

# Climate Action in Megacities

## Executive Summary

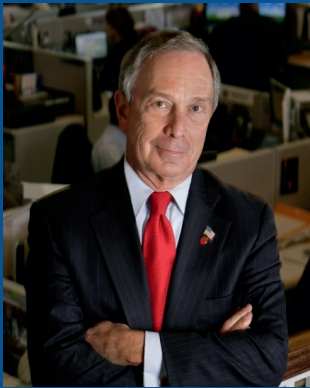
C40 Cities Baseline  
and Opportunities  
Volume 2.0

ARUP

**C40  
CITIES**  
CLIMATE LEADERSHIP GROUP

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# Foreword



**Michael R. Bloomberg**  
**108th Mayor of New York City**  
**President of the C40 Board of Directors**

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**February, 2014**

**C40 cities – over a relatively short period of time – have taken a leadership role on the world stage.**

A global network now 63 members strong, our cities are informing and shifting the global conversation on climate change because they have shown themselves to be uniquely capable of devising and implementing climate change solutions – both reducing emissions and increasing urban resilience.

During my tenure as C40 Chair (2011 – 2013), C40 cities have delivered on a critical commitment to measurement and reporting to ensure better management of their investments and actions. The Climate Action in Megacities Volume 1.0 report published in 2011 provided a baseline of actions across key sectors, and created a first-of-its-kind catalogue of mayoral powers to better understand both future opportunities and current efforts. As a result, we provided a more transparent view into the effect cities can have but, more importantly, created a roadmap to enable cities to have an even greater impact through knowledge-transfer and collaboration.

This latest edition of Climate Action in Megacities provides compelling evidence of the importance of the C40 network. The report presents a rich set of data on current and planned climate actions in 59 C40 cities, further analyses mayoral powers, and identifies major trends across sectors and geographies. It demonstrates – unequivocally – that cities have the power, the expertise, the political will and the resourcefulness to continue to take meaningful climate action, and are, more than ever before, at the forefront of the issue of climate change as leaders, innovators and practitioners.

The new C40 Chair, Rio de Janeiro Mayor Eduardo Paes believes strongly in the organisational commitment to ensuring that sound data, collected through the Climate Action in Megacities survey, will continue to guide the work of C40 cities both individually and as a collective. By quantifying what is being done and identifying what works, cities can take action more quickly, more easily and more cost effectively.

In my new role as President of the C40 Board of Directors, I look forward to continuing to support and champion these critical efforts. Our success will go far in safeguarding urban populations against the climate challenges that lie ahead, leaving behind a better planet for future generations.



## **C40 CITIES DELIVER CLIMATE ACTION**

**What happens in C40 cities matters to the whole world. In the continuing absence of tangible outcomes from inter-governmental efforts to reduce greenhouse gas (GHG) emissions, it is increasingly significant that mayors of the world's greatest cities are taking concrete actions that demonstrate that preventing catastrophic climate change is possible.**



C40 has collected 1.7 million unique data points from cities – one of the largest datasets developed on city action.

# 8,068

The number of actions collectively taken has nearly doubled to over 8,000.

# 90%

More than 90% of respondents report that they are taking action to reduce emissions from outdoor lighting.

The Climate Action in Megacities 2.0 (CAM 2.0) report is the result of a survey of the 63 C40 Cities that includes data from 94% of its members. This was carried out by the C40 research team and supported by consultancy firm, Arup. Data was primarily collected through the CDP Cities reporting platform.

It shows a clear trend of expanding climate action in cities, with mayors acting most where they have strong powers, but also innovating where they do not.

## Reported action has doubled

The Climate Action in Megacities survey is a quantitative study of efforts to reduce GHG emissions and improve urban resilience to climate change. It does this by measuring the number of 'actions' each city has taken across seven different sectors.

The results from CAM 2.0 show that in the two years since C40 last surveyed its members, the numbers of actions they have collectively taken has nearly doubled to over 8,000.

## Sharing is working

There is clear evidence that C40's networking strategy is working to spread and accelerate best practice.

For example, one of the most cost-effective ways to increase urban mobility and reduce emissions from transport is to enable more cycling. In 2011 just six C40 cities reported cycle share programmes. The 2013 data shows that 36 cities have now followed the example of Paris and others – a 500% increase. And as a signal that further progress is likely, 80% C40 cities have now introduced cycle lanes.

In 2011 20 cities (just over half of those surveyed) reported that they were introducing LED streetlighting (a technology that reduces energy consumption by up to 60% compared with standard sodium bulbs). In 2013, more than 90% of respondents report that they are taking action to reduce emissions from outdoor lighting and 52 cities are introducing LEDs.

## Ideas are flowing from South to North, as well as from developed to developing cities

C40 cities are collaborating in unique and interesting ways. There is cross-continent sharing for certain, and sharing between the hemispheres, but some might be surprised to learn that our data shows that developing cities' best practices are being adopted by developed cities as much as the other way around.

# 35

35 C40 cities now have or plan on developing BRT systems and 57% of these are now in the more developed northern hemisphere.

Every city is taking at least one action in each action area.

# 1,024

1024 reported climate adaptation actions, nearly 50% of which are being carried out at citywide scale.

For example, the 2011 survey showed that every C40 city in South America had or planned a Bus Rapid Transit (BRT) system (a low cost method of delivering fast transport for large volumes of passengers). Many of these programmes have continued to grow. Notably, the Mayor of Rio, Eduardo Paes and current Chair of C40, expects that by the time a fourth BRT line has been opened in 2016 he will have achieved a remarkable increase in the share of trips made by mass transit (public transport) from 18% to 63%.

But it is now not just Latin America that believes in Bus Rapid Transit. Following the lead of cities like Curitiba and Bogota in South America, 35 C40 cities now have or plan on developing BRT systems and 57% of these are now in the more developed northern hemisphere.

## C40 Cities are holding each other accountable

Participation in the CAM 2.0 survey has risen steeply in comparison with the first report in 2011. This year saw 94% of C40 cities participating, against 61% in 2010.

This demonstrates delivery on one of the key objectives set by Mayor Bloomberg when he became Chair of the C40 in 2011: to increase city participation and move towards performance-based membership standards.

It also reflects an improved process of data collection and analysis by C40 and its partners.

## Growing need to act

It is no accident that C40 cities are taking a global lead in tackling climate change – 98% of reporting cities indicate that climate change presents significant risks to their city.

Indeed, in one of the bigger shifts in the survey data compared with 2011, climate adaptation is the third highest-ranking action area, with 1,024 reported actions, nearly 50% of which are being carried out at citywide scale.

## Innovation is continuing apace

Climate adaptation is not the only sector to demonstrate an increasing focus from member cities. For example, C40 now has thriving 'Finance' and 'Green Growth' sub-networks (where a smaller group of member cities work together on specific areas of action). And across the C40 as a whole 62% of cities have established their own funds to invest in energy efficiency, renewable energy or carbon reduction projects.

## Smart Cities

There has been a significant focus on the concept of ‘smart’ cities – the use of information technology to increase the efficiency and effectiveness of urban systems – since the inaugural 2011 survey, and the 2013 report logs an increase in activity in this area. Interestingly, cities at the extremes of relative levels of wealth – those with either very low or very high GDP per capita – have the largest pipelines of emerging actions (currently at the pilot or proposal stage) on Information Communication Technology.

## There is massive opportunity to increase action

While the CAM 2.0 survey demonstrates definitively that C40 mayors are clearly leading the charge on taking climate action, it also illustrates the massive continuing opportunity to scale up emissions reductions and improve resilience.

The Finance & Economic Development sector has emerged as a leading arena for future climate action, with 62% of C40 city action currently at the ‘proposed’ or ‘pilot phase’. Likewise, member cities intend to expand the scale of effort in over two-thirds of existing adaptation actions.

Similarly, the scale of remaining issues to confront should not be understated. For example, while we noted above the increase in LED lighting action, the survey also recorded that 68% of existing outdoor luminaires in C40 cities remain high-energy sodium bulbs.

## Conclusion

The Climate Action in Megacities 2.0 data again underlines the important contribution that cities are already making to tackle climate change, and the potential that exists for extending this role. The data does show that big city mayors are continuing to do what they do best – take pragmatic action to improve their cities. Their residents hold them accountable for improving conditions in their communities today – so mayors cannot wait for tomorrow. If the world wants cities to take more responsibility for tackling climate change, then C40 members are ready to take it.

# 68%

68% of existing outdoor luminaires in C40 cities remain high-energy sodium bulbs.

# 41%

For the cities which responded in 2011 the reported number of actions taken has increased by 41%.

# 23%

23 new cities are included in the 2013 report.



# 98%

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98% of reporting cities indicate that climate change presents significant risks to their city.



# 62%

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The Finance & Economic Development sector has emerged as a leading arena for future climate action, with 62% of C40 city action currently at the 'proposed' or 'pilot phase'.



# 20%

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Actions to improve energy efficiency in buildings account for more than 20% of activities across all sectors reported by C40 cities.



# 94%

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This year saw 94% of cities participating in the Climate Action in Megacities Survey compared to 61% in 2011.



# 500%

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The 2013 data now shows that 36 cities have followed the example of Paris and others (and introduced cycle hire schemes) – a 500% increase. And as a signal that further progress is likely, 80% C40 cities have now introduced cycle lanes.



## KEY CONCEPTS

### ACTIONS

Comprehensive range of methods by which city governments are tackling climate change. This is the principal unit being quantified and assessed throughout the survey.

### INTERVENTIONS

Interventions or Action Groups are thematic groupings of actions.

### MAYORAL POWERS

The degree of control or influence Mayors exert over assets (e.g. buses, municipal housing, etc.) and functions (e.g. economic development) across key sectors.

### LEVERS

The delivery mechanism of climate change actions: Project/Programme, Procurement, Policy/Regulation, Incentive/Disincentive.

### SCALE

The implementation status and the geographical breadth of an action: Pilot, Proposed, Significant, Transformative.

# 444

Number of possible climate actions.

Arup has been working with the C40 Climate Leadership Group since 2009. We are an independent firm of designers, planners, engineers, consultants and technical specialists offering a broad range of professional services, from more than 90 offices worldwide. Arup has collaborated closely with the C40 team and city authorities around the globe to determine exactly what can and should be measured to help the world's cities understand how they can build resilience and tackle climate change.

The result is a unique database of information from almost 60 cities around the globe. From this vast collection of raw data, Arup has distilled valuable insights into the effectiveness of a whole host of climate change mitigation and adaptation strategies, as well as creating an 'ideas shop' for mayors and officials seeking to reduce greenhouse gas emissions and boost urban resilience.

In short, from transport and energy efficiency to finance and development, Climate Action in Megacities 2.0 provides decision-makers around the globe with a practical tool to tackle climate change. And Arup is proud to have played its part in making it happen.

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## ACKNOWLEDGEMENTS

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