

CDP Cities 2016

Climate action from 533 global cities



About the report

CDP and AECOM are proud to present our latest results from the 533 cities that disclosed their climate change related data through CDP this year. Thanks to CDP's cities program funders, Bloomberg Philanthropies, CDP has seen a 70% increase in the number of cities disclosing. A record number of cities are now measuring and disclosing environmental data on an annual basis in order to manage emissions, build resilience, and protect themselves from the growing impacts of climate change. City governments from Windhoek to Kolkata to Rio Grande, including 90% of C40 cities – a group of the world's mega-cities – are now disclosing through CDP.

The data presented here conveys information about every aspect of climate change measurement and management in cities. In 2011, 1 in 10 cities reported undertaking a city-wide emissions inventory, now 4 in 10 cities report doing so. 190 cities have set city-scale emissions reduction targets with over 3,000 actions to reduce emissions. 89% of cities view climate change as a risk to their city, with nearly 1,500 actions to adapt to climate change being disclosed.

Action by cities will be essential to achieving the ambitious goals of the Paris Agreement - but encouragingly more than 7,000 cities have made commitments through the Global Covenant of Mayors for Climate & Energy – and are reporting on their progress. These cities have shown great ambition, but they will need to collaborate with a wide range of stakeholders if they are to meet their targets and substantially reduce emissions, adapt to the effects of climate change and benefit economically and socially from a low carbon environment.

CDP congratulates the hard work and dedication of the world's city governments in measuring and disclosing this data. With this report, we provide city governments with information and insights that we hope will assist their work in tackling climate change.

For an in-depth analysis on the benefits for cities, regions, businesses and investors to collaborate on climate action, please see CDP's accompanying report, **"It takes a city: The case for collaborative climate action."**

Contents

Global	7
Africa	15
Asia and Oceania	23
Europe	31
Latin America	39
North America	47

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533 disclosing cities in 89 countries

Africa › Burkina Faso › Bakata › Burundi › La mairie de Bujumbura › Cameroon › Bangangté › Foumban › Yaoundé 6 › Cote d'Ivoire › Abidjan › Grand-Bassam › Democratic Republic of Congo › Kananga › Kinshasa › Egypt › Cairo › Ethiopia › Addis Ababa › Ghana › Accra › Kenya › Kisumu › Nairobi › Nakuru › Madagascar › Antananarivo › Malawi › Blantyre › Lilongwe › Morocco › Rabat › Mozambique › Cidade de Maputo › Nacala › Namibia › Windhoek › Nigeria › Abuja › Ibadan › Lagos › Senegal › Dioudoubou › Ziguinchor › South Africa › Cape Town › Durban › Ekurhuleni › Emfuleni › Johannesburg › Nelson Mandela Bay › Pietermaritzburg › Pretoria › Tshwane › Sekhukhune › Ugu › Vhembe › Tunisia › Commune Ain Drahem › Uganda › Jinja › United Republic of Tanzania › Arusha › Dar es Salaam › Morogoro › Mwanza › Zambia › Mazabuka › Zimbabwe › Harare

Asia and Oceania › Australia › Adelaide › Byron Shire › Cairns › Canberra › Melbourne › Perth › Sydney › China › Guangzhou › Shenzhen › Wuhan › Hong Kong › India › Bangalore › Jaipur › Kolkata › Indonesia › Bogor › Jakarta › Yogyakarta › Israel › Tel Aviv-Yafo › Japan › Hiroshima › Nagoya › Okayama › Tokyo › Yokohama › Jordan › Amman › Malaysia › Iskandar › Kuala Lumpur › Petaling Jaya › New Zealand › Auckland › Kapiti Coast › Napier › Wellington › Pakistan › Karachi › Philippines › Angeles › Antipolo › Batangas › Makati › Quezon › Singapore › Singapore › South Korea › Ansan › Boseong › Changwon › Cheongsong › Daejeon › Damyang › Geoje › Geumsan › Goheung › Gokseong › Gunpo › Gurye › Gwangju › Gwangyang › Haenam › Hoengseong › Hongcheon › Hwacheon › Imsil › Incheon › Inje › Jangheung › Jangseong › Jecheon › Jeju › Jeongseon › Jeonju › Mokpo › Muan › Naju › Nonsan › Pyeongtaek › Samcheok › Sejong › Seochon › Seogwipo › Seoul › Shinan › Sunchang › Suwon › Tongyeong › Ulsan › Wonju › Yeonggwang › Taiwan › Hsinchu › Kaohsiung › New Taipei › Pingtung › Tainan › Taipei City › Taoyuan › Yilan › Thailand › Bangkok › UAE › Dubai › Vietnam › Hanoi › Ho Chi Minh

Europe › Albania › Tirana › Bulgaria › Sofia Municipality › Stara Zagora › Croatia › Zagreb › Czech Republic › Brno › Denmark › Aarhus Kommune › Allerød Municipality › City of Århus › Copenhagen › Egedal Municipality › Frederikshavn › Kommune › Gladsaxe Kommune › Hjørring › Høje-Taastrup Kommune › Hørsholm Kommune › Hvidovre › Jammerbugt Kommune › Middelfart Kommune › Odder Kommune › Skive Kommune › Sønderborg Kommune › Estonia › Johvi › Finland › Helsinki › Lahti › Turku › France › Amiens Métropole › Communauté urbaine du Grand Nancy › Nice Côte d'Azur › Paris › Villeurbanne › Georgia › Tbilisi › Germany › Berlin › Hamburg › Landeshauptstadt Magdeburg › Stadt Heidelberg › Gibraltar › Gibraltar › Greece › Athens › Thessaloniki › Iceland › Akureyri › Reykjavík › Ireland › Dublin › Italy › Bologna › Bolzano › Cagliari › Ferrara › Firenze › Genova › Lucca › Milano › Monza › Napoli › Olbia › Oristano › Padova › Piacenza › Ravenna › Reggio Emilia › Rimini › Roma › Torino › Udine › Venezia › Kosovo › Pristina › Lithuania › Šiauliai › Vilnius › Monaco › Monaco › Montenegro › Podgorica › Netherlands › Amsterdam › Groningen › Nijmegen › Rotterdam › The Hague › Norway › Bærum Kommune › Oslo › Tromsø › Trondheim › Poland › City of Wrocław › Gdańsk › Gdynia › Tarnów › Warsaw › Portugal › Águeda › Barreiro › Braga › Cascais › Fafe › Faro › Funchal › Lamego › Lisbon › Matosinhos › Moita › Ovar › Porto › Santarém › Torres Vedras › Vila Nova de Famalicão › Viseu › Romania › Alba-Iulia › Tulcea › Russia › Moscow › Serbia › Subotica › Slovenia › Ljubljana › Spain › Barcelona › Madrid › Murcia › Zaragoza › Sweden › Stockholm › Trelleborg › Switzerland › Basel-Stadt › Lausanne › Nyon › Stadt Zürich › Turkey › Bornova › Eskişehir › Istanbul › Kadiövaci › Seferihisar › United Kingdom › Birmingham › Bournemouth › Cambridge › Cardiff › Glasgow › Leicester › London › Manchester

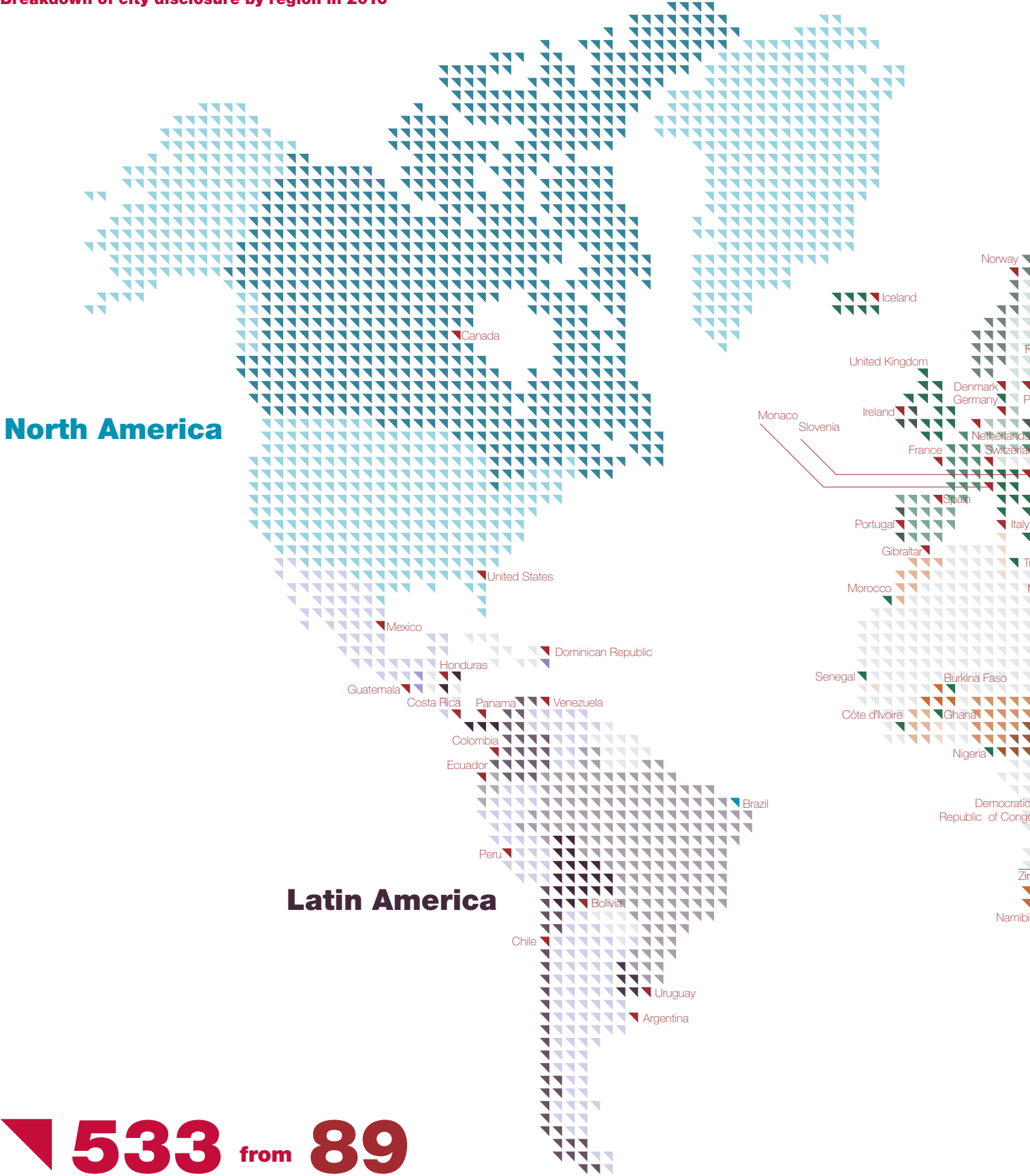
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North America › Canada › Ajax, ON › Brandon, MB › Calgary › City of Winnipeg › Edmonton › Halifax › Hamilton › London, ON › Montreal › North Vancouver › Peterborough › Prince George, BC › Regional Municipality of Durham › Salaberry-de-Valleyfield › Saskatoon › Sudbury › Toronto › Vancouver › Victoria › Windsor › USA › Abington › Albany › Alton, IL › Ann Arbor › Arlington, VA › Asheville › Aspen and Pitkin County › Atlanta › Aurora, CO › Austin › Baltimore › Bellingham, WA › Benicia › Blacksburg › Boston › Boulder › Brisbane, CA › Brownsville › Buffalo › Burlington › Cambridge › Carmel, IN › Chapel Hill, NC › Charlotte › Charlottesville, VA › Chicago › Cincinnati › Cleveland › Columbia, SC › Columbus › Dallas › Davis, CA › Denver › Des Moines › Detroit › District of Columbia › Durham › Easton, PA › El Paso › Elgin, IL › Emeryville, CA › Eugene › Flagstaff › Fort Wayne › Fort Worth › Greenbelt, MD › Hayward › Hermosa Beach, CA › Hollywood › Houston › Huntington Beach › Indianapolis › Iowa › Jackson, MS › Knoxville › Lake Forest, IL › Lakewood › Lancaster › Lancaster, PA › Las Vegas › Long Beach › Los Altos Hills › Los Angeles › Louisville, KY › Medford › Miami › Milwaukee › Minneapolis › Nashville and Davidson › New Bedford, MA › New Orleans › New York City › Northampton, MA › Oakland › Oklahoma › Orlando › Palo Alto › Park City, UT › Philadelphia › Phoenix › Piedmont, CA › Pittsburgh › Portland, ME › Portland, OR › Providence › Raleigh › Reno › Richmond, CA › Richmond, VA › Roanoke › Rochester › Sacramento › Salt Lake City › San Antonio › San Diego › San Francisco › San José › Santa Monica › Savannah › Seattle › Somerville, MA › St Louis › Takoma Park, MD › Tucson › University City, MO › Vail, CO › West Hollywood › Westport, CT › Winston-Salem › Wisconsin Rapids › Yonkers

Cities



Breakdown of city disclosure by region in 2016



 **533** from **89**
Cities Countries

126 cities

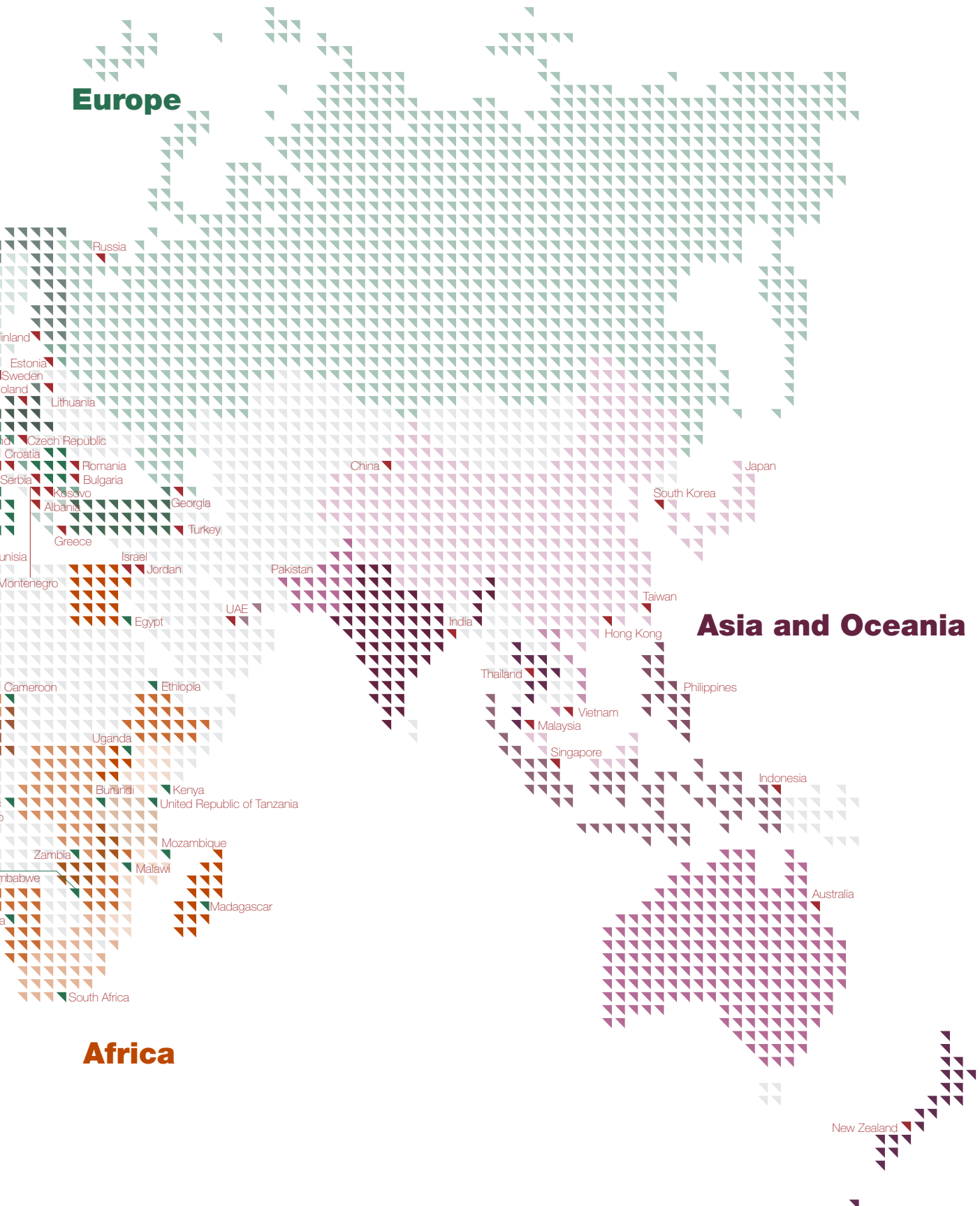
Europe
32 countries

136 cities

Latin America
15 countries

131 cities

North America
2 countries



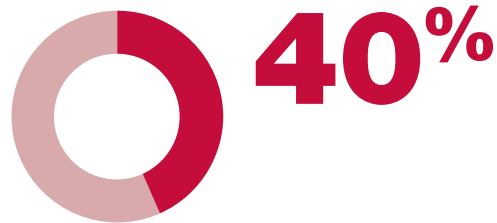


Mitigation

190

Number of cities with a city-wide emissions reduction target

Percentage of cities with a city-wide emissions inventory



246

Number of CDP cities committed to the Compact of Mayors, which in June 2016, merged into the Global Covenant of Mayors for Climate & Energy.

Percentage of cities with a climate action plan



Percentage of cities incorporating sustainability goals into the master planning for the city



Top 5 emissions reduction activities

Number of cities

Anticipated emissions reduction (metric tonnes CO₂e)

298	Energy efficiency/retrofit measures	13,775,821
221	Infrastructure for non motorized transport	10,006,843
159	Low or zero carbon energy supply generation	10,004,901
184	Waste prevention policies and programs	6,427,637
143	Improve fuel economy and reduce CO ₂ from non motorized vehicles	5,644,729

Climate hazards

Percentage of cities that view climate change as a significant risk to their city



Number of cities that have completed a climate change risk or vulnerability assessment



2,022

Total number of climate hazards across 533 cities

Top climate hazards disclosed by cities

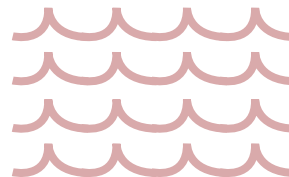
Extreme temperature

319 cities



Storm/Precipitation

305 cities



Flood

258 cities



Water scarcity

199 cities

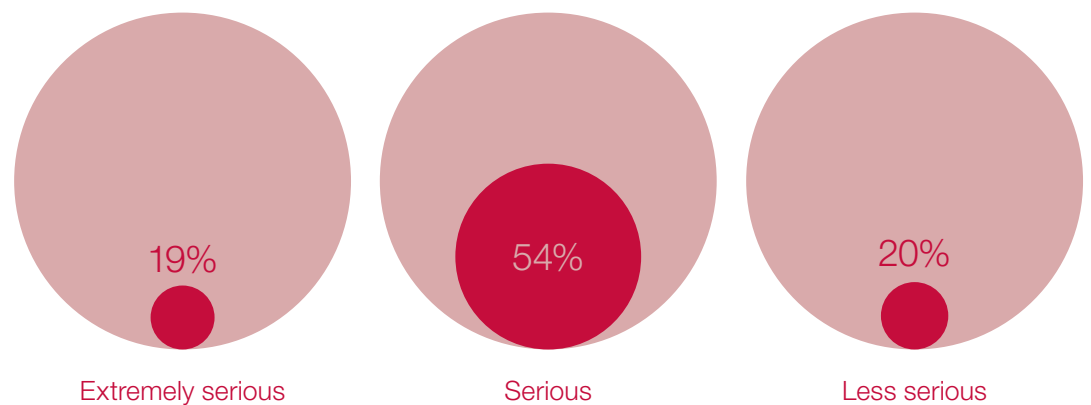


Insects and micro-organisms

119 cities



Magnitude of climate hazards

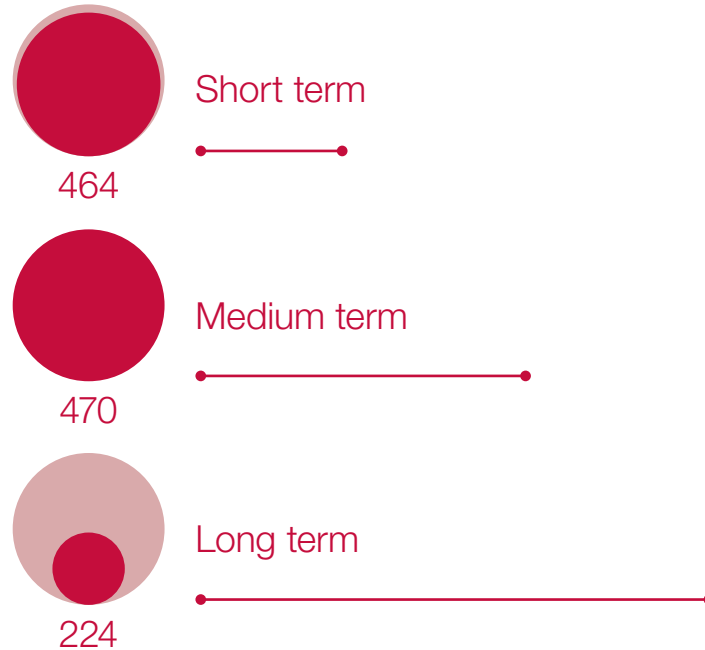


Climate hazards cont'd

705

Number of currently occurring climate hazards disclosed by cities

Number of climate hazards disclosed by cities by timescale



Number of social risks disclosed by cities

		Number of cities
	Increased risk to already vulnerable populations	234
	Increased demand for public services (including health)	198
	Increased incidence and prevalence of disease	173
	Increased resource demand	114
	Fluctuating socio-economic conditions	111

Adaptation

1,445

Total number of adaptation actions disclosed

Number of cities with a climate change adaptation plan



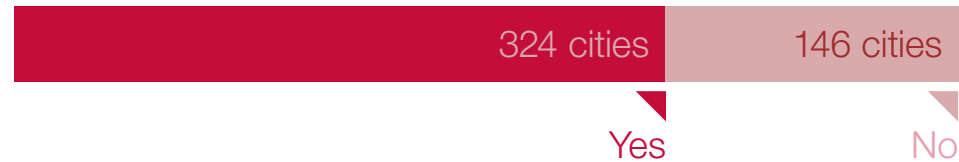
Top 5 adaptation actions taken for the top climate hazards

	Number of cities
Community engagement/education	147
Crisis management including warning and evacuation systems	129
Flood mapping	123
Tree planting and/or creation of green space	101
Projects and policies targeted at those most vulnerable	86



Water

Number of cities that foresee substantive risks to their water supply in the short or long term

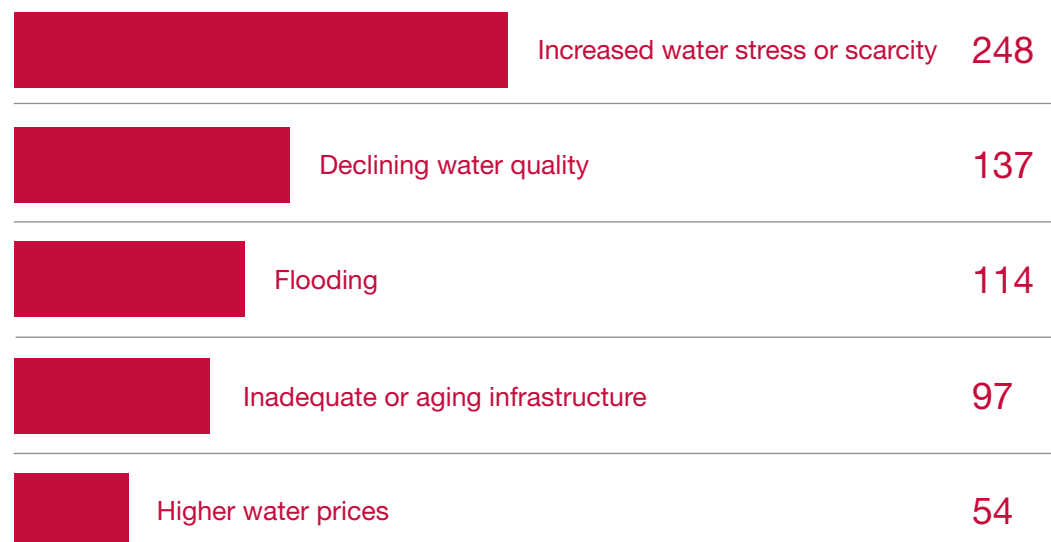


686

Total number of water supply risks disclosed

Top 5 water supply risks disclosed

Number of cities

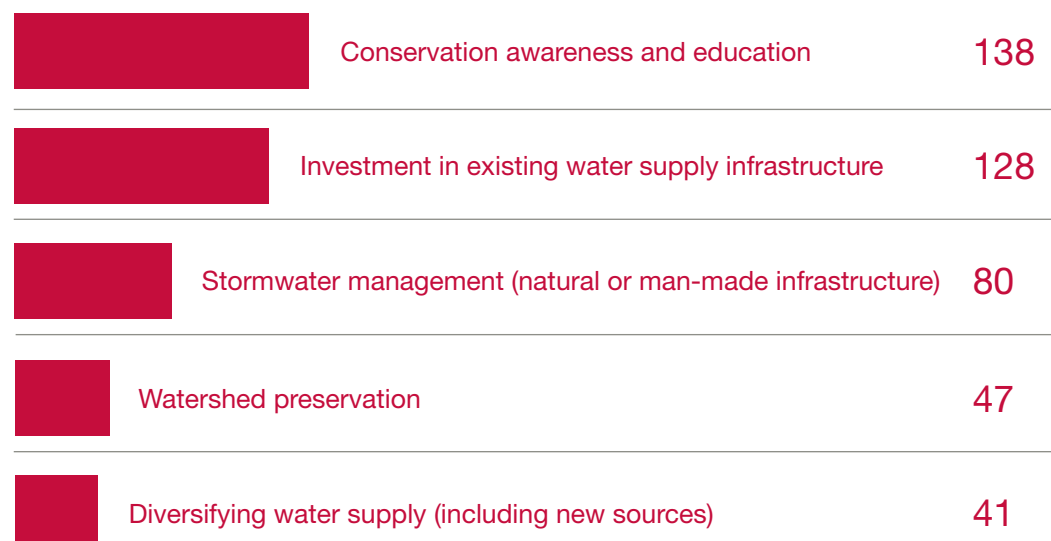


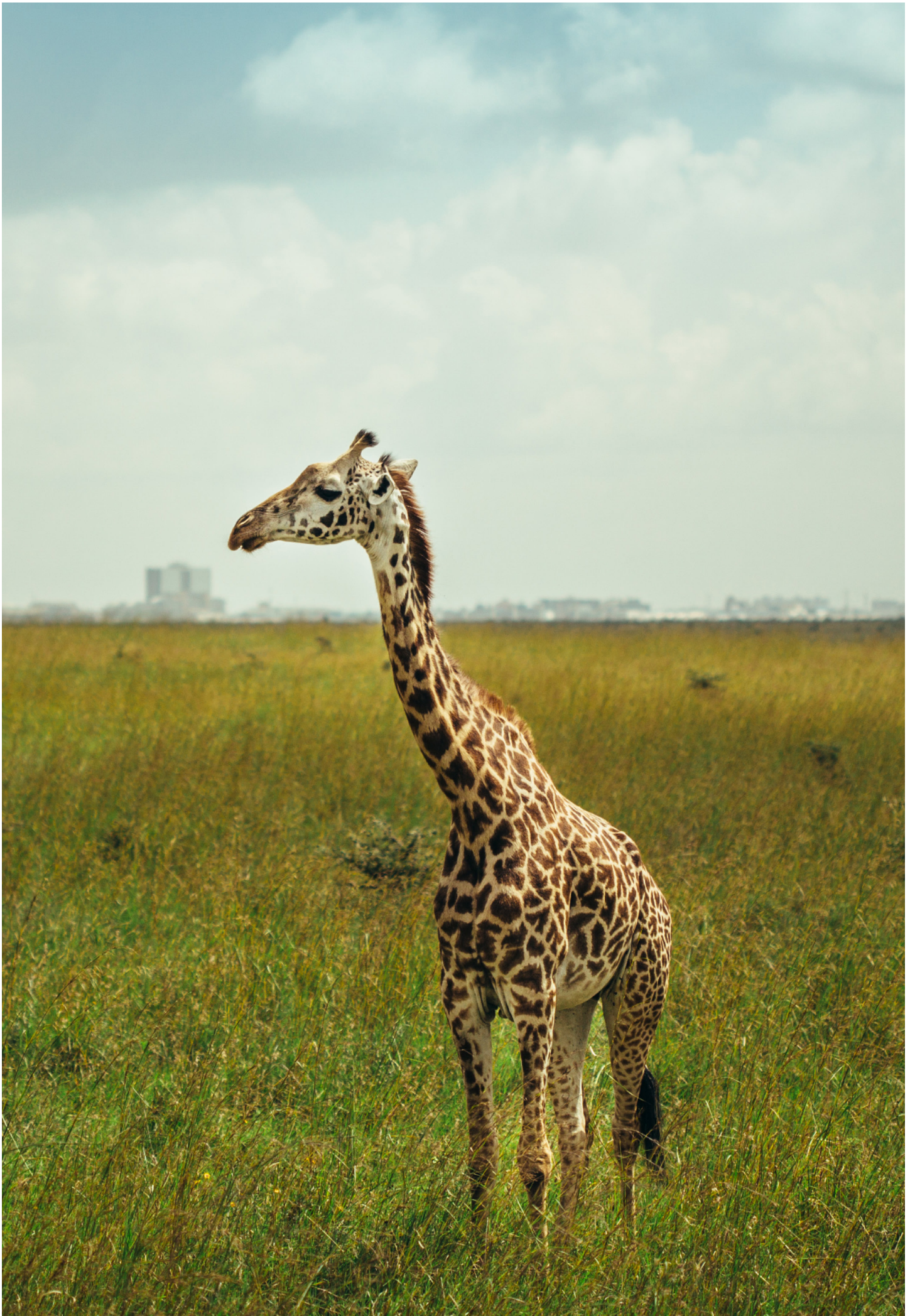
681

Total number of water adaptation actions disclosed

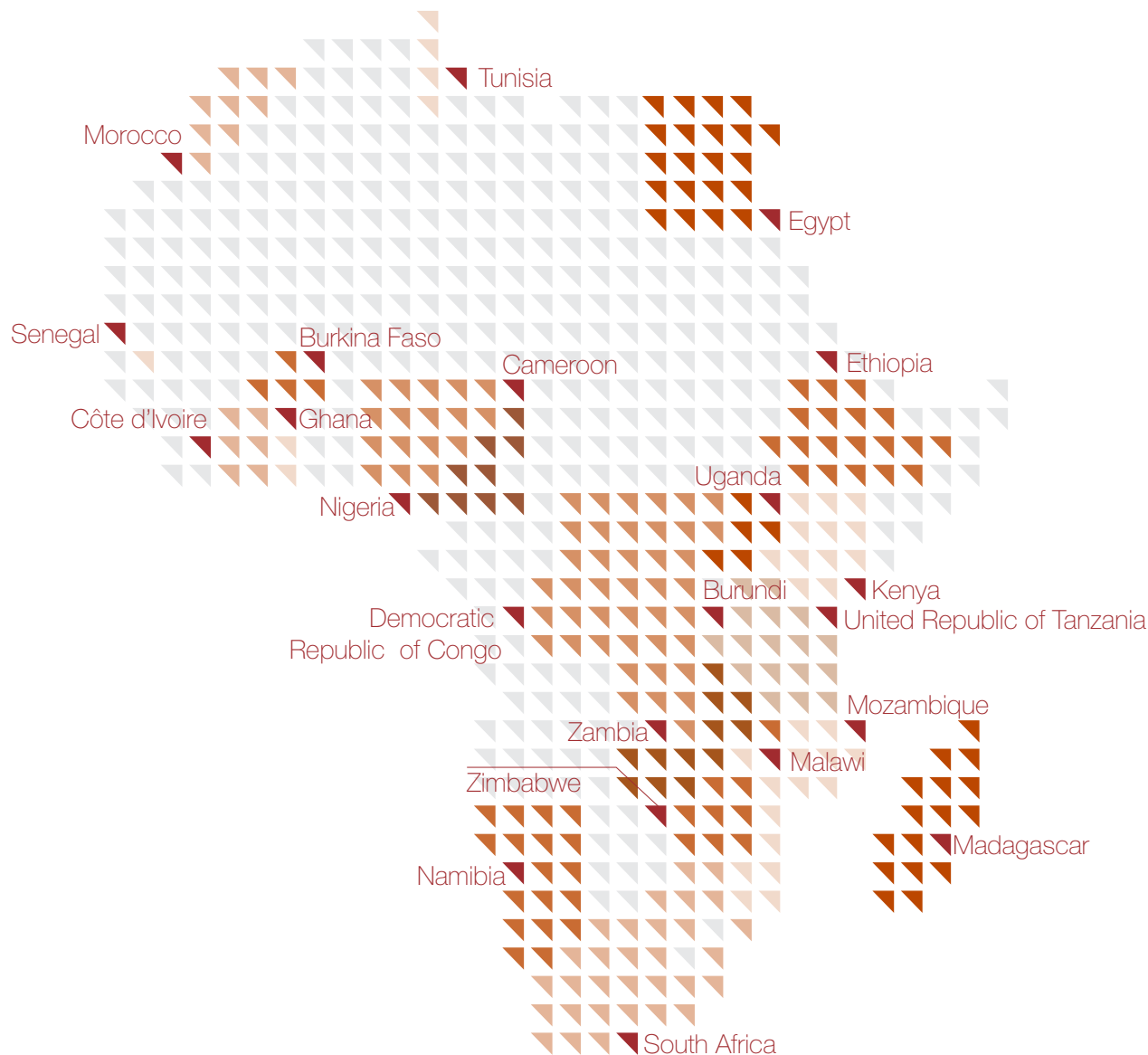
Top 5 water adaptation actions disclosed

Number of cities





Africa




46 from
Cities


22
Countries

Africa › Burkina Faso › Bakata › Burundi › La mairie de Bujumbura › Cameroon › Bangangté › Foumban › Yaoundé 6 › Cote d Ivoire › Abidjan › Grand-Bassam › Democratic Republic of Congo › Kananga › Kinshasa › Egypt › Cairo › Ethiopia › Addis Ababa › Ghana › Accra › Kenya › Kisumu › Nairobi › Nakuru › Madagascar › Antananarivo › Malawi › Blantyre › Lilongwe › Morocco › Rabat › Mozambique › Cidade de Maputo › Nacala › Namibia › Windhoek › Nigeria › Abuja › Ibadan › Lagos › Senegal › Dioudoubou › Ziguinchor › South Africa › Cape Town › Durban › Ekurhuleni › Emfuleni › Johannesburg › Nelson Mandela Bay › Pietermaritzburg › Pretoria › Tshwane › Sekhukhune › Ugu › Vhembe › Tunisia › Commune Ain Drahem › Uganda › Jinja › United Republic of Tanzania › Arusha › Dar es Salaam › Morogoro › Mwanza › Zambia › Mazabuka › Zimbabwe › Harare

Mitigation

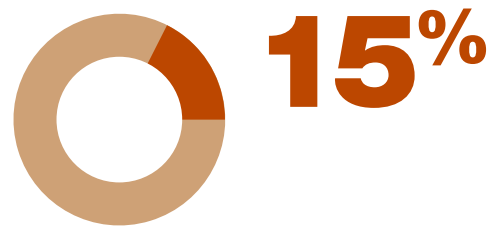
3

Number of cities with
a city-wide emissions
reduction target

Total community-scale emissions reported by cities in Africa

118,328,891 metric tonnes of CO₂e

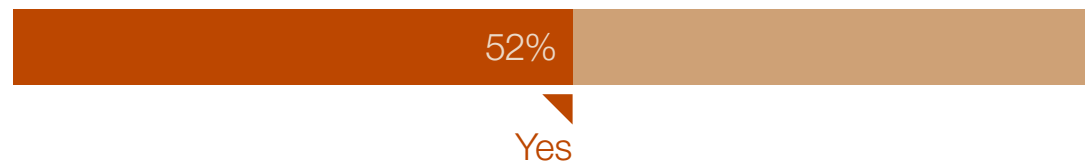
Percentage of cities with a city-wide emissions inventory in Africa





Percentage of cities with a climate action plan



Percentage of cities incorporating sustainability goals into the master planning for the city



Top 3 city-wide emissions reduction activities

		Number of cities
	Green space and/or biodiversity preservation and expansion	7
	Improve bus infrastructure, services, and operations	6
	Recycling or composting collections and/or facilities	4

Climate hazards

Percentage of cities that view climate change as a significant risk to their city



Number of cities that have completed a climate change risk or vulnerability assessment



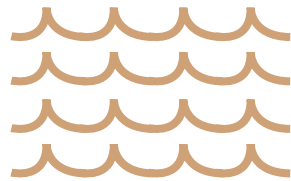
169

Total number of climate hazards across 46 cities

Top 3 climate hazards as disclosed by cities

Flood

27 cities



Insects and micro-organisms

17 cities



Extreme temperature

17 cities

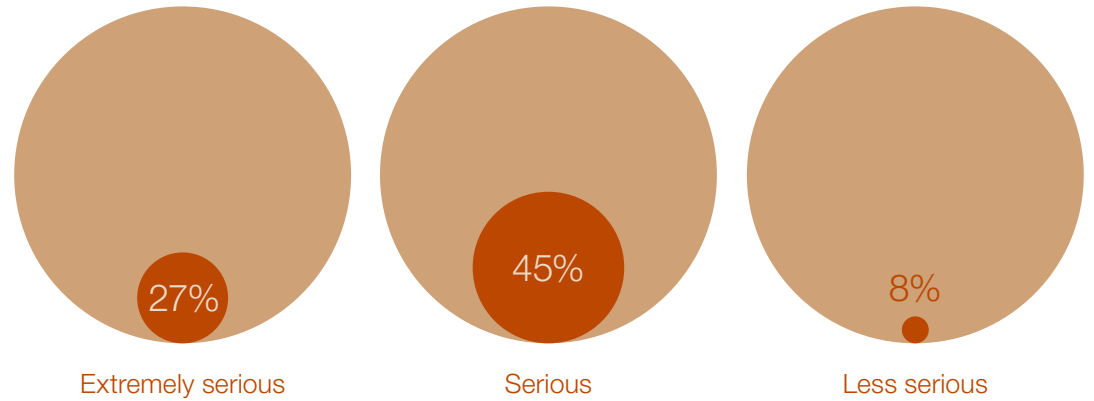


Lagos | Nigeria

Lagos with a population of 21 million people has a vast coastline but a relatively small land area. This makes it one of the most vulnerable cities in the world to the impact of climate change.

Climate hazards cont'd

Magnitude of climate hazards



Top 3 assets or services impacted by the effects of climate change

Health and community



Food and agriculture



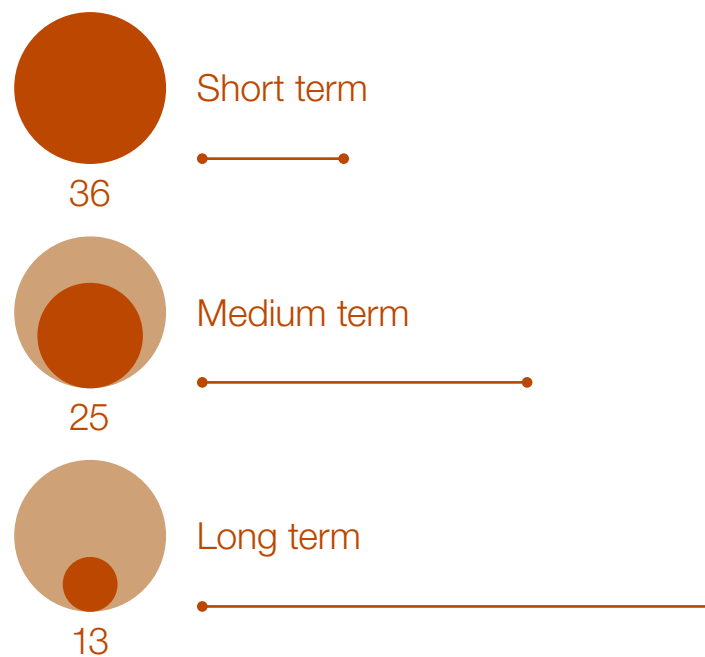
Residential



74

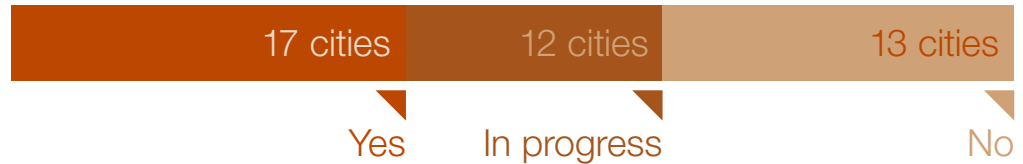
Number of currently occurring climate hazards disclosed by cities

Number of climate hazards disclosed by cities, by timescale



Adaptation

Number of cities with a climate change adaptation plan



Top adaptation actions taken for the top climate hazards

Flood	<ul style="list-style-type: none"> Flood mapping Restrict development in at risk areas
Insects and micro-organisms	<ul style="list-style-type: none"> Disease prevention measures Improve water supply distribution method
Extreme temperature - hot	<ul style="list-style-type: none"> Heat mapping and thermal imaging Community engagement/education
Water scarcity	<ul style="list-style-type: none"> Water use restrictions and standards Tree planting and/or creation of green space



Pietermaritzburg | South Africa

Pietermaritzburg is currently experiencing a devastating drought with impacts being severely felt in the agricultural sector. The drought has reportedly affected almost 10,000 provincial farmers and stock losses were mounting with more than 30,000 cattle having been lost.

Water

Number of cities that foresee substantive risks to their water supply in the short or long term



Top 3 water risks disclosed by cities

	Number of cities
Increased water stress or scarcity	22
Inadequate or aging infrastructure	14
Declining water quality	9

Top 3 water adaptation actions disclosed by cities

	Number of cities
Investment in existing water supply infrastructure	18
Conservation awareness and education	10
Stormwater management (natural or man-made infrastructure)	7

Economic opportunities

Percentage of cities reporting that climate change could threaten the ability of businesses to operate successfully in their city

91%

Yes

Percentage of cities that see an economic opportunity from climate change

61%

Yes



Foumban | Cameroon

In partnership with a local women's association, Foumban has financed a project to roll-out improved cooking stoves. These stoves are sold at a reasonable price and do not require as much firewood to function as normal cooking stoves. As many families use firewood to cook and as a source of energy, forests are in danger of over and un-managed exploitation.



Asia and Oceania



 **94** from  **18**
Cities **Countries**

Asia and Oceania › Australia › Adelaide › Byron Shire › Cairns › Canberra › Melbourne › Perth › Sydney › China › Guangzhou › Shenzhen › Wuhan › Hong Kong › Hong Kong › India › Bangalore › Jaipur › Kolkata › Indonesia › Bogor › Jakarta › Yogyakarta › Israel › Tel Aviv-Yafo › Japan › Hiroshima › Nagoya › Okayama › Tokyo › Yokohama › Jordan › Amman › Malaysia › Iskandar › Kuala Lumpur › Petaling Jaya › New Zealand › Auckland › Kapiti Coast › Napier › Wellington › Pakistan › Karachi › Philippines › Angeles › Antipolo › Batangas › Makati › Quezon › Singapore › Singapore › South Korea › Ansan › Boseong › Changwon › Cheongsong › Daejeon › Damyang › Geoje › Geumsan › Goheung › Gokseong › Gunpo › Gurye › Gwangju › Gwangyang › Haenam › Hoengseong › Hongcheon › Hwacheon › Imsil › Incheon › Inje › Jangheung › Jangseong › Jecheon › Jeju › Jeongseon › Jeonju › Mokpo › Muan › Naju › Nonsan › Pyeongtaek › Samcheok › Sejong › Seochon › Seogwipo › Seoul › Shinan › Sunchang › Suwon › Tongyeong › Uljin › Wonju › Yeonggwang › Taiwan › Hsinchu › Kaohsiung › New Taipei › Pingtung › Tainan › Taipei City › Taoyuan › Yilan › Thailand › Bangkok › UAE › Dubai › Vietnam › Hanoi › Ho Chi Minh

Mitigation

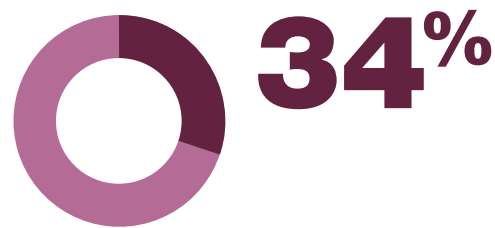
31

Number of cities with
a city-wide emissions
reduction target

Total community-scale emissions reported by cities in Asia and Oceania

591,499,151 metric tonnes of CO₂e

Percentage of cities with a city-wide emissions inventory



Percentage of cities with a climate action plan



Percentage of cities incorporating sustainability goals into the master planning for the city



Top 3 emissions reduction activities

Number of cities		Anticipated emissions reduction (metric tonnes CO ₂ e)
10	Low or zero carbon energy supply generation	4,273,000
6	Waste prevention policies and programs	3,615,500
14	Energy efficiency/retrofit measures	2,493,685

Climate hazards

Percentage of cities that view climate change as a significant risk to their city



Number of cities that have completed a climate change risk or vulnerability assessment



339

Total number of climate hazards across 94 cities

Top 3 climate hazards as reported by cities

Extreme temperature

66 cities



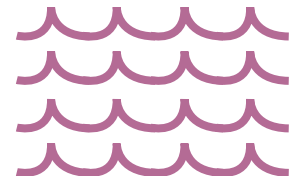
Storm/Precipitation

44 cities



Flood

53 cities

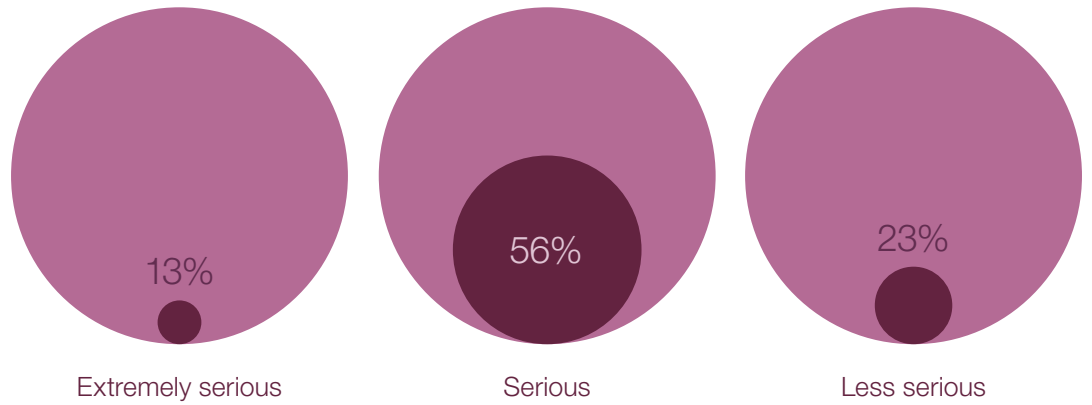


Hong Kong | China

Hong Kong aims to eliminate 40% of food waste disposal at landfills by 2022. They are planning to develop Organic Waste Treatment Facilities (OWTF) in phases to recycle food waste into compost and bio gas as renewable energy.

Climate hazards cont'd

Magnitude of climate hazard



Top 3 assets or services impacted by the effects of climate change

Health and community



Food and agriculture



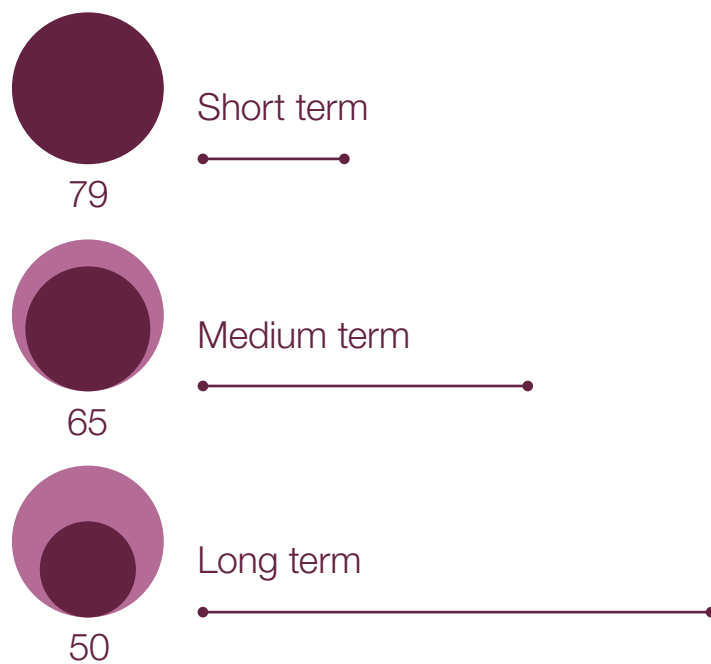
Residential



123

Number of currently occurring climate hazards disclosed by cities

Number of climate risks disclosed by cities by timescale



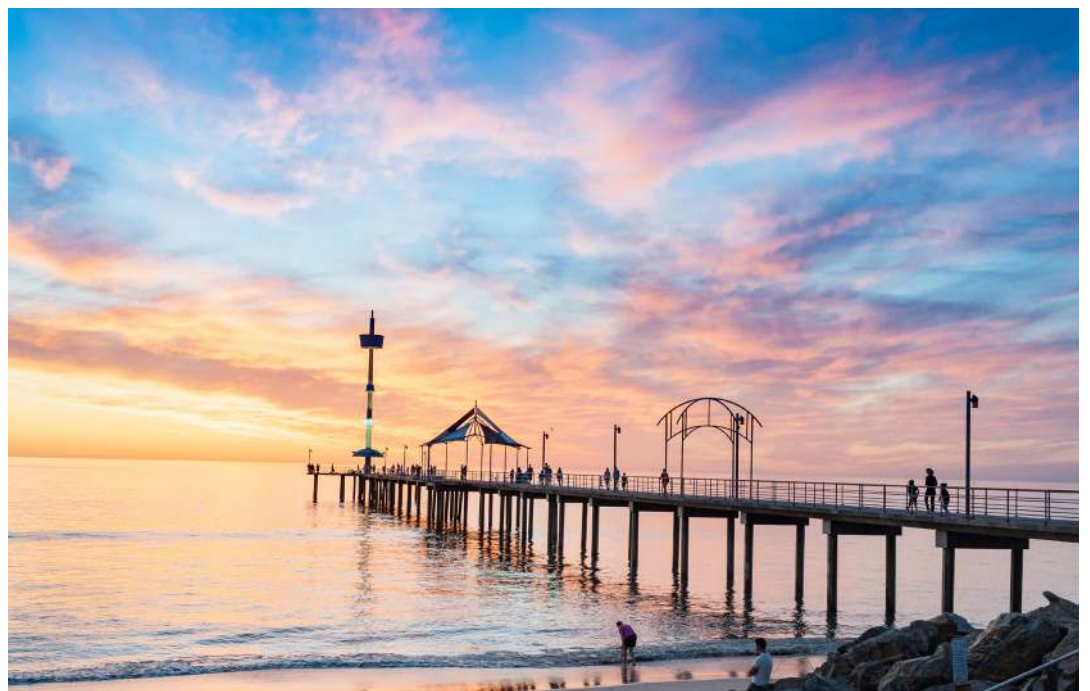
Adaptation

Number of cities with a climate change adaptation plan



Top adaptation actions taken for the top climate hazards

Extreme temperature - hot	<ul style="list-style-type: none"> Tree planting and/or creation of green space Community engagement/education
Flood	<ul style="list-style-type: none"> Flood mapping Flood defences – development and operation & storage
Precipitation	<ul style="list-style-type: none"> Crisis management including warning and evacuation systems Storm water capture systems
Water scarcity	<ul style="list-style-type: none"> Diversification of water supply Storm water capture systems



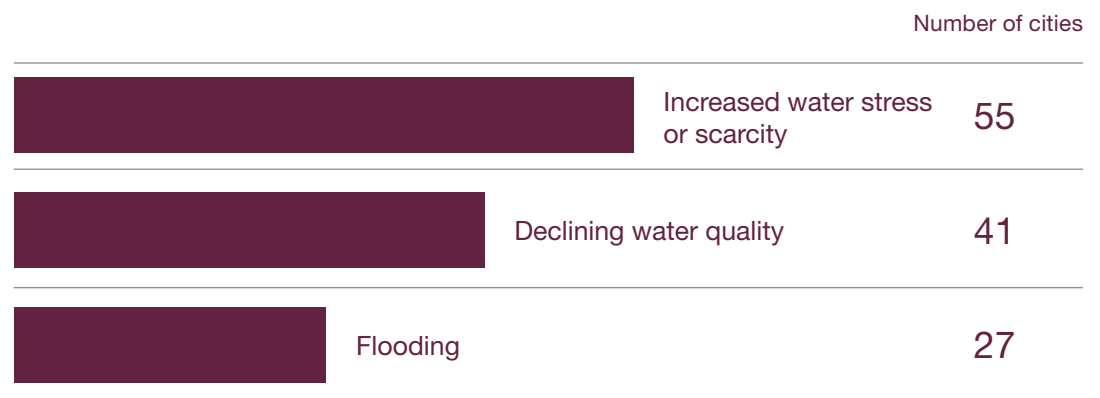
Adelaide | Australia

Adelaide and South Australia have formally endorsed their shared aspiration for Adelaide to be the world's first carbon neutral city through the formation of the Carbon Neutral Adelaide Partnership.

Number of cities that foresee substantive risks to their water supply in the short or long term



Top 3 water supply risks disclosed



Top 3 water adaptation actions disclosed



Economic opportunities

Percentage of cities reporting that climate change could threaten the ability of businesses to operate successfully in their city



Percentage of cities that see an economic opportunity from climate change

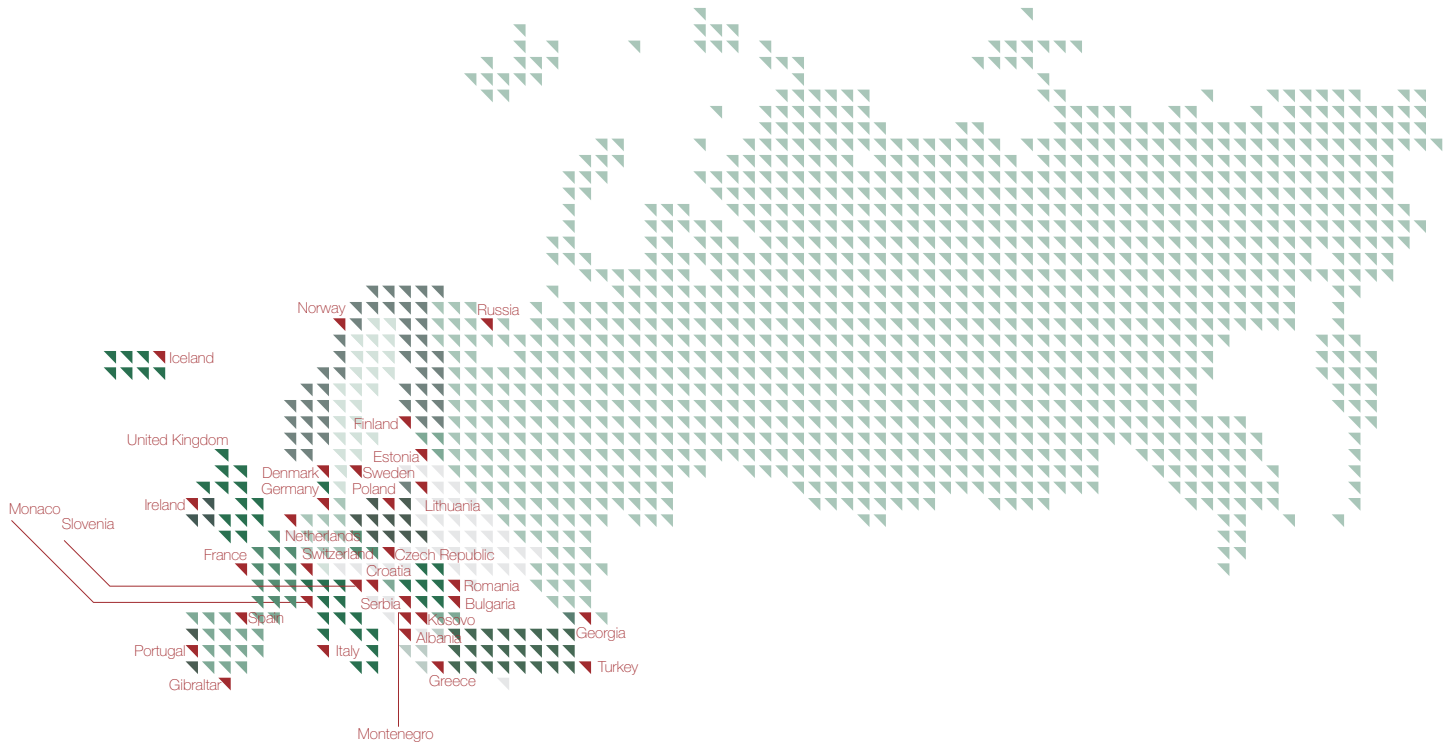


Pingtung | Taiwan

Pingtung County Government have set Taiwan's first low carbon transportation system, Kenting Express, combined with electric vehicles and charging system.



Europe



126 from **32**
Cities Countries

Europe › **Albania** › Tirana › **Bulgaria** › Sofia Municipality › Stara Zagora › **Croatia** › Zagreb › **Czech Republic** › Brno › **Denmark** › Aarhus Kommune › Allerød Minicpality › City of Ærskøbing › Copenhagen › Egedal Municipality › Frederikshavn › Kommune › Gladsaxe Kommune › Hjørring › Hoeje-Taastrup Kommune › Hørsholm Kommune › Hvidovre › Jammerbugt Kommune › Middelfart Kommune › Odder Kommune › Skive Kommune › Sønderborg Kommune › **Estonia** › Johvi › **Finland** › Helsinki › Lahti › Turku › **France** › Amiens Métropole › Communauté urbaine du Grand Nancy › Nice Côte d'Azur › Paris › Villeurbanne › **Georgia** › Tbilisi › **Germany** › Berlin › Hamburg › Landeshauptstadt Magdeburg › Stadt Heidelberg › **Gibraltar** › Gibraltar › **Greece** › Athens › Thessaloniki › **Iceland** › Akureyri › Reykjavík › **Ireland** › Dublin › **Italy** › Bologna › Bolzano › Cagliari › Ferrara › Firenze › Genova › Lucca › Milano › Monza › Napoli › Olbia › Oristano › Padova › Piacenza › Ravenna › Reggio Emilia › Rimini › Roma › Torino › Udine › Venezia › **Kosovo** › Pristina › **Lithuania** › Šiauliai › Vilnius › **Monaco** › Monaco › **Montenegro** › Podgorica › **Netherlands** › Amsterdam › Groningen › Nijmegen › Rotterdam › The Hague › **Norway** › Bærum Kommune › Oslo › Tromsø › Trondheim › **Poland** › City of Wrocław › Gdańsk › Gdynia › Tarnów › Warsaw › **Portugal** › Águeda › Barreiro › Braga › Cascais › Fafe › Faro › Funchal › Lamego › Lisbon › Matosinhos › Moita › Ovar › Porto › Santarém › Torres Vedras › Vila Nova de Famalicão › Viseu › **Romania** › Alba-Iulia › Tulcea › **Russia** › Moscow › **Serbia** › Subotica › **Slovenia** › Ljubljana › **Spain** › Barcelona › Madrid › Murcia › Zaragoza › **Sweden** › Stockholm › Trelleborg › **Switzerland** › Basel-Stadt › Lausanne › Nyon › Stadt Zürich › **Turkey** › Bornova › Eskişehir › Istanbul › Kadiovacik › Seferihisar › **United Kingdom** › Birmingham › Bournemouth › Cambridge › Cardiff › Glasgow › Leicester › London › Manchester

Mitigation

73

Number of cities with
a city-wide emissions
reduction target

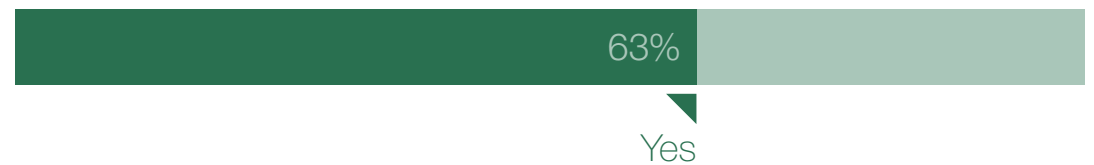
Total community-scale emissions reported by cities in Europe

217,633,573 metric tonnes of CO₂e

Percentage of cities with a city-wide emissions inventory



Percentage of cities with a climate action plan



Percentage of cities incorporating sustainability goals into the master planning for the city



Top 3 emissions reduction activities

Number of cities		Anticipated emissions reduction (metric tonnes CO ₂ e)
23	On-site renewable energy generation	3,633,017
28	Infrastructure for non motorized transport	2,458,373
29	Low or zero carbon energy supply generation	1,968,649

Climate hazards

Percentage of cities that view climate change as a significant risk to their city



Number of cities that have completed a climate change risk or vulnerability assessment



351

Total number of climate hazards across 126 cities

Top 3 climate hazards as disclosed by cities

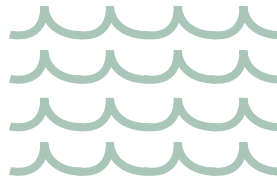
Extreme temperature

63 cities



Flood

63 cities



Storm/Precipitation

52 cities

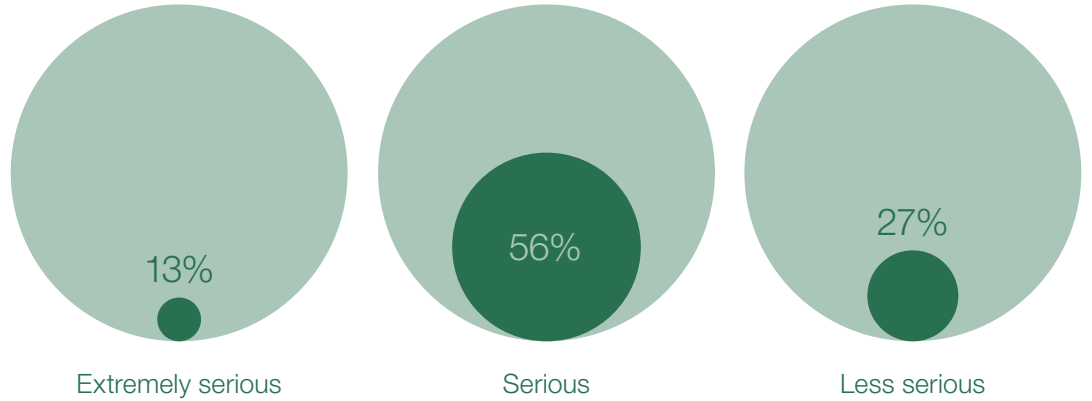


Bologna | Italy

Bologna's transportation hub is vulnerable to a severe weather even as there is no alternative supply chain plans in place. If severe weather events occur, disruptions to the city's supply chain will incur costs and losses in revenue to private businesses.

Climate hazards cont'd

Magnitude of climate hazard



Assets or services impacted by the effects of climate change

Health and community



Residential



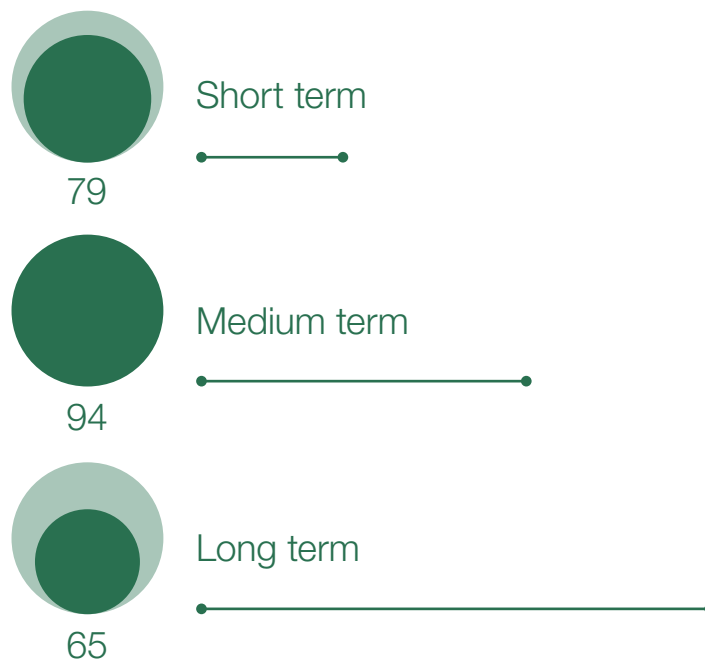
Transport



97

Number of currently occurring climate hazards disclosed by cities

Number of climate hazards disclosed by cities by timescale



Adaptation

Number of cities with a climate change adaptation plan



Top adaptation actions taken for the top climate hazards

Flood	<ul style="list-style-type: none"> Flood mapping Flood defences – development and operation & storage
Extreme temperature - hot	<ul style="list-style-type: none"> Heat mapping and thermal imaging Incorporating climate change into long term planning documents
Precipitation	<ul style="list-style-type: none"> Flood mapping Incorporating climate change into long term planning documents
Water scarcity	<ul style="list-style-type: none"> Diversification of water supply Community engagement/education



Hørsholm Kommune | Denmark

A new waste-to-energy plant is under construction and will be put into operation in Hørsholm Kommune by 2017. The new combined heat and power plant will supersede the old plant and has higher heating and electricity efficiencies, thereby reducing GHG emissions from other sources.

Number of cities that foresee substantive risks to their water supply in the short or long term



Top 3 water supply risks disclosed

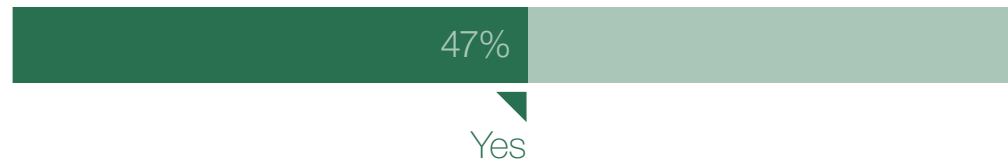
	Number of cities
Increased water stress or scarcity	28
Declining water quality	19
Flooding	15

Top 3 water adaptation actions disclosed

	Number of cities
Investment in existing water supply infrastructure	19
Conservation awareness and education	10
Stormwater management (natural or man-made infrastructure)	9

Economic opportunities

Percentage of cities reporting that climate change could threaten the ability of businesses to operate successfully in their city



Percentage of cities that see an economic opportunity from climate change

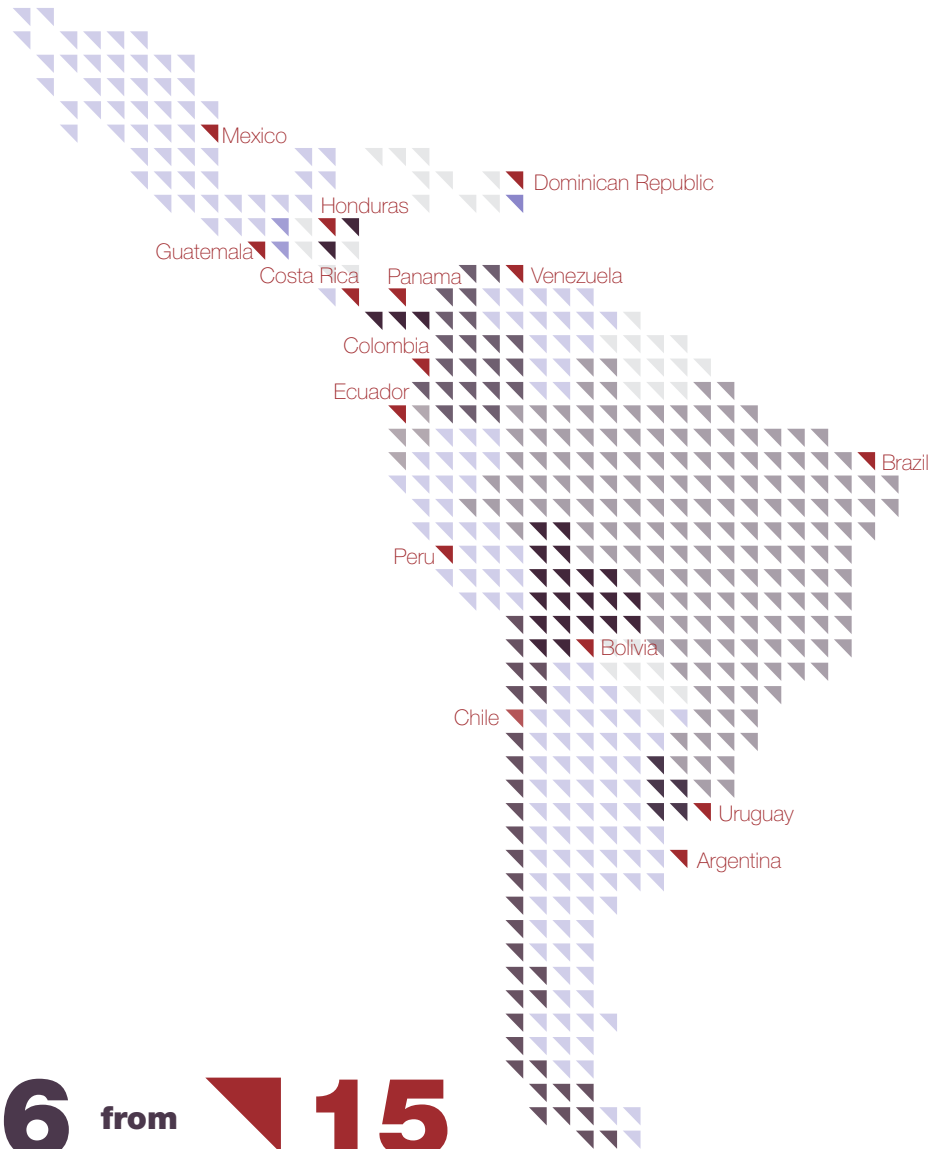


Manchester | United Kingdom

Manchester is deploying a smart distribution system (DMS) with a dedicated communication network for the whole Electricity North West by 2018. This will deliver a US\$65 million program of smart network changes and integrated storage pilots to promote connection of decentralised energy, and deploy smart meters for gas and electricity.



Latin America



136 from
Cities

15
Countries

Latin America › **Argentina** › Buenos Aires › Córdoba › Mendoza › Río Grande › San Isidro (Argentina) › Santa Fé Ciudad › Vicente López › **Bolivia** › Gobierno Autónomo Municipal de Tarija › La Paz › **Brazil** › Aparecida › Aparecida de Goiânia › Aracaju › Assis › Barueri › Bauru › Belém › Belo Horizonte › Betim › Birigui › Blumenau › Brasília › Brotas › Cabreúva › Caieiras › Campinas › Campo Grande › Campos de Goytacazes › Canoas › Capivari › Catalão › Caxias do Sul › Cerquillo › Cosmópolis › Cotia › Cubatão › Cuiabá › Curitiba › Duque de Caxias › Estância Climática de São Bento do Sapucaí › Estância Hidromineral de Águas de São Pedro › Estância Turística de Guaratinguetá › Estância Turística de ITU › Estância Turística de Olímpia › Feira de Santana › Florianópolis › Fortaleza › Franco da Rocha › Goiânia › Guarulhos › Jaboatão dos Guararapes › Jahu › Jundiaí › Limeira › Lorena › Macapá › Mairiporã › Manaus › Mauá › Montes Claros › Natal › Nova Odessa › Palmas › Piracicaba › Porto Alegre › Porto Feliz › Porto Velho › Recife › Rio Branco › Rio de Janeiro › Rio Verde › Salvador › Santos › São Bernardo do Campo › São Caetano › São Gonçalo › São João da Boa Vista › São José do Rio Preto › São Luís › São Paulo › Sertãozinho › Sorocaba › Tatuí › Tupã › Uberlândia › Vinhedo › Vitória › **Chile** › Colina › Copiapó › Independencia › La Pintada › La Serena › Peñalolén › Providencia › Región Metropolitana de › Santiago › San Fernando › Santiago › Temuco › **Colombia** › Alcaldía de Pasto › Alcaldía de Pereira › Alcaldía de Tunja › Alcaldía Distrital de Santa Marta › Alcaldía Municipal de Armenia › Alcaldía de Sincelejo › Bogotá › Cartagena › Medellín › Santiago de Cali › **Costa Rica** › Belén › **Dominican Republic** › Santo Domingo de Guzmán › **Ecuador** › Quito › Santiago de Guayaquil › **Guatemala** › Guatemala › **Honduras** › Alcaldía de Tegucigalpa › **Mexico** › Cuernavaca › Guadalajara › León de los Aldamas › Luárez › Mexicali › Mexico City › Monclova › Monterrey › Morelia › Municipio de › Mérida › Naucalpan de Juárez › San José de Gracia › San Luis Potosí › Tampico › Torreón › Zaragoza › **Panama** › Alcaldía de Panamá › **Peru** › Arequipa › Lima › Miraflores › Punta Hermosa › **Uruguay** › Montevideo › **Venezuela** › Alcaldía Metropolitana de Caracas

Mitigation

8

Number of cities with a city-wide emissions reduction target

Total community-scale emissions reported by cities in Latin America

202,054,752 metric tonnes of CO₂e

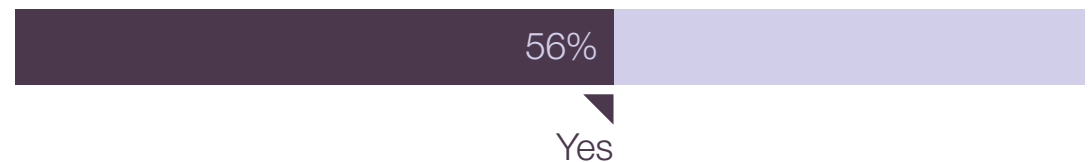
Percentage of cities with a city-wide emissions inventory



Percentage of cities with a climate action plan



Percentage of cities incorporating sustainability goals into the master planning for the city



Top 3 emissions reduction activities

Number of cities

Anticipated emissions reduction (metric tonnes CO₂e)

14	Infrastructure for non motorized transport	6,863,740
7	Improve fuel economy and reduce CO ₂ from motorized vehicles	3,610,987
13	Awareness and education for non motorized transport	2,764,850

Climate hazards

Percentage of cities that view climate change as a significant risk to their city



Number of cities that have completed a climate change risk or vulnerability assessment



482

Total number of climate hazards across 136 cities

Top 3 climate hazards as disclosed by cities

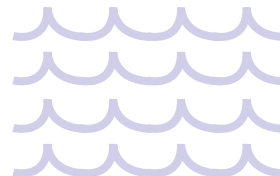
Extreme temperature

77 cities



Flood

70 cities



Storm/Precipitation

56 cities

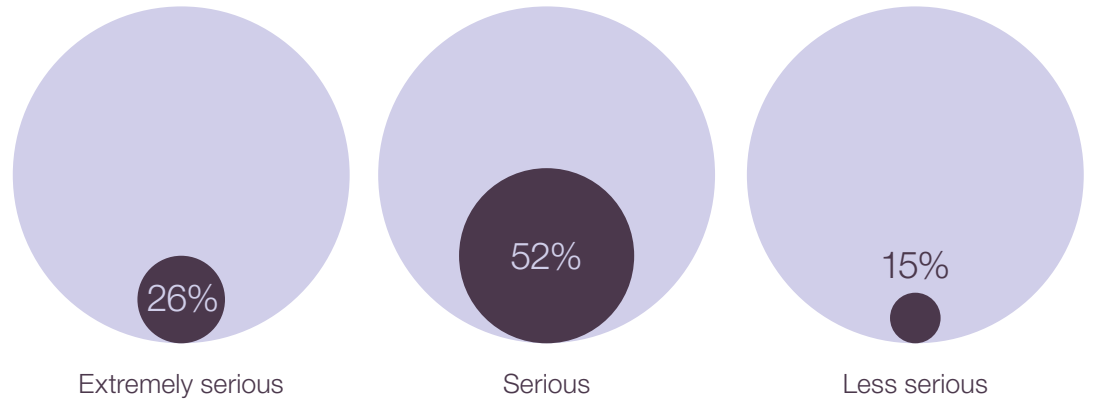


São Paulo | Brazil

São Paulo has seen an increase in floods and storms which impacts the energy supply system, causing blackouts, and affecting the communications system. As demonstrated by the recent drought in 2014 and 2015, the city is vulnerability to water scarcity and the spread of diseases such as, dengue, zika and chikunguya.

Climate hazards cont'd

Magnitude of climate hazard

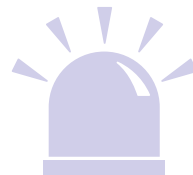


Top 3 assets or services impacted by the effects of climate change

Health and community



Emergency services



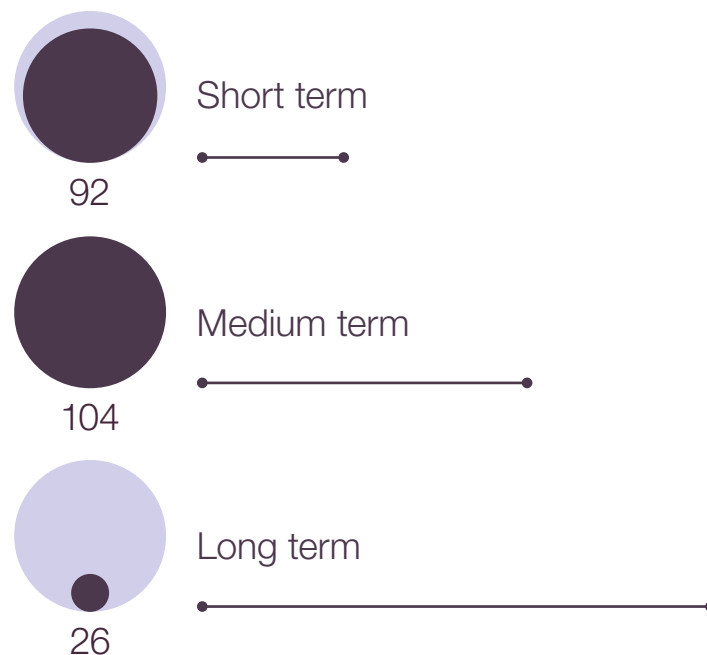
Water



177

Number of currently occurring climate hazards disclosed by cities

Number of climate hazards disclosed by cities by timescale



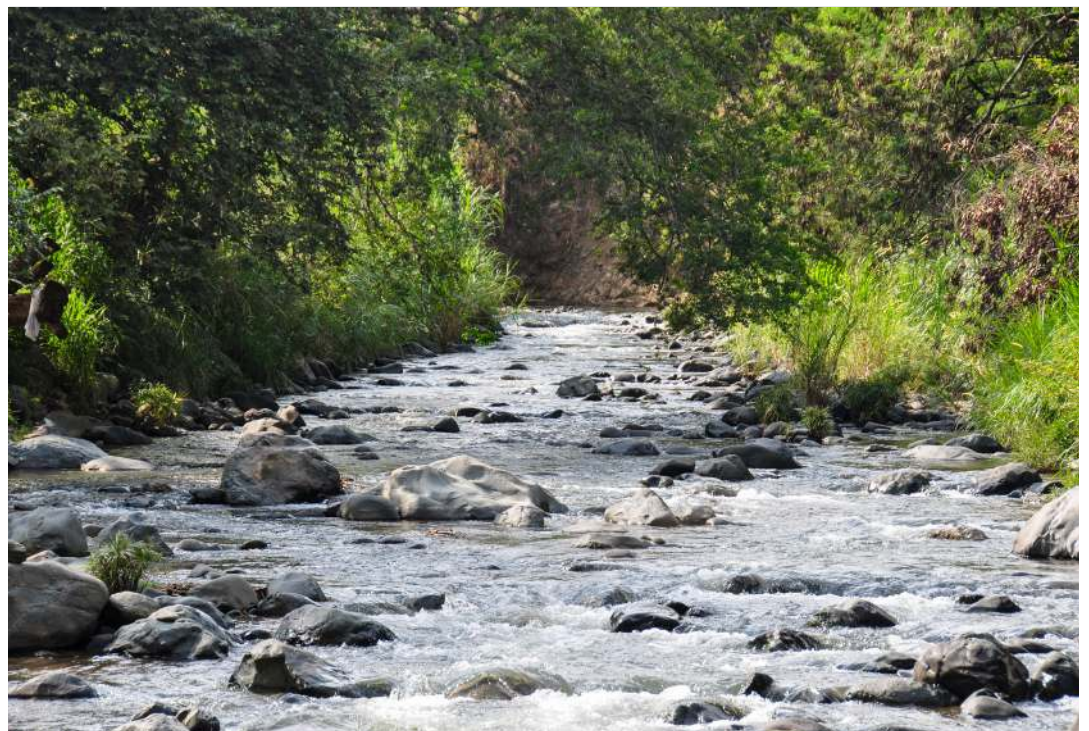
Adaptation

Number of cities with a climate change adaptation plan



Top adaptation actions taken for the top climate hazards

Extreme temperature - hot	<ul style="list-style-type: none"> Tree planting and/or creation of green space Community engagement/education
Flood	<ul style="list-style-type: none"> Crisis management including warning and evacuation systems Flood mapping
Insects and micro-organisms	<ul style="list-style-type: none"> Disease prevention measures Community engagement/education
Water scarcity	<ul style="list-style-type: none"> Community engagement/education Water butts/rainwater capture



Cali | Colombia

Cali developed the "Jarillon del Cauca River and Complementary Works Plan – PJAOC", which aims to reduce flood risk associated with the Cauca River Interceptor Canal Sur, the Cali river and the drainage system in eastern Cali. This will protect the life and assets of 900,000 inhabitants in the east of the capital of Valle del Cauca.

Number of cities that foresee substantive risks to their water supply in the short or long term



Top 3 water supply risks disclosed

	Number of cities
Increased water stress or scarcity	76
Declining water quality	37
Inadequate or aging infrastructure	27

Top 3 water adaptation actions disclosed

	Number of cities
Conservation awareness and education	45
Investment in existing water supply infrastructure	35
Conservation incentives	15

Economic opportunities

Percentage of cities reporting that climate change could threaten the ability of businesses to operate successfully in their city



Percentage of cities that see an economic opportunity from climate change



Tegucigalpa | Honduras

To combat the impacts of drought, Tegucigalpa designed rainwater harvesting systems to store water in poor households. In addition, the corridors around Tegucigalpa forests were protected with 4 sub-basins and protected areas, safeguarding the water supply of more than 60 communities.



North America



131 from **2**
Cities Countries

North America › **Canada** › Ajax, ON › Brandon, MB › Calgary › City of › Winnipeg › Edmonton › Halifax › Hamilton › London, ON › Montreal › North Vancouver › Peterborough › Prince George, BC › Regional Municipality of Durham › Salaberry-de-Valleyfield › Saskatoon › Sudbury › Toronto › Vancouver › Victoria › Windsor › **USA** › Abington › Albany › Alton, IL › Ann Arbor › Arlington, VA › Asheville › Aspen and Pitkin County › Atlanta › Aurora, CO › Austin › Baltimore › Bellingham, WA › Benicia › Blacksburg › Boston › Boulder › Brisbane, CA › Brownsville › Buffalo › Burlington › Cambridge › Carmel, IN › Chapel Hill, NC › Charlotte › Charlottesville, VA › Chicago › Cincinnati › Cleveland › Columbia, SC › Columbus › Dallas › Davis, CA › Denver › Des Moines › Detroit › District of Columbia › Durham › Easton, PA › El Paso › Elgin, IL › Emeryville, CA › Eugene › Flagstaff › Fort Wayne Fort Worth › Greenbelt, MD › Hayward › Hermosa Beach, CA › Hollywood › Houston › Huntington Beach › Indianapolis › Iowa › Jackson, MS › Knoxville › Lake Forest, IL › Lakewood › Lancaster › Lancaster, PA › Las Vegas › Long Beach › Los Altos Hills › Los Angeles › Louisville, KY › Medford › Miami › Milwaukee › Minneapolis › Nashville and Davidson › New Bedford, MA › New Orleans › New York City › Northampton, MA › Oakland › Oklahoma › Orlando › Palo Alto › Park City, UT › Philadelphia › Phoenix › Piedmont, CA › Pittsburgh › Portland, ME › Portland, OR › Providence › Raleigh › Reno › Richmond, CA › Richmond, VA › Roanoke › Rochester › Sacramento › Salt Lake City › San Antonio › San Diego › San Francisco › San José › Santa Monica › Savannah › Seattle › Somerville, MA › St Louis › Takoma Park, MD › Tucson › University City, MO › Vail, CO › West Hollywood › Westport, CT › Winston-Salem › Wisconsin Rapids › Yonkers

Mitigation

75

Number of cities with
a city-wide emissions
reduction target

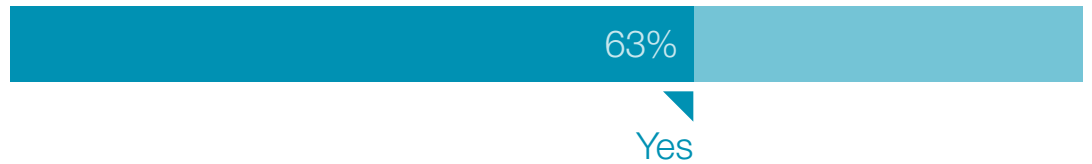
Total community-scale emissions reported by cities in North America

552,937,022 metric tonnes of CO₂e

Percentage of cities with a city-wide emissions inventory



Percentage of cities with a climate action plan



Percentage of cities incorporating sustainability goals into the master planning for the city



Top 3 emissions reduction activities

Number of cities

Anticipated emissions
reduction (metric
tonnes CO₂e)

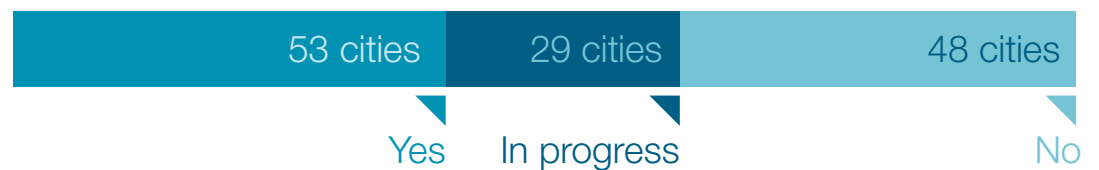
68	Energy efficiency/ retrofit measures	9,318,734
38	Low or zero carbon energy supply generation	3,763,252
28	Waste prevention policies and programs	1,580,933

Climate hazards

Percentage of cities that view climate change as a significant risk to their city



Number of cities that have completed a climate change risk or vulnerability assessment



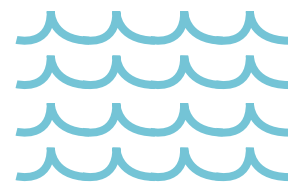
677

Total number of climate hazards across 131 cities

Top 3 climate hazards as disclosed by cities

Flood

101 cities



Extreme temperature

96 cities



Storm/Precipitation

81 cities

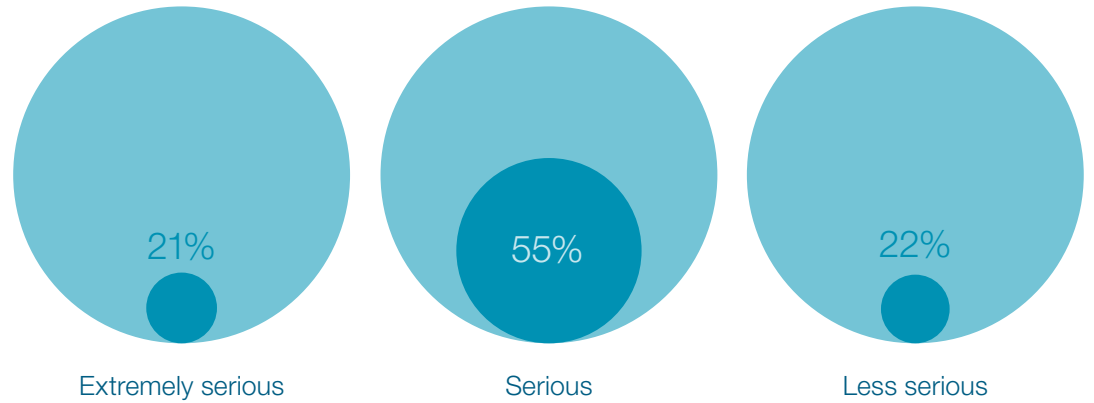


Toronto | Canada

Toronto's climate is getting warmer – it is expected that by 2040, the number of hot days exceeding 30 degrees Celsius will increase threefold, from 20 to 66 days. To mitigate the risks associated with extreme heat and increased heat waves, the City has developed a Climate Change and Health Strategy for Toronto.

Climate hazards cont'd

Magnitude of climate hazard



Top 3 assets or services impacted by the effects of climate change

Health and community



Residential



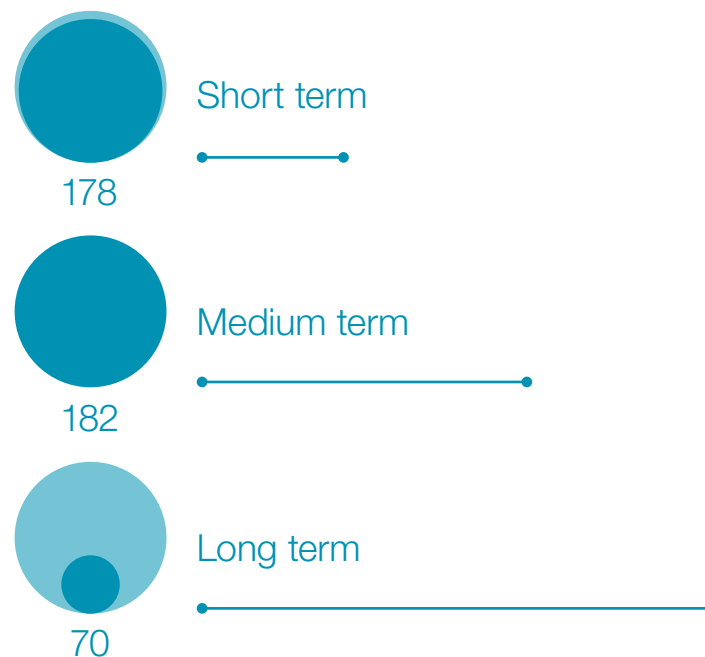
Emergency services



234

Number of currently occurring climate hazards disclosed by cities

Number of climate hazards disclosed by cities by timescale



Adaptation

Number of cities with a climate change adaptation plan



Top adaptation actions taken for the top climate hazards

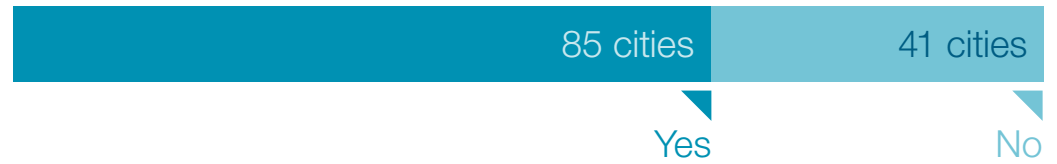
Flood	<ul style="list-style-type: none"> Flood mapping Storm water capture systems
Extreme temperature - hot	<ul style="list-style-type: none"> Cooling centers, pools, water parks/plazas Projects and policies targeted at those most vulnerable
Water scarcity	<ul style="list-style-type: none"> Water use restrictions and standards Community engagement/education
Precipitation	<ul style="list-style-type: none"> Stormwater capture systems Flood mapping



Las Vegas | USA

Las Vegas has set a Renewable Energy Agreement for the City and its operations. To achieve this Las Vegas is partnering with the state's investor-owned utility NV Energy and they have an Energy Advisory Committee that is looking at renewable energy for the community.

Number of cities that foresee substantive risks to their water supply in the short or long term



Top 3 water supply risks disclosed

	Number of cities
Increased water stress or scarcity	67
Flooding	40
Inadequate or aging infrastructure	34

Top 3 water adaptation actions disclosed

	Number of cities
Conservation awareness and education	43
Stormwater management (natural or man-made infrastructure)	39
Investment in existing water supply infrastructure	32

Economic opportunities

Percentage of cities reporting that climate change could threaten the ability of businesses to operate successfully in their city

77%

Yes

Percentage of cities that see an economic opportunity from climate change

86%

Yes



Baltimore | USA

Baltimore is currently implementing a 3 year, \$52 million energy efficient and retrofit program for residential and commercial property owners and renters in the City. This program has multiple components that address increasing energy efficiency in multiple building sectors city-wide.



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