City of Durban - Cities 2019

Introduction

(0.1) Please give a general description and introduction to your city including your city's reporting boundary in the table below.

	Administrative boundary	Description of city
City boundary	Metropolitan area	Durban is the largest city in the South African province of KwaZulu-Natal and the third largest city in South Africa. It forms part of the eThekwini metropolitan municipality. Durban is famous for being the busiest port in South Africa. It is also seen as one of the major centres of tourism because of the city's warm subtropical climate and extensive beaches. The municipality has a population of 3,9 million (2017)The metropolitan land area of 2,555 square kilometers is comparatively larger than other South African cities, resulting in a somewhat lower population density of 1,519 /km2.

(0.2) If you have not previously submitted your Letter of Commitment to the Global Covenant of Mayors, either through the relevant regional covenant or through the Global Covenant secretariat, please attach the letter signed by an appropriately mandated official (e.g. Mayor, City Council) to this question.

City Details

(0.3) Please provide information about your city's Mayor or equivalent legal representative authority in the table below:

	Leader title	Leader name	Current term end month	Current term end year
Please complete	Councillor	Zandile Gumede	Please select	2021

(0.4) Please select the currency used for all financial information disclosed throughout your response.

ZAR Rand

(0.5) Please provide details of your city's current population. Report the population in the year of your reported inventory, if possible.

	Current population	Current population year	Projected population	Projected population year
Please complete	38876356	2017	4400000	2030

(0.6) Please provide further details about the geography of your city.

	Land area of the city boundary as defined in question 0.1 (in square km)
Please complete	2555

Governance and Data Management

Governance

(1.0) Does your city incorporate sustainability goals and targets (e.g. GHG reductions) into the master planning for the city?

Yes

(1.0a) Please detail which goals and targets are incorporated in your city's master plan and describe how these goals are addressed in the table below.

Goal type	How are these goals/targets addressed in the city master plan?
Other (Sustainable cities and communities)	They are integrated into the city's long term vision to create Africa's most caring and livable city by 2030. The targets for SDG 11 are of particular importance to the city as they address issues relating to service delivery and social equity.
Emissions reduction targets	The goals related to the emissions reduction are reflected in the Climate Action Plan (CAP) which is recognized within the City's Integrated Development Plan. However the CAP is currently undergoing approval and the targets will be integrated in the next iteration.
Adaptation targets	The goals related to the adaptation plans are reflected in the Climate Action Plan which is recognized within the City's Integrated Development Plan. However the CAP is currently undergoing approval and the targets will be integrated in the next iteration.
Renewable energy targets	The goals related to the renewable energy are reflected in the Climate Action Plan which is recognized within the City's Integrated Development Plan. However the CAP is currently undergoing approval and the targets will be integrated in the next iteration.
Energy efficiency targets	The goals related to the energy efficiency are reflected in the Climate Action Plan which is recognized within the City's Integrated Development Plan. However the CAP is currently undergoing approval and the targets will be integrated in the next iteration.
Water security targets	The goals related to the water security are reflected in the Climate Action Plan which is recognized within the City's Integrated Development Plan. However the CAP is currently undergoing approval and the targets will be integrated in the next iteration.
Waste management targets	The goals related to the waste management are reflected in the Climate Action Plan which is recognized within the City's Integrated Development Plan. However the CAP is currently undergoing approval and the targets will be integrated in the next iteration.

(1.1) Has the Mayor or city council committed to climate adaptation and/or mitigation across the geographical area of the city?

Yes

(1.1a) Please select any commitments to climate adaptation and/or mitigation your city has signed and attach evidence.

Name of commitment and attach document
Mexico City Pact

Type of commitment
Both

Comments

Name of commitment and attach document
Durban Adaptation Charter
DAC Report 2018_Digital PDF_low res.pdf

Type of commitment
Adaptation

Comments

Name of commitment and attach document
Deadline 2020 - Delivering the 1.5 degree ambition of the Paris Agreement in a resilient, inclusive way
EThekwini CAP full report - v0.72 ecod.pdf

Type of commitment
Both

Comments
Document still in draft

Name of commitment and attach document
Other (The Net Zero Carbon Buildings Declaration)

Type of commitment
Mitigation

Comments

Name of commitment and attach document
Other (Inclusive climate action)

Type of commitment
Both

Comments

(1.6) Does the Mayor have a statutory duty (legal responsibility) to reduce greenhouse gases?
No

(1.7) How many staff (FTE) work on topics related to climate change mitigation and adaptation?

	Mitigation	Adaptation
Please complete	9	4

There is a core coordinating team for climate change work in the municipality from the Climate Protection Branch (Adaptation) and Energy Office (Mitigation) found within the Environmental Planning and Climate Protection Department. However related topics are covered throughout the city within respective sectors.

Data Management

(1.9) How many staff (FTE) does your city have for environmental related data management (including collecting, storing, analyzing and communicating)?

6

However, various departments in the city are involved in such programs

(1.11) How would you characterize the data management of your city and department?

	City	Department
Data management	Managed. Our city has established organisational wide metrics for each department and results are measured	Managed. Our department has established organisational wide metrics for each department and results are measured

(1.12) What tools does your city / department use to manage its environmental related data? Select all that apply.

Other (Tools differs per department)

(1.13) What tools does your city / department use to analyse its environmental related data? Select all that apply.

Microsoft Excel
Statistical Software - SPSS, SAS, etc.
Visualization/Analysis Software - Tableau, Qlik etc
Other (The tool used differs per departments)

(1.14) Does your city have a team dedicated to data analysis (e.g., data analytics staff, performance management staff, evaluation staff, chief data officer, etc.)?

The city has a team dedicated to data analysis that supports some departments, but our engagement with them is limited

(1.15) Has your city's Mayor or equivalent legal authority communicated their commitment to governing with data publicly to city residents (e.g. through public remarks, press releases, etc.)?

No

Climate Hazards & Vulnerability

Risk and Vulnerability Assessment

(2.0) Has a climate change risk and vulnerability assessment been undertaken for the city area?

Yes

(2.0a) Please select the primary process or methodology used to undertake the risk and vulnerability assessment of your city.

	Primary methodology	Description
Risk assessment methodology	IPCC climate change impact assessment guidance	The Sendai Framework is a 15-year voluntary, non-binding agreement which recognizes that the State has the primary role to reduce disaster risk but that responsibility should be shared with other stakeholders including local government, the private sector and other stakeholders. It aims for the following outcome: “The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries”. The framework consists of seven targets and four priorities for action. The City also developed a risk assessment through the C40 Deadline 2020 programme and in support of its development for the Durban 1.5 degrees Climate Action Plan

(2.0b) Please attach and provide details on your climate change risk and vulnerability assessment. Please provide details on the boundary of your assessment, and where this differs from your city’s boundary, please provide an explanation.

Publication title and attach the document

eTHEKWINI MUNICIPALITY CLIMATIC FUTURE FOR DURBAN: PHASE II HEADLINE CLIMATE CHANGE ADAPTATION STRATEGY

Year of adoption from local government

2006

Web link

http://www.durban.gov.za/City_Services/development_planning_management/environmental_planning_climate_protection/Publications/Documents/FINAL_Community_Based_Adaptation_Report.pdf

Boundary of assessment relative to city boundary (reported in 0.1)
Smaller – covers only part of the city

Explanation of boundary choice where the assessment boundary differs from the city boundary
Population regarded to have a high social vulnerability were assessed.

Areas/sectors covered by the risk and vulnerability assessment
Water Supply & Sanitation
Food and agriculture
Public health

Primary author of assessment
Consultant

Does the assessment identify vulnerable populations?
Yes

Publication title and attach the document
FINAL REPORT eThekwini Municipality Integrated Assessment Tool for Climate Change

Year of adoption from local government
2010

Web link

Boundary of assessment relative to city boundary (reported in 0.1)
Larger – covers the whole city and adjoining areas

Explanation of boundary choice where the assessment boundary differs from the city boundary
It was linked to the city's IDP.

Areas/sectors covered by the risk and vulnerability assessment
Please select

Primary author of assessment
Consultant

Does the assessment identify vulnerable populations?
Yes

Publication title and attach the document
Climate Projection and Risk assessment

Year of adoption from local government

Web link
https://ethekwini.maps.arcgis.com/apps/MapSeries/index.html?appid=4c59620219d343a1aec468b87aa0ffc5

Boundary of assessment relative to city boundary (reported in 0.1)
Same – covers entire city and nothing else

Explanation of boundary choice where the assessment boundary differs from the city boundary

Areas/sectors covered by the risk and vulnerability assessment
Water Supply & Sanitation
Food and agriculture
Environment, Biodiversity and Forestry
Commercial
Residential

Primary author of assessment
Please select

Does the assessment identify vulnerable populations?
Yes

Publication title and attach the document
Updated Climate Change Projections for eThekwini Municipality
CC_projections_eThekwini_FW178 (1).pdf

Year of adoption from local government
2019

Web link

Boundary of assessment relative to city boundary (reported in 0.1)
Same – covers entire city and nothing else

Explanation of boundary choice where the assessment boundary differs from the city boundary

Areas/sectors covered by the risk and vulnerability assessment
Other (Heat, flooding, sea level rise, extreme weather events)

Primary author of assessment
Dedicated city team

Does the assessment identify vulnerable populations?
Yes

Publication title and attach the document
Sector based risk assessment for Durban
C40_D2020 - Sector-based risk assessment_workshop report.pdf

Year of adoption from local government
2019

Web link

Boundary of assessment relative to city boundary (reported in 0.1)
Same – covers entire city and nothing else

Explanation of boundary choice where the assessment boundary differs from the city boundary

Areas/sectors covered by the risk and vulnerability assessment
Water Supply & Sanitation
Transport
Food and agriculture
Waste Management
Environment, Biodiversity and Forestry
Industrial
Commercial
Residential
Public health
Community & Culture
Emergency Management
Tourism

Primary author of assessment
Other (Dedicated City team and consultans)

Does the assessment identify vulnerable populations?
Yes

Climate Hazards

(2.1) Please list the most significant climate hazards faced by your city and indicate the probability and consequence of these hazards, as well as the expected future change in frequency and intensity. Please also select the most relevant assets or services that are affected by the climate hazard and provide a description of the impact.

Climate Hazards
Water Scarcity > Drought

Did this hazard significantly impact your city before 2019?
Yes

Current probability of hazard

High

Current consequence of hazard
High

Social impact of hazard overall
Increased risk to already vulnerable populations
Increased resource demand

Future change in frequency
Increasing

Future change in intensity
Increasing

When do you first expect to experience those changes?
Immediately

Most relevant assets / services affected overall
Water supply & sanitation
Food & agriculture
Waste management
Environment, biodiversity, forestry
Industrial
Commercial
Residential
Public health
Society / community & culture

Please identify which vulnerable populations are affected
Marginalized groups
Low-income households
Unemployed persons
Persons living in sub-standard housing

Magnitude of expected future impact
High

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future
During the 2015 El Nino event, the sub-continent was very badly affected by drought and Durban was no exception. Stringent water rationing measures were introduced and agriculture in the KwaZulu Natal province suffered terribly. Subsistence crops were impacted in the City boundary.

Climate Hazards
Extreme hot temperature > Extreme hot days

Did this hazard significantly impact your city before 2019?
Yes

Current probability of hazard
High

Current consequence of hazard
Medium High

Social impact of hazard overall
Increased incidence and prevalence of disease and illness
Increased demand for healthcare services
Increased risk to already vulnerable populations

Future change in frequency
Increasing

Future change in intensity
Increasing

When do you first expect to experience those changes?
Immediately

Most relevant assets / services affected overall
Food & agriculture
Residential
Public health

Please identify which vulnerable populations are affected
Children & youth
Marginalized groups
Low-income households
Unemployed persons
Persons living in sub-standard housing

Magnitude of expected future impact
High

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future
Given its sub-tropical climate and adjacency to a major western current boundary, Durban has very high humidity rates which are projected to increase with extreme hot days. Heat vulnerability index for Durban is highly correlated with social and economic conditions.

Climate Hazards
Flood and sea level rise > Flash / surface flood

Did this hazard significantly impact your city before 2019?
Yes

Current probability of hazard
High

Current consequence of hazard
High

Social impact of hazard overall
Fluctuating socio-economic conditions
Increased demand for public services
Increased demand for healthcare services
Increased risk to already vulnerable populations
Increased resource demand
Migration from rural areas to cities
Population displacement

Future change in frequency
Increasing

Future change in intensity
Increasing

When do you first expect to experience those changes?
Immediately

Most relevant assets / services affected overall
Energy
Water supply & sanitation
Transport
Food & agriculture
Waste management
Environment, biodiversity, forestry
Industrial
Commercial
Residential
Education
Tourism
Public health
Society / community & culture
Emergency services

Please identify which vulnerable populations are affected

Women & girls
Children & youth
Elderly
Indigenous population
Marginalized groups
Persons with disabilities
Persons with chronic diseases
Low-income households
Unemployed persons
Persons living in sub-standard housing

Magnitude of expected future impact
High

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future
There have been a number of local scale extreme downpours in recent years in Durban. Two stand out from the rest: October 2017, the south of Durban was badly impacted by a sharp downpour of 180mm over an 80 minute period resulting in a heavy localized flooding. on April 22nd, the City was deluged by a massive flooding event, with over 200mm recorded over a 24 hour period. Because this rainfall was over a large spatial extent and the over a long period, there was considerably more flooding with 70 people losing their lives and over R800 million The impacts experienced from flooding thus far have been indiscriminative, whole component of society were affected directly or indirectly. However, it is the City's more vulnerable, with little material means to recover and living in preciously located and built infrastructure, that are by far the worst impacted. Furthermore, given the location of a growing number of informal settlements in vulnerable locations, this is a serious risk and this include commercial and industrial sectors.

Climate Hazards
Extreme Precipitation > Rain storm

Did this hazard significantly impact your city before 2019?
Yes

Current probability of hazard
High

Current consequence of hazard
High

Social impact of hazard overall
Increased demand for public services
Increased risk to already vulnerable populations
Population displacement

Future change in frequency
Increasing

Future change in intensity
Increasing

When do you first expect to experience those changes?
Immediately

Most relevant assets / services affected overall
Energy
Water supply & sanitation
Transport
Food & agriculture
Waste management
Environment, biodiversity, forestry
Industrial
Commercial
Residential
Tourism
Public health
Society / community & culture
Emergency services

Please identify which vulnerable populations are affected

Marginalized groups
Low-income households
Unemployed persons
Persons living in sub-standard housing

Magnitude of expected future impact
High

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future
There have been a number of local scale extreme downpours in recent years in Durban. Two stand out from the rest: October 2017, the south of Durban was badly impacted by a sharp downpour of 180mm over an 80 minute period resulting in a heavy localized flooding. on April 22nd, the City was deluged by a massive flooding event, with over 200mm recorded over a 24 hour period. Because this rainfall was over a large spatial extent and the over a long period, there was considerably more flooding with 70 people losing their lives and over R800 million The impacts experienced from flooding thus far have been indiscriminative, whole component of society were affected directly or indirectly. However, it is the City's more vulnerable, with little material means to recover and living in preciously located and built infrastructure, that are by far the worst impacted. Furthermore, given the location of a growing number of informal settlements in vulnerable locations, this is a serious risk and this include commercial and industrial sectors.

Climate Hazards
Storm and wind > Storm surge

Did this hazard significantly impact your city before 2019?
Yes

Current probability of hazard
High

Current consequence of hazard
High

Social impact of hazard overall
Fluctuating socio-economic conditions
Increased demand for public services
Increased resource demand
Population displacement
Loss of tax base to support public services

Future change in frequency
Increasing

Future change in intensity
Increasing

When do you first expect to experience those changes?
Immediately

Most relevant assets / services affected overall
Water supply & sanitation
Transport
Waste management
Commercial
Residential
Tourism
Emergency services

Please identify which vulnerable populations are affected
Other (Municipal infrastructure and high income properties)

Magnitude of expected future impact
High

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future
Durban has experienced unprecedented storm surge during March 2007. Various sectors including tourism has been affected.

Climate Hazards
Flood and sea level rise > Coastal flood

Did this hazard significantly impact your city before 2019?
Yes

Current probability of hazard
Medium High

Current consequence of hazard
High

Social impact of hazard overall
Fluctuating socio-economic conditions
Increased resource demand
Population displacement
Loss of tax base to support public services

Future change in frequency
Increasing

Future change in intensity
Increasing

When do you first expect to experience those changes?
Immediately

Most relevant assets / services affected overall
Water supply & sanitation
Transport
Waste management
Environment, biodiversity, forestry
Commercial
Residential
Tourism
Society / community & culture
Emergency services

Please identify which vulnerable populations are affected
Indigenous population
Marginalized groups
Unemployed persons
Persons living in sub-standard housing

Magnitude of expected future impact
High

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

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Climate Hazards
Biological hazards > Water-borne disease

Did this hazard significantly impact your city before 2019?
Yes

Current probability of hazard
Medium High

Current consequence of hazard
Medium High

Social impact of hazard overall
Increased incidence and prevalence of disease and illness
Increased demand for public services
Increased demand for healthcare services
Increased risk to already vulnerable populations

Future change in frequency
Increasing

Future change in intensity
Increasing

When do you first expect to experience those changes?
Immediately

Most relevant assets / services affected overall
Water supply & sanitation
Food & agriculture
Waste management
Commercial
Residential
Education
Tourism
Public health
Society / community & culture
Emergency services

Please identify which vulnerable populations are affected
Children & youth
Elderly
Marginalized groups
Low-income households
Unemployed persons
Persons living in sub-standard housing

Magnitude of expected future impact
High

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

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Climate Hazards
Biological hazards > Vector-borne disease

Did this hazard significantly impact your city before 2019?
No

Current probability of hazard
Does not currently impact the city

Current consequence of hazard
Does not currently impact the city

Social impact of hazard overall

Future change in frequency
Increasing

Future change in intensity
Increasing

When do you first expect to experience those changes?
Short-term (by 2025)

Most relevant assets / services affected overall
Water supply & sanitation
Food & agriculture
Waste management
Commercial
Residential
Tourism
Public health
Society / community & culture
Emergency services

Please identify which vulnerable populations are affected
Children & youth
Elderly
Marginalized groups
Low-income households
Unemployed persons

Persons living in sub-standard housing

Magnitude of expected future impact
High

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

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Climate Hazards
Biological hazards > Air-borne disease

Did this hazard significantly impact your city before 2019?
Yes

Current probability of hazard
Medium High

Current consequence of hazard
Medium High

Social impact of hazard overall
Fluctuating socio-economic conditions
Increased incidence and prevalence of disease and illness
Increased demand for public services
Increased demand for healthcare services
Increased risk to already vulnerable populations
Increased resource demand

Future change in frequency
Increasing

Future change in intensity
Increasing

When do you first expect to experience those changes?
Immediately

Most relevant assets / services affected overall
Food & agriculture
Industrial
Commercial
Residential
Education
Tourism
Public health
Society / community & culture
Emergency services

Please identify which vulnerable populations are affected
Children & youth
Elderly
Marginalized groups
Low-income households
Unemployed persons
Persons living in sub-standard housing

Magnitude of expected future impact
High

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

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(2.2) Please identify and describe the factors that most greatly affect your city's ability to adapt to climate change and indicate how those factors either support or challenge this ability.

Factors that affect ability to adapt	Support / Challenge	Please describe the factor and the degree to which it supports or challenges the adaptive capacity of your city
Inequality	Support	Inequality results in social unrest.
Other	Support	Number of factors are at play within the municipality inclusive of social, economic and environmental that will cause a challenge and enhance vulnerability to climate change impact. A holistic approach is required to address this in the city.

Adaptation

Adaptation Actions

(3.0) Please describe the main actions you are taking to reduce the risk to, and vulnerability of, your city's infrastructure, services, citizens, and businesses from climate change as identified in the Climate Hazards section.

Climate hazards
Extreme hot temperature > Extreme hot days

Action
Heat mapping and thermal imaging

Action title
Cool DurbanProject

Status of action
Implementation complete but not in operation

Co-benefit area
Enhanced resilience
Disaster preparedness
Enhanced climate change adaptation
Improved resource efficiency (e.g. food, water, energy)
Social community and labour improvements

Action description and implementation progress
The City has integrated the outcomes of the project to the CAP.

Finance status
Finance secured

Total cost of the project

Total cost provided by the local government

Primary fund source
Other (Municipal funds)

Web link

Climate hazards
Flood and sea level rise > Flash / surface flood

Action
Crisis management including warning and evacuation systems

Action title

Status of action
Operation

Co-benefit area

Improved resource quality (e.g. air, water)

Action description and implementation progress
Climate change projections for the eThekwini Municipality indicate changes in rainfall patterns, rising sea-levels, population growth and economic activity are driving an increase in demand for flood risk forecasting and possible mitigation engineering. Engineers and government authorities carry a huge responsibility to mitigate anthropogenic impacts. A solid operational flood management system will allow for effective and efficient response to flooding, avoiding damage and saving lives. Currently the city's disaster management centre is able to react real time. It is guide by the City's FEWS system which is able to direct response to most critically needed points of action in the City

Finance status
Finance secured

Total cost of the project

Total cost provided by the local government

Primary fund source

Web link
http://www.mile.org.za/QuickLinks/News/Pages/news_20170802.aspx

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Climate hazards
Water Scarcity > Drought

Action
Other (water coservation planning)

Action title
Business plan for the Delivery of Basic Water and Sanitation services in The eThekwini Municipal Area

Status of action
Operation

Co-benefit area
Economic growth

Action description and implementation progress
The city is engaged in partnership with various internal and external stakeholders to improve the compromised catchment areas. This is done through the protection of natural infrastructure consequently this improves water quality and quantity within the catchment. The City manages its provision of potable water and sanitation services to residents through its business plan. This includes climate change adaptation planning.

Finance status
Finance secured

Total cost of the project

Total cost provided by the local government

Primary fund source

Web link
http://www.durban.gov.za/City_Services/water_sanitation/Pages/default.aspx

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Adaptation Planning

(3.1) Does your city council have a published plan that addresses climate change adaptation?
Yes

(3.1a) Please provide more information on your plan that addresses climate change adaptation and attach the document. Please provide details on the boundary of your plan, and where this differs from your city's boundary, please provide an explanation.

Publication title and attach the document
Durban Climate Change Strategy

Areas covered by adaptation plan
Agriculture and Forestry
Water
Public Health and Safety

Year of adoption from local government
2015

Boundary of plan relative to city boundary (reported in 0.1)
Larger – covers the whole city and adjoining areas

If the city boundary is different from the plan boundary, please explain why and any areas/other cities excluded or included

Stage of implementation
Plan in implementation

Type of plan
Integrated mitigation / adaptation

Has your local government assessed the synergies, trade-offs, and co-benefits, if any, of the main mitigation and adaptation actions you identified?
Intending to undertake in the next 2 years

Comment or describe the synergies, trade-offs, and co-benefits of this interaction

Primary author of plan
Dedicated city team

Description of the stakeholder engagement processes
Full public participation including private sector, civil society and communities.

Web link
http://www.durban.gov.za/City_Services/energyoffice/Documents/DCCS_Final.pdf

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Publication title and attach the document
Durban C40 1.5 °C Climate Action Plan (draft)

Areas covered by adaptation plan
Agriculture and Forestry
Water
Public Health and Safety

Year of adoption from local government

Boundary of plan relative to city boundary (reported in 0.1)
Larger – covers the whole city and adjoining areas

If the city boundary is different from the plan boundary, please explain why and any areas/other cities excluded or included

Stage of implementation
Please select

Type of plan
Please select

Has your local government assessed the synergies, trade-offs, and co-benefits, if any, of the main mitigation and adaptation actions you identified?
Please select

Comment or describe the synergies, trade-offs, and co-benefits of this interaction

Primary author of plan
Please select

Description of the stakeholder engagement processes

Web link

Adaptation Goals

(3.2) Please describe the main goals of your city's adaptation efforts and the metrics / KPIs for each goal.

Adaptation goal
Water

Target year

Metrics / indicators
Durban's water resources and infrastructure are effectively managed to ensure optimal protection from climate change impacts.

Percentage of target achieved so far

Does this target align with a requirement from a higher level of government?
Please select

Adaptation goal
Sea level rise

Target year

Metrics / indicators
Durban's protective coastal ecological infrastructure is maintained and restored where possible to provide a buffer against sea level rise and coastal storms. Durban's coastal built environment is protected where appropriate, and further development is discouraged in high risk areas.

Percentage of target achieved so far

Does this target align with a requirement from a higher level of government?
Yes

Adaptation goal
Develop and sustain Durban's social, natural and built environment

Target year

Metrics / indicators
Eight goals have been developed in the DCCS, and implementation plans are being developed

Percentage of target achieved so far
0

Does this target align with a requirement from a higher level of government?
Yes

Adaptation goal
Food security

Target year

Metrics / indicators
Durban has a robust and resilient food security system that ensures availability, equitable access to and efficient utilisation of food in the context of both climate variability and climate change.

Percentage of target achieved so far

Does this target align with a requirement from a higher level of government?
Please select

Adaptation goal
Health

Target year

Metrics / indicators
Durban promotes public health and safety and the prevention of diseases in the face of a changing climate. Durban's public health

system is resource efficient and climate smart.

Percentage of target achieved so far

Does this target align with a requirement from a higher level of government?
Please select

City Wide Emissions

City-wide GHG Emissions Data

(4.0) Does your city have a city-wide emissions inventory to report?
Yes

(4.1) Please state the dates of the accounting year or 12-month period for which you are reporting your latest city-wide GHG emissions inventory.

	From	To
Accounting year dates	January 1 2017	December 31 2017

(4.2) Please indicate the category that best describes the boundary of your city-wide GHG emissions inventory.

	Boundary of inventory relative to city boundary (reported in 0.1)	Excluded sources / areas	Explanation of boundary choice where the inventory boundary differs from the city boundary (include inventory boundary, GDP and population)
Please explain	Same – covers entire city and nothing else		

(4.3) Please give the name of the primary protocol, standard, or methodology you have used to calculate your city's city-wide GHG emissions.

	Primary protocol	Comment
Emissions methodology	Global Protocol for Community Greenhouse Gas Emissions Inventories (GPC)	

(4.3a) The Global Covenant of Mayors requires committed cities to report their inventories in the format of the new Common Reporting Framework, to encourage standard reporting of emissions data. If your city is reporting an updated inventory, we encourage reporting this in the CRF format, for which guidance can be found in the link below. Would you like to report your inventory in the CRF format or continue to report in the GPC format? Please ensure you respond to this question in order for the correct emissions breakdown questions to be displayed.
Yes – use the CRF format

(4.4) Which gases are included in your city-wide emissions inventory? Select all that apply.
CO2
CH4
N20

(4.5) Please attach your city-wide inventory in Excel or other spreadsheet format and provide additional details on the inventory calculation methods in the table below.

Emissions inventory format
GPC format: City Inventory Reporting and Information System (CIRIS) GPC Reporting tool

Document title and attachment
eThekwini_GHG_Inventory_2017_CIRIS_V1.xlsx

Emissions factors used
IPCC

Global Warming Potential (select relevant IPCC Assessment Report)
IPCC 5th AR (2013)

Please select which additional sectors are included in the inventory
Industrial process and/or product use
Agriculture, forestry or other land use sectors

Population in inventory year
3876356

Overall Level of confidence
High

Comment on level of confidence

(4.6a) The Global Covenant of Mayors requires committed cities to report their inventories in the format of the new Common Reporting Framework, to encourage standard reporting of emissions data. Please provide a breakdown of your city-wide emissions by sector and sub-sector in the table below. Where emissions data is not available, please use the relevant notation keys to explain the reason why.

	Direct emissions / Scope 1 (metric tonnes CO2e)	If you have no direct emissions to report, please select a notation key to explain why	Indirect emissions from the use of grid-supplied electricity, heat, steam and/or cooling / Scope 2 (metric tonnes CO2e)	If you have no indirect emissions to report, please select a notation key to explain why	Emissions occurring outside the city boundary as a result of in-city activities / Scope 3 (metric tonnes CO2e)	If you have no emissions occurring outside the city boundary to report as a result of in-city activities, please select a notation key to explain why	Please explain any excluded sources, identify any emissions covered under an ETS and provide any other comments
Stationary energy > Residential buildings	621354	Please select	3160018	Please select	302555	Not Occurring	
Stationary energy > Commercial buildings & facilities	145192	Please select	1946760	Please select	186086	Not Occurring	
Stationary energy > Institutional buildings & facilities		Integrated Elsewhere		Integrated Elsewhere		Not Occurring	Emissions included in Commercial buildings & facilities
Stationary energy > Industrial buildings & facilities	2428287	Please select	4419208	Please select	423116	Not Occurring	
Stationary energy > Agriculture		Not Occurring		Not Occurring		Not Occurring	
Stationary energy > Fugitive emissions	1469120	Please select		Integrated Elsewhere		Not Occurring	
Total Stationary Energy	4663954	Please select	10257544	Please select	911756	Please select	
Transportation > On-road	7144712	Please select		Not Occurring		Not Estimated	

	Direct emissions / Scope 1 (metric tonnes CO2e)	If you have no direct emissions to report, please select a notation key to explain why	Indirect emissions from the use of grid-supplied electricity, heat, steam and/or cooling / Scope 2 (metric tonnes CO2e)	If you have no indirect emissions to report, please select a notation key to explain why	Emissions occurring outside the city boundary as a result of in-city activities / Scope 3 (metric tonnes CO2e)	If you have no emissions occurring outside the city boundary to report as a result of in-city activities, please select a notation key to explain why	Please explain any excluded sources, identify any emissions covered under an ETS and provide any other comments
Transportation > Rail		Integrated Elsewhere		Please select		Not Estimated	Diesel consumption included on On-road diesel consumption
Transportation > Waterborne navigation		Integrated Elsewhere		Integrated Elsewhere	4368323	Please select	
Transportation > Aviation		Not Occurring		Integrated Elsewhere	250708	Please select	
Transportation > Off-road		Integrated Elsewhere		Integrated Elsewhere		Not Estimated	
Total Transport	7144712	Please select		Please select	4619031	Please select	
Waste > Solid waste disposal	457625	Please select		Not Occurring		Not Occurring	
Waste > Biological treatment		Not Occurring		Not Occurring		Not Occurring	
Waste > Incineration and open burning		Not Occurring		Not Occurring		Not Occurring	
Waste > Wastewater	50584	Please select		Not Occurring		Not Occurring	
Total Waste	508209	Please select		Please select		Please select	
IPPU > Industrial process		Not Estimated		Not Estimated		Not Estimated	because it is not required for BASIC
IPPU > Product use		Not Estimated		Not Estimated		Not Estimated	because it is not required for BASIC
Total IPPU		Not Estimated		Not Estimated		Not Estimated	because it is not required for BASIC
AFOLU > Livestock		Not Estimated		Not Estimated		Not Estimated	because it is not required for BASIC
AFOLU > Land use		Not Estimated		Not Estimated		Not Estimated	because it is not required for BASIC
AFOLU > Other AFOLU		Not Estimated		Not Estimated		Not Estimated	because it is not required for BASIC
Total AFOLU		Not Estimated		Not Estimated		Not Estimated	not estimated because it is not required for BASIC
Generation of grid-supplied energy > Electricity-only generation		Not Occurring		Not Occurring		Not Occurring	
Generation of grid-supplied energy > CHP generation		Not Occurring		Not Occurring		Not Occurring	
Generation of grid-supplied energy > Heat/cold generation		Not Occurring		Not Occurring		Not Occurring	
Generation of grid-supplied energy > Local renewable generation		Not Occurring		Not Occurring		Not Occurring	

	Direct emissions / Scope 1 (metric tonnes CO2e)	If you have no direct emissions to report, please select a notation key to explain why	Indirect emissions from the use of grid-supplied electricity, heat, steam and/or cooling / Scope 2 (metric tonnes CO2e)	If you have no indirect emissions to report, please select a notation key to explain why	Emissions occurring outside the city boundary as a result of in-city activities / Scope 3 (metric tonnes CO2e)	If you have no emissions occurring outside the city boundary to report as a result of in-city activities, please select a notation key to explain why	Please explain any excluded sources, identify any emissions covered under an ETS and provide any other comments
Total Generation of grid-supplied energy		Not Occurring		Not Occurring		Not Occurring	
Total Emissions (excluding generation of grid-supplied energy)		Not Occurring		Not Occurring		Not Occurring	

(4.8) Please indicate if your city-wide emissions have increased, decreased, or stayed the same since your last emissions inventory, and describe why.

	Change in emissions	Primary reason for change	Please explain and quantify changes in emissions
Please explain	Increased	Improved data accuracy	Data availability has increased.

(4.9) Does your city have a consumption-based inventory to measure emissions from consumption of goods and services by your residents?

	Response	Provide an overview and attach your consumption-based inventory if relevant
Please complete	Intending to undertake in the next 2 years	

City-wide external verification

(4.11) Has the city-wide GHG emissions data you are currently reporting been externally verified or audited in part or in whole?

Not intending to undertake

The data that is used in the inventory is audited.

(4.11b) Please explain why your city-wide emissions inventory is not verified and describe any plans to verify your city-wide emissions in the future.

	Reason	Comments
Please explain	Data is internally verified	Data used is audited

Historical emissions inventories

(4.12) Please provide details on any historical and base year city-wide emissions inventories your city has, in order to allow assessment of targets in the table below.

Inventory date from
January 1 2016

Inventory date to
December 31 2016

Scopes / boundary covered
Total emissions
Scope 1 (direct)
Scope 2 (indirect)
Scope 3 (other indirect)

Previous emissions (metric tonnes CO2e)
19788771

Is this inventory used as the base year inventory?
No

Methodology
Global Protocol for Community Greenhouse Gas Emissions Inventories (GPC)

File name and attach your inventory
GPC_Durban2018_Finale
GPC_Durban2018_Finale.xlsx.xlsx

Comments

Re-stating previous emissions inventories

(4.13) Since your last submission, have you needed to recalculate any past city-wide GHG emission inventories previously reported to CDP?
Yes

(4.13a) Please provide your city's recalculated total city-wide emissions figures for any previous inventories along with Scope 1, 2 and 3 breakdowns where applicable.

Inventory date from
January 1 2016

Inventory date to
December 31 2016

Scope
Total emissions

Previous emissions (metric tonnes CO2e)
19788771

Updated emissions (metric tonnes CO2e)
28038142

Updated methodology
Global Protocol for Community Greenhouse Gas Emissions Inventories (GPC)

File name and attach your new inventory
eThekwini _GHG_Inventory_2016_CIRIS

Reasoning for recalculation
The previous inventory was not fully GPC compliant. A fully GPC compliant inventory was required by C40.

Inventory date from
January 1 2016

Inventory date to
December 31 2016

Scope
Scope 1

Previous emissions (metric tonnes CO2e)
10619492

Updated emissions (metric tonnes CO2e)
12249811

Updated methodology
Global Protocol for Community Greenhouse Gas Emissions Inventories (GPC)

File name and attach your new inventory
eThekwini _GHG_Inventory_2016_CIRIS
eThekwini_GHG_Inventory_2016_CIRIS.xlsx

Reasoning for recalculation
The previous inventory was not fully GPC compliant. A fully GPC compliant inventory was required by C40.

Inventory date from
January 1 2016

Inventory date to
December 31 2016

Scope
Scope 2

Previous emissions (metric tonnes CO2e)
8975888

Updated emissions (metric tonnes CO2e)
10257544

Updated methodology
Global Protocol for Community Greenhouse Gas Emissions Inventories (GPC)

File name and attach your new inventory
eThekwini _GHG_Inventory_2016_CIRIS

Reasoning for recalculation
The previous inventory was not fully GPC compliant. A fully GPC compliant inventory was required by C40.

Inventory date from
January 1 2016

Inventory date to
December 31 2016

Scope
Scope 3

Previous emissions (metric tonnes CO2e)
193391

Updated emissions (metric tonnes CO2e)
5530787

Updated methodology
Global Protocol for Community Greenhouse Gas Emissions Inventories (GPC)

File name and attach your new inventory
eThekwini _GHG_Inventory_2016_CIRIS

Reasoning for recalculation
The previous inventory was not fully GPC compliant. A fully GPC compliant inventory was required by C40.

Emissions Reduction

Mitigation Target setting

(5.0) Do you have a GHG emissions reduction target in place at the city-wide level? Select all that apply.

Base year emissions (absolute) target

(5.0a) Please provide details of your total city-wide base year emissions reduction (absolute) target. In addition, you may add rows to provide details of your sector-specific targets, by providing the base year emissions specific to that target.

Sector

All emissions sources included in city inventory

Where sources differ from the inventory, identify and explain these additions / exclusions

Boundary of target relative to city boundary (reported in 0.1)

Same – covers entire city and nothing else

Base year

2015

Year of target implementation

2030

Base year emissions (metric tonnes CO2e)

21.2

Percentage reduction target

80

Target year

2050

Target year absolute emissions (metric tonnes CO2e)

3.7

Percentage of target achieved so far

Does this target align with the global 1.5 - 2 °C pathway set out in the Paris Agreement?

Yes - 1.5 °C

Please indicate to which sector(s) the target applies

Energy industry
Commercial buildings
Residential buildings
Public facility
Industrial facilities
Transport
Water

Does this target align to a requirement from a higher level of sub-national government

Yes, but it exceeds its scale or requirement

Please describe your target. If your country has an NDC and your city's target is less ambitious than the NDC, please explain why.

(5.1) Please describe how the target(s) reported above align with the global 1.5 - 2 °C pathway set out in the Paris agreement.

The City is currenlty in the process of developing the Climate Action Plan in partnership with C40 Leadership. The plan will provide a pathway on how to achieve the Paris Agreement.

(5.2) Is your city-wide emissions reduction target(s) conditional on the success of an externality or component of policy outside of your control?
No

(5.3) Does your city-wide emissions reduction target(s) account for the use of transferable emissions units?
Yes

(5.3a) Please provide details on the use of transferable emissions.

Mitigation Actions

(5.4) Describe the anticipated outcomes of the most impactful mitigation actions your city is currently undertaking; the total cost of the action and how much is being funded by the local government.

Mitigation Planning

(5.5) Does your city have a climate change mitigation or energy access plan for reducing city-wide GHG emissions?
Yes

(5.5a) Please attach your city's climate change mitigation plan below. If your city has both action and energy access plans, please make sure to attach all relevant documents below.

Publication title and attach document
Durban Climate Change Strategy

Year of adoption from local government
2014

Web link
http://www.durban.gov.za/City_Services/energyoffice/Documents/DCCS_Final.pdf

Areas covered by action plan
Energy
Transport (Mobility)
Waste

Boundary of plan relative to city boundary (reported in 0.1)
Same – covers entire city and nothing else

If the city boundary is different from the plan boundary, please explain why and any areas/other cities excluded or included

Stage of implementation
Plan in implementation

Has your local government assessed the synergies, trade-offs, and co-benefits, if any, of the main mitigation and adaptation actions you identified?
Intending to undertake in the next 2 years

Comment or describe the synergies, trade-offs, and co-benefits of this interaction

Has there been a stakeholder engagement plan to develop the plan?
Full public participation including private sector, civil society and communities.

Primary author of plan
Dedicated city team

Opportunities

Opportunities

(6.0) Please indicate the opportunities your city has identified as a result of addressing climate change and describe how the city is positioning itself to take advantage of these opportunities.

Opportunity	Describe how the city is maximizing this opportunity
Improved efficiency of operations	The municipality has a number of municipal infrastructure energy efficiency programs underway. These include a complete retrofit of all traffic lights with LEDs. a large scale retrofit of Municipal Street lights with LEDs and building energy efficiency program and smaller residential how water pilots
Increased energy security	The municipality has piloted an installation of PV solar panels in few buildings within the municipality.
Development of climate change resiliency projects	The community eco-system based adaptation projects that deal with socio-economical and environmental issues together with the local communities.

(6.1) Does your city collaborate in voluntary partnership with businesses in your city on sustainability projects?

Intending to undertake in the next 2 years

(6.2) List any emission reduction, adaptation, water related or resilience projects you have planned within your city for which you hope to attract financing and provide details on the estimated costs and status of the project. If your city does not have any relevant projects, please select No relevant projects under Project Area.

Project area
Energy efficiency / retrofit

Project title
EEDSM at MMS

Stage of project development
Post-implementation

Status of financing
Other (Project was funded by Department of Energy)

Project description
Retrofitting and awareness programme at Moses Mabhida Stadium

Total cost of project
59259

Total investment cost needed

Project area
Transport

Project title

Stage of project development
Scoping

Status of financing
Project partially funded and seeking additional funding

Project description
Securing a hybrid vehicle or electric vehicle and installation of a charging station.

Total cost of project
51851851

Total investment cost needed

Project area
Renewable energy

Project title
PV Solar istallation

Stage of project development
Post-implementation

Status of financing
Other (Project was funded by the City)

Project description
Installation of the Solar PV systems on various roof-tops in the city

Total cost of project

Total investment cost needed

Finance and Economic Opportunities

(6.3) Has your City received/secured funding for any low carbon projects (e.g. energy efficiency, renewable energy, low emission vehicles, bus rapid transit, waste management) or climate adaptation projects from a development bank (e.g. World Bank, Asian Development Bank, etc.)?

Yes

(6.4) Has your City established a fund to invest in energy efficiency, renewable energy or carbon reduction projects?

Yes

(6.5) Does your City have its own credit rating?

	Does your city have a credit rating?	Rating agency	Rating
International	Yes		AA-
Domestic	Yes		A1+

(6.6) Are Environmental, Social and Governance (ESG) issues incorporated into investment decisions of any of the city retirement funds?

No

(6.7) How are investment decisions of the city retirement funds made?

(6.8) Which individuals in the city have responsibility for oversight and/or implementation of investment of the city retirement funds?

	Does the individual have responsibility for oversight and/or implementation of investment of the city retirement funds?
City council/elected representatives	Yes
Treasury or city finance staff	Yes
Other staff	No

(6.9) Has your City prepared a strategy for green growth?

Yes

(6.11) How many people within your City are employed in green jobs/ industries?

6107

Local Government Emissions

Local Government Operations GHG Emissions Data

(7.0) Do you have an emissions inventory for your local government operations to report? Reporting a Local Government Operations emissions inventory is optional.

Yes

(7.1) Please state the dates of the accounting year or 12-month period for which you are reporting an emissions inventory for your local government operations.

	From	To
Accounting year dates	January 1 2017	December 31 2017

(7.2) Please indicate the category that best describes the boundary of your local government operations emissions inventory.

Departments, entities or companies over which operational control is exercised

(7.3) Please give the name of the primary protocol, standard, or methodology used to calculate your local government operations emissions inventory and attach your inventory using the attachment function.

	Primary protocol and attach inventory	Comment
Emissions methodology	Global Protocol for Community-Scale Greenhouse Gas Emissions Inventories (GPC), (WRI, C40 and ICLEI)	

(7.4) Which gases are included in your emissions inventory? Select all that apply.

CO2
CH4
N2O

(7.5) Please give the total amount of fuel (refers to Scope 1 emissions) that your local government has consumed this year.

Source	Fuel	Amount	Units	Emissions (tonnes CO2e)
Buildings	Liquefied Petroleum Gas (LPG)	289320	L	432
Buildings	Kerosene	901285	L	2677
Municipal vehicle fleet	Diesel/Gas oil	26354487	L	70321
Municipal vehicle fleet	Motor gasoline (petrol)	4891173	L	11354
Landfills	Waste (municipal)		Metric tonnes	457625
Wastewater treatment	Methane		Metric tonnes	50584
Buildings	Other (Acetylene)	697	L	0

(7.6) Please provide total (Scope 1 + Scope 2) GHG emissions for your local government operations, in metric tonnes CO2e. Scopes are a common categorization method.

Local government emissions breakdown

Total Scope 1 + Scope 2 emissions (metric tonnes CO2e)
1539586

Total Scope 1 emissions (metric tonnes CO2e)
592991

Total Scope 2 emissions (metric tonnes CO2e)
946595

Comment

(7.7) Do you measure local government Scope 3 emissions?
Intending to undertake in the next 2 years

(7.7b) Please explain why not and detail your plans to do so in the future, if any.

	Reasoning	Explanation
Please explain	Scope categorization not used	

(7.8) Please indicate if your local government operations emissions have increased, decreased, or stayed the same since your last emissions inventory, and please describe why.

	Change in emissions	Primary reason for change	Please explain
Please explain	Increased	Increased energy/electricity consumption	Changes in data availability have an impact on the results

Local Government Emissions Verification

(7.9) Has the GHG emissions data you are currently reporting been externally verified or audited in part or in whole?
Not intending to undertake

(7.9b) Please explain why your local government operations inventory is not verified and describe any future plans for verification.

	Reason	Explanation
Please explain	Data is internally verified	

Energy

(8.0) Does your city have a renewable energy or electricity target?

Yes

(8.0a) Please provide details of your renewable energy or electricity target and how the city plans to meet those targets.

Scale

City-wide

Energy / electricity types covered by target

Other (to have 100% electricity supply from renewable energy)

Base year

2016

Total renewable energy / electricity covered by target in base year (in unit specified in column 2)

454

Percentage renewable energy / electricity of total energy or electricity in base year

0.02

Target year

2050

Total renewable energy / electricity covered by target in target year (in unit specified in column 2)

Percentage renewable energy / electricity of total energy or electricity in target year

100

Percentage of target achieved

1

Plans to meet target (include details on types of energy/electricity)

Implementing viable small-scale renewable energy generation such as rooftop solar photovoltaic within municipal assets

(8.1) Does your city have energy consumption data to report?

No

(8.4) What percentage of your city's electricity grid mix is zero carbon? "Zero carbon" may include solar, wind, hydro and other zero carbon generation sources.

8

(8.6) Does your city have a target to increase energy efficiency?

Yes

(8.6a) Please provide details on your city's energy efficiency targets.

Scale
City-wide

Energy efficiency type covered by target
Other (To have 100% of all buildings being energy efficient)

Base year

Total energy consumed/produced covered by target in base year (in unit specified in column 2)

Target year
2050

Total energy consumed/produced covered by target in target year (in unit specified in column 2)

Percentage of energy efficiency improvement in target year compared to base year levels

Percentage of target achieved

Plans to meet target (include details on types of energy in thermal /electricity)
Retrofit all city-wide buildings with energy efficient technologies.

Please indicate to which energy sector(s) the target applies (Multiple choice)
Energy industry
Heating and cooling supply
Commercial buildings
Residential buildings
Public facility
Industrial facilities

Buildings

(9.0) What is the total tCO2e emissions per capita from existing commercial, institutional and residential buildings in your city?

	Total tonnes of CO2e emissions per capita
Commercial	
Municipal	
Residential	
New buildings	
All building types	

The stats are done at a national level.

(9.1) Does your city have emissions reduction targets OR energy efficiency targets for the following building types?

	Emissions reduction target	Energy efficiency target
Commercial	Yes	Yes
Municipal	Yes	Yes
Residential	Yes	Yes
New buildings	Yes	Yes
All building types	Yes	Yes

The city is in a process of undertaking the study on buildings energy efficiency

(9.2) Does your city have requirements which incentivise net zero carbon, Passivehaus or other ultra-high-efficiency standards for NEW buildings? (requirements can include regulations, codes or planning policy). If so, please specify the details below.

	Response	Please provide more detail and/or link to more information about the requirements
Please complete	No	

(9.3) Does your city have requirements which incentivises net zero carbon, Passivehaus or other ultra high-efficiency standards for EXISTING buildings? (requirements can include regulations or codes)

No

(9.4) What is the total final annual energy use for buildings within your city boundary (aggregated across all fuel types)? (*in USA 'total final energy use' is known as 'site energy use')?

	Total final energy use (kWh/annum)
Commercial	
Institutional	
Municipal	
Residential	
New buildings	
All building types	

Transport

(10.0) Do you have mode share information available to report for the following transport types? Select all that apply.

Passenger transport

(10.1) What is the mode share of each transport mode in your city for passenger transport?

	Private motorized transport	Rail/Metro/Tram	Buses (including BRT)	Ferries/ River boats	Walking	Cycling	Taxis or For Hire Vehicles	Other
Please complete	42.4	5.64	6.39	0			25.57	20

Other is all the non-motorized transport

(10.3) What are the total number of journeys made in your city each year by each mode below?

	Number of journeys made each year
Private motorized transport	
Rail / Metro / Tram	
Buses (including BRT)	
Ferries / River boats	
Walking	
Cycling	
Taxis or For Hire Vehicles	
Other	

(10.4) What are the vehicle kilometres of road goods vehicles travelled in your city?

(10.5) Please provide the total fleet size and number of vehicle types for the following modes of transport:

	Number of private cars	Number of buses	Number of municipal fleet (excluding buses)	Number of freight vehicles	Number of taxis	Transport Network Companies (e.g. Uber, Lyft) fleet size	Customer-drive carshares (e.g. Car2Go, Drivenow) fleet size
Total fleet size		538	6192				
Electric	0	0	0	0	0	0	0
Hybrid	0	0	0	0	0	0	0
Plug in hybrid	0	0	0	0	0	0	0
Hydrogen	0	0	0	0	0	0	0

(10.6) How many buses has your city procured in the last year?

	Number of buses
Total number of buses	538
Electric	0
Hybrid	0
Plug-in hybrid	0
Hydrogen	0
Diesel	538
CNG	0

(10.7) Do you have a low or zero-emission zone in your city? (i.e. an area that disincentivises fossil fuel vehicles)

No

(10.9) How many public access EV charging points do you have in your city for the following types:

	Number of charging points
Rapid 43 kw and above	0
Fast 7-22kw	0
Slow 3kw or below	0
All types	0

The city does not have EVs at the moment

(10.11) Does your city collect air quality data?

Yes

(10.12) What is the most recent calendar year for which you have air quality data?

2018

(10.15) Please provide the daily and annual average concentrations average breakdown of the following air pollutants gases within your city wide:

	Min daily average concentration	Max daily average concentration	Annual average concentration	Units	% completeness of data (e.g. % of days with monitoring)	Comments
Particulate matter PM2.5*						
Particulate matter PM10*						
Carbon monoxide (CO)*						
Nitrogen dioxides (NO2x)*						
Sulphur dioxides (SO2x)*						
Ozone (O3)						

Urban Planning

(11.0) What is the size of your city's park space in square km?

2556

(11.1) What percentage of your population lives within 500m of a public transport stop?

Food

(12.0) How many meals per year are served through programs managed by your city? (this includes schools, canteens, hospitals etc.)

The stats are done at a national level.

(12.1) How many tonnes of food are produced within your city's boundaries each year?

The stats are done at a national level.

(12.2) What is the per capita meat consumption (kg) in your city?

The stats are done at a national level.

(12.3) What is the per capita dairy consumption (kg/yr) in your city?

The stats are done at a national level.

(12.4) Does your city have any policies relating to food consumption within your city? If so, please describe the expected outcome of the policy.

	Response	Please describe the expected outcome of the policy
Please complete	No	

(12.5) Do you have any incentives/tax/bans on a food item or food advertising in your city?

	Response	Please provide more detail about the incentives/tax/bans
Please complete	No	

Waste

(13.0) What is the annual solid waste generation in your city? Please answer one or two of the fields below.

	Amount
Total solid waste generation (kg/year)	1272452
Waste generation per capita (kg/person/year)	

(13.1) How much of the solid waste generated in your city is disposed to landfill or incineration (tonnes/year)?

0

(13.2) What percentage of the solid waste generated in your city is diverted away from landfill or incineration?

30

(13.3) What is the amount of your city's total solid waste collected for each of the following sectors (tonnes/year)?

	Amount of solid waste generated (tonnes/person/year)
Total	
Residential	
Commercial	
Industrial	
Construction and demolition waste	
Other	

(13.4) What is the amount of solid waste being treated (tonnes/year) via:

	Tonnes/year
Re-use	
Recycling	
Composting	
Anaerobic digestion	
Incineration or other form of thermal treatment	
Open burning	
Sanitary landfill	
Non-sanitary landfill	
Other	

(13.5) Please provide a waste composition analysis

(13.6) Has your city implemented material restriction policies or regulations for consumer materials like single use plastics, disposable straws, disposable containers, etc.? If so, please specify.

	Response	Please provide more detail about the restriction policies or regulations
Please complete	No	

Water Security

Water Supply

(14.0) What are the sources of your city's water supply? Select all that apply.

Surface water

Rainwater

(14.1) Where does the water used to supply your city come from?

From adjacent river basins (by water transfer schemes) outside the city boundary

(14.2) What percentage of your city's population has access to potable water supply service?

72

(14.3) Are you aware of any substantive current or future risks to your city's water supply?

Yes

(14.3a) Please identify the risks to your city's water supply as well as the timescale and level of risk.

Risks	Estimated timescale	Estimated magnitude	Risk description
Inadequate or ageing infrastructure	Long-term	Extremely serious	Growing population requiring servicing means that wastewater incursions into water supply are becoming more frequent with serious water quality impacts.
Higher water prices	Long-term	Extremely serious	reducing water quality results in increased water treatment
Declining water quality	Medium-term	Serious	Poor water quality will results in increase in water price

Water Supply Management

(14.4) Please select the actions you are taking to reduce the risks to your city's water supply.

Risks
Inadequate or ageing infrastructure

Adaptation action
Watershed preservation

Status of action
Implementation

Action description and implementation progress
A focus on catchment management and ecological infrastructure

---

Risks
Inadequate or ageing infrastructure

Adaptation action
Other

Status of action
Please select

Action description and implementation progress
A number of innovative approaches have been put into practise, or which are being actively pursued. These include: Methodologies used to empty Ventilated Improved Pit (VIP) toilets. Developing low cost, low maintenance sewage treatment system - which does not require electricity - with the effluent providing irrigation to a community garden. Once developed to meet local water quality standards the treatment system will facilitate the provision of water borne sewerage to Housing schemes situated in areas outside that served by Municipal sewerage infrastructure. Investigating water conservation by adopting catchment management practices which incorporate the payment for certain ecosystem practices. The investigation will add to the alternatives to large dams, Cultivation of a specific oil producing species of algae using treatment works effluent. In addition to supplying a bio-diesel this process having the added advantage of removing excess nutrients from the final effluent. The generation of hydro-electric power by utilising the high pressures inherent in the water supply mains.

Risks
Inadequate or ageing infrastructure

Adaptation action
Investment in existing water supply infrastructure

Status of action
Implementation complete but not in operation

Action description and implementation progress
improvements to infrastructure are being done

(14.5) Does your city have a publicly available Water Resource Management strategy?
Yes

(14.5a) Please provide more information on your city's public Water Resource Management strategy.

Submit your response

What language are you submitting your response in?

English

Please read and accept our Terms and Conditions

I have read and accept the Terms and Conditions

Please confirm how your response should be handled by CDP.

	Public or non-public submission
I am submitting my response	Publicly (recommended)