The C40 Cities Climate Leadership Group was created by cities for cities. It is now a leading global organization whose membership is exclusively the mayors of megacities around the globe and whose mission is the reduction of greenhouse gas emissions, and the mitigation of climate risks for their citizens and infrastructure. The C40 network works to reach common goals and solutions at a local level to apply to global problems.
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Case in Brief

C40 Cities is an organization of Networked Institutions—one of ten network types defined in the Global Solution Networks taxonomy. Members of C40 Cities are the mayors of megacities around the globe. Faced with urgent problems that have been caused in large part by climatic changes, the mayor-members of the C40 Cities network have determined that they cannot and will not wait for international agreements and initiatives that may take decades or longer to have any impact on the problems they face today.

In the decade since the organization was established, it has become one of the most effective agents working on the problems created by climate change. Its local initiatives are tested, implemented and transmitted from city to city through the connections of members of the network and through the sub-networks that are developed in their annual meetings. C40 has a full time professional staff, and works with member cities to initiate actions and to measure and manage those actions with the tools and Web-supported data collection capabilities that are managed by the network staff and collated into complete reports to provide project status and challenges for member cities around the world.

Partners and funders of the C40 initiative work with its member mayors and urban leaders on the development of solutions to emerging climate change challenges. The C40 partners include several philanthropic groups (the Clinton Climate Initiative, or CCi, the Bloomberg Philanthropies and Realdania); several non-profit groups (the ICLEI-Local Government for Sustainability, the Carbon Disclosure Project and the World Resources Institute); a corporate partner in Siemens and the capital resources of the World Bank. The collaboration of the mayors’ group with these other players adds the power of a multi-stakeholder network to the influence of the C40.

The first ten years of C40’s work has seen development of climate change mitigation strategies in spite of the deadlock at the international level of the UN Framework Convention on Climate Change. The presence of UN Climate Chief Christiana Figueres at the 2014 meeting signaled the realization of the potential of the C40 Cities program to have an impact on the efforts to develop global solutions that have been moving more slowly on the international stage. Says Mark Watts, Executive Director of C40: “The thing that everybody is talking about is the fact that we can now see the door opening at the intergovernmental stage for cities to have a voice. And what we really want to see out of this is that mayors and cities will be able to put pressure into those big climate talks in Paris in 2015 [the 20th annual Conference of the Parties] so that we do get an outcome that stops catastrophic climate change.” The connection of the successful undertakings of the C40 to the international initiatives offers the potential for movement forward on an international protocol agreement.
History of C40 Cities

Started in 2005 by then Mayor of London Ken Livingstone, the initiative that would become the C40 Cities Climate Leadership Group (C40) grew out of climate change talks London was having at the time with Stockholm, San Francisco, Toronto and others—cities with similarities in population, infrastructure and budget—whose leaders shared concerns that international protocols and treaties regarding climate change were failing to create significant reforms. The group began with a meeting of representatives from 18 major cities, calling itself the C20. First steps for the organization included immediate action steps: creation of procurement policies and alliances that would accelerate the adoption of technologies that were climate-sensitive, and that would also influence the markets for those technologies.

In only its second year, the network had forty member cities (in addition to a number of smaller cities with an interest in the mission), and so took on the name C40 Cities. Under Livingstone’s leadership the group established a Secretariat in London, set up a steering committee and initiated a program of workshops for members to exchange information and best practices. In the second year, C40 also initiated a partnership with the Cities Program of the William Jefferson Clinton Climate Initiative (CCI) to support the delivery of major projects to promote emission reductions.

Since 2007, the organization has grown to include cities around the world that are diverse in cultural style and demographics, but similar in population density and vulnerability to the environmental threat created by a changing climate. This consortium of the mayors of the world’s largest cities is networking, taking action, defining best practices, cooperating on initiatives to reduce greenhouse gas emissions and responding to the impact of climate change on infrastructure and citizens.

In 2008, the leadership was handed over to then Toronto Mayor David Miller who oversaw the Copenhagen Climate Summit for Mayors, 2009, which itself brought together mayors from 79 cities. He also spearheaded the 2009 C40 mayors summit in Seoul.

The membership has continued to grow and today there are 63 affiliated cities in the network. C40 membership is segmented by city size, capability and term of involvement.

**Megacities** have populations of 3 million, or a metro-area population of 10 million or more, or they have a GDP among the top 25 global cities. Included are:

- Addis Ababa, Athens, Bangkok, Berlin, Bogotá, Buenos Aires, Cairo, Caracas, Chicago, Delhi NCT, Dhaka, Hanoi, Ho Chi Minh City, Houston, Hong Kong, Istanbul, Jakarta, Johannesburg, Karachi, Lagos, Lima, London, Los Angeles, Madrid, Melbourne, Mexico City, Moscow, Mumbai,

**C40 Megacities**

**Innovator Cities** do not meet the criteria for the megacity category, but have shown clear leadership in their work on the environment and climate change, and Innovator Cities are the anchor cities for a metropolitan area. They are:


**Observer Cities** have been involved with C40 for less than one year, or for local reasons are unable to approve full participation:

Beijing, Oslo, Venice, Republic of Singapore, Nairobi, Dar es Salaam, Cape Town and Shanghai.
As mayors of cities around the world, we recognize the importance of national and international leadership on climate change—but we can’t wait for national governments to act first, and they can’t solve the problem on their own. As city governments, we too have an obligation to confront climate change.

In 2011, under the leadership of then New York Mayor Michael Bloomberg, CCI Cities and the C40 became fully integrated with an executive leadership team and a full time professional staff.

Beginning in 2013, the initiatives of the Siemens partnership, on display in their recently opened London facility, The Crystal Sustainable Cities Initiative, added an annual leadership award series that recognizes innovations and actions that address climate challenges as well as a new liveTech virtual conference event that serves as a channel for exchanging advice, ideas and best practices to participant.

Bloomberg served as Chairman of the integrated operation from 2011-2014. In his opening speech to the City Climate Leadership Awards in 2013, Mayor Bloomberg of New York City said, “As mayors of cities around the world, we recognize the importance of national and international leadership on climate change—but we can’t wait for national governments to act first, and they can’t solve the problem on their own. As city governments, we too have an obligation to confront climate change.”

As he steps down as Chairman and moves to the position of President, Bloomberg says, in keeping with the axiom, “if you can’t measure it, you can’t manage it,” that the most important impact of C40 has been the implementation of measurement tools being used by a world-class research team. These measurement tools contribute to the huge body of data that became the 20140 benchmark report, “Climate Action in Megacities: C40 Cities Baseline and Opportunities 2.0.” Indeed, it is this wealth of measurement information on both challenges (emissions measurements and comparisons) and successes (city actions that have been undertaken, and their environmental effect) that provides the stimulus for ongoing and increasing numbers of action steps. Bloomberg sees the next step for the organization as bringing the world’s developing cities into the network to help them plan for the future.

What is Climate Change?

The impact of human activity on the climate of the planet has been increasing exponentially over the last century. The popular term “global warming” refers to the increase in the average temperatures that is now recognized as being caused by the trapping of heat at the Earth’s surface by atmospheric greenhouse gases generated by human activities. Global warming is only one aspect of climate change. And what may seem to be only a small change in temperature contributes to a cascade of profound environmental effects.

The science of climate change is concerned with the increase in global temperatures, but also measures the changes in environment and weather patterns, including major storms, variations in weather patterns such as
the El Niño effects in the Pacific, changes in ocean currents, drought, precipitation and wind as well as the rise in sea level related to both glacial melting and thermal expansion.\textsuperscript{6} The Intergovernmental Panel on Climate Change (IPCC) in their 2013 Summary for Policymakers points to atmospheric and ocean warming that has no precedent over the last thousand years, sea level rises that have no precedent in the last two thousand years, changes in the global water cycle that is shifting precipitation from usually wet to formerly dry areas, a carbon cycle process that is likely to accelerate the level of CO₂ in the atmosphere and contribute to ever-increasing ocean acidification. The Summary warns that these effects would persist for many centuries even if CO₂ emission were to be stopped completely.\textsuperscript{7}

observed changes in land and ocean surface temperatures, ocean heat and sea level\textsuperscript{8}

The naysayers have, for the most part, come to accept that climate change is a reality, but efforts to address the issue at the international level have been deadlocked for over a decade. The United Nations Framework Convention on Climate Change has repeatedly been stymied in its efforts to initiate and deliver on emission reduction pledges at the international level as conflicting national interests and objectives thwart agreement, or even progress. In the report from the Copenhagen Accord in 2009 it was observed that, “The ambition level of the current pledges ... and the lack of commonly agreed goals ... place in peril the Accord’s own ambition: to limit global warming to below 2°C ... the ability to limit emissions is likely to become less feasible.”\textsuperscript{9}
Why Cities?

Although the impact of greenhouse gas emissions (GHGs) and the initiatives to control and reduce the generation of GHGs might logically seem to lie at the national or state level, it is cities that have the greatest impact on the climate relative to the land area they occupy. At only about 2% of the landmass of the globe, cities and urban areas consume a disproportionate two-thirds of the world’s energy resources and account for about 70% of GHGs. Ironically, the world’s cities are also located in those areas that are most vulnerable to many of the potentially most devastating effects of climate change—both the increase in frequency and severity of coastal storms and the slow and inevitable rise in sea levels. From the disastrous flooding that has plagued England this year and the almost continuous winter storms that have brought many US cities to a standstill during the 2013-14 winter to the devastating damage incurred during Superstorm Sandy and Typhoon Haiyan, the wildfires that threatened Sydney in 2009, the 2011 floods of Bangkok, the drought in the American West, and the choking pollution in Beijing, New Delhi and even periodically in Los Angeles and Salt Lake City, urban centers are the greatest contributors to the causes of these climate disasters. They are also in the most effective position to initiate and promote changes, albeit with challenging financial constraints. City governments have the potential for nimble and specific solutions to particular local challenges. Rather than wait for the titanic changes that national governments might eventually arrive at, cities can act on a smaller scale and test solutions to specific problems with local initiatives.

Map showing that areas with the highest risk for natural disasters related to climate change are located in sub-Saharan and central Africa, India and southeast Asia, as well as in coastal areas around the globe.
Many of the characteristics that define urban life also offer some of the best opportunities to explore alternatives. Population density makes carbon reducing solutions easier to construct and more effective to use through more efficient infrastructure design and utilization. More to the point for the C40 network, the leaders of urban areas face many common problems, problems specific to areas of high population density wherever it is located on the globe. The ability of the C40 members to network problems and solutions, to share best practices, measure results quickly and make adjustments on the fly, makes the city setting a powerful petri dish for solutions that can be transmitted out to other areas of the world. The current efforts of the C40 member cities provide an advantage for emerging nations that are seeing their urban areas rapidly expand, as they can apply the learning and make smarter decisions on development, which may help them avoid the problems faced by the older cities plagued by crumbling infrastructure.

Says Matthew Pencharz, adviser on energy and environment to London’s Mayor Boris Johns, while national political pronouncements can sometimes seem too vague for people to come to grips with, “Mayors have found a way to take action that is accountable to the population and brings them visible, tangible benefits that improve their quality of life.”

According to a September 2013 report released by McKinsey, “How to Make a Great City,” by 2030 it is anticipated that 60% of the world’s population (or about 5 billion people) will live in cities. While the national leaders of the countries where megacities are located are working on issues that affect all levels of population concentration, the leaders of the urban areas themselves are directly involved in the issues that affect their constituents, and directly connected to community members and business. To make their cities great, these leaders work toward smart growth, doing more with less. They also can reach their constituents directly and win support for change. It may seem that mayors would only be able to develop limited change in their short tenure window, but short-term successes have the ability to generate community support for long-term plans even after a mayor’s term ends.

C40—Projects, Actions and Outcomes

Meeting annually in locations around the globe, C40 has been instrumental in creating alliances between leaders of member cities and between cities and a variety of key stakeholders that help design and implement carbon reduction strategies. The broader networked institution now provides critical support including technical assistance, research and the management of knowledge and communications relevant to the initiatives C40 tackles.
Two large reports were released in advance of the annual C40 meeting in early February 2014—“Climate Actions in Megacities,” and, in partnership with the Carbon Disclosure Project, “CDP Cities 2013”. In 2014 the second volume of the “Climate Actions” report was published, analyzing mayoral powers and providing compelling evidence of progress and growth of member-city actions. The numbers provided in the extensive report are encouraging with city-centric projects such as bike-share programs and more restrictive green building codes. A recent success is the collaboration of the Chinese automobile company BYD in the design and rollout of an electric taxi fleet in Bogota, Colombia. The agreement waived the import taxes for the vehicles, and the registration charge for the drivers. Nestor Garcia, Bogota’s Environment Secretary, is working through the challenges of charging stations for the taxi fleet as part of the planning for an electric bus fleet that is scheduled for rollout by 2015.

The distribution of actions is driven by regional variability of economic, environmental and political factors.
The United Nations Framework Convention on Climate Change has repeatedly been stymied in its efforts to initiate and deliver on emission reduction pledges at the international level as conflicting national interests and objectives thwart agreement, or even progress."

The reporting cities have doubled the number of actions that they have in the works since the 2011 report, up to 8,000 with over 40% of them being transformative citywide initiatives. The key issues that the mayors are paying attention to include adaptation, efficiency, transportation alternatives and water.

The ideas are evidently traveling well, as bike-sharing alone has increased from six cities in 2011 to 36 programs in 2013. Latin American cities led the way with a bus rapid transit system that it being emulated now in Chicago and New York. High tech solutions are being tested as well, such as the weather forecasting capability to anticipate mudslides in Rio. Seth Schultz, the C40 Director of Research, also noted that there are regional differences in the manner in which solutions develop. “North America is dominated by projects and programs, and Asia is heavily dominated by policy. It has everything to do with government structure,” he explains.

In the 2013 report “CDP Cities 2013” published by CDP in partnership with the C40 Cities network, the efforts of the member cities resulted in more important outcomes than simply curbing of carbon emissions. Many of the actions taken have resulted in dramatic increases in efficiency, with a reported result of over $40 million in savings per year. In the lead-in to the 2014 meeting numerous accomplishments were cited including the implementation of a mass transit system in Bangkok, alternative energy investments in Copenhagen, establishment of home energy and CO₂ emission targets in London, a zero net emissions goal for Melbourne, a program entitled the Greener, Greater Buildings Plan to reduce GHG emissions in existing buildings in New York and ambitious goals for reduction of emissions in Rio de Janeiro.

The 2014 C40 meeting marked the end of Bloomberg’s tenure as Chairman as well as the beginning of his work as the newly appointed United Nations Special Envoy for Cities and Climate Change. From this vantage point, Bloomberg will work with mayors and national governments to increase their climate-change related efforts. United Nations Framework Convention on Climate Change (UNFCCC) Executive Secretary Christiana Figueres was also in attendance at the C40 meeting in Johannesburg, underscoring the UN’s increasing engagement with cities: “Only by concertedly contributing to the growing groundswell of climate action can we meet the needs of current citizens and the expectations of future generations,” she said.

The 2014 meeting convened with a short, but ambitious set of goals:

- Use knowledge-sharing and metrics-driven implementation to achieve measurable and meaningful reductions in both greenhouse gas emissions and risks associated with climate change, along with realizing the local benefits of these solutions (cleaner air and water, lower energy costs, less traffic congestion, higher quality of life, longer lifespans, green jobs and green businesses). Many cities are already using technology “dashboards” to track critical metrics. Washington DC has a Building Energy Data.
C40 has recognized that networking creates capacity for dynamic and nimble action. Under the umbrella of the C40, operating networks in ten initiative areas are collecting specific information on clearly defined areas of interest to all cities.

C40 has subdivided its project work into networks within the C40 organization by using a data-driven approach that maps city priorities to areas with the greatest potential for greenhouse gas emission and climate impact. With this kind of analysis, cities have developed cooperative technical solutions to numerous technical problems in city planning, mass transit, resource maintenance and allocation. The smaller network groups permit the engagement of stakeholders from outside the C40 membership in the exploration of specific challenges. For example:

- Roughly 20% of the actions that cities reported at the conference were in the area of green building practices, many supported initially by financial incentives and then gaining momentum as commercial practices because of their competitive advantage. As part of this initiative, Roger Platt, of the US Green Building Council and the World Green Building Council, attended the 2014 C40 conference to meet with city representatives.

C40 has recognized that networking creates capacity for dynamic and nimble action. Under the umbrella of C40, operating networks in ten initiative areas are collecting specific information on clearly defined areas of interest to all cities. To underscore the significance of the initiative areas, C40 has partnered with Siemens to create the City Climate Leadership Awards, which had their inaugural event in September of 2013. Programs were identified as winners for each of the ten areas of focus.

- Adaptation and Water—mitigating the heat island effect and developing resilience strategies for weather and resources ahead of the need for mitigation.
**WINNER:** New York, NY, for its post-hurricane Sandy plan “A Stronger, More Resilient New York,” which included infrastructure enhancement and emergency response planning.

- **Energy**—Private Sector Building Energy Efficiency including challenges, regulation and benchmarking.
  
  **WINNER:** Melbourne, Australia, for their 1200 Buildings Program that partners building owners with the financial sector to develop and retrofit energy efficiency into their buildings, and reduce waste to landfill.

- **Finance and Economic Development**—Green Growth, encouraging green enterprise districts and quantifying the economic benefits.
  
  **WINNER:** Tokyo, Japan, was recognized for their Cap-and-Trade program and its strong success record of 93% of required facilities meeting their compliance expectations, and 70% being on track against 2019 goals.

- **Measurement and Planning**—As emissions increase, global standards permit consistent measurement. C40 partners with other networks, including the ICLEI—Local Governments for Sustainability, to provide tools and support for data capture.
  
  **WINNER:** Copenhagen, Denmark, for their carbon reduction master plan; establishing the ambitious goal of being a carbon-neutral city by 2025.

- **Solid Waste Management**—from source reduction to recycling and energy recovery, waste management has many challenges.
  
  **WINNER:** San Francisco, California, with its Zero Waste Program with an approach toward recycling and composting combined with financial incentives that has a 2020 target of zero waste.

- **Sustainable Communities**—provide cities with a laboratory of development projects that achieve Climate positive Development.
  
  **WINNER:** Rio di Janeiro, Brazil, for its Morar Carioca project that aims for formalizing settlements and relocating populations only when they are in landslide-hazard areas. The program offers improvements to the environment and the health and welfare of up to 200,000 citizens.

- **Transportation**—Focuses on areas of action for facilitating the uptake of electric and low-emission vehicles in cities.
  
  **WINNER:** Bogota, Colombia for its Bus Rapid Transit (BRT) system, using electric and hybrid vehicles, and its electric taxi program.
At the close of the 2014 meeting, newly seated C40 Chairman, Mayor Eduardo Paes of Rio de Janeiro, announced several recent accomplishments, including the addition of new member cities, the call for specific urban goals to complement the global goals that are being developed at the international level by UN-Habitat, and the launch of a City Directors program to provide professional support staff to applicant cities.

In the closing session of the meeting, Dr. Joan Clos, Executive Director of the UN Human Settlements Program, raised perhaps the most ambitious call to action. He challenged the members to consider the global ramifications of modern lifestyles beyond the issues of CO₂ emissions and alternative energy. He observed that the manner in which cities sprawl is the same, no matter the location. The population densities put the same pressures on resources and are vulnerable to the same hazards. And the densities continue to grow. From a current level of about 3-4,000 per square kilometer to a possible 15,000—he paused, and repeated that number. Then he went on:

> Our cities consume too much energy. And we need to do something in our cities to reduce the consumption of energy... it’s not just a question of [providing] bicycles. It’s a question between you and me that we need to do something important to change the fabric of the city. ... In Spanish we say ‘ahora.’ Now. It’s now that we need to begin this substantive effort.

Implications for Network Leaders

There is a strong link between acting for a global good and the economic and social benefits that also result. In the case of C40 we see a strong link between acting to curb GHG emissions and mitigate climate change, and the economic and social benefits that also result. The C40 Cities have been successful in promoting change that impacts climate initiatives in large part because they are able to promote the economic advantages that accrue as a result of the efforts. While some may still deny global warming, and economic promoters may attempt to curtail the efforts of climate change activists, the programs that represent solutions to environmental issues and offer economic and social benefits find significantly reduced resistance to implementation. In Abidjan a biogas recovery industry has grown up around landfill improvements, and Singapore has begun to export its energy efficient ICT solutions.

A “right-size” networked institution can have more measurable and scalable impact than can single individuals or nations. Green activist organizations have been working tirelessly to raise consumer awareness about energy consumption, and to lobby for legislative changes. Individuals...
feel, understandably, that their personal efforts to reduce energy consumption are irrelevant. Indeed, turning off a light, or recycling a plastic container has little impact on GHG emissions, and most consumers remain unwilling to give up the convenience of SUVs and big screen TVs. Meanwhile, the attention of national governments is widely split between the need to reduce CO₂, and the desire to maintain their share of access to fossil fuels and income from fuel reserves—a divide that is virtually impossible to reconcile. The C40 initiatives have seen their success because they are tackling issues with local initiatives that provide immediate results, measurable impacts and scalable solutions.

Complex issues such as climate change require a multitude of stakeholders working in many different areas of expertise and applying a wide variety of solutions. In this sense, the work of networked institutions such as C40 can be made more effective when complemented by the activities of other networks in the GSN taxonomy. For example, while activist organizations work to raise awareness about the causes of climate change and the solutions that need attention, there are other networks exercising influence on industry, and still others with the connections and backing to directly influence lawmakers and investors. The efforts of the advocacy network 350.org, for example, have promoted divestiture in the fossil fuel industry, and slowdown of expansion plans, while the Carbon Disclosure Project, a knowledge network, is providing the data to drive carbon price programs that discourage excessive emissions. The causes of climate change will only be controlled, and the solutions will only be realized, through the broad efforts of many different interests working both in tandem and in isolation, but bringing their solutions to bear across the spectrum.

Networked institutions can leverage the work and solutions of parallel organizations to expand the reach of best practices. There are numerous mayor councils and groups that convene to discuss the particular issues that affect municipalities and share their learning, solutions and best practices. Each group has its own criteria for membership, which allows for overlap of membership between groups and which permits the transmission of information across what might otherwise be missing connections. For example, the World Mayors Council on Climate Change limits its membership to leaders of municipal levels of government without specifying population size or budget scope. While many of the members would not meet the current city-size criteria for membership in C40, there is enough overlap to permit transmission of information in a manner that is far more efficient than would be the case in duplicating the membership completely.

As an example, ICLEI-Local Governments for Sustainability is a group of municipal leaders with a slightly different mission, yet many of their pursuits and activities have a bearing on climate change issues. The organization has been existence for nearly 25 years and has a membership of over 1,000 municipalities, many of them also members of C40, which gives it a long track record of experience and tested solutions that can contribute to the C40 climate change initiative.
The emphasis on what network members have in common, and the ways in which solutions can be tailored to fit many possible environments, amplify the power of the successes. Mark Watts, Executive Director of C40, said, “There’s much more in common among the great, large cities of the world than there is a difference, so whilst every city is unique ... they are a unique combination of universal elements. When they get together it’s the universal elements that they talk about and that they can help each other.” One example of this transmission of best practices is the cycle-share programs that have sprung up in Europe and South and North America with unexpected success.

As the scale of the activities and the size of the membership increases, a network can respond by developing sub-networks and partnering with other network organization to focus on specific issues. C40 recognizes that networking creates capacity for dynamic and nimble action. Under the umbrella of the C40 network, operating networks in seven initiative areas are collecting specific information and developing actions in their defined disciplines. It is this division of labor that will prevent work from bogging down by taking on too many simultaneous challenges and will enable the solutions to emerge quickly, be measured effectively and be transmitted widely.

by Jill Rundle for Global Solution Networks
Appendix I:
Top Findings in Key Sectors from the 2014 Report “Climate Action in Megacities 2.0”

Adaptation & Water

- Cities are taking climate adaptation seriously – 98% of cities recognise it as a threat that presents significant risk, and they are allocating funding (80% of cities) and staff resources (83% of cities) to develop solutions.
- 89% and 77% of reporting cities have power to act on Adaptation and Water, respectively.

Energy Efficiency

- 90% of responding cities are taking action on outdoor lighting to reduce emissions from streetlights and to introduce smart street lighting technology.
- Of the total actions addressing energy efficiency in buildings, 69% of actions focused on reducing energy demands in buildings, including insulation and monitoring energy usage.
- 84% and 88% of reporting cities have power to act on buildings and outdoor lighting, respectively.

Energy Supply

- Waste-to-Energy is a cross-sector success with cities reporting the highest proportion (64%) of transformative and significant actions, including capturing methane gas at landfills and generating low carbon energy through anaerobic digestion at waste treatment facilities.
- One-third of energy supply actions planned for future expansion will focus on generating energy from waste.
- 49% of reporting cities have control over energy supply assets.

Finance & Economic Development

- 47% of cities have established their own funds to invest in energy efficiency, renewable energy or carbon reduction projects.
• Over 50% of all planned actions are already in the pilot stage, suggesting strong innovation and scaling potential.
• 70% of reporting cities have power over to act in the Finance & Economy sector.

**Sustainable Communities**

• C40 cities are implementing more than 350 actions on sustainable community development, with a trend towards more transformative or significant actions, rather than pilots or proposed actions.
• 76% of cities intend to expand a community-scale development action already in progress, showing that cities are accelerating their response to climate change.
• 58% and 25% of reporting cities have power to act in the Food & Agriculture and Information & Communication Technology, sectors, respectively.

**Transportation**

• The greatest increase in reported actions was found in the Transport sector, with 150% increase in actions compared to 2011.
• Cities are taking 1,534 actions in transport, 873 of which are in private transport, 661 on mass transit.
• 49% of reported actions are to promote walking and cycling – more than any other action area in private transport.
• 88% of reporting cities have power to act on transport.

**Solid Waste Management**

• 65% of actions in waste reduction are in the transformative stage and are being delivered citywide.
• 92% of cities taking action on landfill management are implementing landfill gas management/gas to energy.
• 82% of reporting cities have power to act on waste.
## Appendix II: C40 Member Cities

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* Steering Committee
Endnotes


3 http://www.thecrystal.org/events.html#londonlaunch.com-liveTECH-2014


5 “Interview: Michael Bloomberg, outgoing Chair and current President of the Board, C40 Cities,” Cities Today, January 2014.


8 Ibid.


10 Mike Scott, “Cities bypass slow government to lead the way on climate change,” The Guardian, 12 September 2013.

11 Maplecroft.com, “These Countries Face the Biggest Threats From Climate Change,” The Huffington Post, 30 October 2013.

12 http://C40.org

13 Scott, ibid.


15 http://business.blogs.cnn.com/2013/12/05/bogotas-fleet-of-electric-taxis/?iref=allsearch


“C40 Mayors Summit Demonstrates Why Cities are leading on Global Climate Change,” C40 Cities Press Release, 5 February 2014.

“Fact Sheet: C40 Cities Climate Leadership Group.”

http://greendashboard.dc.gov/


http://www.c40.org/networks

C40 Mayors Summit Plenary Session 6—Joburg 2014, https://www.youtube.com/watch?v=fkPoFhap2Lk&list=UUkBGW5EQeZqINZGfi7Tf6A&feature=c4-overview.

CDP ibid.


http://www.c40.org/networks

About Global Solution Networks

Global Solution Networks is a landmark study of the potential of global web-based and mobile networks for cooperation, problem solving and governance. This research project is a deliverable of the GSN program, offered through the Martin Prosperity Institute at the Rotman School of Management, University of Toronto.

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Ten Types of Global Solution Networks