

REDUCING EMISSIONS AND ADAPTING TO CLIMATE CHANGE MEANS BIG BENEFITS FOR CITIES

Maximizing the benefits of climate action in cities

Why are cities integrating adaptation and mitigation?

To avoid potential malinvestment (e.g., flooding of public transport infrastructure or housing) and missed opportunities to deliver benefits across policy priorities, cities are prioritizing actions that simultaneously reduce emissions and build resiliency to future climate impacts.

What are the challenges?

Mitigation and adaptation measures at the local level can interact in both positive and negative ways. The challenge for cities is to maximize synergies and identify opportunities for complimentary action while minimizing trade-offs and competing goals. Cities are successfully planning for and executing climate strategies with both mitigation and adaptation goals in mind.

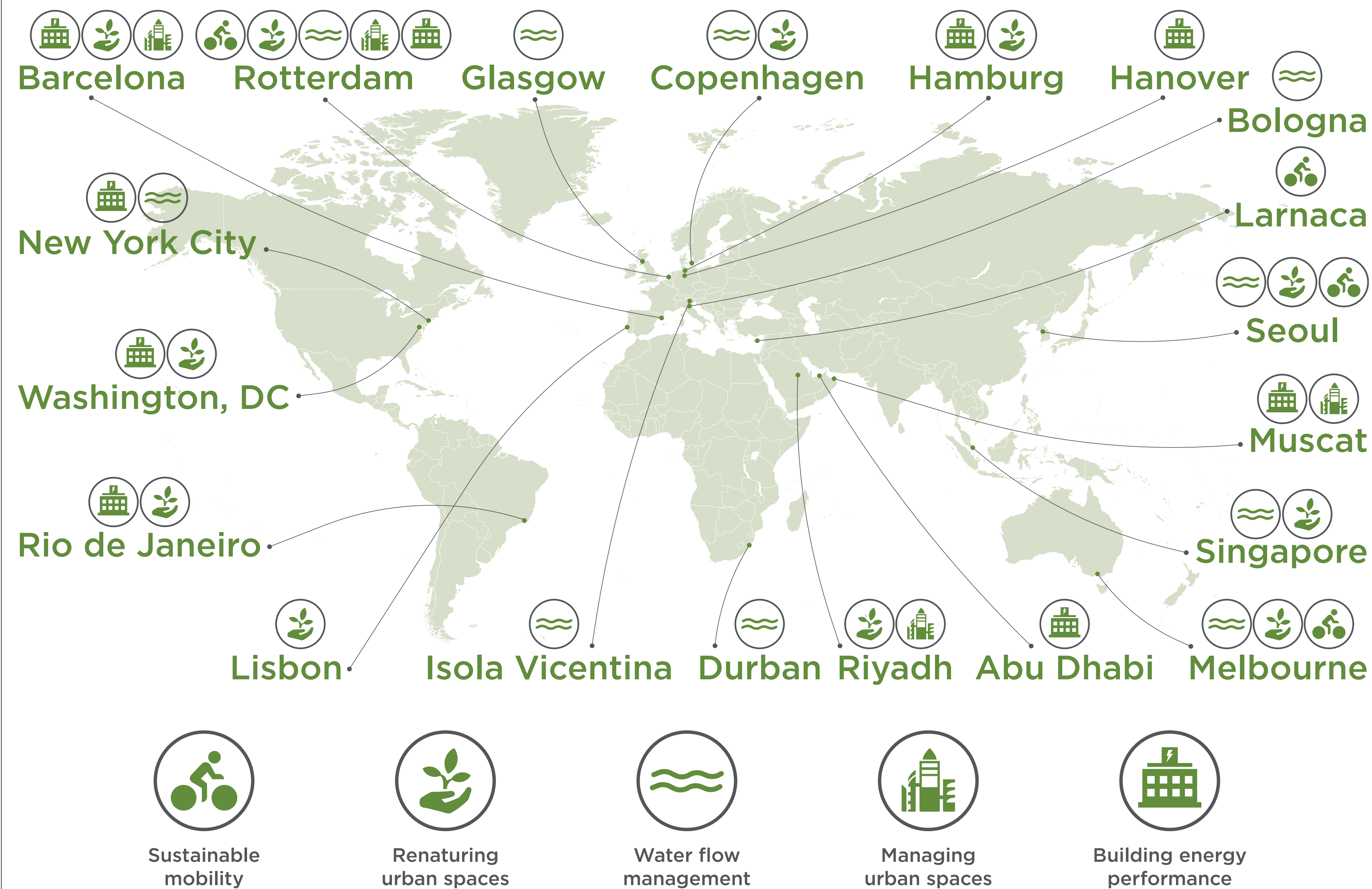
How can cities integrate adaptation and mitigation?

- Conduct climate risk and opportunities assessment on a regular basis, ahead of investments, ensuring alignment with local carbon reduction targets.
- Consult with and coordinate climate action on priority risks and opportunities with local stakeholders.
- Use existing tools such as Adaptation and Mitigation Interaction Assessment Tool to assess examples of actions that deliver adaptation and mitigation benefits.

“In Melbourne we realize energy consumption, urban heat island effect and people’s health are highly connected. That is why we are working to green our city by doubling the canopy cover, promoting green roofs and walls of buildings and increasing open space; by doing this we can cool the city by 4 degrees and reduce demand on our electricity supply.”

— SALLY CAPP, MAYOR OF MELBOURNE
(Source: AMIA Tool)

Cities achieve socio-economic and environmental benefits through adaptation and mitigation synergies



Cities and inhabitants benefit directly from climate action



References

- Job creation: European Commission: Assessing the Implications of Climate Change Adaptation on Employment in the EU, 2014.
- Less traffic noise & congestion, public transport: University of California, UC Davis, ITDP: Global Shift from Cars to Mass Transit Can Save More than US\$100 Trillion and Eliminate 700 Megatons of CO₂ Pollution by 2050, 2014.
- Green spaces: Braubach, M. et al. (2017). Effects of Urban Green Space on Environmental Health, Equity and Resilience.

Cities measure the economic benefits of integrating mitigation and adaptation

Public transport through reconstructed sea defenses in Larnaca, Cyprus¹

- Actions:** Dual-use infrastructure installed: Rebuilding and elevating the seafront avenue with 5 km of cycling and pedestrian ways for €7.7 million.
- Results:**
 - **Adaptation benefit:** Greater resilience to rising sea levels and flash flooding.
 - **Mitigation benefit:** Savings of 60 MWh/year (16 tCO₂e) through park-and-ride and 5,110 MWh/year (1.4 ktCO₂e) through reconstructed seafront avenue and cycling path.

Smart roofs, cool buildings in Washington, DC²

- Actions:** Rooftop restoration of 435 municipal buildings. Installation of green roofs, solar thermal collectors, and 8.5 MW photovoltaics.
- Results:**
 - **Adaptation benefit:** Cooler buildings to reduce heat gain, reduced urban heat island effect. 180 less response calls due to roof leaks in 2012 (Hurricane Sandy) vs. 2011 (Hurricane Irene).
 - **Mitigation benefit:** 20% energy saved in 20 months. Annual electricity costs cut by \$8.4 million. 117 jobs created.

City cooling, stormwater management in Bologna, Italy³

- Actions:** 17,000 m² of new green areas, 125,295 m² of regenerated industrial and commercial buildings, 375 trees planted, and 28,000 m² of semipermeable and 15,000 m² of permeable surface area installed.
- Results:**
 - **Adaptation benefit:** Reduced urban heat island effect and storm water flooding. Rainwater load in sewage system reduced by 29,000 m³ per year.
 - **Mitigation benefit:** Expected to avoid 5 ktCO₂ annually.

100% Renewable Madison Report in Madison, WI³

- Actions:** The City of Madison worked with Navigant and Hammel, Green and Abrahamson, Inc. to develop the 100% Renewable Madison Report, which identifies demand-side and supply-side options for reducing emissions from facilities, operations, and transportation.
- Results:**
 - **Adaptation benefit:** Implementation of changes to city operations could result in up to \$162 million in benefits by 2030, with one avoided premature death every 2-3 years and 25-32 avoided work-loss days per year due to improved air quality.
 - **Mitigation benefit:** City operations will reduce their carbon emissions by 55% while creating local green job opportunities and investing in rural economic development.

1. Covenant of Mayors, *Sustainable, Climate-Resilient and Vibrant Cities. Good practices from Covenant of Mayors signatories*, 2016.
2. *C40 Adaptation and Mitigation Interaction Assessment (AMIA) Tool*.
3. 100% Renewable Madison Report; David Abel, Ph.D. and Josh Arnold, Air Quality Related Public Health Benefits of 100% Renewable Madison.

Navigant supports cities in identifying synergies between adaptation and mitigation measures, with a central focus on climate equity in program design, and implementation of climate action. We ensure that positive outcomes are enhanced and unintended consequences are avoided.



Supporting the

