

Survey: Latin American and Asian cities lead way in planning for global warming

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Quito, Ecuador. Credit: wikimedia/Patricio Mena Vásconez

Quito, Ecuador, is not considered a global leader by most measures. But there is one way in which Quito is at the forefront of metropolises worldwide: in planning for climate change. For more than a decade, officials in Ecuador's mountainous capital have been studying the effects of global warming on nearby melting glaciers, developing ways of dealing with potential water shortages and even organizing conferences on climate change for leaders of other Latin American cities.

In so doing, Quito officials represent a global trend: The cities that are

most active in preparing for [climate change](#) are not necessarily the biggest or wealthiest. Instead, they are often places buffeted by natural disasters and increasing changes in temperature or rainfall. In places where the climate seems to be a growing threat to human lives, resources and urban infrastructure, local officials have been working with scientists, conducting assessments and examining which new measures may best prepare them for the future.

Indeed, as an MIT survey released today shows, 95 percent of major cities in Latin America are planning for climate change, compared to only 59 percent of such cities in the United States.

Leadership on climate adaptation “can come from cities of many different sizes and ilks,” says JoAnn Carmin, an associate professor in MIT’s Department of Urban Studies and Planning and lead author of the survey’s report. While international climate policy measures — such as potential agreements limiting greenhouse gas emissions — require agreement among national governments, Carmin says, “cities are able to make some important strides in this area. There are numerous examples from around the world where there are no national policies or explicit support for adaptation, but where [local governments](#) are developing plans and taking action to address climate impacts.”

The survey is the first to systematically investigate the efforts of cities around the globe to adapt to climate change. Among 468 cities worldwide that participated in the survey, 79 percent have seen changes in temperature, rainfall, sea level or other phenomena attributable to climate change; 68 percent are pursuing plans for adapting to climate change; and 19 percent have completed a formal assessment of global warming’s impact.

U.S. cities are lagging in this area, Carmin believes, because climate change, for various reasons, is a more politically contentious issue in this

country than elsewhere. “Climate change discussion is off the table, quite frankly, more in the U.S. than anywhere else,” Carmin says. “We are caught up over the cause of climate change, and this has led all climate-related issues to become highly politicized, undermining our potential to focus on promoting long-term urban resilience. This is not the case in many other countries where they take climate change as a given and are able to move forward with adaptation alongside their efforts to mitigate greenhouse gas emissions.”

Same effects, but to a greater degree?

The survey report — “Progress and Challenges in Urban Climate Adaptation” — was written by Carmin and MIT graduate students Nikhil Nadkarni and Christopher Rhie. The survey was conducted in partnership with ICLEI - Local Governments for Sustainability, a membership organization of local governments from 70 countries. The survey was funded by a grant from the National Science Foundation.

While many factors explain the willingness of some cities to pursue climate-adaptation planning, local governments moving ahead in this realm tend to integrate adaptation efforts into existing departmental responsibilities. Climate change may become a problem of unique magnitude, but some of its possible effects — such as the potential to create large storms and flooding, or deadly heat waves — are hazards local governments already grapple with.

“We expect government departments will work mostly in the same ways they always do,” Carmin says. “Some cities have established task forces and commissions to jumpstart adaptation. However, it’s not like they’re going to set up some separate major department to try to implement everything. ... If you’re working on stormwater management or public health provisions or emergency preparedness, you’re going to continue to work on those using the tools you have available, it’s just that now you

account for projected climate changes in the context of your planning and implementation.”

Some of Carmin’s own field research, apart from the new survey, explores this issue in depth. In a paper published this spring in the *Journal of Planning Education and Research*, “Urban Climate Adaptation in the Global South,” Carmin and co-authors Isabelle Anguelovski and Debra Roberts analyzed the local politics of climate planning in Quito and Durban, South Africa, another leader in planning for the potential effects of climate change. Places such as these, the authors concluded in the paper, are “creatively linking new agendas to existing goals, plans and programs.” Durban, for instance, has suffered from extensive flooding in the past and is now addressing the matter as a climate-change policy issue.

The extent of change in many cities throughout the developing world, through rapid growth or migration, should also give leaders in those places reason to consider how climate change could affect those areas, notes Karen Seto, an associate professor of the urban environment at Yale University.

“A place that is rapidly developing needs to think about both climate change adaptation and mitigation,” Seto says. By contrast, she notes, “I’m not surprised that a smaller percentage of cities in the U.S. are thinking about adaptation. In the U.S. and in countries where income levels are relatively high, there is this false belief that we can buy ourselves out of it, that we can buy some technology to fix things, or that some other institution, whether it’s local, regional or national government, will come help save us.”

As Carmin observes, climate change does present one new hurdle for urban planners in any part of the world: the need to start using scientific projections to understand the potentially novel impact of global

warming.

“Urban planning traditionally uses historical trends as a baseline,” Carmin says. “We also need to begin looking at the projections. If we want to protect human lives and urban assets over the long term, we need to be prepared for new impacts and for greater variability and magnitude in impacts than we have experienced in the past. That means looking at both historical data and climate projections and generating multiple scenarios of what a city might face in 50 or 100 years. It’s not perfect, but we need to plan based on a forward vision, instead of only looking backward.”

National help needed

To be sure, some large U.S. urban areas, such as New York and Chicago, have also been leaders in planning for climate change. But as Carmin acknowledges, even the largest city can only do so much by itself; help from the national government, including financial support, is ultimately essential.

“Many cities feel that national governments don’t understand the challenges they face,” says Carmin, who readily notes that “there’s a limit” to what cities can accomplish without more federal support.

Moreover, because [global warming](#) is a highly complex phenomenon, long-range climate models inevitably contain uncertainty. That means local governments in some cities may be reluctant to invest in physical infrastructure or specific programs based on these projections. “Cities are aware of the uncertainty,” Carmin says. “While many are not going to sit and wait for the science to be perfected, they are also not going to put all their resources in one basket.”

As a result of the uncertainty and limited resources, she adds, much of

what local governments are doing at the moment “is small-scale change, incremental planning and a lot of nonstructural measures, like planning and outreach to the public. In the long term, that will not be sufficient. For now, however, cities are being creative and taking action in ways that are feasible given the scientific, political and resource constraints they face.”

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