CCAP and participation in national processes, via C40 and SALGA, on buildings policy and programmes.

During the reporting year, the City continued to play an active role in vertical integration-related platforms by C40 or in national platforms where C40 SA cities are making joint/facilitated inputs, including the PCC engagements. The City also actively participated in various events, including the C40 Mayors Summit in October 2022 and hosted a C40 Global Workshop on Clean Energy and Finance in Cape Town in December 2022. Other climate-related membership participation activities by the City included ongoing participation in the WWF-led South Africa Alliance for Climate Action, the ICLEI Cities with Nature Action Platform and the ICLEI Africa Urban Systems work stream. The City also collaborated with the '1,5 Degrees Africa's Net Zero Conference and Exhibition' in Cape Town as a supporting partner; this event aimed to bring together various stakeholders across Africa, spanning from industries to policymakers, to engage on climate change challenges and opportunities.

Finally, the 2022/23 project with the Western Cape Economic Development Partnership (EDP) to develop an approach for meaningful engagement with civil society organisations (CSOs) on the implementation of the CCAP was completed. The project included a series of engagements with identified CSOs in the form of bilateral interviews and two workshops during 2022/23. The engagements identified a number of areas of mutual interest for collaboration within the CCAP and explored practical approaches for engagement, including the establishment of the new Cape Town Climate Change Coalition to ensure continued exchange. This will be further explored in 2023/24 in partnership with EDP.

PROGRESS INDICATORS

GOAL 32: Ensure that Cape Town's residents, businesses, visitors and city officials receive timely, effective and appropriate climate change education, communication and training				
Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Cape Town's residents, businesses, visitors and City officials are informed and capacitated to implement climate action and contribute to the City's climate response	Number of climate change-related communication products developed	New indicator	Seven main initiatives (under Let's ACT climate change-related campaign): ✓ 1 social media campaign (with various posts) ✓ 3 videos ✓ 1 youth campaign ✓ 1 'My Clean Green Home' campaign (with various roll-outs/activations) ✓ 1 update of Let's ACT at Home exhibition	Four main initiatives (under Let's ACT climate change-related campaign): ✓ Social media campaign plus limited radio campaign, Let's ACT winter savings ✓ Establishment of Let's ACT transversal committee to drive Let's ACT communication in future ✓ Mass neighbourhood watch presentation on load-shedding at high stages and household energy-saving tips ✓ Mayor launches the City's 'BINGO' mascot
	Number of climate change-related events held per annum (held under CCAP banner)	New indicator	Six events: ✓ 4 Futurecasting events (climate change and mental health; heat; flooding; carbon neutrality) ✓ 2 food systems working group workshops (impacts of heat on food systems; carbon footprint of Cape Town's food basket)	Six events: ✓ 2 engagements with CSOs on the CCAP implementation ✓ 1 global Clean Energy Network and Finance Academy workshop, co-hosted with C40 ✓ 3 climate-related open space working group meetings (open space and water; lessons from the high line in New York City; lessons from Medellin)


GOAL 33: Establish and maintain partnerships with local, regional and international organisations to support climate actions

Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Enhanced knowledge exchange and collaboration with local, regional and international organisations on climate action	This indicator assesses if a platform has been developed and activated to periodically engage external stakeholders on climate action	New indicator	Scoping for the establishment of an engagement platform is under way through a 2022/23 EDP-supported project and due end of the 2022/23 financial year	The 2022/23 EDP-supported project, aimed at exploring the development of an engagement platform, has been completed and plans are in place to formally set up the platform, with EDP as the lead convener

CROSS-CUTTING WORK AREA 5: PROMOTE, PROTECT AND ENHANCE HUMAN AND ECOSYSTEM HEALTH

OVERVIEW

Climate change significantly affects human health and well-being through direct and indirect impacts from different shocks and stressors, such as fires, extreme heat, air and water quality, and food access and availability. The interrelationship between these different shocks and stressors calls for a cross-departmental approach to managing climate change impacts, the environment and human health.

Reporting on this Cross-cutting Work Area covers three goals:

- ✓ **GOAL 35:** Develop and implement a green infrastructure programme that supports climate change response, protects biodiversity, and enhances ecosystem goods and services
- ✓ **GOAL 36:** Ensure that physical health and mental well-being are addressed through the City's climate change response
- ✓ **GOAL 37:** Promote food security as well as low-carbon and climate-resilient food systems in Cape Town

PROGRESS DURING 2022/23

The City continued implementation of the City of Cape Town Bioregional Plan, Biodiversity Network and Local Biodiversity Strategy and Action Plan. Key developments in this work area include the extensive revision of the action plan component of the Local Biodiversity Strategy and Action Plan and the initiation of plans to integrate the strategy component of the LBSAP into the revised Environmental Strategy. In addition, the Biodiversity Network GIS model re-run was incorporated into a revised draft Bioregional Plan which will go through the Council process for adoption during 2023/24.

Although key advancements continued to be made in conserving and managing the city's natural areas, the conservation target for 2022/23 was not met due to the gazetted abolition (deproclamation) of CapeNature's Driftsands Nature Reserve on 21 November 2022. This resulted in the percentage of Biodiversity Priority Areas protected decreasing from 65,44 % to 65,14%, and a revised target being set to conserve and manage 66% of the Biodiversity Network by 2027.

The implementation of the GIP progressed, with the inclusion of the Green Infrastructure Network (GINet) in the approved MSDP and DSDP-EMFs. The GINet was also included as a spatial layer on the City's CityMap Viewer, and a 'Key Considerations' document was developed to support the GINet and provide insights into key aspects that should be considered when a development activity is proposed or undertaken.

During the reporting year, the City initiated plans for the public participation process of the City's Air Quality Management Plan (AQMP) that commenced during August 2023. The current draft plan has four goals and 13 enabling objectives that will contribute to the overall vision 'to be a City that ensures clean air for all'. The review process of the AQMP is scheduled to be finalised during the 2023/24 financial year. The City has also implemented a project to relocate the Khayelitsha air quality monitoring station site to the OR Tambo Sports Complex in order to reduce the impacts of local emissions from hot food vendors at the current monitoring site fence line, which results in skewed data.



The City actively implements its Bioregional Plan, Biodiversity Network and Local Biodiversity Strategy and Action Plan.

The Mayor's Priority Programme (MPP) on Water Quality continued to be implemented during the reporting year, to replace the Water Quality Improvement Programme initiated in 2021. The MPP consists of various projects including wastewater treatment plant upgrades such as the Potsdam wastewater treatment works. Significant improvement of the final effluent compliance at Potsdam has been achieved due to additional pumping capacity. The programme also consists of improved maintenance practices which included the replacement of 55,16 km of sewer reticulation pipe during the reporting year, surpassing the 50 km target. In addition, various remediation and management plans were completed during the reporting year, including the Rietvlei Remediation Plan, Zeekoevlei Rehabilitation Plan, Zandvlei Remediation Plan and the Milnerton Lagoon Remediation Plan.

Highlights of the Food Systems Programme during 2022/23 include the development of an 18-month implementation programme that will guide the implementation of the six themes of the programme. Key work areas included scenario development on the impact of stage 8 load-shedding on food systems, which has highlighted the economic impact of load-shedding on food access, and how energy access affects



Water quality improvement interventions continued to be implemented as strategic interventions to rehabilitate and restore Cape Town's water bodies.



The City undertook scenario development on the impact of stage 8 load-shedding on food systems during the reporting year.





food choices and consequently leads to less nutritious outcomes. Supporting research initiated during the reporting year includes investigating the potential of food gardens for cooling, particularly on the Cape Flats, and a market study that will assist in improving the City's knowledge of the 'food shed's' exposure to climate shocks and stresses.

The Disaster Risk Management Centre continued to implement various disaster risk education and awareness programmes focused on safety and preparedness for vulnerable groups and communities, including the Fire Wise Programme, Flood Wise Campaign, Community Based Risk Assessment Workshops, Climate Change Programme in Schools, Heatwaves Awareness, and Women and Girls Resilience Programme. A notable achievement for the Women and Girls Resilience Programme was the inclusion of the programme in the 2023 Mayor's Portfolio of Urban Sustainability Programme; the programme was recognised for its role in addressing social challenges in communities in Cape Town and promoting sustainability and resilience as an overall outcome.

PROGRESS INDICATORS

GOAL 35: Develop and implement a green infrastructure programme that supports climate change response, protects biodiversity, and enhances ecosystem goods and services

Medium-term outcome	Indicator name	Baseline	Target	Update as of 30 June 2022	Update as of 30 June 2023
Improved resilience of biodiversity and ecosystem goods and services	Number of City policies and strategic documents that incorporate reference to consider green infrastructure	1	N/A	5	12*
	Proportion of Biodiversity Priority Areas protected	65,44%	66% by 2027	65,44%	65,14%**

* Figure includes individual district plans (integrated DSDF and EMFs).

** The decrease observed between the baseline value and reporting year value for the 'Proportion of Biodiversity Priority Areas protected' is due to the deproclamation of the Driftsands Nature Reserve as a result of the establishment of informal settlements in the reserve.

GOAL 36: Ensure that physical health and mental well-being are addressed through the City's climate change response

Medium-term outcome	Indicator name	Baseline	Target	Update as of 30 June 2022	Update as of 30 June 2023
The City's climate change response addresses physical health and mental well-being	Percentage river and vleis samples with <i>E. coli</i> count $\leq 4\,000$ CFU/100 ml	55,5%	60%	44,4%*	57,9%
	Number of days when air pollution exceeds RSA ambient air quality standards	9	≤ 68	10	44**

* Inland water quality test results declined during 2021; however, since early 2022, improvements have been noted.

** Emissions from local hot food vendors on one of the monitoring site's fence line are skewing data and influencing the overall results.

GOAL 37: Promote food security as well as low-carbon and climate-resilient food systems in Cape Town				
Medium-term outcome	Indicator name	Baseline	Update as of 30 June 2022	Update as of 30 June 2023
Food security is enhanced and low-carbon and climate-resilient food systems are promoted in Cape Town	Number of initiatives implemented as part of the Food Systems Programme	0	9	13 initiatives: ✓ 5 Food Systems Working Group meetings ✓ 2 Food Systems Research Community of Practice meetings ✓ Implementation programme ✓ Stage 8 load-shedding scenario development ✓ Collaboration with ICLEI Africa and a number of other partners in AfriFOODLinks ✓ Food systems market study ✓ Food Dialogues event on mother and child nutrition ✓ Food gardens and heat mitigation study



CONCLUSION

This report is the second report-back on progress made towards the implementation of the CCAP. Significant progress has been noted during 2021/22 in terms of the status of the 101 actions that form the core of the CCAP, with 18 actions moving into an implementation phase in 2021/22 and two actions already completed. During 2022/23, progress has slowed; however, it is important to note that more than half of the CCAP actions are now in an implementation phase. For many complex actions that encompass ongoing programmes, it is anticipated that these actions will remain at the implementation stage for the foreseeable future.

It is important to note that although some actions have not been noted as moving to a more advanced stage of work, progress has still occurred. For many large and complex actions, planning phases can take a number of years to complete. A lack of a status change does not mean that these actions are not progressing.

However, actions that have not yet shown progress have been noted and will be followed up during the 2023/24 financial year. There are challenges with some of these actions regarding budgets and resourcing; as a result, these will be targeted for technical assistance support and other possible climate finance or funding opportunities.

As noted in the previous report, some actions in the CCAP need to be reviewed and updated in a future version of the plan. These updates and changes will be initiated during the 2023/24 financial year. The following reasons have been noted:

		
A small number of actions were written with the intent of further investigating options for implementation; however, initial work has shown that certain implementation mechanisms may not be possible or are not currently appropriate for Cape Town's context. Consequently, these actions need to be revised in order to incorporate the results of the initial investigatory work.	Significant policy changes have occurred in a number of areas since the CCAP was approved, most notably the energy sector. Some actions will therefore need to be reevaluated and possibly reformulated in light of these policy shifts in order to ensure that they remain up to date and responsive to current conditions.	A significant organisational realignment process took place after the CCAP was approved by the City Manager in August 2021. Accordingly, the lead department and supporting departments for some actions have changed and must be updated, either because certain functions have moved between departments or because departments' names have changed.

Reporting on each Strategic Focus Area and Cross-cutting Work Area has provided an overall assessment of the state of implementation of that work area and has noted key successes within those work areas. However, as this is only the second year of reporting, it is not possible to determine significant trends in implementation across the entire plan. A high-level assessment of the goal-level indicators has, however, shown that progress is occurring and there is a generally positive trend. As the CCAP moves into a stage of longer-term implementation, it will be possible to conduct a more detailed analysis of implementation trends and to identify gaps and areas of concern.

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