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CDP Cities 2017 - Taichung City Government

Module: Introduction

Page: Introduction

0.1

Please give a general description and introduction to your city including your city's boundary in the text box below.

| Administrative boundary | Description of city |
|-------------------------|---------------------|
|-------------------------|---------------------|

| Administrative boundary | Description of city |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| City/Municipality | <p>Taichung, in a key central Taiwan location, plays an essential role in both Taiwan's economic development and transportation systems. It is the hub for the five cities and counties in the central Taiwan region. Following the merger of Taichung city and county on December 25, 2010, Greater Taichung became third-largest among Taiwan's five special municipalities with a population of 2,720,000 people. Its land area is three times the size of Singapore and twice that of Hong Kong. Surrounded by the mountains and sea, it possesses the precious asset of rich cultures of numerous townships and districts. Thus, Taichung city has established an inclusive land, sea and air transportation network that is seamlessly connected to different parts of the city. The annual average temperature in Taichung is 23 C, with a pleasantly mild year-round climate. Protected by the Central Mountain Range, it is rarely threatened by typhoons and is known as a city of sunshine, radiating warmth and energy. The city is made up of 29 administrative districts, each boasting unique distinctive cultural and natural landscapes. Therefore, a mixture of cultures slowly developed there during the Ming and Qing dynasties and Japanese colonial period. Over the centuries, people from different backgrounds migrated to Taichung and settled down, and the city has become the cosmopolis, contributing to a great society of diverse cultures. You may see plenty of characteristic cultural groups, such as Fukien, Hakka and aboriginal in Taichung. Each year, Taichung city has held a great number of international and local cultural events. Among the economic pillars, Taichung's first-tier industry is agriculture. Driven by free trade and globalization, this industry has shifted to specific types of farming and recreational farming to raise its competitiveness. As Taichung's second-tier industry, industrial development and technology go hand-in-hand. Precision machinery and tool factories are an industrial core for central Taiwan and have inevitably created industry clusters and advances in the development of metal contract manufacturing, electronic parts and related manufacturing. Commercial and Service Industries build the role of the third-tier. Driven by creativity and innovation, these industries have developed their own distinctive characteristics and styles. To ensure sustainable development, environmental conservation is essential. Thus, the Taichung city government has set up a "Low Carbon City Promotion Team" to develop Taichung into a green garden city. More parkways, parks, squares, children's parks, and greenery along waterways and roads have been implemented. The city has also appealed to the private sector for the construction of green buildings and green hedges/walls to further beautify the city.</p> |

0.2**Emissions Accounting Choice**

Reporting emissions is optional for all cities. By checking the boxes below you are indicating that you have fuel and/or greenhouse gas (GHG) emissions data to report at this time.

Select 'Government' to report emissions from your local government operations (sometimes referred to as 'corporate' or 'municipal' emissions).

Select 'Community' to report emissions from the entire city area over which the city government can exercise a degree of influence through the policies and regulations they implement (sometimes referred to as 'geographic' or 'city-wide' emissions).

Select both boxes to report fuel and/or emissions for both inventories.

IF YOU HAVE NO FUEL AND/OR GREENHOUSE GAS EMISSIONS TO REPORT DO NOT CHECK EITHER BOX.

Community

M0.0

Would you like CDP to use the responses provided in the main questionnaire as your city's submission to the Global Covenant of Mayors for Climate and Energy (Compact of Mayors)?

Yes - use my main CDP response as my Global Covenant submission

M0.1.

If registering intent of compliance with the Compact of Mayors, please attach your letter.

[Compact of Mayors Taichung City.pdf](#)

Module: Governance

Page: City Details

0.3

Please provide information about your city's Mayor in the table below.

| Leader title | Leader name | Current term start | Current term end | Total time in office (years) |
|--------------|---------------|--------------------|------------------|------------------------------|
| Mayor | Chia-Lung Lin | 2014 | 2018 | 4 |

0.4

Please provide details of your city's annual operating budget.

| Annual operating budget | Currency | Budget year start | Budget year end |
|-------------------------|-----------------------|-------------------|-----------------|
| 135886561329 | TWD New Taiwan Dollar | Wed 01 Feb 2017 | Sun 31 Dec 2017 |

0.5

Please provide details of your city's current and projected population.

| Current population | Current population year | Projected population | Projected population year |
|--------------------|-------------------------|----------------------|---------------------------|
| 2750000 | 2016 | 2820000 | 2020 |

0.6

Please provide details of your city's GDP.

| GDP | Currency | Year of GDP | Source |
|-------|---------------|-------------|------------------|
| 22635 | USD US Dollar | 2016 | Financial Bureau |

0.7

Please provide further details about the geography of your city.

| Average annual temperature (in Celsius) | Land area (in square km) | Average altitude (m) | Longitude (e.g. -120.9762) | Latitude (e.g. 41.25) |
|-----------------------------------------|--------------------------|----------------------|----------------------------|-----------------------|
| 23 | 2215 | | 120.681388 | 24.143333 |

Page: Governance

1.0

Please describe the impact of national and/or regional climate change activities on your city's own climate change activities.

We established our Climate Change Action Framework with emissions reduction targets in accordance with greenhouse gas reduction and energy efficiency targets set by Executive Yuan, and developed relevant carbon reduction policies and strategies. We also followed the "Adaptation Strategy to Climate Change in Taiwan" published by Central government to implement citywide vulnerability assessment. Taichung City Government is dedicated to cooperation with Central government to prepare for the impacts of climate change by establishing local policy on the basis of national climate change policy and activities.

1.1

Please describe how your city manages overall responsibility for climate change mitigation (emissions reduction) and adaptation (climate risk reduction).

In 2015, Taichung City Government established the "Taichung City Climate Change Action Framework" with a vision to create Taichung a livable green city. The framework consists of 6 aspects as (1) Build Green City Economy, (2) Construct Low Carbon Transportation, (3) Enhance Ecological Environment Quality, (4) Sustainable Resource Recycle & Reuse, (5) Capacitate Climate Change Adaptation, (6) Promote International Cooperation. In the framework, we also set our greenhouse gas reduction goal for 2022 to be 10% lower than the level of 2011. All bureaus were asked to submit their implementation plans according to the framework. The progress of these implementation plans are reviewed every year.

1.2

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

| Response | Description |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Yes | We provide consultation services to businesses regarding energy saving program. We also established subsidy program to encourage businesses to change their boilers from burning coal to natural gas. The subsidy program also assist household to install solar energy water heater. In 2014, we promulgated the "Autonomous Law for Developing Low Carbon City". According to this law businesses with their electric contract capacity over certain level are required to build regeneration power facility equal to 10% of their contract capacity in 3 years. The contract capacity level is set for 5 MW for the first stage of enforcement. |

Module: Risks & Adaptation

Page: Climate Hazards

2.0

Has a climate change risk or vulnerability assessment been undertaken for your local government area?

Yes

2.0a

Please attach and provide details on your climate change risk or 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 | Year of publication | Attach the document | Web link | Boundary of assessment relative to city boundary (reported in 0.1) | Explanation of boundary choice | Primary author of assessment |
|----------------------------------------------|---------------------|---------------------|----------|--------------------------------------------------------------------|--------------------------------|------------------------------|
| Taichung City Climate Change Adaptation Plan | | | | Same – covers entire city and nothing else | Taichung City Limit | Consultant |

2.0b

Please select the primary process or methodology used to undertake the risk or vulnerability assessment of your city. If your city uses a combination of methodologies, please select the main methodology used.

| Primary methodology | Description |
|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IPCC climate change impact assessment guidance | The main contents of the project include: (1) Analysis of trends and impacts of climate change to Taichung City. (2) Climate change risk assessment. (3) Assessment of key sectors, vulnerability and key issues. (4) Adaptation strategies and implementation plans. (5) Priority of implementation plans. (6) Suggestions for future planning. |

M2.3b.

If your city has a climate risk or vulnerability assessment, please describe how your city's climate change risk or vulnerability assessment addresses the following key areas, and provide details on the location of this evidence within your assessment.

| Key requirements | Proof statement | Page number | Publication title |
|-----------------------------------------|-----------------|-------------|-------------------|
| Assessment of impact of current hazards | | | |
| Assessment of impact of future hazards | | | |

2.1

Do the current and/or anticipated effects of climate change present a significant risk to your city?

Yes

2.1a

Please list the most significant climate hazards currently faced by your city and indicate the probability and consequence of these hazards.

| Climate hazards | Probability of hazard | Consequence of hazard |
|-----------------|-----------------------|-----------------------|
| | | |

| Climate hazards | Probability of hazard | Consequence of hazard |
|-----------------------------|-----------------------|-----------------------|
| Cyclone (Hurricane/Typhoon) | Medium High | High |
| Rain storm | High | High |
| Landslide | High | High |

2.1c

Please identify how you expect climate change to affect the frequency and intensity of the hazards faced by your city and when you expect to experience those changes.

| Climate hazards | Change in frequency | Change in intensity | Anticipated timescale |
|-----------------------------|---------------------|---------------------|-----------------------|
| Cyclone (Hurricane/Typhoon) | Increasing | Increasing | Current |
| Rain storm | Increasing | Increasing | Current |
| Landslide | Increasing | Increasing | Current |

Page: Climate Hazards II

2.1d

Please describe the magnitude of the impact of these hazards and identify three critical assets or services that may be most impacted.

| Climate hazards | Magnitude of impact | Impact description | Asset or service | Asset or service | Asset or service |
|-----------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------|----------------------|
| Cyclone (Hurricane/Typhoon) | Serious | Typhoon Nari (September 2001) caused heavy rainfall to the city resulted in large areas of flood. | Emergency Management | Food and agriculture | Transport |
| Rain storm | Serious | According to the Central Weather Bureau show that in recent years (1997 to 2007) and the front surface of the typhoon brought rainfall exceeds the drainage capacity of the city sewer system. | Water Supply & Sanitation | Food and agriculture | Transport |
| Landslide | Serious | Frequency of landslide increased at the central mountain area. | Emergency Management | Residential | Food and agriculture |

2.2

Do you consider that the effects of climate change could threaten the ability of businesses to operate successfully in your city?

| Response | Explanation |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Yes | Extreme rainfall caused by climate change may increase operating cost of industries and reduce service quality of government, such as more energy consumption and unstable communication service during typhoon period. |

Page: Adaptation

3.0

Has the Mayor or local government committed to adapting to climate change across the geographical area of the city, town or settlement?

Yes

3.0a

Please select the type of commitment(s) and attach evidence.

| Type of commitment | Attach | Comments |
|--------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Compact of Mayors | Compact of Mayors Taichung City.pdf | Signed declaration for "International Summit on Climate Change and Low Carbon Metropolises" Declaration: Urban Empowerment for Sustainable Development The rights for future generation must be protected to ensure continued access to clean water, pure air, energy supply, biodiversity and climatic conditions that preserve coastlines while diminishing risks of extreme storms and droughts. |

3.1

Does your local government have a 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.

| Publication title | Year of publication | Attach the document | Web link | Boundary of plan relative to city boundary (reported in 0.1) | Explanation of boundary choice | Area under your city's control | Primary author of plan |
|----------------------------------------------|---------------------|---------------------|----------|--------------------------------------------------------------|--------------------------------|--------------------------------|------------------------|
| Taichung City Climate Change Adaptation Plan | 2015 | | | Same – covers entire city and nothing else | Taichung City Limit | | |

M3.1.b

If your local government has a climate adaptation plan, please describe how the plan addresses the following key areas, and provide details on the location of this evidence within your plan.

| Key requirements | Proof statement | Page number | Publication title |
|-------------------------------------------------------------|-----------------|-------------|-------------------|
| Political commitment to adaptation | | | |
| Identification of adaptation actions | | | |
| Engagement of multiple city government agencies/departments | | | |
| Process for regular review of the plan | | | |

3.2

The Global Covenant of Mayors requires cities to complete [these additional questions](#) on the climate hazards affecting your city and your city's plans to adapt to these hazards. Other cities wishing to disclose further detail about their adaptation efforts are also encouraged to fill out the download.

[Click here to download the additional questions.](#)

3.3

Please describe the actions you are taking to reduce the risk to, or vulnerability of, your city's infrastructure, citizens, and businesses from climate change as identified on the previous page.

| Climate hazards | Action | Action description |
|-----------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cyclone (Hurricane/Typhoon) | Flood mapping | River level monitoring and warning systems are built along major flood area. People can use personal computer or mobile phone to check the status of rainfall and flood warning information for early preparation to avoid loss of property and life. |
| Rain storm | Flood mapping | River level monitoring and warning systems are built along major flood area. People can use personal computer or mobile phone to check the status of rainfall and flood warning information for early preparation to avoid loss of property and life. |

| Climate hazards | Action | Action description |
|-----------------|------------------------|--------------------------------------------------------------------------------------|
| Landslide | Landslide risk mapping | Landslide risk assessment provides information to relocate people in high risk area. |

Page: Social Risks

4.0

Does your city face any social risks as a result of climate change?

Yes

4.0a

Please complete the table

| Social risks | Anticipated timescale in years | Impact description |
|---------------------------------------------------------|--------------------------------|-------------------------------------------|
| Increased demand for public services (including health) | Current | Flood and landslide emergency management. |

Module: Opportunities

Page: Opportunities

5.0

Does climate change present any economic opportunities for your city?

Yes

5.0a

Please indicate the opportunities and describe how the city is positioning itself to take advantage of them.

| Economic opportunity | Describe how the city is maximizing this opportunity |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Development of new business industries (e.g. clean tech) | The AU Optronics Corp. (AUO) located in Taichung City that manufactures TFT-LCD and solar energy related products has been benefited from the increased demand for energy saving products and solar energy. During the past few years, AUO has created large businesses and job opportunities to Taichung City. AU OPTRONICS CORP PV SYSTEM, planned on 2010 and established on 2012, is built on the rooftop of BenQ Solar, a subsidiary of AUO located in Taichung City. This PV system has a total capacity of 21 MW and it is the biggest rooftop power plant in Taiwan. |
| Increased infrastructure investment | Taichung City Government has replaced all traditional street lightings to LED lightings. Every year, the city government also provides subsidy programs to communities for replacement to LED lightings and installation of solar power water heaters. |
| Other: Green Transportation | Development of green transportation has also brought new business opportunities to Taichung City, such as the MRT system under construction, the public bike rental system under expansion, and the increasing number of electric buses. |

5.1

Does your city collaborate with businesses in your city on sustainability issues or projects?

| Response | Description |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Yes | For example, AU Optronics Corp. has collaborated with Taichung City in some activities by donating its carbon credit to the City to offset the carbon emission generated from that activity. |

5.2

List any climate change-related projects for which you hope to attract private sector financing, and provide any details on the estimated overall costs and status of the project. If your city does not have any relevant projects, please select None under Project Area.

| Project area | Status of project | Status of financing | Project description | Total cost of project (USD\$) | Total investment cost needed (USD\$) |
|--------------|-------------------|---------------------|---------------------|-------------------------------|--------------------------------------|
|--------------|-------------------|---------------------|---------------------|-------------------------------|--------------------------------------|

| Project area | Status of project | Status of financing | Project description | Total cost of project (USD\$) | Total investment cost needed (USD\$) |
|----------------------------|-------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------|--------------------------------------|
| Renewable energy | Implementation | Project partially financed and seeking additional financing | Promotion of solar and wind power generation systems. | | |
| Energy efficiency/retrofit | Implementation | Project partially financed and seeking additional financing | Promotion of smart city programs to build Taichung a low carbon and innovation city. | | |
| Transport | Implementation | Project partially financed and seeking additional financing | Promotion of light rails and electric buses. | | |

Module: Emissions - Community

Page: Community - Date and Boundary

C1.0

Please state the dates of the accounting year or 12-month period for which you are reporting a GHG measurement inventory for your community.

Thu 01 Jan 2015 - Thu 31 Dec 2015

C1.1

Please indicate the category that best describes the boundary of your community GHG emissions inventory.

Administrative boundary of a local government

Page: Community - GHG Emissions Data

C1.2

Please give the name of the primary protocol, standard or methodology you have used to calculate GHG emissions.

| Primary protocol | Comment |
|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Global Protocol for Community-Scale Greenhouse Gas Emissions Inventories (GPC), (WRI, C40 and ICLEI) | GHG Protocol is working to give cities the standards and tools they need to measure their emissions, build more effective emissions reduction strategies, set measurable and more ambitious emission reduction goals, and to track their progress more accurately and comprehensively. |

C1.5

If applicable, please provide a breakdown of your GHG emissions by scope. Where values are not available, please use the comment field to indicate the reason why.

| Scope | Metric tonnes CO ₂ e | Level of confidence | Comments |
|---------------------------------------------------------------------------------|---------------------------------|---------------------|----------|
| Scope 1 emissions excluding emissions from grid-supplied energy generation | 14454766.38 | High | |
| Scope 1 emissions from grid-supplied energy generation within the city boundary | 4246798.36 | High | |
| Total Scope 1 emissions (Row 1 + Row 2) | 18701564.74 | High | |
| Total Scope 2 emissions | 13668164.44 | High | |

C1.9a

Please provide a summary of emissions by sector and scope as defined in the Global Protocol for Community Greenhouse Gas Emissions Inventories (GPC), (WRI, C40 and ICLEI). Please complete the corresponding emissions for each row in the table below.

| Sector and scope (GPC reference number) | Emissions (metric tonnes CO2e) |
|-----------------------------------------------------------------------------|--------------------------------|
| Stationary Energy: energy use – Scope 1 (I.X.1) | 3395153.79 |
| Stationary Energy: energy use – Scope 2 (I.X.2) | 13630713.95 |
| Stationary Energy: energy use – Scope 3 (I.X.3) | 0 |
| Stationary Energy: energy generation supplied to the grid – Scope 1 (I.4.4) | 4246798.36 |
| Transportation – Scope 1 (II.X.1) | 4795530.09 |
| Transportation – Scope 2 (II.X.2) | 37450.48 |
| Transportation – Scope 3 (II.X.3) | 0 |
| Waste: waste generated within the city boundary – Scope 1 (III.X.1) | 494329.10 |
| Waste: waste generated within the city boundary – Scope 3 (III.X.2) | 0 |
| Waste: waste generated outside the city boundary – Scope 1 (III.X.3) | 0 |
| Industrial Processes and Product Use – Scope 1 (IV) | 9946004.07 |
| Agriculture, Forestry and Land Use – Scope 1 (V) | 1126109.17 |
| TOTAL Scope 1 (Territorial) emissions | 18701564.74 |
| TOTAL BASIC emissions | 13668164.44 |
| TOTAL BASIC and BASIC+ emissions | 32369729.18 |

C1.9b

Please provide a breakdown of fuel use and emissions by subsector and scope as defined in the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC), (WRI, C40 and ICLEI) and attach GHG emissions report.

[Download the GPC Reporting Tool \(CIRIS\) here.](#)

| Attachment | Document title |
|-------------------------------------------------------|----------------------------------|
| 2015 Taichung City GHG Inventory.xlsx | 2015 Taichung City GHG Inventory |

C1.12

Please indicate if your emissions have increased, decreased, or stayed the same since your last emissions inventory, and please describe why.

| Reason for change | Please describe why |
|-------------------|-----------------------------------------------------------------|
| Increased | The city is growing in population, industry and transportation. |

Further Information**Page: Community - External Verification****C1.13**

Has the GHG emissions data you are currently reporting been externally verified or audited in part or in whole?

Yes

C1.13a

Please provide the following information about the emissions verification process.

| Name of verifier | Year of verification | Attach verification certificate | Comments |
|------------------|----------------------|--------------------------------------------------------------------------------------------|----------|
| SGS Taiwan Ltd. | 2015 | GHG Verification Report Taichung City Government Community Scale 2015 .pdf | |

Module: Strategy**Page: GHG Emissions Reduction - Local Government Operations**

6.0

Do you have a GHG emissions reduction target in place for your local government operations?

Yes

6.0a

Please provide details of your local government operations emissions reduction target.

| Sector | Define target boundary | Baseline year | Baseline emissions (metric tonnes CO2e) | Percentage reduction target | Target date | Comment |
|--------|------------------------|---------------|-----------------------------------------|-----------------------------|-------------|---------|
| Total | All departments | 2011 | | 10% | Other: 2022 | |

6.1

What actions are you undertaking to reduce your emissions in your local government operations?

| Emissions reduction activity | Anticipated emissions reduction – cumulative over the lifetime of the action (metric tonnes CO2e) | Action description |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Building codes and standards | | Green building certifications required for new public buildings and development projects. |
| Developing the green economy | | To encourage the development of green energy industries and green products in Taichung City by providing favorable investment environment. |
| Eco-district development strategy | | The Shuainan District under planning and construction is designed to become the low carbon, intelligent and innovation model district of Taichung City. |
| LED / CFL / other luminaire technologies | | Taichung City Government has replaced all traditional street lightings to LED lightings. Every year, the city government also provides subsidy programs to communities for replacement to LED lightings and installation of solar power water heaters. |
| Green space and/ or biodiversity preservation and expansion | | Green corridors and eco-preservation areas are built and maintained by the city government such as the Callegraphy Greenway and the Gaomei Wetland. |
| On-site renewable energy generation | | Solar power generation facilities are under planning for the roofs at all public schools as well as landfill sites. |
| Recycling or composting collections and/or facilities | | Taichung City has built a complete network for resource recycling and reuse. For example the Baochilin Used Furniture Plant can revitalize abandoned furnitures into usefull ones. |
| Smart public transport | | Smart bus stops and apps are developed for passengers to easily understand the bus schedule that could help increase people's interest in taking buses, |
| Transit oriented development | | Green transportation network is under construction in Taichung City such as the MRT system, the public bike rental system, and the increasing number of electric buses. |

| Emissions reduction activity | Anticipated emissions reduction – cumulative over the lifetime of the action (metric tonnes CO2e) | Action description |
|------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Urban agriculture | | The city food forest project is promoting urban farming at communities and households to grow edible plants on rooftops, gardens and vacant lands. |

Page: GHG Emissions Reduction - Community

7.0

Does your city have a climate change action plan for reducing GHG emissions?

Yes

7.0a

Please attach your city's climate change action plan below.

| Publication title | Year of publication | Attach | Web link |
|-----------------------------------------------|---------------------|------------------------------------------|----------|
| Taichung City Climate Change Action Framework | 2015 | 臺中市氣候變遷行動綱領_20151207.doc | |

M1.6b

If your city has a climate change action plan, please describe how the plan addresses the following key areas, and provide details on the location of this evidence within your plan.

| Key requirement | Proof statement | Page number | Publication title |
|----------------------------------------------------------------|--------------------------------|-------------|-----------------------------------------------|
| Political commitment to emissions reduction | GHG reduction goal | 1 | Taichung City Climate Change Action Framework |
| Vision describing city's overall ambition and clear objectives | The vision and the framework | 4 | Taichung City Climate Change Action Framework |
| Context of the action plan | 6 objectives and 20 strategies | 5-11 | Taichung City Climate Change Action Framework |
| Baseline GHG emissions figure | Figure 1 and Table 1 | 2 | Taichung City Climate Change Action Framework |
| Business as usual GHG emissions forecast | Figure 1 and Table 1 | 2 | Taichung City Climate Change Action Framework |
| GHG emissions reduction target | Figure 1 and Table 1 | 2 | Taichung City Climate Change Action Framework |
| Implementation of the action plan | Principles of Implementation | 2 | Taichung City Climate Change Action Framework |
| Monitoring of the action plan | Principles of Implementation | 2 | Taichung City Climate Change Action Framework |

7.1

Do you have a GHG emissions reduction target in place for your community? Tick all that apply.

Base year emissions (absolute) target

7.1a

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

| Sector | Baseline year | Baseline emissions (metric tonnes CO2e) | Percentage reduction target | Target date | Comment |
|--------|---------------|-----------------------------------------|-----------------------------|-------------|---------|
| Total | 2011 | | 10% | Other: 2022 | |

7.2

What actions are you undertaking to reduce emissions city-wide?

| Emissions reduction activity | Anticipated emissions reduction – cumulative over the lifetime of the action (metric tonnes CO2e) | Action description |
|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Building codes and standards | | Green building certifications required for new public buildings and development projects. |
| Developing the green economy | | To encourage the development of green energy industries and green products in Taichung City by providing favorable investment environment. |
| Eco-district development strategy | | The Shuainan District under planning and construction is designed to become the low carbon, intelligent and innovation model district of Taichung City. |
| Green space and/ or biodiversity preservation and expansion | | Green corridors and eco-preservation areas are built and maintained by the city government such as the Callegraphy Greenway and the Gaomei Wetland. |
| Improve bus infrastructure, services, and operations | | Green transportation network is under construction in Taichung City such as the MRT system, the public bike rental system, and the increasing number of electric buses. Smart bus stops and apps are developed for passengers to easily understand the bus schedule that could help increase people's interest in taking buses, |
| Improve rail, metro, and tram infrastructure, services and operations | | Green transportation network is under construction in Taichung City such as the MRT system, the public bike rental system, and the increasing number of electric buses. Smart bus stops and apps are developed for passengers to easily understand the bus schedule that could help increase people's interest in taking buses, |
| Infrastructure for non motorized transport | | Expansion of public bike system to 300 public bike rental stations with 600 km bike path and 9000 bikes for rent. |
| Landfill management | | Landfill gas collected and used for power generation. Building solar pannel at landfill site for solar power generation. |
| LED / CFL / other luminaire technologies | | Taichung City Government has replaced all traditional street lightings to LED lightings. Every year, the city government also provides subsidy programs to communities for replacement to LED lightings and installation of solar power water heaters. |
| Smart public transport | | Smart bus stops and apps are developed for passengers to easily understand the bus schedule that could help increase people's interest in taking buses, |
| Transit oriented development | | Green transportation network is under construction in Taichung City such as the MRT system, the public bike rental system, and the increasing number of electric buses. |
| Urban agriculture | | The city food forest project is promoting urban farming at communities and households to grow edibale plants on rooftops, gardens and vacant lands. |

| Emissions reduction activity | Anticipated emissions reduction – cumulative over the lifetime of the action (metric tonnes CO2e) | Action description |
|---------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Water recycling and reclamation | | Implementation of rain water collection for park irrigation and street roads cleaning. |

Page: Renewable Energy

8.0

Please indicate the energy mix of your electricity consumed at the city-wide scale.

| Energy source | Percent |
|-----------------|---------|
| Coal | 37.60% |
| Gas | 32.40% |
| Oil | 2.80% |
| Nuclear | 18.60% |
| Hydro | 3.40% |
| Biomass | 0.00% |
| Wind | 1.80% |
| Geothermal | 0.00% |
| Solar | 0.20% |
| Unknown sources | |

8.1

Does your city have a renewable energy or electricity target for consumption and/or production of energy?

Yes

8.1a

Please provide details of your renewable energy targets and how the city plans to meet those targets.

| Scale | Energy types covered by target | Base year | <u>Base year</u> total renewable energy covered by target (in unit specified in column 2) | <u>Base year</u> percentage renewable energy of total energy or electricity | Target year | <u>Target year</u> total renewable energy covered by target (in unit specified in column 2) | <u>Target year</u> percentage renewable energy of total energy | Plans to meet target (include details on types of energy) |
|-----------|------------------------------------------------------|-----------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------|
| City-wide | Total installed capacity of renewable energy (in MW) | 2016 | 60 | 1% | 2020 | 100% | 2% | Develop solar PV system city-wide. |

Page: Water Supply Risks

9.0

Do you foresee substantive risks to your city's water supply in the short or long term?

Yes

9.0a

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

| Risks | Timescale | Level | Risk description |
|-------|-----------|-------|------------------|
|-------|-----------|-------|------------------|

| Risks | Timescale | Level | Risk description |
|------------------------------------|-----------|--------------|----------------------------------------------------------------------|
| Increased water stress or scarcity | Current | Less serious | Severe weather could bring seasonal drought impacts on water supply. |

Page: Water Supply Management

9.1

Please describe the actions you are taking to reduce the risks to your city's water supply.

| Risks | Adaptation action | Action description |
|------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Increased water stress or scarcity | Conservation awareness and education | Promotion for the use of water saving devices. Collection of rain water for irrigation and street cleaning. |

Module: Compact of Mayors

Page: COM Overview

Please note

Your Global Covenant (Compact of Mayors) questions are integrated into the main CDP questionnaire and highlighted in blue. Please ensure you respond to those questions.

As you have selected to submit your data to the Global Covenant (Compact of Mayors) through the main CDP response (in question M0.0 on the Introduction page), no questions will be visible on this page.

Submitting your response

Once your response is complete, please return to the Home page, check the box next to the "Global Covenant module" and click Submit.

Page: COM GHG Emissions Inventory

Please note

Your Global Covenant (Compact of Mayors) questions are integrated into the main CDP questionnaire and highlighted in blue. Please ensure you respond to those questions.

As you have selected to submit your data to the Global Covenant (Compact of Mayors) through the main CDP response (in question M0.0 on the Introduction page), no questions will be visible on this page.

Submitting your response

Once your response is complete, please return to the Home page, check the box next to the "Global Covenant module" and click Submit.

Page: COM GHG Emissions Reduction

Please note

Your Global Covenant (Compact of Mayors) questions are integrated into the main CDP questionnaire and highlighted in blue. Please ensure you respond to those questions.

As you have selected to submit your data to the Global Covenant (Compact of Mayors) through the main CDP response (in question M0.0 on the Introduction page), no questions will be visible on this page.

Submitting your response

Once your response is complete, please return to the Home page, check the box next to the "Global Covenant module" and click Submit.

Page: COM Climate Hazards

Please note

Your Global Covenant (Compact of Mayors) questions are integrated into the main CDP questionnaire and highlighted in blue. Please ensure you respond to those questions.

As you have selected to submit your data to the Global Covenant (Compact of Mayors) through the main CDP response (in question M0.0 on the Introduction page), no questions will be visible on this page.

Submitting your response

Once your response is complete, please return to the Home page, check the box next to the "Global Covenant module" and click Submit.

Page: COM Climate Hazards II

Please
note

Your Global Covenant (Compact of Mayors) questions are integrated into the main CDP questionnaire and highlighted in blue. Please ensure you respond to those questions.

As you have selected to submit your data to the Global Covenant (Compact of Mayors) through the main CDP response (in question M0.0 on the Introduction page), no questions will be visible on this page.

[Submitting your response](#)

Once your response is complete, please return to the Home page, check the box next to the "Global Covenant module" and click Submit.

Page: COM Adaptation

Please
note

Your Global Covenant (Compact of Mayors) questions are integrated into the main CDP questionnaire and highlighted in blue. Please ensure you respond to those questions.

As you have selected to submit your data to the Global Covenant (Compact of Mayors) through the main CDP response (in question M0.0 on the Introduction page), no questions will be visible on this page.

[Submitting your response](#)

Once your response is complete, please return to the Home page, check the box next to the "Global Covenant module" and click Submit.

CDP: [X][-,][P2]



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