CITIES ON THE ROUTE TO 2030

Building a zero emissions, resilient planet for all

May 2021

ABOUT CDP

CDP is a global non-profit that runs the world's environmental disclosure system for subnational governments and companies. Over 10,000 organizations around the world disclosed data through CDP in 2020, including more than 9,600 companies worth over 50% of global market capitalization, and over 940 cities, states and regions — representing a combined population of over 2.6 billion. Visit cdp.net or follow us @CDP to find out more.

TABLE OF CONTENTS

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The reference to a "city" in the report applies to any entity that submitted data through the Cities 2020 Questionnaire in the CDP-ICLEI Unified Reporting System. The analysis contains data from cities or, in some instances, groups of cities at different administrative levels that reported in 2020. This includes metropolitan areas, combined authorities, and some regional councils.

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KEY FINDINGS

In 2020, there has been a 17x increase in city disclosure since 2011 — 812 cities have disclosed, compared to just 48 in 2011.

Cutting emissions in line with 1.5°C

- **67%** of cities now have city-wide emissions inventories.
- **58%** of cities do not yet have a city-wide emissions reduction target.
- **148** cities report that their targets are aligned with 1.5°C, but only 52 of these reported an interim target.

- **Over half (51%)** of cities do not yet have a climate action plan.
- Reporting cities are generating around **692 million Megawatt-hours (MWh)** of renewable energy from their emission reduction activities, enough to power almost **65 million homes** for one year[1].
- Renewable energy makes up **42%**[2] of reporting cities' energy mix vs. a global average of **26%**[3].

Building resilience to protect every person

- **93%** of cities are facing significant climate risks.
- **43%** of cities, representing a projected population of over 400 million people by 2030, do not have an adaptation plan to tackle climate risk.
- **For 74%** of cities, climate change is increasing risks to already vulnerable populations.
- **59%** of cities have conducted a climate risk and vulnerability assessment.

- **60%** of cities cite substantive risk to their water security.
- **Only 46%** of cities include water security in their vulnerability assessment.
- **Almost 50%** of cities taking adaptation actions see a public health benefit from these measures.
- **25%** of cities cite budgetary capacity issues as a barrier to adaptation.
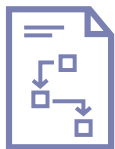
Climate planning to sustain action

- **87%** of cities are incorporating sustainability into master planning or are intending to do so in the next two years.
- Cities that incorporate sustainability into master planning identify **more than twice (2.4x)** as many opportunities from addressing climate change as cities that do not.

- Cities with climate action plans identify **twice as many** opportunities from addressing climate change as cities that do not. These opportunities include business innovation and additional funding. These cities are also taking **five times** as many actions to reduce emissions as other cities.
- Cities identify **over 1,000 climate projects** seeking finance, worth **USD 72 billion**[4].
- **76%** of cities are collaborating with businesses on sustainability projects or are intending to do so in the next two years.

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1 The comparison to total homes powered is based on data from the EPA calculator.
2 Note that this statistic includes 124 cities in Latin America where hydropower contributes significantly to the energy mix. Without these Latin American cities, 32.3% of reporting cities' energy mix is made up of renewable energy, which is still higher than the global average.
3 IEA, 2018.
4 This is the total cost of the projects identified. Cities are seeking for investment for part of this cost — USD 42 billion.

FOREWORD

Kyra Appleby
Global Director of Cities, States and Regions, CDP

2020 marked ten years of cities reporting climate and environmental data through the CDP-ICLEI Unified Reporting System.

We have witnessed a profound change in climate action over the past decade. Local government action and ambition has increased, and national governments have also stepped up. The signing of the Paris Agreement in 2015 was a turning point for city action — the number of cities disclosing to CDP since 2015 has more than doubled, showing that cities are stepping up to the challenge of cutting emissions and building resilience to climate change.

With the publication of the Intergovernmental Panel on Climate Change (IPCC)'s Special Report on 1.5°C in 2018, this momentum continued, and we began to see an upswell in cities across the globe setting long-term ambitious targets. In many countries, cities' targets are more ambitious than their national government's commitments, such as in Santa Fe County in the United States, Greater Manchester in the United Kingdom, and Penampang in Malaysia. In 2020, 148 cities reported having targets aligned with a 1.5°C future. This figure is set to grow in the coming years as cities develop their science-based climate targets.

Since the beginning of the COVID-19 pandemic, cities have been on the frontline of two complex global crises: tackling the pandemic and climate change simultaneously. Despite facing increased pressure and reduced resources during this time, 812 cities reported on their environmental impacts in 2020. It is testament to the truly determined staff in cities across the globe who work tirelessly to take action on climate change in the face of extremely challenging circumstances. From all of us at CDP, we thank you for your efforts and your continued commitment to strong and meaningful environmental action.

What began as a public health crisis has now developed into a social and economic crisis. COVID-19 has shone a light on inequalities and vulnerabilities, showing us that cities can't go back to business as usual — we need to build back better.

74% of cities report that climate change is increasing risk to already vulnerable populations. City climate action must tackle social inequality too, ensuring fair and equitable protection from climate and public health threats.

We now find ourselves in the second year of the decade of climate action. We are facing a climate emergency, and this is our last chance to make rapid and deep cuts to global emissions, protect biodiversity, and ensure our cities provide safe and resilient places to live and do business.

As we embark on the next ten years of climate action, we acknowledge that city progress has been steady, but there is still much work to do. We must prioritize a green recovery and ensure that cities have the necessary support to decarbonize rapidly and build resilience to tackle climate risks. With the clock ticking down, the time for strong, decisive action is now.

THE ROUTE TO 2030

As we mark ten years of CDP cities' disclosure, we reflect upon the huge growth in reporting of data and action, with a 17-fold increase in the number of cities disclosing through the CDP-ICLEI Unified Reporting System. As we look to the next 10 years, we must continue this upward trajectory towards a resilient future — the health of the planet and its people depend on it.

The latest climate science is clear. We must reduce global emissions by 45% by 2030 and reach net zero by 2050 if we are to build a zero emissions and safe, resilient planet for all. Cities represent up to 70% of global emissions[5] and have a vital role to play. Yet cities cannot do it alone. Despite the powers they have, the bulk of a city's emissions typically come from sources over which it exercises no direct control[6].

Cities are stepping up to this challenge by choosing to collaborate with other stakeholders. 76% of cities are already working with the private sector on sustainability projects, or plan to do so in the next two years.

Cities have a dual role to play. To survive and thrive they must be resilient, healthy, and equitable places to live and work. To achieve this all cities should have a plan to adapt to climate change. Although 93% of reporting cities are facing significant climate hazards, putting their people and infrastructure at risk, currently 43% of cities do not yet have an adaptation plan to tackle these hazards.

Robust, accurate, and timely disclosure of environmental data is essential if we are to credibly demonstrate progress toward limiting global warming to 1.5°C.

To stay within safe limits, we must accelerate action today.

> We know that cities are on the front lines of the climate emergency. They are densely populated, and they account for 70% of global emissions. But they are also agents of change to build a new model of society. We, the mayors, we know how to act quickly on the ground, as close as possible to the people who are already being impacted by climate change.

ANNE HIDALGO
Mayor of Paris, France

Paris, France

5   Global Report on Human Settlements 2011: Cities and Climate Change, UN-HABITAT, 2011.
6   It Takes a City: The Case for Collaborative Climate Action, CDP, 2016.

Cities' progress over the last ten years

544 cities

have city-wide emissions inventories

↑ from 30 in 2011

339 cities

have city-wide emissions reduction targets

↑ from 16 in 2011

399 cities

have climate action plans

↑ from 210 in 2016

Renewables make up

42% of reporting cities' energy mix

vs.

26% global average[7]

459 cities

have an adaptation plan that identifies and manages climate risks

↑ from 30 in 2011

710 cities

incorporate sustainability into their master planning or plan to do so

↑ from 32 in 2011

Kolkata, India

7   Ibid., IEA, 2018

HALVING EMISSIONS BY 2030

Over the past ten years cities have made progress in measuring their emissions, setting targets, and implementing plans and actions to reduce emissions.

Today, 544 cities have city-wide emissions inventories, up from 30 in 2011. 365 cities have city-wide emissions reduction targets, up from 16 in 2011.

Most commonly reported actions cities are implementing to achieve their targets and reduce emissions (% of total and number of cities reporting each action)

34% | 276
implement energy efficiency/ retrofit measures

21% | 173
use low or zero carbon energy supply generation

20% | 162
use on-site renewable energy generation

19% | 156
are installing LED/ CFL/ other luminaire technologies

18% | 146
are improving fuel economy to reduce CO_2 from motorized vehicles

17% | 142
implement building codes and standards

16% | 126
are planning green space and/or biodiversity preservation and expansion

15% | 118
are building recycling or composting collections and/or facilities

14% | 116
separate recyclables and organics from other waste

13% | 107
are developing infrastructure for non-motorized transport

Medellín, Colombia

Cities' actions are having an impact

The actions mentioned above and other actions already being taken by cities are expected to reduce more than 63 million metric tonnes of CO_2 per year, save 69 million MWh of energy every year, and generate 692 million MWh of renewable energy, enough to power almost 65 million homes for one year[8].

The way forward

While cities are making progress, there is still much work to be done. When it comes to cutting emissions, cities must set and deliver against science-based climate targets[9] to determine their pathway for reducing emissions to net zero by 2050. In 2020, 148 cities reported a 1.5°C-aligned target. While most of these targets were reported by North American (58) and European cities (49), we are seeing a more diverse group of cities taking accountability for cutting their fair share of emissions, such as eThekwini in South Africa, Quito in Ecuador and Nairobi in Kenya.

By ramping up their action, and closely collaborating with the utilities sector and regulators, cities could achieve a grid mix of 50 to 70% renewables by 2030[10]. When it comes to achieving this target, cities reporting through the CDP-ICLEI Unified Reporting System are already outperforming the global average: 41.8% of their energy mix comes from renewable sources[11] versus a global average of 26%[12]. This positive trend must continue as we approach 2030. With the cost of renewable energy now undercutting fossil fuel sources[13], this is an area where cities can excel regardless of their financial situation.

Where cities should focus their efforts

In most cities, buildings, transport, energy and waste are the areas that have the greatest potential to reduce emissions[14]. However, in 2020 just 50% of reporting cities were taking actions to reduce emissions in buildings, only 42% were tackling transport emissions and only 34% were taking actions to decarbonize the electricity grid. Our data shows there is still a gap between what is needed and what cities are doing.

83% of cities are not implementing actions to reduce emissions in all four areas of highest impact

50% | 406

of cities are optimising energy use in buildings

42% | 339

of cities are enabling next-generation mobility

34% | 278

of cities are decarbonizing the electricity grid

33% | 271

of cities are improving waste management

8   The comparison to total homes powered is based on data from the EPA calculator.
9   Science-Based Climate Targets: A Guide for Cities, SBTN, 2020.
10 Focused Acceleration: A Strategic Approach to Climate Action in Cities to 2030, McKinsey and C40, 2017.
11 Note that this statistic includes 124 cities in Latin America where hydropower contributes significantly to the energy mix. Without these Latin American cities, 32.3% of reporting cities' energy mix is made up of renewable energy, which is still higher than the global average.
12 Ibid., IEA, 2018.
13 Renewable Power Generation Costs in 2019, IRENA, 2019.
14 Ibid., McKinsey and C40, 2017.

KEEPING POPULATIONS SAFE

93% of cities report that they are facing climate hazards like extreme heat, flooding and rainstorms, putting their people and infrastructure at risk. Almost 70% of the world's population will live in urban areas by 2050[15], meaning that to sustain future economic growth and remain safe and secure places for people to live and work, every city must deliver urgent climate action.

Faced with increasing extreme weather events, the number of cities developing climate risk and vulnerability assessments has increased from 40 in 2011 to 478 in 2020, and the number of cities developing adaptation plans to manage climate risks has risen from 30 in 2011 to 459 in 2020.

More than two-thirds (571) of reporting cities cite climate risks of the highest severity. These include rainstorms (25.5%), heat waves (22%) and droughts (21.6%), all of which are uprooting lives and livelihoods.

Top five actions cities are taking to increase resilience

Action	# of cities	%
Tree planting and/or creating green space	161	20%
Flood mapping	143	18%
Community engagement/education	122	15%
Developing crisis management plans including warning and evacuation systems	110	14%
Developing hazard resistant infrastructure design and construction	85	10%

■ # of cities reporting the action
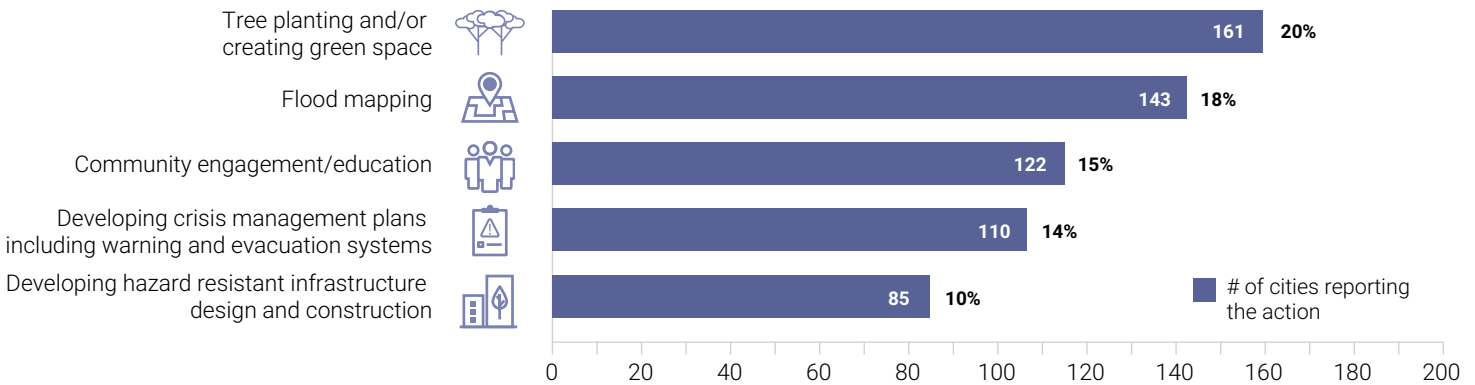
Addressing barriers to adaptation

Despite the progress cities have made to build resilience through risk assessments and adaptation planning, much more must be done to protect all populations from the worst impacts of climate change. It is city dwellers across the globe who find themselves on the frontlines of climate change, with some of the most vulnerable groups worst affected. For 74% of cities, climate change is increasing risks to already vulnerable populations. **In total, 43% (353) of cities, representing a projected population of over 400 million people by 2030, do not yet have adaptation plans that tackle climate risks.**

Joining the dots between climate change and threats to water security, public health and social equality is crucial to effectively address these issues and ensure cities remain resilient, prosperous, and healthy places for generations to come.

If cities are to make progress on building resilience to climate risks, these barriers must be addressed. To succeed, this requires dialogue with funders, companies, national governments and communities.

Top three adaptation barriers faced by cities

25% | **205**
report budgetary capacity issues

18% | **150**
cite housing issues

17% | **134**
report poverty challenges

15   UN, 2018.

Health and climate change

20% of cities (166) report that they are facing a risk of infectious diseases[16] due to climate change. 26% of these cities (43) say that they were not significantly impacted by this risk before 2020.

Although there is no evidence of a direct connection between climate change and the emergence or transmission of COVID-19, we know that increased pressure on the natural environment may drive the emergence of such diseases in the future[17]. In addition, climate change may put added pressure on healthcare systems, impacting our ability to respond to such outbreaks, and to protect vital infrastructure and human lives.

The pandemic has demonstrated the need to build resilience in our cities to endure future shocks and reduce harmful impacts on society. Responding to this need, we are seeing a growing number of cities thinking about the intersection between climate change and infectious diseases.

Snapshot of city risks

93% of cities
are facing significant climate risks

43% of cities
do not yet have an adaptation plan

25% of cities
report budgetary capacity issues as a barrier to adaptation

60% of cities
cite substantive risk to their water security

The top two services under threat from climate change are water supply and sanitation, and public health

74% of cities
say climate change is increasing risks to already vulnerable populations

16   Air, vector or water borne.
17   WHO, 2020.

OPPORTUNITIES ON THE ROUTE TO 2030

Over the past ten years, cities reporting to CDP have shown how ambitious their environmental action can be. Even when faced with complex multinational crises such as COVID-19, widening social inequality and the impacts of the climate crisis, cities have still made progress to cut emissions and build resilience.

Essential actions cities must take

Set science-based climate targets, which includes an interim target[18]

Create and implement a climate action plan to support your target

Focus on the high impact emissions reduction actions for your city, and decarbonize energy grids, building renewable capacity to 50-70% by 2030[19]

Undertake a climate risk and vulnerability assessment to identify climate risks and create an adaptation plan to manage them

Build climate change into city master planning

Consider the co-benefits of climate action (e.g. public health and social equality)

Tokyo, Japan

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18 Ibid., SBTN, 2020.
19 Ibid., McKinsey and C40, 2017.

CDP data shows that taking these actions is helping cities identify opportunities and address climate change more effectively, including:

- Cities that incorporate sustainability into master planning identify more than twice (2.4x) as many opportunities from addressing climate change as cities that do not.

- Cities with climate action plans identify twice as many opportunities from addressing climate change as cities that do not. These opportunities include business innovation and additional funding. These cities are also taking five times as many actions to reduce emissions as other cities.

- As previous CDP research shows, cities with vulnerability assessments are more than twice (2.7x) as likely to report long-term hazards, and are taking almost 6 times (5.7x) the amount of adaption actions compared to those cities that have not conducted vulnerability assessments[21].

- As previous CDP research shows, cities citing the co-benefits of their climate action reported 2.5 times more climate actions than cities that did not.

Investment opportunities

In 2020, 422 cities reported 1,142 climate projects which require financing. Collectively these projects cost USD 72 billion.

By working with actors from across the economy, cities can tap into investments that can enable them to realize their climate projects. At present, the top areas where they are seeking finance are transport (16% of projects), renewable energy (12%), energy efficiency/retrofits (12%), water management (12%), and waste management (11%). The costs of water management projects and transport projects were USD 22.6 billion and USD 18.6 billion, respectively.

CDP data shows that cities are already working with the private sector to build capacity. 76% of cities are already working with businesses on sustainability projects or plan to do so in the next two years.

As the world seeks to recover from COVID-19, recovery funds and stimulus packages need to focus on a green and just recovery. There is an opportunity here for cities to access funding and to implement climate projects focused on increasing resilience, protecting the most vulnerable and building an equitable and fair society. If COVID-19 recovery is not sustainable and equitable, we risk locking cities into infrastructure that is not aligned with the UN Sustainable Development Goals and a 1.5°C future.

Cities are building a green economy

76% | 617

of cities are collaborating with businesses on sustainability projects, or are intending to do so in the next two years

Cities' top collaboration areas with businesses

| Project implementation | **114** cities |
| Financial mechanism (grants, etc.) | **62** cities |

Knowledge or data sharing	**61** cities
Policy and regulation consultation	**58** cities
Building capacity	**53** cities

20   Cities at Risk, CDP, 2019.
21   The Co-Benefits of Climate Action: Accelerating City-Level Ambition, CDP, 2020.

CITY CLIMATE ACTION IS GLOBAL AND DIVERSE

Since 2011, cities across the globe have accelerated their action in response to the climate crisis. There has been a 17-fold increase in cities disclosing their climate data — from 48 in 2011 to 812 in 2020.

169 cities in Europe

100 cities in Asia

195 cities in North America

21 cities in Oceania

293 cities in Latin America

34 cities in Africa
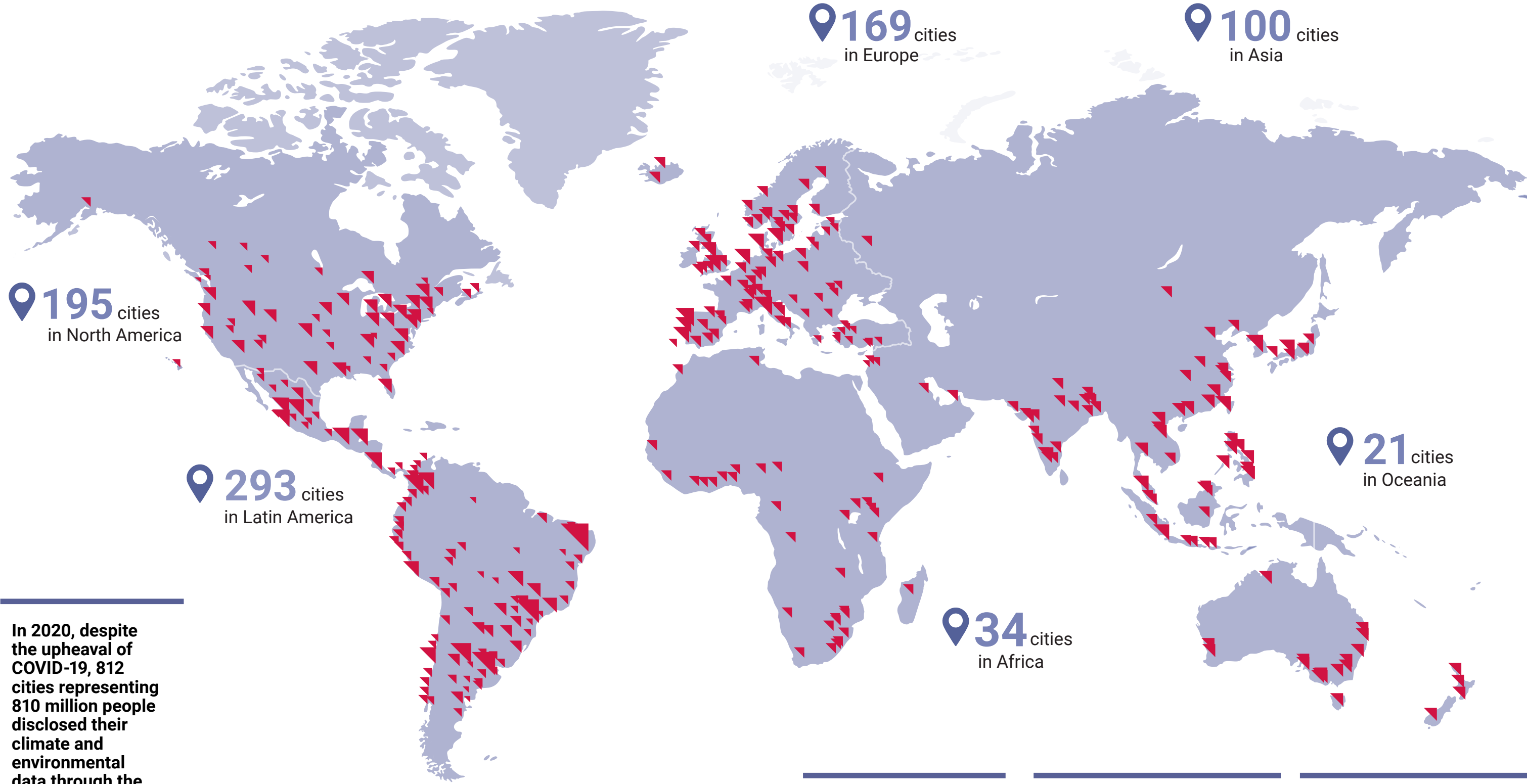
In 2020, despite the upheaval of COVID-19, 812 cities representing 810 million people disclosed their climate and environmental data through the CDP-ICLEI Unified Reporting System.

812 cities

810 million people

84 countries

TEN YEARS OF CITY ACTION: THE GLOBAL PICTURE

More cities are measuring their emissions

In the last ten years, we have seen 514 more cities reporting a city-wide emissions inventory.

544

30

2011

641 million metric tonnes CO_2

2020

2.6 billion metric tonnes CO_2
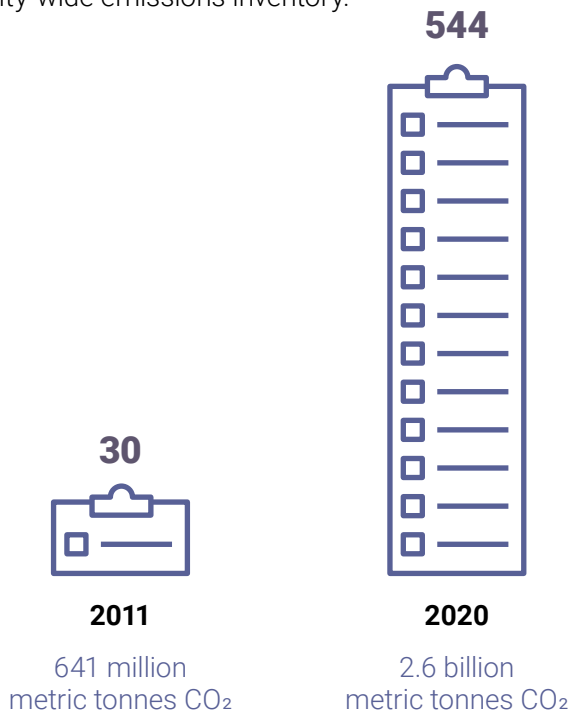
Cities with city-wide emissions inventories

Cities are also starting to develop consumption-based inventories to track emissions from the production of goods and services made and consumed within their boundaries. With the climate crisis becoming even more urgent, we expect more cities to start measuring and managing these emissions on the road to 2030.

7.5% | 61

of cities reported a consumption-based emissions inventory in 2020

To get to 1.5°C, cities are setting city-wide emission reduction targets

In the last decade the number of city-wide targets being set by cities has increased by 23-fold. However, to effectively monitor progress towards a 1.5°C pathway, cities must set a science-based climate target, which includes an interim target.

Science-based targets[22] are measurable and actionable, enabling cities to align their actions with the Paris Agreement and the latest scientific advice from the IPCC[23]. By setting a science-based target, cities can be confident that their emissions reduction efforts are aligned with a 1.5°C pathway and that they are making a fair contribution to tackling climate change.

More information on setting a science-based target can be found in the Science Based Targets Network's

Cities with city-wide emissions reduction targets

16

339

2011
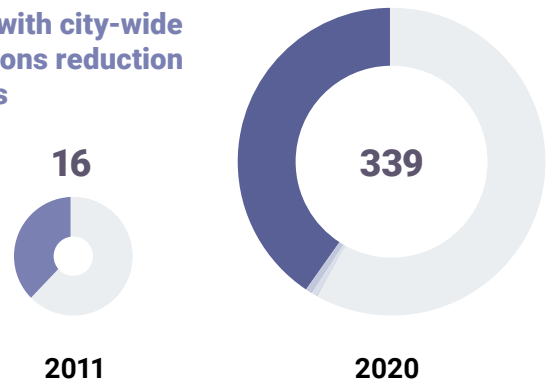
2020

45%

of cities reported a city-wide emissions reduction target in 2020

18%

6%
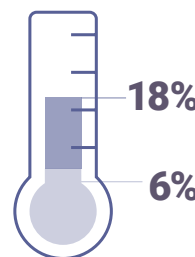
In **2020**, **148** cities reported an emissions reduction target that is aligned with a 1.5°C pathway.

Only 52 of these cities have set an interim target for their 1.5°C pathway.

22 Ibid., SBTN, 2020.
23 Special Report on Global Warming of 1.5°C, IPCC, 2018.

Effective climate action requires a plan

Cities are putting in place the plans and actions required to achieve their climate targets.

49%

of cities disclosing in 2020 have a climate action plan

210 2016

399 2020

Number of cities with a climate action plan
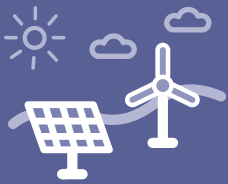
87% | 710

of cities have incorporated sustainability into their master plan or are intending to do so in the next two years

Goals and targets cities are incorporating into their master plans

Emissions reduction targets	**408** cities		Waste management targets	**232** cities
Adaptation targets	**276** cities		Energy efficiency targets	**225** cities
Renewable energy targets	**244** cities		Water security targets	**170** cities

Chengdu, China

Urgent action needed to cut emissions

551 (2020)

30 (2011)

2011   **2020**
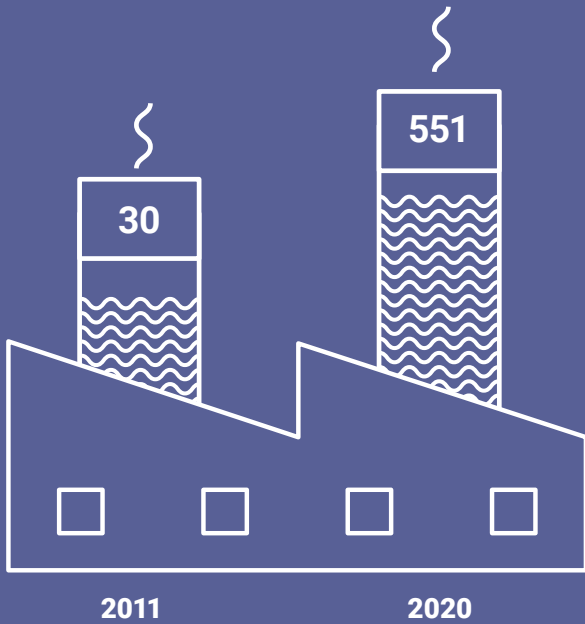
# of cities taking emissions reduction actions

Top actions reported

Energy efficiency/ retrofit measures	**276** cities **526** actions	
Low/zero carbon energy supply generation	**173** cities **252** actions	
On-site renewable energy generation	**162** cities **245** actions	
LED/ CFL/ other luminaire technologies	**156** cities **172** actions	
Improve fuel economy & reduce CO₂ from motorized vehicles	**146** cities **200** actions	

Current actions

63.4 million
Estimated annual emissions reductions (metric tonnes CO₂e)

69 million
Annual energy savings (MWh)

26.7 million
Estimated annual emissions reductions (metric tonnes CO₂)[24]

9 million
Annual energy savings (MWh)

Future actions

Cities identified co-benefits they expected to result from the mitigation actions they reported. Climate action co-benefits are beneficial outcomes that are not directly related to climate change mitigation or adaptation as a result from climate actions.

Top five co-benefits of emissions reduction actions identified by cities

Improved resource efficiency	**244** cities	
Shift to more sustainable behaviors	**215** cities	
Improved public health	**174** cities	
Enhanced resilience	**169** cities	
Improved resource quality	**164** cities	

24 The estimated annual emissions reductions and energy savings for future actions are based on all actions cities reported that are in their planning stages and are not currently being implemented. The total figures for future actions are considerably lower than the total figures for current actions because most cities report actions that are currently under implementation.

Transition to renewable energy

Cities are setting and delivering renewable energy targets, signalling to individuals and businesses that they are ready to seize the opportunities offered by the low-carbon transition.

Based on actions cities are reporting, below is what we expect their renewable energy potential to be

23% | **188**

of cities have a renewable energy target

9% of cities report a target to have at least **70%** of their energy come from renewable sources.

Current projects

692 million
Annual Renewable Energy (RE) production (MWh)

16 million
Annual RE production (MWh)[25]

Future projects

10% | **79**

of cities have an electricity mix that is already powered by at least 70% renewable energy

9% | **70**

of cities have an energy efficiency target
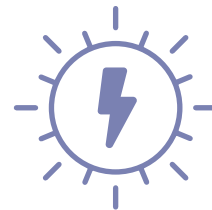
Renewable energy makes up

42%[26]

of disclosing cities' energy mix

compared to a global average of just

26%[27]
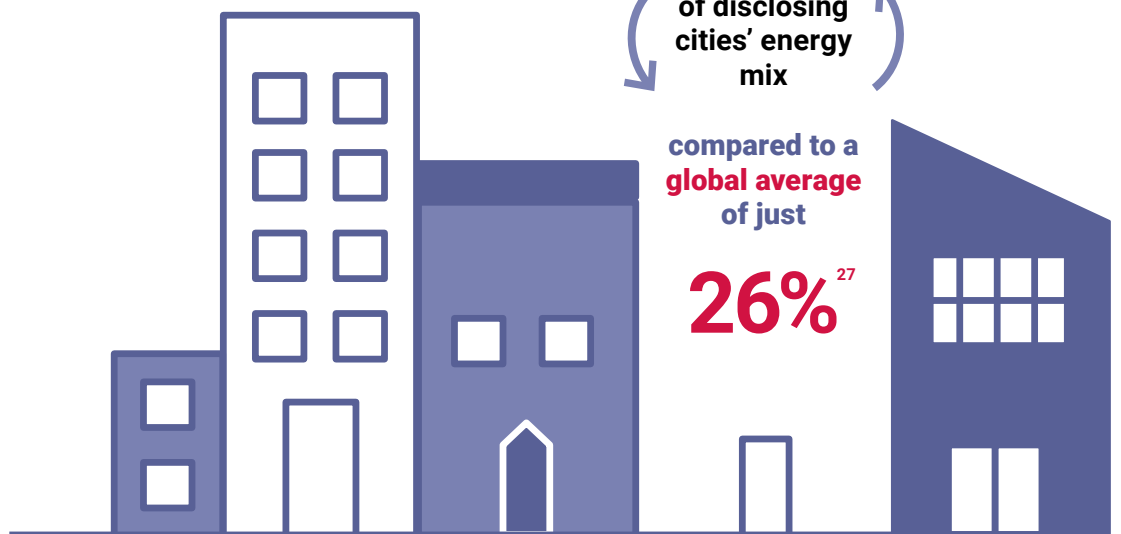
25 The annual renewable energy production for future actions is based on all actions cities reported that are in their planning stages and are not currently being implemented. The total figure for future actions is considerably lower than the total figure for current actions because most cities report actions that are currently under implementation.

26 Note that this statistic includes 124 cities in Latin America where hydropower contributes significantly to the energy mix. Without these Latin American cities, 32.3% of reporting cities' energy mix is made up of renewable energy, which is still higher than the global average.

27 Ibid., IEA, 2018.

Understanding the scale of climate risks

From rain storms to extreme hot days, cities and their populations are facing climate-related hazards that are becoming ever more frequent and severe.

93% of cities are facing significant climate hazards

59% of cities report a climate risk and vulnerability assessment

478

40

2011 **2020**

For 74% of cities, climate change is increasing risks to already vulnerable populations

38 **752**

2011 **2020**

Cities reporting a climate risk and vulnerability assessment

Cities reporting climate hazards
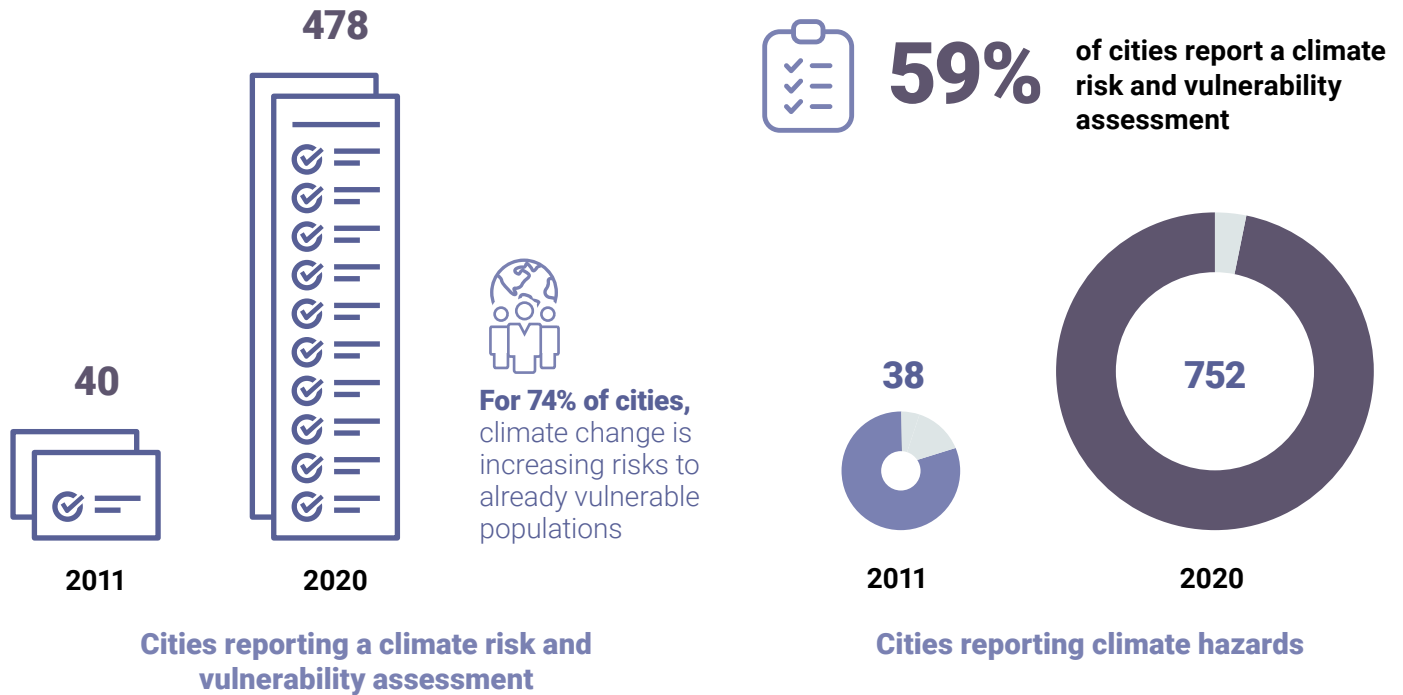
Most severe climate hazards cities are reporting

Hazard	Immediate	Short-term (2022-2025)	Medium-term (2026-2050)	Long-term (after 2050)
Rainstorms	92	76	27	2
Heat waves	99	45	24	1
Drought	79	47	39	2
Flash/surface floods	75	40	31	3
Extreme hot days	89	39	19	0
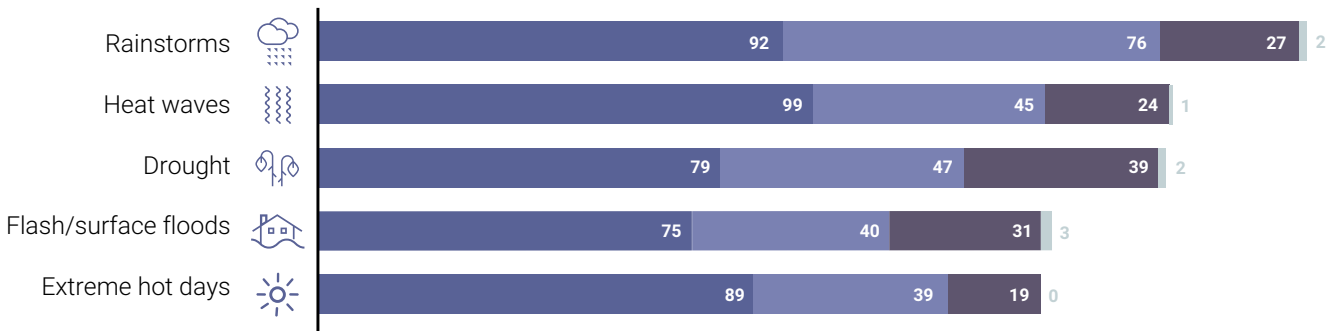
# of cities reporting climate-related hazards, broken down by the timescale in which the city expects to experience a change in frequency and intensity of the hazard

■ Immediate   ■ Short-term (2022-2025)   ■ Medium-term (2026-2050)   ■ Long-term (after 2050)

60% | **488**
of cities are facing substantive risks to their water security

46% | **376**
of cities incorporate water in their climate risk and vulnerability assessments

The impact on people living in cities

Climate change will not only have an impact on the planet but also people. We're already seeing how the climate crisis is upheaving lives and livelihoods, from Hurricane Sandy in 2012 to Cyclone Amphan in 2020.

Our data shows that cities are aware of the impacts of the climate crisis on people and the infrastructure they depend on.

The risks people living in cities are facing

Risk	Immediately	Short-term (by 2025)	Medium-term (by 2026-2050)	Long-term (after 2050)
Increased risk to already vulnerable populations	320	311	250	37
Increased demand for public services	286	284	242	35
Increased demand for healthcare services	247	233	192	27
Increased resource demand	239	221	197	26
Increased incidence and prevalence of disease & illness	219	193	137	16
Fluctuating socio-economic conditions	157	154	109	18
Population displacement	154	143	115	25
Loss of traditional jobs	66	57	57	12
Migration from rural areas to cities	56	55	40	4
Increased conflict and/or crime	63	45	34	5
Loss of tax base to support public services	56	45	30	10

# of cities reporting social impacts of climate hazards, broken down by the timescale in which the city expects to experience a change in frequency and intensity of the hazard

Legend: Immediately | Short-term (by 2025) | Medium-term (by 2026-2050) | Long-term (after 2050)

*Please note that cities may be counted multiple times based on timescale of climate hazard

Nairobi, Kenya

Cities' services and assets most affected by climate change

Service/Asset	Immediately	Short-term (by 2025)	Medium-term (by 2026-2050)	Long-term (after 2050)
Water supply and sanitation	295	277	234	43
Public health	278	262	216	30
Environment, biodiversity, forestry	255	265	228	30
Residential	271	262	205	38
Transport	226	218	185	31
Emergency services	223	213	159	24
Food and agriculture	197	215	179	27
Energy	227	184	154	19
Commercial	193	151	128	24
Land use planning	114	117	124	19
Society/community and culture	120	105	102	19
Waste management	101	113	67	12
Tourism	99	87	84	13
Industrial	94	75	77	11
Informational and communication technology	66	62	55	10
Education	67	67	33	6
Law and order	37	34	22	4

# of cities reporting services affected by climate hazards, broken down by the timescale in which the city expects to experience a change in frequency and intensity of the hazard

- Immediately
- Short-term (by 2025)
- Medium-term (by 2026-2050)
- Long-term (after 2050)

*Please note that cities may be counted multiple times based on timescale of climate hazard

Populations vulnerable to climate change identified by cities

Population	Immediately	Short-term (by 2025)	Medium-term (by 2026-2050)	Long-term (after 2050)
Elderly	302	276	232	31
Low-income households	286	264	233	33
Persons living in sub-standard housing	256	237	214	34
Children and youth	225	207	171	22
Persons with chronic diseases	207	176	145	23
Persons with disabilities	196	154	144	26
Marginalized groups	179	156	142	21
Women and girls	116	95	78	11
Unemployed persons	101	76	63	11
Indigenous populations	72	58	46	12

# of cities reporting vulnerable populations affected by climate hazards, broken down by the timescale in which the city expects to experience a change in frequency and intensity of the hazard

- Immediately
- Short-term (by 2025)
- Medium-term (by 2026-2050)
- Long-term (after 2050)

*Please note that cities may be counted multiple times based on timescale of climate hazard

Manchester, UK

To keep populations safe, cities are building climate resilence

Cities are developing plans to adapt to climate hazards and build resilience against them.
.

459

29

2011 **2020**

cities reported an adaptation plan.

659

30

2011 **2020**

cities reported that they were taking

114 adaptation actions

3,417 adaptation actions

57%

of cities have an adaptation plan

81%

of cities are taking adaptation actions
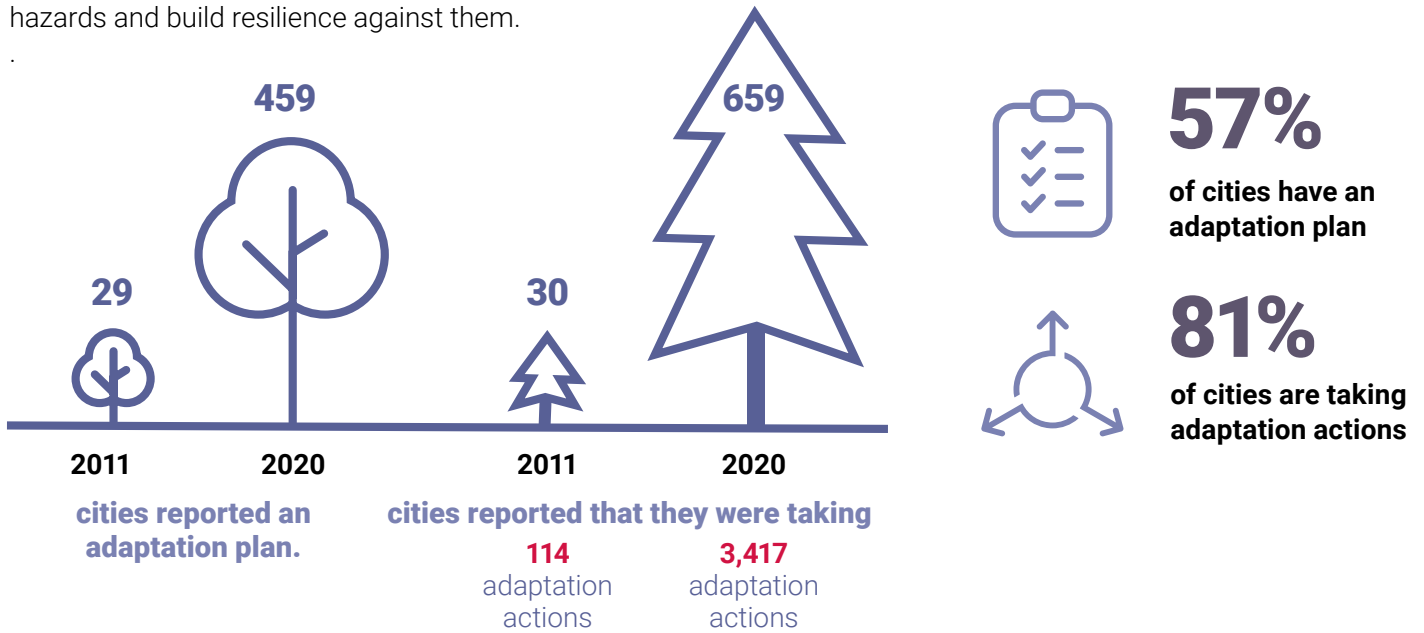
Top five adaptation actions cities implementing

161 cities

Tree planting and/or creation of green space

122 cities

Community engagement/ education

110 cities

Crisis management including warning and evacuation systems

143 cities

Flood mapping

85 cities

Hazard resistant infrastructure design and construction

Adaptation actions cities are planning to implement

62 cities

Incorporating climate change into long-term planning documents

36 cities

Projects and policies targeted at those most vulnerable

Top five co-benefits for adaptation actions identified by cities

452 cities

Enhanced resilience

435 cities

Disaster risk reduction

401 cities

Disaster preparedness

309 cities

Ecosystem preservation and biodiversity improvement

305 cities

Improved public health

AFRICA

Grand Casablanca
La Marsa
Dakar
Freetown City
Tsévié
Ibadan
Abuja
Maroua
Lagos
Accra
Cocody Abidjan
Yaoundé 4
Addis Ababa
Kampala
Kisumu
Nakuru
Nairobi
Kinshasa
Bujumbura
Dar es Salaam
Lusaka City Council
Antananarivo
Tshwane
Sekhukhune
Steve Tshwete
Walvis Bay
Ekurhuleni
Johannesburg
KwaDukuza
eThekwini
Pietermaritzburg
Cape Town
Buffalo

34 cities

across **19** countries

representing **109** million people

59%

of African cities reported a total of 54 mitigation actions

Top mitigation actions reported by cities

▼ **Energy efficiency/retrofit measures**

▼ **Improve bus infrastructure, services and operations**

▼ **Building codes and standards**

▼ **Landfill management**

▼ **Carbon emissions reduction from industry**

▼ **Green space and/or biodiversity preservation and expansion**

28

African cities are taking 85 adaptation actions

Top adaptation actions reported by cities

▼ **Flood mapping**

▼ **Tree planting or the creation of green space**

▼ **Incorporating climate change into long-term planning documents**

▼ **Projects and policies targeted at those most vulnerable**

▼ **Crisis management including warning and evacuation systems**

▼ **Flood defences**

44% of African cities reported a city-wide emissions inventory

18% of African cities reported a city-wide emissions reduction target

35% of African cities reported a climate action plan

65% of African cities reported an adaptation plan

Dakar, Senegal

Turning an invasive plant species into a nature-based solution

To cut emissions, Dakar, capital city of Senegal, is focusing its attention on its buildings, and is using the invasive plant *typha domingensis*, in a new innovation. To improve its heritage buildings' energy efficiency and provide better thermal comfort to its people, Dakar is harnessing this plant as a natural form of insulation. In line with Senegal Energy Efficiency Program, which aims to improve energy efficiency and reduce Greenhouse gas emissions (GHG) emissions in the building sector, Dakar has embarked on a pilot to showcase and trial this bio-climatic technology at the Hospital of Geriatrics and Gerontology of Ouakam to make it a place of ideal and safe thermal comfort for the elderly patients. This climate action is part of the city's nature-based solution for reducing the energy consumption of its buildings and related costs whilst also cutting emissions. Cities across the globe are working with nature to build safe, secure and zero emissions space for their populations, and Dakar demonstrates just how closely the two can work in sync.

ASIA

100 cities

across

19 countries

representing

346 million people

1
Coimbatore
Bengaluru
Kochi
Vadodara

2
Hang Tuah Jaya
Iskandar
Kuala Lumpur
Muar
Seberang Perai
Shah Alam

3
Bogor
Bogor Regency
Jakarta
Tangerang Selatan

4
Kaohsiung
Hsinchu
New Taipei
Pingtung
Taichung
Tainan
Taipei
Taoyuan

5
Ansan
Changwon
Dangjin
Dobong-gu
Gangdong-gu
Gwangmyeong
Hwaseong
Michuhol-gu
Seoul
Suwon
Yeosu

Map labels:
Ramallah, Abasan Al-Kabira, Amman, Tel Aviv-Yafo, Dubai, Karachi, Rajkot, Udaipur, Amdavad, Delhi, Dehradun, Gangtok, Siliguri, Singra, Nagpur, Thane, Panaji, Chennai, Tiruchirappalli, Narayanganj, Dhaka, Kolkata, Rajshashi, Guangzhou, Kaysone Phomvihane, Bangkok, Ho Chi Minh City, Hanoi, Pakse, Penampang, Singapore, Tanjungpinang, Jambi, Tawau, Tarakan, Balikpapan, Banyuwangi, Semarang, Ulaanbaatar, Qingdao, Dalian, Wuhan, Zhenjiang, Chengdu, Nanjing, Hangzhou, Hong Kong, Shenzhen, Fuzhou, Kinmen, Nagoya, Toyama, Saitama, Yokohama, Tokyo, Kyoto, Kitakyushu, Quezon City, Tuguegarao, San Jose del Monte, Ormoc, Cagayan de Oro, Del Carmen, Tagum, Davao, Batangas, Puerto Princesa

64%

of Asian cities reported a total of 458 mitigation actions

Top mitigation actions reported by cities

▼ Energy efficiency/retrofit measures

▼ On-site renewable energy generation

▼ Improve fuel economy and reduce CO₂ from motorized vehicles

▼ LED/ CFL/ other luminaire technologies

▼ Low or zero carbon energy supply generation

▼ Recycling or composting collections and/or facilities

75

Asian cities are taking 346 adaptation actions

Top adaptation actions reported by cities

▼ Crisis management including warning and evacuation systems

▼ Tree planting or the creation of green space

▼ Flood defences

▼ Flood mapping

▼ Projects and policies targeted at those most vulnerable

▼ Community engagement

71% of Asian cities reported a city-wide emissions inventory

44% of Asian cities reported a city-wide emissions reduction target

48% of Asian cities reported a climate action plan

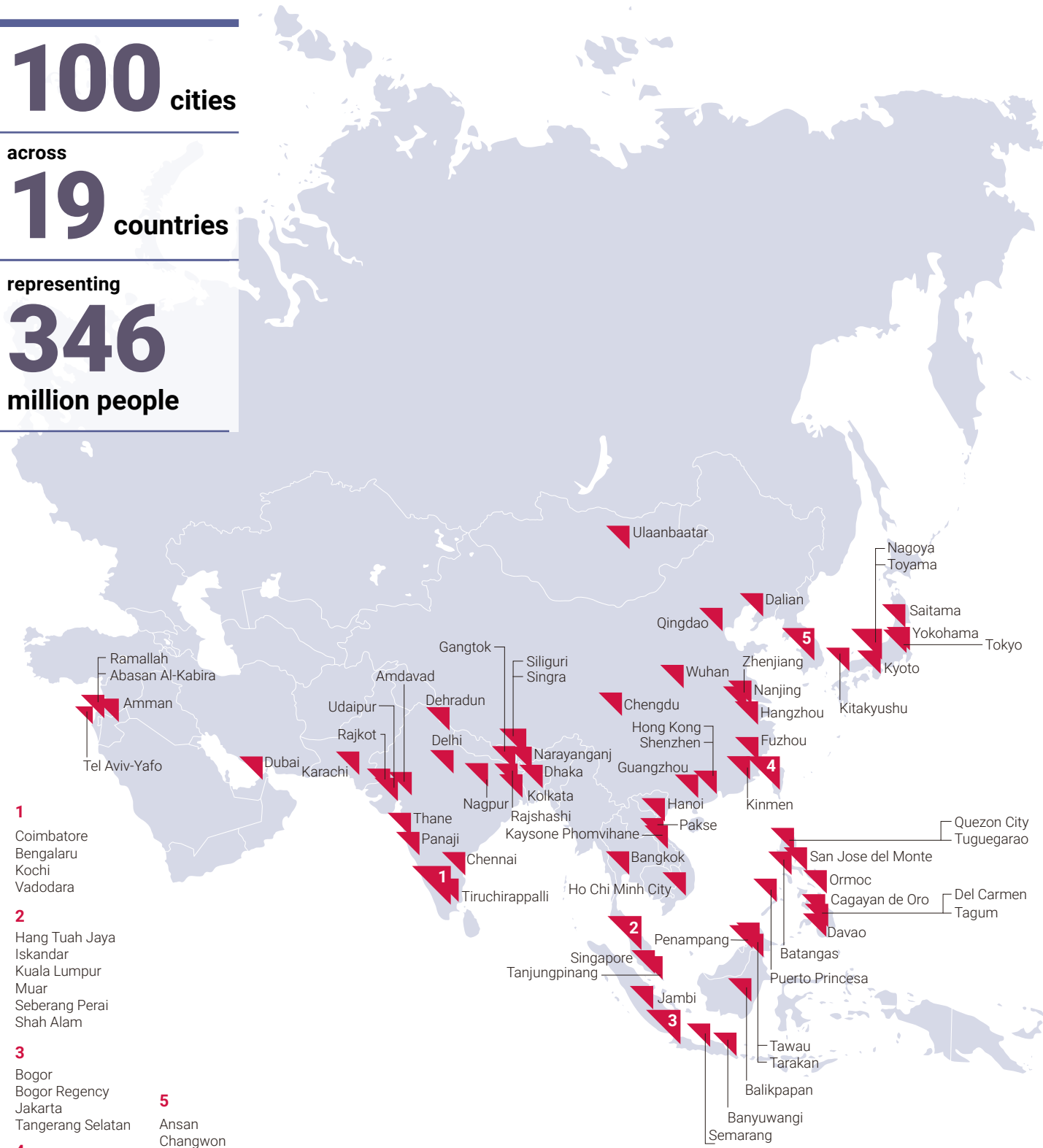**60%** of Asian cities reported an adaptation plan

Penampang, Malaysia

Working to cut more than their fair share of emissions

In line with the *Kerajaan Persekutuan* (National Government) of Malaysia's NDC, Penampang, home to over 145,000 people, is working to cut the intensity of its emissions by 45% by 2030. The city has also set its sights on meeting the next, and decisive deadline for the planet and its people — net zero emissions by 2050. To deliver, Penampang is planning to invest in waste-to-energy (WtE) technologies, converting sludge, cooking oil and biogas into energy for its population and businesses. This is an innovative move towards the city becoming "a modern, sustainable and competitive economic hub", and a bold one too — 45% of Malaysia's energy mix is made up of coal, and a further 37% natural gas. What's more, Penampang is the first city in Southeast Asia to report net zero ambition, taking accountability for more than their fair share of emissions.

EUROPE

Akureyri
Reykjavík
Kemi
Umeå
Trondheim
Lahti
Helsinki
Porvoo
Turku
Bergen
Uppsala
Espoo
Tallinn
Oslo
Örebro
Bærum
Tartu
Stockholm
Arendal
Pärnu
Sandnes
Falköping
Göteborg
Växjö
Västervik
Riga
Malmö
Klaipeda
Trelleborg
Taurage
Lund
Edinburgh
Gdynia
Moscow
Derry City & Strabane
Newcastle
Durham
Greifswald
South Lakeland
York
Rostock
Norwich
Berlin
Warsaw
Nijmegen
Brussels
BCP Council
(Bournemouth, Christchurch and Poole)
Heidelberg
Mannheim
Cornwall
Brighton & Hove
Winchester
Nancy Métropole
Plymouth
Paris
Dijon Métropole
Chișinău
Basel
Zürich
Botoșani
Iași
Nyon
Ljubljana
Alba-Iulia
Torino
Bolzano
Milano
Monaco
Bologna, Parma
Rimini
Nice Métropole
Sofia
Istanbul
Vitoria-Gasteiz
Genova
La Spezia
Parma
Chieti
L'Aquila
Roma
Napoli
Mirandela
Zaragoza
Barcelona
Lucca
Podgorica
Kadıköy
Balıkesir
Eskişehir
Gaziantep
Figueira da Foz
Castelo Branco
Madrid
Firenze;
Prato
Coruche
Bursa Nilüfer
Évora
Murcia
Kadiovacik
Denizli
Lagos
Odemira
Loulé
Athens
Mezitli
Adana
Faro
Gibraltar
Málaga
Seferihisar
Funchal

75%
of European cities reported a total of 917 mitigation actions

Top mitigation actions reported by cities

▸ Energy efficiency/retrofit measures

▸ Low or zero carbon energy supply generation

▸ Improve fuel economy and reduce CO₂ from motorized vehicles

▸ LED/ CFL/ other luminaire technologies

▸ On-site renewable energy generation

▸ Improve fuel economy and reduce CO₂ from bus and/or light rail

148
European cities are taking 781 adaptation actions

Top adaptation actions reported by cities

▸ Flood mapping

▸ Tree planting or the creation of green space

▸ Incorporating climate change into long-term planning documents

▸ Crisis management including warning and evacuation systems

▸ Community engagement

72% of European cities reported a city-wide emissions inventory

64% of European cities reported a city-wide emissions reduction target

66% of European cities reported a climate action plan

74% of European cities reported an adaptation plan

Barcelona, Spain

Proving that renewables can, and must work for all

Barcelona is just one European city working to be powered by 100% renewable energy. In 2018, the Catalan capital took the responsibility of powering its streets, homes and offices into its own hands. To become self-sufficient, and provide energy that is "clean, affordable, and democratic for all" the city established Barcelona Energia (BE) the public company purchasing renewable energy direct from source. First, BE powered Barcelona City Council's buildings and facilities, and, in 2019 it started providing its services to populations. Finally, in 2020 it began servicing the city's businesses too. Fast forward to 2021, and the public company is providing clean and accessible energy to 3,500 homes and businesses across the city, and this is only set to increase to new heights: in 2020 alone, BE saw a huge 99% in growth. Beyond emissions cuts, the benefit to populations is clear — customers save at least 85€ annually by shifting to Barcelona Energia, and can have a greater stake in crucial decision making processes by joining BE's User Council. In this way, the capital and its energy company are fully transparent with populations, enabling them to play an active part in driving the transition to 100% renewable energy.

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169 cities
across 28 countries
representing 109 million people

28 Please note that the data on this page represents the geographical area of Europe. For data representing only the 27 EU member states & EFTA countries, please see here.

LATIN AMERICA

1
Aipromades Lago de Chapala
Ayto. de Apodaca
Ayto. de Casimiro Castillo
Ayto. de Celaya
Ayto. de Chihuahua
Ayto. de Hermosillo
Ayto. de Morelia
Ayto. de San Miguel de Allende
Ayto. de Tonalá
Ayto. de Uriangato
Ayto. de Victoria (Tamaulipas)
Ayto. de Xalapa
Ayto. de Zapopan
Ayto. Victoria
Ciudad de Juárez
Ciudad Madero
Gobierno Municipal de León de los Aldamas
Gobierno Municipal de Toluca de Lerdo
JIRA
JINOR
JIAS
JICOSUR
JISOC
JIDELAA
JIMAV
JIRCO
JIMAL
Mexico City
Munic. de Tampico
Munic. of Irapuato
Munic. of San Pedro Tlaquepaque
Mpio. de Querétaro
Mpio. de Torreón
Region Metropolitana de Guadalajara
Uruapan
XIV Ayuntamiento de La Paz

2
Guatemala City
Mpio. de Escuintla
Mpio. de Guanagazapa
Mpio. de Iztapa
San Pedro Yepocapa

3
Alajuela
Concejo Munic.de Distrito de Monte Verde
Montes de Oca
Munic. de Belén
Munic. de Cañas
Munic. de Desamparados
Munic. de La Unión
Munic. de Quepos
Munic. de San José
Oreamuno
Paraíso
San Rafael de Heredia
Santa Ana
Santa Bárbara
Zarceroo

4
Alcaldia de Barrancabermeja
Alcaldía de Cartago
Alcaldía de Floridablanca
Alcaldía de Ibagué
Alcaldía de Madrid
Alcaldía de Manizales
Alcaldía de Mosquera
Alcaldía de Pasto
Alcaldía de Pereira
Alcaldía de Rionegro
Alcaldía de Sincelejo
Alcaldía de Tunja
Alcaldía de Villavicencio
Alcaldía Distrital de Barranquilla
Alcaldía Distrital de Santa Marta
Alcaldía Municipal de Armenia
Beteitiva
Bogotá Distrito Capital
Busbanza
Corrales
Floresta
Gámeza
Itagüí
Mongua
Mongui
Munic.of Medellín
Munic. de Tópaga

4
Mpio. de Bucaramanga
Mpio. de Cajamarca
Mpio. de San Pedro de Urabá
San Sebastián de Mariquita
Santiago de Cali

5
Lince
Metropolitan Muni.of Lima
Munic. de Comas
Munic. de Magdalena del Mar
Munic. de Miraflores
Munic. de Provincial de Arequipa
Munic. de San Borja
Munic. de San Isidro (Lima)
Munic. de Santiago de Surco
Munic. Distrital de Ate
Munic. Distrital de Chimbote
Munic. Distrital de Jesús María
Munic. Distrital de La Molina
Munic. Provincial de Callao
Munic. Provincial de Chiclayo
Puente Piedra

6
Alcaldía de Valdivia
Munic. de Valparaíso
Munic. de Cerro Navia
Munic. de Concepción
Munic. de Independencia
Munic. de La Serena
Munic. de Peñalolén
Munic. de Providencia
Munic. de Santiago
Munic. de Talca
Munic. de Temuco
Munic. de Vitacura
Región Metropolitana de Santiago
San Pedro de la Paz

7
Almafuerte
Arequito
Armstrong
Arteaga
Balcarce
Camilo Aldao
Carcarana
Carlos Tejedor
Caseros
Ceres
Cerrito
Chacabuco
Chañaritos
City of Buenos Aires
Ciudad de Mendoza
Concepción del Uruguay
Correa
Crespo
General Lagos
General Pueyrredon
Gobernador Maciá
Gobierno Municipal de la Ciudad de Paraná
Godoy Cruz
Gualeguaychú
Guaminí
Junín
Justiniano Posse
La Francia
La Paz

7
Leandro N. Alem
Lincoln
Maggiolo
Malabrigo
Malargue
Mariá Grande
Monte Buey
Munic. de Avellaneda
Munic. de la Ciudad de Neuquén
Munic. de Montecarlo
Munic. de Rio Grande
Munic. de Vicente López
Munic. Venado Tuerto
Munic. of Bragado
Munic. of Coronel Dominguez
Munic. of Corrientes
Munic. of Guaymallén
Munic. of Lobos
Munic. of Rauch
Munic. of Resistencia
Munic. of San Antonio de Areco
Oberá
Oliva
Plottier
Presidencia Roque Sáenz Peña
Pronunciamiento
Puerto Madryn
Quemú Quemú
Ramona
San Carlos Sud
San Justo
San Martin de Los Andes
San Miguel
Santa Anita
Transito
Uranga
Villa Amelia
Villa Carlos Paz
Villa de Merlo
Villa de Soto
Villa Gobernador Gálvez
Villarino

8
Boa Vista
City of Goiânia
City of Salvador
Munic. of Belo Horizonte
Munic. of Campinas
Munic. of Curitiba
Munic. of Fortaleza
Munic. of Porto Alegre
Munic. of Recife
Mpio. de Aparecida
Munic. de Itacoatiara
Petrolina
PSMP da Cidade de São José do Rio Preto

PSMP de Águas da Prata
PSMP de Alexânia
PSMP de Anapolis
PSMP de Angra dos Reis
PSMP de Aracaju
PSMP de Bertioga
PSMP de Betim
PSMP de Boa Ventura
PSMP de Botucatu
PSMP de Brasiléia
PSMP de Brumadinho
PSMP de Brusque
PSMP de Cáceres
PSMP de Campina Grande
PSMP de Campo Grande
PSMP de Campos de Goytacazes
PSMP de Carnaúba dos Dantas
PSMP de Caruaru
PSMP de Conde (Paraíba)

PSMP de Cordeirópolis
PSMP de Cruzeiro do Sul
PSMP de Cuiabá
PSMP de Dois Irmãos
PSMP de Duque de Caxias
PSMP de Extrema
PSMP de Fernandópolis
PSMP de Florianópolis
PSMP de Goiás (Goiás Velho)
PSMP de Guanhães
PSMP de Guarujá
PSMP de Guarulhos
PSMP de Itatiba
PSMP de Jaguariúna
PSMP de Jundiaí
PSMP de Limeira
PSMP de Londrina
PSMP de Lorena
PSMP de Maceió
PSMP de Monteiro Lobato
PSMP de Morungaba
PSMP de Niterói
PSMP de Nova Friburgo

8
PSMP de Nova Santa Rita
PSMP de Osasco
PSMP de Palmas
PSMP de Pau Brasil
PSMP de Pedreira
PSMP de Pilões
PSMP de Porto Velho
PSMP de Presidente Prudente
PSMP de Quissamã
PSMP de Rio Branco
PSMP de Santa Bárbara
PSMP de São Bento do Una
PSMP de São Cristóvão
PSMP de São Leopoldo
PSMP de São Luís
PSMP de São Paulo
PSMP de Serra Talhada
PSMP de Sorocaba
PSMP de Tangará da Serra
PSMP de Tatuí
PSMP de Tremembé
PSMP de Tupã
PSMP de Vinhedo
PSMP de Vitória
PSMP do Município de Maringá
PSMP do Rio de Janeiro
PSMP Municipal de Araçatuba
PSMP Municipal de Cabreúva
PSMP Municipal de Caieiras
PSMP Municipal de Canoas
PSMP Municipal de Capivari
PSMP Municipal de Cerquilho
PSMP Municipal de Contagem
PSMP Municipal de João Pessoa
PSMP Municipal de São José dos Campos
PSMP Municipal de Sertãozinho
PSMP Municipal de Sumaré

Map labels:
1
2
Puerto Cortés
Esquías
Alcaldía de Tegucigalpa
3
Ocú
Mpio La Chorrera
City of Georgetown
4
Distrito Metropolitano de Quito
Alcaldía de Cuenca
Mpio. de Loja
5
8
Munic. de La Paz
Tarija
6
7
Intendencia de Montevideo

293 cities
across
14 countries
representing
145 million people

56%
of Latin American cities reported a total of 1,192 mitigation actions

Top mitigation actions reported by cities

▶ Recyclables and organics separation from other waste

▶ Energy efficiency/retrofit measures

▶ LED/ CFL/ other luminaire technologies

▶ Recycling or composting collections and/or facilities

▶ On-site renewable energy generation

▶ Green space and/or biodiversity preservation and expansion

212
Latin American cities are taking 998 adaptation actions

Top adaptation actions reported by cities

▶ Tree planting or the creation of green space

▶ Flood mapping

▶ Community engagement

▶ Hazard resistant infrastructure design and construction

▶ Crisis management including warning and evacuation systems

54% of Latin American cities reported a city-wide emissions inventory

9% of Latin American cities reported a city-wide emissions reduction target

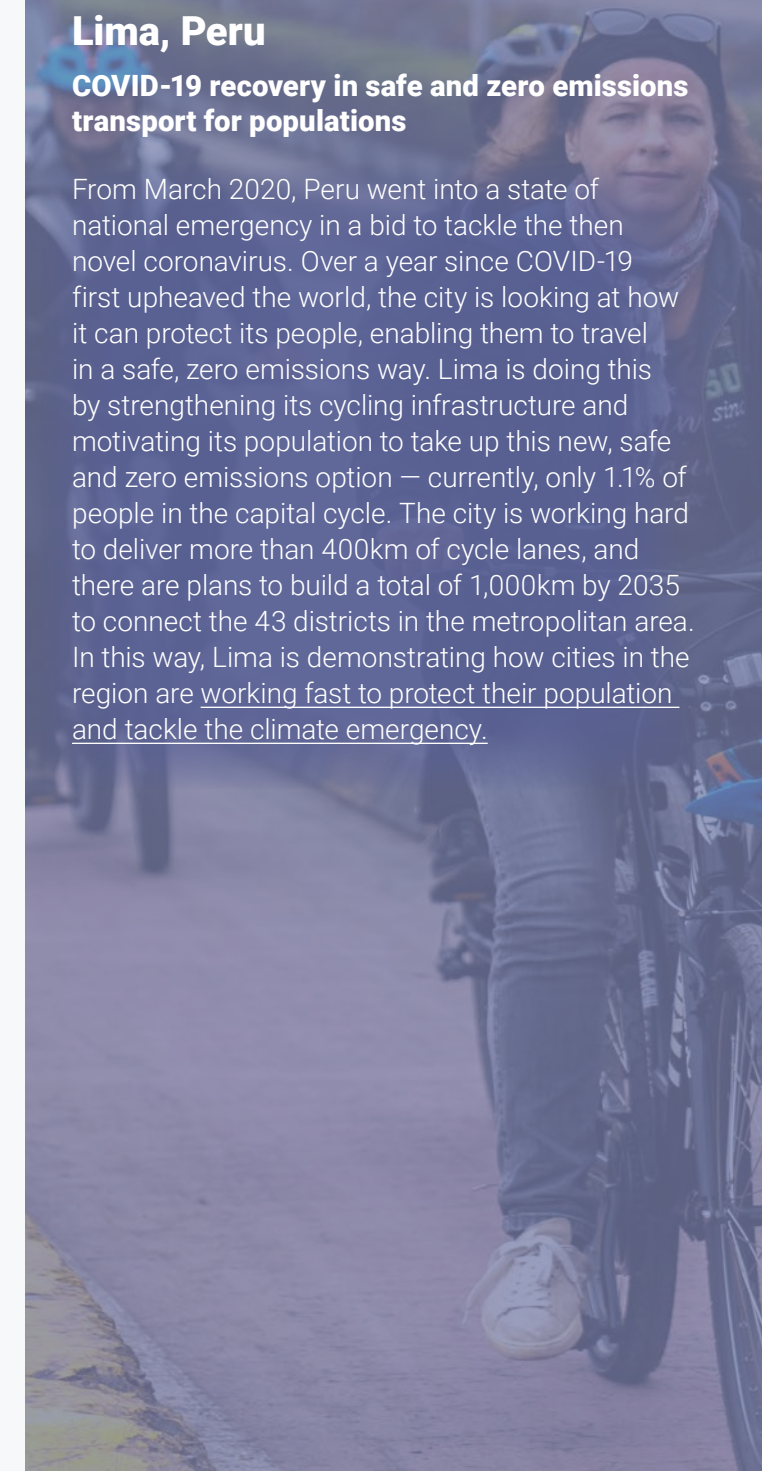**27%** of Latin American cities reported a climate action plan

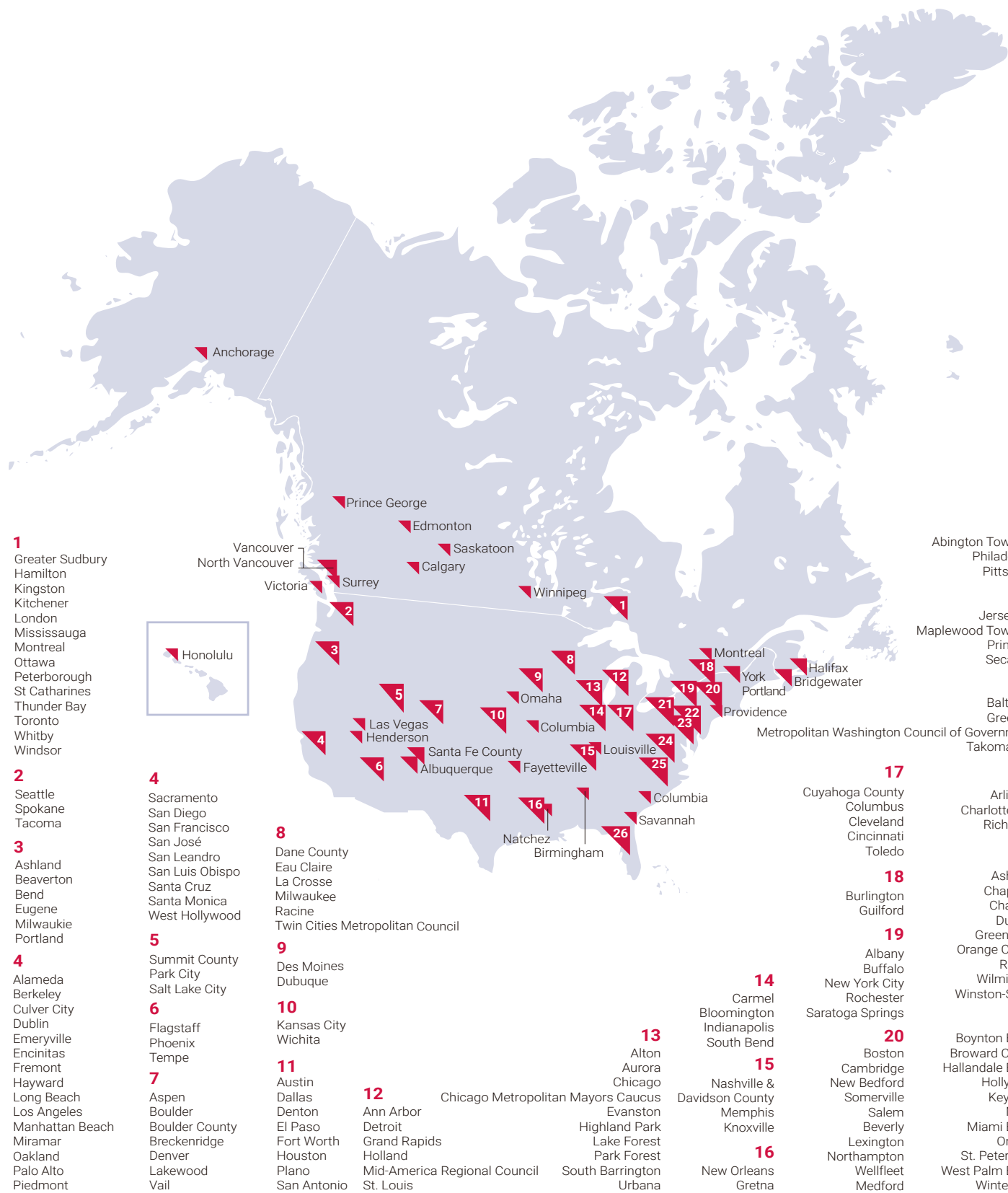**39%** of Latin American cities reported an adaptation plan

Lima, Peru
COVID-19 recovery in safe and zero emissions transport for populations

From March 2020, Peru went into a state of national emergency in a bid to tackle the then novel coronavirus. Over a year since COVID-19 first upheaved the world, the city is looking at how it can protect its people, enabling them to travel in a safe, zero emissions way. Lima is doing this by strengthening its cycling infrastructure and motivating its population to take up this new, safe and zero emissions option — currently, only 1.1% of people in the capital cycle. The city is working hard to deliver more than 400km of cycle lanes, and there are plans to build a total of 1,000km by 2035 to connect the 43 districts in the metropolitan area. In this way, Lima is demonstrating how cities in the region are working fast to protect their population and tackle the climate emergency.

NORTH AMERICA

1
Greater Sudbury
Hamilton
Kingston
Kitchener
London
Mississauga
Montreal
Ottawa
Peterborough
St Catharines
Thunder Bay
Toronto
Whitby
Windsor

2
Seattle
Spokane
Tacoma

3
Ashland
Beaverton
Bend
Eugene
Milwaukie
Portland

4
Alameda
Berkeley
Culver City
Dublin
Emeryville
Encinitas
Fremont
Hayward
Long Beach
Los Angeles
Manhattan Beach
Miramar
Oakland
Palo Alto
Piedmont

4
Sacramento
San Diego
San Francisco
San José
San Leandro
San Luis Obispo
Santa Cruz
Santa Monica
West Hollywood

5
Summit County
Park City
Salt Lake City

6
Flagstaff
Phoenix
Tempe

7
Aspen
Boulder
Boulder County
Breckenridge
Denver
Lakewood
Vail

8
Dane County
Eau Claire
La Crosse
Milwaukee
Racine
Twin Cities Metropolitan Council

9
Des Moines
Dubuque

10
Kansas City
Wichita

11
Austin
Dallas
Denton
El Paso
Fort Worth
Houston
Plano
San Antonio

12
Ann Arbor
Detroit
Grand Rapids
Holland
Mid-America Regional Council
St. Louis

13
Alton
Aurora
Chicago
Chicago Metropolitan Mayors Caucus
Evanston
Highland Park
Lake Forest
Park Forest
South Barrington
Urbana

14
Carmel
Bloomington
Indianapolis
South Bend

15
Nashville &
Davidson County
Memphis
Knoxville

16
New Orleans
Gretna

17
Cuyahoga County
Columbus
Cleveland
Cincinnati
Toledo

18
Burlington
Guilford

19
Albany
Buffalo
New York City
Rochester
Saratoga Springs

20
Boston
Cambridge
New Bedford
Somerville
Salem
Beverly
Lexington
Northampton
Wellfleet
Medford

21
Abington Township
Philadelphia
Pittsburgh

22
Jersey City
Maplewood Township
Princeton
Secaucus

23
Baltimore
Greenbelt
Metropolitan Washington Council of Governments
Takoma Park

24
Arlington
Charlottesville
Richmond

25
Asheville
Chapel Hil
Charlotte
Durham
Greensboro
Orange County
Raleigh
Wilmington
Winston-Salem

26
Boynton Beach
Broward County
Hallandale Beach
Hollywood
Key West
Miami
Miami Beach
Orlando
St. Petersburg
West Palm Beach
Winter Park

195 cities
across **2** countries
representing **97** million people

81% of North American cities reported a total of 1,188 mitigation actions

Top mitigation actions reported by cities

- Energy efficiency/retrofit measures
- Building codes and standards
- On-site renewable energy generation
- Low or zero carbon energy supply generation
- Improvement of fuel economy and reduction of CO_2 from motorized vehicles

180 North American cities are taking 1,112 adaptation actions

Top adaptation actions reported by cities

- Flood mapping
- Community engagement
- Storm water capture systems
- Tree planting or the creation of green space
- Incorporating climate change into long-term planning

82% of North American cities reported a city-wide emissions inventory

73% of North American cities reported a city-wide emissions reduction target

69% of North American cities reported a climate action plan

63% of North American cities reported an adaptation plan

Knoxville, USA

Weatherization programs cut carbon pollution, save money and improve public health

Knoxville is Tennessee's third most populous city with over 186,000 people and roughly 5% of people living in the city are unable to pay their utility bills, putting them at risk. In response, the city and community partners have been working to weatherize many of the older, less efficient homes. Much of this work comes from the city's Smarter Cities Partnership. This came to a full head in 2015 with the launch of Knoxville Utilities Board's (KUB) Round It Up programs and the Knoxville Extreme Energy Makeover program, which was a joint partnership with Tennessee Valley Authority (TVA), KUB, the Knoxville-Knox County Community Action Committee, the Alliance to Save Energy, and the City. Since 2015, these programs have resulted in investments in excess of USD 17 million to weatherize low-to-moderate income homes. More than 1,800 households have benefitted, with families seeing a reduction of USD 15-20 monthly in their utility bills. The partnerships have led to additional community resources to advance this valuable work through new programs like TVA's Home UpLift program. These city and utility partnerships help lower-income residents and ratepayers afford to live comfortably in their home, improve indoor air quality, and reduce community carbon emissions. To quantify this impact, Knoxville and partners have conducted studies on cost savings and health benefits of the program. And there is a clear one — each home costs around USD 8,000 to upgrade — compared to around USD 20,000 for a three-night hospital stay for an asthmatic child.

OCEANIA

Perth
Mandurah
West Torrens
Adelaide
Mount Barker
Hobsons Bay
Melbourne
Port Phillip
Wyndham
Maribyrnong
Hobart
Tweed Shire
Byron Shire
Newcastle
Sydney
Wollongong
Canberra
Auckland
Rotorua
Wellington
Dunedin

21 cities

across

2 countries

representing

4.3 million people

67%

of Oceanian cities reported a total of 115 mitigation actions

Top mitigation actions reported by cities

- **Energy efficiency/retrofit measures**
- **Low or zero carbon energy supply generation**
- **Recyclables and organics separation from other waste**
- **LED/ CFL/ other luminaire technologies**
- **Improve fuel economy and reduce CO₂ from motorized vehicles**

16

Oceanian cities are taking 95 adaptation actions

Top adaptation actions reported by cities

- **Flood mapping**
- **Community engagement**
- **Sea level rise modelling**
- **Heat mapping and thermal imaging**
- **Storm water capture systems**

90% of Oceanian cities reported a city-wide emissions inventory

71% of Oceanian cities reported a city-wide emissions reduction target

67% of Oceanian cities reported a climate action plan

76% of Oceanian cities reported an adaptation plan

Adelaide, Australia

Building resilience to protect populations and mammalian climate refugees

The City of Adelaide, capital of South Australia, has been working to cut emissions and tackle climate risks for many years — the most significant of which are increased temperatures, and extreme summer heat, combined with overall drying. So extreme are these risks that in January 2019, a new daytime record temperature of 46.6°C was set. As well as humans, another species impacted is the Grey Headed Flying Fox, a threatened native megabat native to Australia originally from hundreds of kilometers away on the east coast. However, urban sprawl, habitat destruction, bushfires, and drought, exacerbated by climate change, have contributed to their displacement. The City considers them climate refugees that have chosen the city parklands as a new home, and today there are around 26 thousand flying foxes in central Adelaide since they first settled in 2010.

On hot days, bats can come into close contact with humans by moving down trees and reaching lower ones to access water, sometimes falling from the canopy. Many young bats die in extreme temperatures, and the population can sadly lose thousands in a single day. What's more, the flying foxes can carry diseases which pose a health hazard to people. To tackle this, Adelaide is taking actions such as monitoring heat and humidity around the bat camp, educating the community on public health risks, using on-ground sprinklers for cooling, training and immunization for bat retrieval crews, and coordinated patrols in extreme weather. During heatwaves, the city establishes temporary vet stations to triage and treat bats, engaging the public via social media to ensure they know how to manage risks and support the city's plans. The city knows it must keep its people safe as risks to their health grow, and is working with partners to install sprinklers in the tree canopy to keep the bats cool and safe from falling, and people on the ground safe from the risk of illness.