

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	City / Municipality	Based on the foundation provided by its port, which is the biggest international port in Japan, Yokohama functions as one of the core cities in the National Capital Area, and is second largest city in Japan after Tokyo with a population of 3.7 million. The city has an area of 435 km2, of which approximately 80% is put into urban land use.

(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.

0.2_1.1a_letter.pdf

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	Mayor	Fumiko Hayashi	August	2021

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

JPY Japanese yen

(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	37341317	2019	3665000	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	435

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 (Strategy)	Strategy2: Be an advanced environmental city full of flowers and greenery

(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

Global Covenant of Mayors for Climate & Energy

Type of commitment

Both

Comments

(1.6) Does the Mayor have a statutory duty (legal responsibility) to reduce greenhouse gases?

Yes, driven by the city

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

	Mitigation	Adaptation
Please complete	48	4

Data Management

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

(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.

Microsoft Excel

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

Microsoft Excel

(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 city-wide

(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.)?

Yes

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	Other	Evaluation by sector according to national assessment

(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

Yokohama City Climate Change Adaptation Strategy
2.0b_Impact.pdf

Year of adoption from local government

2017

Web link

<https://www.city.yokohama.lg.jp/kurashi/machizukuri-kankyo/ondanka/jikkou/tekiou/keikaku.files/climatechange-adaptationstrategy-outline.pdf>

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

Assessment has under taken as a whole city area.

Areas/sectors covered by the risk and vulnerability assessment

Energy
Water Supply & Sanitation
Transport
Food and agriculture
Waste Management
Environment, Biodiversity and Forestry
Industrial
Commercial
Public health
Emergency Management
Tourism

Primary author of assessment

Relevant city department

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

Extreme Precipitation > Rain storm

Did this hazard significantly impact your city before 2019?

No

Current probability of hazard

Do not know

Current consequence of hazard

Do not know

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

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

Transport
Residential
Emergency services

Please identify which vulnerable populations are affected

Women & girls
Children & youth
Elderly
Persons with disabilities
Persons with chronic diseases

Magnitude of expected future impact

High

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

Inundation below and above the floor Disorder of transportation

Climate Hazards

Extreme hot temperature > Extreme hot days

Did this hazard significantly impact your city before 2019?

No

Current probability of hazard

Do not know

Current consequence of hazard

Do not know

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

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

Public health
Emergency services
Other

Please identify which vulnerable populations are affected

Women & girls
Children & youth
Elderly
Persons with disabilities
Persons with chronic diseases

Magnitude of expected future impact

High

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

Increase in heatstroke

Climate Hazards

Flood and sea level rise > River flood

Did this hazard significantly impact your city before 2019?

No

Current probability of hazard

Do not know

Current consequence of hazard

Do not know

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

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

Residential
Public health
Emergency services

Please identify which vulnerable populations are affected

Women & girls
Children & youth
Elderly
Persons with disabilities
Persons with chronic diseases

Magnitude of expected future impact

High

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

Inundation below and above the floor Disorder of transportation

Climate Hazards

Mass movement > Landslide

Did this hazard significantly impact your city before 2019?

No

Current probability of hazard

Do not know

Current consequence of hazard

Do not know

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

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

Transport
Residential
Public health

Please identify which vulnerable populations are affected

Women & girls
Children & youth
Elderly
Persons with disabilities
Persons with chronic diseases

Magnitude of expected future impact

High

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

Collapsion of houses Disorder of transportation

(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
Environmental conditions	Support	The rich green environment prevents flooding and alleviates the heat island phenomenon. This leads to prevention of flooding and heat stroke.
Community engagement	Support	Minimize damage by helping in the region

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 Precipitation > Rain storm

Action

Crisis management including warning and evacuation systems

Action title

Promotion of flood control measures that river business and sewer business cooperated.

Status of action

Operation

Co-benefit area

Disaster Risk Reduction
Enhanced resilience
Disaster preparedness
Enhanced climate change adaptation

Action description and implementation progress

Crisis management based on Yokohama Citi's disaster prevention plan

Finance status

Finance secured

Total cost of the project**Total cost provided by the local government****Primary fund source**

Local

Web link

https://www.city.yokohama.lg.jp/lang/residents/en/shisei/climatechange/actionplan.files/0003_20190410.pdf

Climate hazards

Extreme hot temperature > Extreme hot days

Action

Community engagement/education

Action title

Effective spread enlightenment, alerting for citizen.

Status of action

Operation

Co-benefit area

Enhanced climate change adaptation
Reduced GHG emissions
Improved public health
Shift to more sustainable behaviours

Action description and implementation progress

Public awareness improvement and information calling of attention about heatstroke

Finance status

Finance secured

Total cost of the project**Total cost provided by the local government****Primary fund source**

Local

Web link

https://www.city.yokohama.lg.jp/lang/residents/en/shisei/climatechange/actionplan.files/0003_20190410.pdf

Climate hazards

Extreme hot temperature > Extreme hot days

Action

Green roofs/walls

Action title

Effective spread enlightenment, alerting for citizen.

Status of action

Operation

Co-benefit area

Enhanced climate change adaptation

Reduced GHG emissions
Improved public health
Shift to more sustainable behaviours

Action description and implementation progress

Promotion of “green curtains”

Finance status

Finance secured

Total cost of the project

Total cost provided by the local government

Primary fund source

Local

Web link

https://www.city.yokohama.lg.jp/lang/residents/en/shisei/climatechange/actionplan.files/0003_20190410.pdf

Climate hazards

Extreme hot temperature > Extreme hot days

Action

Shading in public spaces, markets

Action title

Effective spread enlightenment, alerting for citizen.

Status of action

Operation

Co-benefit area

Enhanced climate change adaptation
Reduced GHG emissions
Improved public health
Shift to more sustainable behaviours

Action description and implementation progress

Demonstration experiment of heat barrier film and sun blind

Finance status

Finance secured

Total cost of the project

Total cost provided by the local government

Primary fund source

Local

Web link

https://www.city.yokohama.lg.jp/lang/residents/en/shisei/climatechange/actionplan.files/0003_20190410.pdf

Climate hazards

Extreme hot temperature > Extreme hot days

Action

Cool pavement

Action title

Effective spread enlightenment, alerting for citizen.

Status of action

Operation

Co-benefit area

Enhanced climate change adaptation
Reduced GHG emissions
Improved public health

Shift to more sustainable behaviours

Action description and implementation progress

Implementation of water retentive pavement road

Finance status

Finance secured

Total cost of the project

Total cost provided by the local government

Primary fund source

Local

Web link

https://www.city.yokohama.lg.jp/lang/residents/en/shisei/climatechange/actionplan.files/0003_20190410.pdf

Climate hazards

Flood and sea level rise > River flood

Action

Community engagement/education

Action title

Promotion of flood control measures that river business and sewer business cooperated.

Status of action

Operation

Co-benefit area

Disaster Risk Reduction

Enhanced resilience

Disaster preparedness

Enhanced climate change adaptation

Action description and implementation progress

Raising public awareness of utilization of flood hazard map and promotion of utilization of disaster information mailing list

Finance status

Finance secured

Total cost of the project

Total cost provided by the local government

Primary fund source

Local

Web link

https://www.city.yokohama.lg.jp/lang/residents/en/shisei/climatechange/actionplan.files/0003_20190410.pdf

Climate hazards

Flood and sea level rise > River flood

Action

Real time risk monitoring

Action title

Promotion of flood control measures that river business and sewer business cooperated.

Status of action

Operation

Co-benefit area

Disaster Risk Reduction

Enhanced resilience

Disaster preparedness

Enhanced climate change adaptation

Action description and implementation progress

Continuous monitoring of river water level and live video streaming of river

Finance status

Finance secured

Total cost of the project**Total cost provided by the local government****Primary fund source**

Local

Web link

https://www.city.yokohama.lg.jp/lang/residents/en/shisei/climatechange/actionplan.files/0003_20190410.pdf

Climate hazards

Flood and sea level rise > River flood

Action

Crisis management including warning and evacuation systems

Action title

Promotion of flood control measures that river business and sewer business cooperated.

Status of action

Operation

Co-benefit area

Disaster Risk Reduction

Enhanced resilience

Disaster preparedness

Enhanced climate change adaptation

Action description and implementation progress

Crisis management based on Yokohama Citi's disaster prevention plan

Finance status

Finance secured

Total cost of the project**Total cost provided by the local government****Primary fund source**

Local

Web link

https://www.city.yokohama.lg.jp/lang/residents/en/shisei/climatechange/actionplan.files/0003_20190410.pdf

Climate hazards

Flood and sea level rise > River flood

Action

Flood defences – development and operation & storage

Action title

Promotion of flood control measures that river business and sewer business cooperated.

Status of action

Operation

Co-benefit area

Disaster Risk Reduction

Enhanced resilience

Disaster preparedness

Enhanced climate change adaptation

Action description and implementation progress

Maintenance of river and sewage equipment

Finance status

Finance secured

Total cost of the project**Total cost provided by the local government****Primary fund source**

Local

Web link

https://www.city.yokohama.lg.jp/lang/residents/en/shisei/climatechange/actionplan.files/0003_20190410.pdf

Climate hazards

Flood and sea level rise > River flood

Action

Storm water capture systems

Action title

Promotion of flood control measures that river business and sewer business cooperated.

Status of action

Operation

Co-benefit area

Disaster Risk Reduction

Enhanced resilience

Disaster preparedness

Enhanced climate change adaptation

Action description and implementation progress

Development of rainwater adjustment reservoir, retarding basin and dry well

Finance status

Finance secured

Total cost of the project**Total cost provided by the local government****Primary fund source**

Local

Web link

https://www.city.yokohama.lg.jp/lang/residents/en/shisei/climatechange/actionplan.files/0003_20190410.pdf

Climate hazards

Flood and sea level rise > River flood

Action

Additional reservoirs and wells for water storage

Action title

Promotion of flood control measures that river business and sewer business cooperated.

Status of action

Operation

Co-benefit area

Disaster Risk Reduction

Enhanced resilience

Disaster preparedness

Enhanced climate change adaptation

Action description and implementation progress

Development of rainwater adjustment reservoir, retarding basin and dry well

Finance status

Finance secured

Total cost of the project**Total cost provided by the local government****Primary fund source**

Local

Web link

https://www.city.yokohama.lg.jp/lang/residents/en/shisei/climatechange/actionplan.files/0003_20190410.pdf

Climate hazards

Flood and sea level rise > River flood

Action

Tree planting and/or creation of green space

Action title

Promotion of flood control measures that river business and sewer business cooperated.

Status of action

Operation

Co-benefit area

Disaster Risk Reduction

Enhanced resilience

Disaster preparedness

Enhanced climate change adaptation

Action description and implementation progress

Maintenance and creation of forest and agricultural area

Finance status

Finance secured

Total cost of the project**Total cost provided by the local government****Primary fund source**

Local

Web link

https://www.city.yokohama.lg.jp/lang/residents/en/shisei/climatechange/actionplan.files/0003_20190410.pdf

Climate hazards

Mass movement > Landslide

Action

Landslide risk mapping

Action title

Landslide risk mapping and community engagement.

Status of action

Operation

Co-benefit area

Disaster Risk Reduction

Enhanced resilience

Disaster preparedness

Enhanced climate change adaptation

Action description and implementation progress

Development of landslide disasters hazard map

Finance status

Finance secured

Total cost of the project

Total cost provided by the local government

Primary fund source

Local

Web link

https://www.city.yokohama.lg.jp/lang/residents/en/shisei/climatechange/actionplan.files/0003_20190410.pdf

Climate hazards

Mass movement > Landslide

Action

Community engagement/education

Action title

Landslide risk mapping and ommunity engagement.

Status of action

Operation

Co-benefit area

Disaster Risk Reduction

Enhanced resilience

Disaster preparedness

Enhanced climate change adaptation

Action description and implementation progress

Public awareness improvement of utilization of landslides disasters hazard map and promotion of utilization of disaster information mailing list

Finance status

Finance secured

Total cost of the project

Total cost provided by the local government

Primary fund source

Local

Web link

https://www.city.yokohama.lg.jp/lang/residents/en/shisei/climatechange/actionplan.files/0003_20190410.pdf

Climate hazards

Flood and sea level rise > River flood

Action

Flood mapping

Action title

Promotion of flood control measures that river business and sewer business cooperated.

Status of action

Operation

Co-benefit area

Disaster Risk Reduction

Enhanced resilience

Disaster preparedness

Enhanced climate change adaptation

Action description and implementation progress

Preparation of flood hazard map

Finance status

Finance secured

Total cost of the project

Total cost provided by the local government

Primary fund source

Local

Web link

https://www.city.yokohama.lg.jp/lang/residents/en/shisei/climatechange/actionplan.files/0003_20190410.pdf

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

Yokohama City Climate Change Adaptation Strategy

Areas covered by adaptation plan

Energy

Transport (Mobility)

Building and Infrastructure

Industry

Agriculture and Forestry

Water

Waste

Public Health and Safety

Business and Financial Service

Social Services

Year of adoption from local government

2017

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

Implementation complete

Type of plan

Standalone

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

Don't know

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

Primary author of plan

Relevant city department

Description of the stakeholder engagement processes

Implementation of public comment

Web link

<https://www.city.yokohama.lg.jp/kurashi/machizukuri-kankyoo/ondanka/jikkou/tekiou/keikaku.files/climatechange-adaptationstrategy-outline.pdf>

Adaptation Goals

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

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	April 1 2016	March 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	There is no excluded area.	

(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.

No – continue to use the GPC format

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

- CO2
- CH4
- N2O
- HFCs
- PFCs
- SF6
- NF3

(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

CIRIS
CIRIS_Standard_v2.1_Yokohama2016_20190702.xlsx

Emissions factors used

Other

Global Warming Potential (select relevant IPCC Assessment Report)

IPCC 4th AR (2007)

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

3724695

Overall Level of confidence

Medium

Comment on level of confidence

(4.6b) Please provide a summary of emissions by sector and scope as defined in the Global Protocol for Community Greenhouse Gas Emissions Inventories (GPC) in the table below.

	Emissions (metric tonnes CO2e)	Where data is not available, please explain why
Stationary Energy: energy use – Scope 1 (I.X.1)	7091081	
Stationary Energy: energy use – Scope 2 (I.X.2)	7462746	
Stationary Energy: energy use – Scope 3 (I.X.3)		Not Estimated
Stationary Energy: energy generation supplied to the grid – Scope 1 (I.4.4)	18877787	
Transportation – Scope 1 (II.X.1)	3019601	
Transportation – Scope 2 (II.X.2)	462363	
Transportation – Scope 3 (II.X.3)	173564	
Waste: waste generated within the city boundary – Scope 1 (III.X.1)	570430	
Waste: waste generated within the city boundary – Scope 3 (III.X.2)	2416535	
Waste: waste generated outside the city boundary – Scope 1 (III.X.3)		Included Elsewhere or Not Estimated
Industrial Processes and Product Use – Scope 1 (IV)	106719	
Agriculture, Forestry and Land Use – Scope 1 (V)	5430	
TOTAL Scope 1 (Territorial) emissions	29671048	
TOTAL Scope 2 emissions	7925110	
TOTAL Scope 3 emissions	2590099	
TOTAL BASIC emissions	21022756	
TOTAL BASIC+ emissions	21308469	

(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	Stayed the same	Emissions have not changed	

(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	Not intending to undertake	

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

(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	Verification is not prioritised	Verification costs additional cost and effort. Also, the priority is low.

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

April 1 2005

Inventory date to

March 31 2015

Scopes / boundary covered

Scope 1 (direct)

Scope 2 (indirect)

Scope 3 (other indirect)

Previous emissions (metric tonnes CO2e)

21590000

Is this inventory used as the base year inventory?

Yes

Methodology

City specific methodology

File name and attach your inventory

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?

No

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

2013

Year of target implementation

2018

Base year emissions (metric tonnes CO2e)

21590000

Percentage reduction target

30

Target year

2030

Target year absolute emissions (metric tonnes CO2e)

15000000

Percentage of target achieved so far

41

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

Heating and cooling supply

Commercial buildings

Residential buildings

Public facility

Industrial facilities

Transport

Other

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.

With 2013 as the base year, short-term goals for fiscal 2020 will be reduced 22%, medium-term targets for fiscal 2030 will be reduced by 30%

(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.

(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?

No

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 action

Buildings > Building codes and standards

Action title

Advance of carbon emission reduction by all companies in the city

Means of implementation

Policy and regulation

Implementation status

Implementation

Estimated emissions reduction (metric tonnes CO2e)

1459000

Energy savings (MWh)

Renewable energy production (MWh)

Timescale of reduction / savings / energy production

Per year

Co-benefit area

Reduced GHG emissions

Economic growth

Action description

For companies of Yokohama Grobal Warming Measures Plan Project, we set the reduction target based on the recent situation of reduction status. For small scale companies,we set the reduction target based on the action of energy saving in the offices(e.g.Introduce energy saving machine,Adjust the temperature of offices.)

Finance status

Finance secured

Total cost of the project

Total cost provided by the local government

Primary fund source

Local

Web link to action website

Nothing

Name of the stakeholder group

<Not Applicable>

Role in the GCC program

<Not Applicable>

Name of the engagement activities

<Not Applicable>

Aim of the engagement activities

<Not Applicable>

Attach reference document

<Not Applicable>

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

Yokohama City Action Plan for Global Warming Countermeasures

Year of adoption from local government

2018

Web link

<https://www.city.yokohama.lg.jp/kurashi/machizukuri-kankyo/ondanka/jikkou/keikaku/plan.files/h30honpen.pdf>

Areas covered by action plan

- Energy
- Transport (Mobility)
- Building and Infrastructure
- Industry
- ICT (Information and Communication Technology)
- Spatial Planning
- Agriculture and Forestry
- Fishery
- Water
- Waste
- Public Health and Safety
- Business and Financial Service
- Social Services

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?

Don't know

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

Has there been a stakeholder engagement plan to develop the plan?

Yes

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
Development of energy efficiency measures and technologies	Economic revitalization using Private Companies in Yokohamas' technology relevant to mitigation and adaptation.
Increase in clean technology businesses	Economic revitalization using Private Companies in Yokohamas' technology relevant to mitigation and adaptation.

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

Yes

(6.1a) Please provide some key examples of how your city collaborates with business in the table below.

Collaboration area	Description of collaboration
Energy	"The Yokohama City Global Warming Countermeasure Council" is established to effectively promote business countermeasures against global warming. We hold workshops and discussion meetings on efforts at business establishments to promote measures against global warming by business operators.

(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

No relevant projects

Project title

Stage of project development

Please select

Status of financing

Please select

Project description

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.)?

No

(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	Moody's	A1
Domestic	No		

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

Please select

(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	Please select
Treasury or city finance staff	Please select
Other staff	Please select

(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?

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	April 1 2017	March 31 2018

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

Other

(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	Other	Based on Yokohama City Action Plan for Global Warming Countermeasures about City Hall (formulated 2014) according to Act on Promotion of Global Warming Countermeasures, we calculate GHG emissions of Yokohama City Hall's activities and projects.

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

- CO2
- CH4
- N2O
- HFCs

(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)
Total	Liquefied Petroleum Gas (LPG)	555676	Btu m3	
Total	Town gas or city gas	26589080	Btu m3	

(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)

922000

Total Scope 1 emissions (metric tonnes CO2e)

Total Scope 2 emissions (metric tonnes CO2e)

Comment

(7.7) Do you measure local government Scope 3 emissions?

Not intending to undertake

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

	Reasoning	Explanation
Please explain	Lack of funding / resources	Because the measurement of Scope 3 emissions requires a larger input of personnel and funds. The city is not carrying out measurement of Scope 3 emissions, but it is implementing initiatives with Scope 3 in mind, such as promotion of green purchasing

(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	Please select	

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	Lack of funding / resources	Verification costs additional cost and effort. Also, the priority is low.

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

Total installed capacity of renewable energy (in MW)

Base year

2013

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

187

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

Target year

2020

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

429

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

Percentage of target achieved

60

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

Solar PV:330 Wind:4 Hydro:1 Waste:94

Scale

City-wide

Energy / electricity types covered by target

Total installed capacity of renewable energy (in MW)

Base year

2013

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

187

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

Target year

2020

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

589

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

Percentage of target achieved

43

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

Solar PV:490 Wind:4 Hydro:1 Waste:94

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

Yes

(8.2) Please indicate the energy mix of electricity consumed in your city.

Percent

Coal

20

Gas

60

Oil

1

Nuclear

0

Hydro

3

Biomass

0

Wind

0

Geothermal

0

Solar

0

Other sources

16

Total - please ensure this equals 100%

100

(8.3) What scale is the energy mix data reported above?

Other

(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.

11

(8.5) How much (in MW capacity) renewable energy is installed within the city boundary in the following categories?

	MW capacity	Please describe the scale of the energy source
Renewable district heat/cooling		
Solar PV	152	
Solar thermal		
Ground or water source	1	
Wind	2	
Other: (please specify)	95	

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

Not intending to undertake

(8.6b) Please explain why you do not have an energy efficiency target and any plans to introduce one in the future.

	Reasoning	Comment
Please explain	Other	Because we set reduction targets in absolute amount, not efficiency.

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	1.35
New buildings	
All building types	

(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	No
Municipal	Yes	No
Residential	Yes	No
New buildings	Yes	No
All building types	Yes	No

(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	Yes	

(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)

Yes - it applies only to new buildings

(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	11200482000
Institutional	
Municipal	1061322614
Residential	13976177000
New buildings	
All building types	25176659000

Transport

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

Freight transport

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	23.4	33.9	5.8		26.4	7.5		

(10.2) What is the mode share of each transport mode in your city for freight transport?

	Mode share
Private motorized transport	
Rail / Metro / Tram	
Ferries / River boats	
Other	

(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	1278679	2779	3298	173285	6393		
Electric	3357	0	38	154	5		
Hybrid	173390	125	234	351	930		
Plug in hybrid	2597	0	4	0	2		
Hydrogen	96	0	10	0	2		

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

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

(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	
Fast 7-22kw	
Slow 3kw or below	
All types	804

(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?

2017

(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*			10.8	µg/m3	100%	
Particulate matter PM10*			0.02	mg/m3	100%	
Carbon monoxide (CO)*			0.5	ppm	100%	
Nitrogen dioxides (NO2x)*			0	ppm	100%	
Sulphur dioxides (SO2x)*			0	ppm	100%	
Ozone (O3)						

Urban Planning

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

18

(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.)

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

61655

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

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

(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	Please select	

(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	Please select	

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)	
Waste generation per capita (kg/person/year)	324

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

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

(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	106904
Composting	
Anaerobic digestion	
Incineration or other form of thermal treatment	877706
Open burning	
Sanitary landfill	5055
Non-sanitary landfill	
Other	

(13.5) Please provide a waste composition analysis

13.5_gomi-recy.pdf

(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

(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?

100

(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
Increased water stress	Long-term	Serious	
Increased water scarcity	Long-term	Serious	
Declining water quality	Long-term	Serious	

Water Supply Management

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

Risks

Increased water stress

Adaptation action

Conservation awareness and education

Status of action

Monitoring and reporting

Action description and implementation progress

Yokohama is preserving and nurturing the growth of headwaters forest owned by Yokohama city in the village of Doshimura, Yamanashi Prefecture. Doshi Water Conservation Forest volunteer project: improvement of forest for headwaters conservation, in collaboration with NPOs and volunteer groups Fund for Headwaters and the Doshi Forest: establishment of a fund with donations from citizens, enterprises, and groups as well as with part of the proceeds from sales of Hamakko Doshi Water, a water product sold in plastic bottles. The Fund is used to support activities for conservation of headwaters.

Risks

Increased water scarcity

Adaptation action

Conservation awareness and education

Status of action

Monitoring and reporting

Action description and implementation progress

same as above

Risks

Declining water quality

Adaptation action

Conservation awareness and education

Status of action

Monitoring and reporting

Action description and implementation progress

same as above

(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.

Publication title and attach document

summary of Yokohama water supply business 2018
14.5a_summary of Yokohama water supply business 2018.pdf

Year of adoption from local government

2018

Web link

<https://www.city.yokohama.lg.jp/kurashi/sumai-kurashi/suido-gesui/suido/suidoujigyou/jigyogaiyou.html>

Does this strategy include Sanitation services?

Yes

Stage of implementation

Measurement in progress

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)