



# مؤتمر التكيف مع التغير المناخي Climate Change Adaptation Conference

23-25 January 2017

## Summary Report

### Executive Summary

Forty-three C40 cities from each region of the world gathered in Dubai from January 23-25, 2017 for the first C40 Adaptation Conference bringing together all 3 C40 adaptation networks and other individuals to discuss strategies and best practice to tackle the effects of climate change in the largest cities in the world.



Figure 1: Participating Cities

The conference saw the announcement of C40's commitment to deliver more support to member cities in the area of climate change adaptation and to gather feedback on how to best

meet members' adaptation needs, while also exploring bridging adaptation with sectors such as finance, adaptation and transportation through plenaries on sectoral interdependencies, green infrastructure, finance and equity, and overall adaptation planning. The Secretary General of the Executive Council of Dubai also made a significant announcement to undertake a climate risk assessment and develop an adaptation plan for the city over the next year, with full endorsement of C40 Vice Chair for the region Mayor Biltaji of Amman, and many participants likewise pronounced their responsibilities toward meeting the goals of the Paris Agreement and ensuring climate change preparedness by 2020.

In addition to serving the attending cities directly, the key conference messages were amplified through coverage in 48 media publications and social media (through Twitter and Facebook) is estimated to have reached more than 1.4 million people worldwide.

[Link](#) to the motivational video by Dubai

[Link](#) to Day 1 summary

[Link](#) to Day 2 summary

[Link](#) to Day 3 summary

[Link](#) to C40 exchange page



Figure 2: Sustainable Event Details



Figure 3: C40 Dubai Adaptation Conference 2017

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# Agenda

	Day 1 23.01.17			Day 2 24.01.17			Day 3 25.01.17			
8:00	Registration and Reception			Registration and Reception			Registration and Reception			8:00
8:30	Dubai Welcome and Opening Session			Plenary Session II: Green Infrastructure – a key climate adaptation solution?			Adaptation Planning Case Studies from 3 cities			8:30
9:00				Brainstorming an Urban Planning Adaptation Toolkit (Optional)						9:00
9:30										9:30
10:00	Coffee Break			Coffee Break			Plenary Session III: The Economics and Finance of Adaptation			10:00
10:30										10:30
11:00	Plenary Session I: Climate Impact Interdependencies and Cascading Effects in Cities			Cool Cities Network	Connecting Delta Cities Network	Risk Assessment Network	Coffee Break			11:00
11:30	Lunch						Plenary Session III: C40 Cities Finance Facility working session			11:30
12:00				Travel to site visits			Lunch			12:00
12:30	Lunch at site visits									12:30
13:00				Cool Cities	Connecting Delta Cities	Risk Assessment	Lunch			13:00
13:30	13:30									
14:00	Coffee Break			Site Visit: Sustainable City	Site Visit: Ras El Khor Wildlife Sanctuary	Site Visit: DEWA Desalination Plant	Cool Cities Network	Connecting Delta Cities Network	Risk Assessment Network	14:00
14:30										14:30
15:00	Network breakout session	Network breakout session	Network breakout session	Site Visit: Sustainable City	Site Visit: Ras El Khor Wildlife Sanctuary	Site Visit: DEWA Desalination Plant	Cool Cities Network	Connecting Delta Cities Network	Risk Assessment Network	15:00
15:30	15:30									
16:00	C40 Adaptation Programme Strategy Session (Optional)			Site Visit: Sustainable City	Site Visit: Ras El Khor Wildlife Sanctuary	Site Visit: DEWA Desalination Plant	Cool Cities Network	Connecting Delta Cities Network	Risk Assessment Network	16:00
16:30										Coffee Break
17:00	Free time			Free time			Closing Session			17:00
							Free time			
19:00	Dinner			Dinner			Dinner			19:00



# Plenary Sessions

## Opening Session

The opening session was graced with keynote addresses from our host and several distinguished guests.



Figure 4: H.E. Abdulla Al Shaibani, Secretary General of the Executive Council of Dubai

His Excellency the Secretary General spoke about the spirit of adaptation and innovation inherited from the forefathers of **Dubai**, which has allowed Dubai to thrive in a challenging landscape, and announced the launch of Dubai's Plan for Adaptation to become a key strategic initiative for Dubai's 2021 plan. Together these efforts will ensure Dubai is smart, sustainable and desirable for both residents and visitors.



Figure 5: H.E. Dr. Thani Al Zeyoudi, Minister of Climate Change and Environment of the UAE



Figure 6: Mayor of Amman

Their Excellencies the Minister of Climate Change and Environment of the **UAE** and the Mayor of **Amman** both highlighted the important relationship between climate change and urbanization highlighting that the resilience of cities is a key priority, given that cities are estimated to be responsible for up to 70% of energy related carbon dioxide emissions and are the most prone to the impacts of climate change, while also being the backbone of many national economies and home to 75% of the global population.



Figure 7: Kevin Austin, C40

C40 Deputy Executive Director Kevin Austin gave a call to those assembled to recognize and act on their key leadership responsibility in the adaptation success of their cities, focusing on the climate impact realities that cities are facing and should expect to face

and the role of urban adaptation in the success of the Paris Agreement, and how C40 plans to help support cities in these efforts through an expanded C40 Adaptation Programme.

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## Plenary Session I: Climate Impact Interdependencies and Cascading Effects in Cities

This session explored how climate change creates impacts on interdependent infrastructure and causes cascading effects. It highlighted the research carried out by five cities working with C40 (**Toronto, Amsterdam, Melbourne, Johannesburg and Bogota**) to improve understanding of city response to climate change impacts on interdependent infrastructure.

Dr Paty Romero-Lankao, Senior Research Scientist, **UCCRN**, gave an introduction to the topic and five city representatives then described their experience in understanding and addressing interdependency across sectors including energy, telecommunications, transportation and water management. **Amsterdam** representative, Rob Koze summarized their key learning from the research that 'we are more vulnerable than we think' as interdependency and cascading effects create new vulnerabilities or amplify existing ones.



*Figure 8: Interdependencies Plenary Session*

The importance and challenges of engaging the private sector and infrastructure managers was explored by all panelists. Parallels with C40's approach were identified when sharing stories, to understand what risks might be present in the city, was seen as critical to success in reducing interdependent vulnerabilities.

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## Plenary Session II: Green Infrastructure – a key climate adaptation solution?

This session highlighted the importance of green infrastructure as a key adaptation solution. It delved into three main areas: innovation and private sector engagement for green infrastructure; co-benefits of green infrastructure; and adoption and maintenance of green infrastructure.



Figure 9: Green Infrastructure Plenary Session

**Barcelona** kicked off the session by talking about their green infrastructure goals and how they measure progress for their initiatives. **New Orleans** discussed their green infrastructure projects and programs and the regulatory efforts they have put in place for the greening of storm water management. **Washington DC** shared how the city is proactively replacing grey infrastructure with green and voluntary adoption mechanisms for it. The guest speaker Mr. Saeed Al Abbar, the Chairman of the **Emirates Green Building Council**, Dubai provided insights into how cities can use public-private partnerships as a means to ensure implementation of green infrastructure and other green initiatives. A need for diving deep into each of these conversations and quantification of co-benefits of green infrastructure was identified by the cities.

## Adaptation Planning Case Studies from Paris, Quito and Rotterdam

This session showcased good example city adaptation planning processes and lessons learned from along the way from three cities – Paris, Quito and Rotterdam.



Figure 10: Green Infrastructure Plenary Session

**Paris** kicked off the session by presenting on their adaptation strategy outlining their current and future climate risks. Education and engaging the public in identifying possible solutions was highlighted of key importance to their process and public feedback helped inform policy makers about otherwise overlooked risks.

**Quito** presented their climate vulnerability and adaptation plan, an integrated effort to understand how the city's 17 different ecosystems and 9 different climates are being impacted by climate change. Given the geographical challenges of Quito, it is important that urban planning fully integrates these regional climate vulnerabilities into their plans.

The final case study from **Rotterdam** strategy focused on combining large scale infrastructure projects along with smaller measures – “piggy bagging” upon existing projects to enhance them with adaptation features. Rotterdam has developed a cost-benefit analysis tool which monetizes the benefits of adding in these adaptation components that helps them show the value of these efforts and mainstream climate adaptation projects throughout city departments.

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## Plenary Session III: The Economics and Finance of Adaptation

This two-part session focused on the major barrier identified by many cities in progressing their adaptation infrastructure – finding finance to move projects forward.

The plenary was opened by Stephane Hallegatte, Lead Economist with the Global Facility for Disaster Reduction and Recovery at the **World Bank**, who presented on how cities can build resilience of the poor in the face of natural disasters and the ways cities can assess city adaptation and disaster interventions by looking beyond the asset losses and instead additionally consider socioeconomic resilience and ‘well-being losses’, offering World Bank support to cities to identify interventions that minimise such well-being losses –which was clearly of interest in the discussion following.



*Figure 11: Finance Plenary Session*

Aisa Tobing from the city of **Jakarta**, presented on the water-related challenges facing Jakarta arising from Jakarta’s sea front, rivers and storms and highlighted Jakarta’s work to engage stakeholders, including local community, government agencies, financial organisations and creating public-private partnerships.

Lykke Leonardsen from the city of **Copenhagen** highlighted the necessary changes to finance adaptation made by the national government that allow for better demonstration of business cases for adaptation projects, and has allowed the integration of adaptation components, particularly for storm water, into existing urban infrastructure, paying for interventions through water taxation which has led to overall reductions in costs. The city is now looking towards the insurance industry to support adaptation efforts, and creating mechanisms for the financing of coastal flooding protection.

The second part of this session, focused on the projects currently under development through the C40 Cities Finance Facility (CFF). Breaking into two groups, delegates heard from representatives of **Bogotá’s** cycling project and **Mexico City’s** electric buses project. Each city representative received valuable input and guidance from the other city delegates to help ensure that the CFF projects (which are currently focused on climate change mitigation) can be as resilient as possible to future climate threats, and possibly also have wider climate adaptation benefits for the cities.

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## Closing Session

Closing the conference, C40 Deputy Director Kevin Austin thanked the conference hosts in Dubai and summarized some of the key discussions and outcomes of the event and encouraged all those present to take this as a starting point for further action in each city. Aromar Revi,



Director of the Indian Institute for Human Settlements then applied our thinking back to the global perspective, highlighting the relevance of city action and leadership in global climate change topics and negotiations and recapping some good examples of how cities around the world are incorporating climate friendly responses and looking at their city systems in a holistic manner.

## Optional Sessions

### C40 Adaptation Programme Strategy Session

The aim of this optional brainstorming session was to get feedback from the cities on the structure of the future Adaptation Programme within C40 to ensure it meets the adaptation needs of cities.



Figure 12: C40 Adaptation Planning Session

C40 staff presented existing and planned components of the programme and received feedback from cities on how to best deliver support in key areas of risk assessment and planning, adaptation implementation, and research and advocacy. Some of the suggestions were:

- Expand networks and increase the scope of existing networks

- Set up an advisory group of cities to steer the Programme
- More regional network/exchanges to focus on similar conditions
- Include health as an issue in networks

### Brainstorming an Urban Planning Adaptation Toolkit

The C40 Climate Risk Assessment and Land Use Planning Networks are working together to build a Toolkit that will help city officials incorporate adaptation considerations into their urban planning and this brainstorming session elicited feedback from cities in three key areas: technical content, governance and toolkit format.



Figure 13: Urban Planning Adaptation Toolkit Session

The main takeaways from the discussions were:

- Integration of climate information into each step
- Emphasis on how adaptation can help urban planners
- Need for city policies to include climate change in future urban
- Need to build in design principles city specific characteristics such as culture etc.



## Network Workshop Sessions

### Climate Change Risk Assessment Workshop

Based on the feedback obtained from city officials in the pre-workshop survey, the Risk Assessment Network divided its time along the 4 network work stream topics developed over the preceding year: 1) Risk Data and Reporting; 2) Community Engagement; 3) Private Sector Engagement and 4) Governance Coordination. Additionally, bilateral or multilateral meetings took place during a 1.5 hours networking session; and finally a network planning session helped pave the way for the network's 2017 scope of work.



Figure 14: CCRA Workshop

Day 1 focused on Risk Data and Reporting, divided into two areas: Using data to build a profile within the city governments, and use of data to strengthen adaptation plans; and Governance Coordination. Community Engagement was the topic for Day 2, starting first on different communication techniques from very different cities, and then focusing on climate equity and how to engage all corners of the city in adaptation

plans. Day 3 allowed time for bilateral and multilateral open networking –building off of the matchmaking proposed in the 2-page C40 Climate Hazard diagnostics produced for each city at the conference- to discuss approaches to similar hazards or climate impacts. The closing session summarized the discussions of each of the breakout sessions and recapped the Interdependencies study plenary and proposed next steps. All city officials agreed to not only have their Risk Assessments and Adaptation Plans done by 2020 but also to include an interdependencies assessment in their process.



Figure 15: CCRA discussions

### Connecting Delta Cities Workshop

The Connecting Delta Cities Workshop sessions had four key themes based on priorities expressed by member cities in advance of the workshop: flood management, coastal protection (sea level rise and storm surges), community engagement & governance, and monitoring. Each topic had a number of cities proposing possible follow up activities which will be explored over the next year.



Figure 16: CDC Workshop

Key discussion topics on each of these themes included the impact of adaptation measures on land prices and communication of risks to the public as well as how to incentivise stakeholders to adopt guidelines and how to plan for emergencies in case the protective measures are not in place yet or failing. The network also discussed whether monitoring should be hazard-based or sector-based, and how to best communicate outcomes to target groups.

Apart from this there were also discussions about bilateral relationships which promote innovation and can give extra political weight and energy to adaptation if formalized in a city to city MOU. It was agreed that bilateral partnership objectives should be concrete and clear to both parties in advance. Cities can also use these C2C partnerships to engage private sector and embassies can play an important role.

Possible follow up:

- Explore if C40 can help partnerships between cities with smaller travel budgets.
- Document both formal and informal partnerships.
- Explore environmental impacts of adaptation measures.
- Try to influence international reporting frameworks.

## Cool Cities Workshop

The Cool Cities Network Workshop sessions were designed around the work streams of the network and the feedback received from the cities through the pre-conference survey. The discussions focused on four key themes: Cooling Technologies and Mechanisms for their Application in Cities such as cool roofs and cool pavements; Urban trees – co-benefits, maintenance and health; Stakeholder engagement in tackling urban heat – community and private sector engagement; and Financing urban heat solutions.



Figure 17: CCN Workshop

The workshop involved robust discussions about unlocking funding for heat mitigating infrastructure in cities by recognizing its hidden value, such as Melbourne's example of real estate developers marketing commercial real estate by highlighting proximity to planned parks. City officials also discussed leveraging ideas like Paris' program to dedicate 5% of city budget for citizen-generated programs to drive local urban heat mitigation and awareness.

Network members discovered a shared desire to find the most cost effective and

accurate ways to evaluate where they experience urban heat and their progress in cooling it down. One of the key next step that the officials agreed upon was to have a Cool Cities Resource Repository that would provide tangible resources to cities, including draft text for documents and a collection of best practices.



Figure 18: CCN Discussions

## Site Visits

The cities got to choose among three site visits during the conference:

The **Jebel Ali plant** is one of the largest power generation and water desalination plants in the UAE and probably the world. The station has a capacity of 2,000 MW and 140 million imperial gallons of desalinated water per day providing 30% of Dubai's total fresh water needs. The Plant, which sits on the Arabian Gulf, is designed to meet current and future demand for electricity and water in Dubai for the next 50 years. Find more info [here](#).

The **Sustainable City** (TSC) is a modern application of social, economic and environmental sustainability in the built environment. TSC is the first operational Net Zero Energy city in Dubai, and is modelled to become an international showcase for sustainable living, work, education, and recreation. The first phase of the City is

nearing completion and comprises five residential clusters, a buffer zone, a central green spine, an equestrian club, and a mixed use development. Find more info [here](#).



Figure 19: The Sustainable City

**Ras Al Khor Wildlife Sanctuary**, is a wetland reserve renowned for attracting migratory birds in large numbers. The wetlands have large numbers of birds, crustaceans, small mammals and fish. The wetland has been fenced off from the public and three birding hides have been built. The bird hides are a first step towards development of more elaborate visitor education facilities in the protected area. Find more info [here](#).



Figure 20: Jebel Ali Desalination Plant



Figure 21: Flamingos at the Sanctuary





## Testimonials



*"It was impressive how well and flawlessly the host City of Dubai and C40 planned, organized, and executed the conference where we could meet and connect, exchange and be inspired from our important adaptation work. Well done and thank you, Dubai and C40 staff!" (Phetmano Phannavong, Washington DC)*



*"The exciting things is that Adaptation becomes mainstreamed in C40 and is incorporated in the target 2020 programme." (Mzukisi ka-Gwata, Johannesburg)*



*"Very well structure, well defined objectives and conducted. Planned in advance. I feel like I am making a real contribution and the C40 team will take this forward and use" (Veronica Arias, Quito)*



*"Thank you for the opportunity to participate! Everything was well planned and the city of Dubai was such an amazing host. The pop-up restaurant dinner was a highlight." (Tracy Morgenstern, Seattle)*



*"The plenary sessions have been very educative and it has presented opportunity for learning. In addition, I find the network sessions rewarding because it afforded me the chance to rate Lagos efforts with other cities." (Michael Bankole, Lagos)*



*"The chance to have all three workshops at the same time was most valuable." (Katerina Agorastou, Athens)*



*"I thought the conference was very well run and organized. There were lots of interesting and inspiring presentations, and it was a great opportunity to meet other adaptation professionals. Thank you!" (Cassie Sutherland, London)*



*"The most valuable part of the conference was exchanging ideas with other cities, with conversations that were simulated by the plenary presentations, network discussions and fact sheets." (Kate Vinot, Melbourne)*



*"I learnt that cities around the world have similar challenges to overcome. I believe we can overcome these difficulties together" (Kyeong Lee, Seoul)*



*'Excellent site and host for this type of conference. We hope invitations are extended to return to see the results of the Dubai adaptation plan." (Cedric Grant, New Orleans)*