



IDP SUBMISSION TO THE CITY OF CAPE TOWN

Water and Sanitation Resilience

Proposals for a climate-resilient water and sanitation system,
for inclusion in the Integrated Development Plan

SERVICE DELIVERY PARTY, WESTERN CAPE

3 October 2026

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IDP SUBMISSION · 3 OCTOBER 2026

Water and Sanitation Resilience

To	City of Cape Town, IDP Public Participation Office
From	Service Delivery Party (SDP), Western Cape
Contact	Farouk Cassim, Founder, mfcassim001@gmail.com
Subject	Proposals for a climate-resilient water and sanitation system, for inclusion in the Integrated Development Plan

The Service Delivery Party asks the City to adopt the twenty-two measures below as IDP objectives, each with a budget line, a responsible directorate and a measurable target reported to Council.

INTRODUCTION

Purpose and Constitutional Basis

Cape Town must plan now for the next Day Zero, not react to it. The 2018 drought brought the city within weeks of turning off household taps. Climate change makes a repeat more likely, not less.

The warning signs are already visible. Cape Town uses about 1,056 million litres a day, above the City's own summer target of 975 million litres. The population is expected to grow by about a million people within ten years. Western Cape temperatures are projected to rise by 1°C to 3°C over the next three decades, which increases evaporation from the dams that supply the city.

Section 152 of the Constitution requires the City to ensure the provision of services in a sustainable manner and to promote a safe and healthy environment. Section 153 requires it to structure its planning, budgeting and administration to give priority to the basic needs of the community. A water system that depends on rainfall into six dams, discharges raw sewage into the sea and loses a quarter of its water before it is paid for does not meet that standard.

This submission sets out twenty-two measures in six parts: securing supply, using every drop, ending marine outfalls, stopping network losses, protecting the city from fire and restoring the land that feeds our water. Each closes with the specific commitment the SDP asks the City to place in the IDP.



PART ONE

Securing Supply

The City's own plans are running late, so supply must be widened now. The August 2026 Water Outlook report told Council that the planned Paarden Eiland desalination plant cannot proceed because of Transnet's port expansion, and that demand may exceed the current dam allocation within two years. The New Water Programme is now only expected to be fully operating by 2036.

MEASURE 01

Household water tanks paid for monthly

The City should supply and install rainwater tanks for any household that wants one, with the cost recovered in small monthly amounts on the municipal account. Installation should use City-accredited installers and include gutter connection, a first-flush filter and an overflow to garden or soakaway.

- Interest-free repayment over 24 to 36 months, with free installation for indigent households
- Priority roll-out in the Metro South-East and other areas that suffered most from rationing in 2018
- A public register of tanks installed, reported quarterly by subcouncil

Every tank captures winter rain that would otherwise run into stormwater, and gives each family a reserve when supply is cut.

MEASURE 02

Solar-assisted desalination with brine recovery

The City must secure a new site for permanent desalination urgently, and design it so that brine is a product, not waste. Japan has used electrodialysis to produce salt from seawater on a large scale for about 40 years. Toyobo, a Japanese chemical company, is now piloting membranes that split desalination brine into reusable seawater and a concentrate from which minerals are crystallised.

- Power the plant from solar and other renewables to cut its electricity cost
- Dry concentrated brine to recover salt, magnesium and other minerals for sale to the chemical industry
- Include a brine-recovery partnership with local industry as a condition of any public-private partnership

This keeps hypersaline brine out of False Bay and Table Bay and earns revenue that offsets the cost of the water.



MEASURE 03

Floating solar panels on supply dams

Floating solar should cover part of the surface of Cape Town's supply dams to cut evaporation and generate electricity. Measurements at an industrial floating solar plant in 2025 recorded an average evaporation reduction of 44% over the covered area. Modelling for Lake Powell in the United States found that covering 20% of the surface cut evaporation by about 38%.

- Start with a pilot on a City-owned dam, with evaporation measured before and after
- Negotiate with the national Department of Water and Sanitation for the larger dams of the Western Cape Water Supply System
- Feed the electricity into the City grid to lower the cost of pumping and treatment

MEASURE 04

Recharge the aquifers and measure them regularly

The Cape Flats Aquifer must be treated as a reservoir that is filled as well as drained. Its recharge depends on rain soaking into open ground, which hard surfaces across the Cape Flats now block. University of Cape Town research shows managed aquifer recharge can raise wellfield yield at Philippi without risking seawater intrusion.

- Expand managed aquifer recharge using treated effluent and captured stormwater
- Require permeable paving and infiltration areas in new developments over the aquifer
- Publish water level and water quality readings from monitoring boreholes every month

MEASURE 05

Pumping limits in the Philippi Horticultural Area

The City must work with the Department of Water and Sanitation and farmers to set and enforce abstraction limits in the PHA. Farmers there rely mostly on groundwater from the Cape Flats Aquifer, and evaporation from farm ponds already concentrates salts. Over-pumping near the coast risks drawing seawater into the aquifer, which would be very hard to reverse.

- Seasonal abstraction caps tied to measured water levels and salinity
- Metering of large boreholes, with support for farmers to install meters
- Free advice on efficient irrigation and salt-tolerant crops, so limits protect both the aquifer and farm livelihoods

The PHA itself must be protected from development, since it is one of the most important recharge zones for the aquifer.



PART TWO

Using Every Drop

Cape Town treats all its water to drinking standard, then flushes much of it down toilets and onto gardens. Matching water quality to its use is the cheapest new source available.

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MEASURE 06

A dual water system

The City must plan a second, non-potable network so that high-quality water is used only for drinking, cooking and washing. Treated effluent would supply toilets, gardens, parks, industry and agriculture. Tokyo has run exactly this system since the 1980s: skyscrapers in West Shinjuku receive reclaimed wastewater through a separate pipe for toilet flushing.

- Make dual plumbing compulsory in all new large developments, City housing projects and industrial zones from the 2027/28 financial year
- Extend the existing treated effluent network to industrial and agricultural users along a published route plan
- Use purple pipes and clear signage, as international practice requires, so the two systems are never confused

MEASURE 07

Wash-basin water for toilet flushing

The City should promote toilets that collect hand-basin water for the next flush. In Japan, a toilet with a tap on top of the cistern is common: the clean water used to wash hands fills the tank for the next flush. The same principle applies to larger greywater systems that send shower and basin water to toilets.

- Amend the Water By-law and building plan approvals to allow and encourage these fittings
- Offer a rebate on approved basin-cistern units and greywater kits, payable through the municipal account
- Fit them first in City buildings, clinics, schools and public toilets

MEASURE 08

Free technical help for on-site water treatment

Schools, businesses, housing complexes and community facilities that treat water on site deserve the City's support, not its paperwork. The City should set up a free technical advisory service for in situ treatment of greywater, rainwater and borehole water.



- Free site visits, system design advice and water quality testing
- Standard approved designs, so small users avoid consulting fees
- A simple registration process, so the City knows where these systems are and can check them

MEASURE 09

Turn sewage into products

Sewage is a resource. The City already spends about R60 million a year disposing of roughly 200 dry tonnes of wastewater sludge every day. Its planned Biosolids Beneficiation Facility at the Cape Flats Wastewater Treatment Works will recover biogas for electricity and produce biofertiliser.

- Publish a delivery date for the Cape Flats facility and extend the model to every major treatment works
- Recover phosphorus and nitrogen for fertiliser, and supply treated sludge to farmers and the PHA
- Treat effluent to industrial and agricultural standard for sale, reducing what is discharged to rivers and the sea

PART THREE

Ending Marine Outfalls and Protecting Groundwater

A water-scarce city cannot keep pumping its wastewater into the sea. At least 32 million litres of untreated sewage go into the ocean every day through the outfalls at Green Point, Camps Bay and Hout Bay.

MEASURE 10

Phase out marine outfalls at speed

The City must commit to a dated phase-out of all three marine outfalls and treat that water for reuse. The City defends the outfalls as operating within environmental standards. The question is not only pollution. Every litre discharged is a litre that could have run industry, irrigated farms or flushed toilets.

The City's own study priced new treatment works at the three sites at R2.2 billion to R3.4 billion, depending on the level of treatment. Its full long-term plan is estimated at R12 billion.

- Place a fully funded phase-out schedule in the IDP and the capital budget, with Green Point, the largest outfall, first
- Treat the water to industrial and agricultural reuse standard and connect it to the dual network in Measure 6
- Publish outfall monitoring results monthly, in full, until the last outfall closes



MEASURE 11

Inspect and clean up groundwater contamination

The City must send inspectors to every site where groundwater contamination has been reported or is likely. These include landfills, fuel stations, industrial sites, cemeteries, leaking sewers and areas without proper sanitation.

- Compile and publish a register of contaminated and high-risk sites over the Cape Flats and Atlantis aquifers
- Inspect every listed site at least once a year, with testing of nearby boreholes
- Use the polluter-pays principle to recover clean-up costs, and report enforcement actions to Council quarterly

PART FOUR

Stopping Losses in the Network

The water Cape Town loses is the cheapest water it will ever find. In June 2025, 24.8% of the City's water was non-revenue water, according to the national Department of Water and Sanitation. Most of that is physical leakage from pipes and reservoirs. Cape Town does better than other South African metros, but that is a low bar.

The water Cape Town loses is the cheapest water it will ever find.

Tokyo shows what is possible. Its leakage rate fell from over 30% sixty years ago to about 3%, saving 330 million cubic metres a year.

MEASURE 12

Report water losses every month

The City must publish a monthly water loss report to Council and the public. It should state total water lost, the volume lost through burst pipes, the number of bursts and the average repair time, broken down by subcouncil and ward.

MEASURE 13

Replace old pipes on a funded schedule

Ageing pipes are the main cause of bursts. The City must publish the age and condition of its pipe network and adopt a rolling replacement programme with an annual kilometre target in the IDP and the budget. Areas with the highest burst rates should be replaced first.



MEASURE 14

Stronger, longer-lasting pipes from contractors

The City must raise the material standards it demands from contractors. Tokyo replaced its distribution mains with lined ductile cast-iron pipe and its household service pipes with stainless steel, since service pipes caused most of its leaks.

- Specify pipe materials and joints by design life, not lowest price
- Require longer contractor guarantees, with the cost of early failures recovered from the contractor
- Blacklist contractors whose work repeatedly fails inspection

MEASURE 15

A database of every burst pipe

Every burst must be logged in a single database with its location, pipe material, pipe age, depth, pressure at the time, cause, contractor and repair time. Patterns in this data show where pipes fail and why, so replacement money is spent where it prevents the most losses. The anonymised data should be open to universities and the public.

MEASURE 16

AI-controlled water pressure

High pressure, especially at night when demand is low, is a leading cause of leaks and bursts. The City should build on its existing pressure management by using sensors and artificial intelligence to adjust pressure zone by zone, in real time, to the lowest level that still serves every household. The same system should flag the sudden pressure drops that signal a burst.

MEASURE 17

More valves to isolate losses

The City must install more isolation valves so that a burst can be shut off quickly, affecting as few households as possible. Tokyo divides its network into about 6,800 blocks for leak investigation and repair. Cape Town should divide its network into small metered zones, each with valves and a flow meter, so losses can be measured and stopped zone by zone.

PART FIVE

Water and Fire

Hotter, drier summers mean more fires at the same time as less water. The City must stop fighting fires with drinking water wherever an alternative exists, and invest in preventing fires in the first place.



MEASURE 18

Fire hydrants as a secondary source

Drinking water hydrants should become the fallback, not the first choice, for firefighting. During a drought, a large fire can drain a reservoir zone that households depend on.

- Connect fire hydrants in industrial and commercial areas to the non-potable network in Measure 6
- Build dedicated firefighting storage tanks filled with treated effluent or harvested rainwater at fire stations and high-risk sites
- Equip coastal fire stations to draw seawater for large fires near the shore

MEASURE 19

Prioritise wildfire prevention

Prevention is cheaper than response, and it protects the catchments the city drinks from. Invasive alien trees burn hotter than fynbos and consume large volumes of water. Clearing them is already part of the City's New Water Programme.

- Accelerate alien vegetation clearing in catchments and on the urban edge, using local labour from nearby communities
- Maintain firebreaks and carry out planned burns on a published annual schedule
- Fund fire-safe layouts, fire-resistant materials and accessible water points in informal settlements, where fire spreads fastest
- Expand community fire-watch volunteers and early-warning systems on the mountain fringe

PART SIX

Restoring the Land That Feeds Our Water

The cheapest new water for Cape Town is already falling as rain. Alien trees are drinking it before it reaches the dams and the aquifers.

The cheapest new water for Cape Town is already falling as rain.

MEASURE 20

Clear alien trees from catchments and restore native vegetation

Pines, gums and wattles in the catchments of the City's dams take more than 55 billion litres of water a year, about two months of Cape Town's supply. Left unchecked, that loss will grow to 100 billion litres a year within 20 years. Restoring catchments in this way costs



5 to 12 times less than grey infrastructure such as desalination, new boreholes or new dams.

The work has started. Between April 2019 and March 2023 the Greater Cape Town Water Fund cleared more than 40,790 hectares, saving up to 13.1 billion litres a year. That is still well short of the 55 billion litres at stake.

Native fynbos uses far less water than these trees, so more rain runs off into the dams and soaks into the aquifers. It also burns less fiercely, which supports Measure 19.

- Fund the clearing of all seven priority sub-catchments to completion, with a dated target in the IDP
- Guarantee follow-up clearing for many years after the first clearing, since Australian acacia seed can lie dormant in the soil for decades
- Allow fynbos to regenerate, supported by planned burns at the right intervals
- Report hectares cleared and litres recovered to Council every year
- Hire clearing teams from nearby communities, and use the cleared wood for firewood, building poles, biochar or energy
- Restore wetlands, riverbanks and indigenous groundcover in the city, and make water-wise indigenous planting the default in parks and public spaces

MEASURE 21

Clear Port Jackson and rooikrans from roadsides and the Cape Flats

The same problem runs along the city's roads. Port Jackson willow and rooikrans, both Australian acacias, were planted on the Cape Flats in the 1800s to stop sand drifting over roads, and have since spread across the Western and Eastern Cape. An Agricultural Research Council survey found rooikrans, Port Jackson and black wattle to be the most prominent invasive plants along roadsides in the southern and southwestern Cape.

These thickets draw water from the Cape Flats Aquifer, crowd out indigenous plants and fuel fires close to homes. Port Jackson is a Category 1a invasive species under national biodiversity law, which means it must be removed.

- Map and clear all City road reserves, verges, servitudes and public open spaces, starting over the Cape Flats Aquifer
- Work with SANRAL and the Provincial Government to clear national and provincial road reserves such as the N2 and R300
- Replant cleared ground with indigenous dune and strandveld plants, so the sand stays stable without the acacias
- Use approved biological control agents alongside clearing to slow regrowth
- Help poorer landowners meet their legal duty to remove these plants, rather than only fining them

**MEASURE 22****Learn from Japan and Elsewhere**

Cape Town does not need to invent these solutions. It needs to adopt what already works. Tokyo's waterworks host learning visits from Asia, Africa and Europe, including through Japan International Cooperation Agency programmes aimed at Africa's high leakage rates.

- Establish a formal technical partnership with the Tokyo Metropolitan Government Bureau of Waterworks, with support from the Japan International Cooperation Agency
- Send City engineers on exchange to study leakage control, pipe materials, reclaimed water networks and brine recovery
- Study Singapore's purified recycled water and Israel's large-scale reuse of treated effluent for agriculture
- Report what was learned, and what the City will adopt, to Council within six months of each exchange

SUMMARY**Requested IDP Commitments**

The SDP asks the City to adopt each measure with the proposed target below, a named responsible directorate and a line in the medium-term budget.

No.	Measure	Proposed IDP target
1	Water tanks paid for monthly	scheme open to all households within 12 months; quarterly installation reports
2	Solar-assisted desalination with brine recovery	new site confirmed within 12 months; brine recovery built into the design
3	Floating solar on dams	pilot on a City-owned dam with measured evaporation results
4	Aquifer recharge and monitoring	monthly published borehole levels and quality readings
5	PHA pumping limits	seasonal abstraction caps agreed and metered
6	Dual water system	compulsory in new large developments from 2027/28
7	Basin-to-cistern and greywater reuse	by-law amended and rebate scheme opened
8	Free help for on-site treatment	advisory service operating, with standard designs published
9	Uses for sewage	Cape Flats biosolids facility delivery date published; model extended



No.	Measure	Proposed IDP target
10	Phase out marine outfalls	funded, dated phase-out schedule in the capital budget
11	Groundwater contamination inspections	public register; every site inspected yearly
12	Monthly water loss reports	first report to Council within three months
13	Replace old pipes	annual kilometre target in the IDP
14	Stronger pipes from contractors	revised material specifications and guarantees in tenders
15	Burst pipe database	every burst logged; open data published
16	AI pressure control	real-time pressure management in all supply zones
17	More valves	network divided into metered, isolatable zones
18	Hydrants as a secondary source	non-potable firefighting supply at high-risk sites
19	Wildfire prevention	published annual clearing, firebreak and burn schedule
20	Catchment clearing and native vegetation	all priority sub-catchments cleared by a dated target; litres recovered reported yearly
21	Roadside Port Jackson and rooikrans clearing	all City road reserves and open spaces mapped, cleared and replanted with indigenous species
22	Learning from Japan and elsewhere	formal partnership with Tokyo Waterworks

CONCLUSION

The 2018 crisis showed that Cape Town's residents will save water when asked. The City must now show it can plan before the next drought rather than during it. These twenty-two measures widen supply, restore the catchments, match water quality to its use, end the waste of sewage into the sea and stop the losses in the City's own pipes.

Sections 152 and 153 of the Constitution require sustainable services and planning that puts basic needs first. The Service Delivery Party asks the City to include these measures in the IDP, with targets, budgets and monthly public reporting, so that residents can hold the City to account for delivery.

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