The Boston Globe

US lags on plans for climate change

Boston's Deer Island Sewage Treatment Plant was built on land 2 feet higher than originally planned to keep it from being flooded by rising sea levels caused by climate change. (DINA RUDICK/GLOBE STAFF)

By Beth Daley
Globe Staff / April 5, 2007

BOSTON, MASSACHUSETTS - Countries and cities around the world are beginning to use a new strategy to confront climate change: preparing for its consequences.

Toronto has installed an emergency system that will alert public health officials 60 hours before the start of potentially lethal heat waves, which are expected to increase as the world warms. New Zealand is pairing engineers with local governments to strengthen infrastructure such as city drainage systems to withstand more intense rainstorms. Tiny Burkina Faso in Western Africa is researching new drought-resistant millet and sorghum to grow as rainfall decreases.

But the United States is lagging well behind. Only a handful of cities or states have begun projects or adopted regulations to accommodate higher temperatures, changing precipitation patterns, sea level rise, and longer growing seasons.

If fairly conservative climate projections hold true for Boston, global warming will raise sea levels enough by the end of the century that Boston Harbor will flood parts of East Boston and the downtown Financial District during a typical winter northeaster. South Boston, Back Bay, and Cambridge would also probably flood during a category 2 hurricane, according to simulations

produced for the Globe by a computer modeling consultant. Yet, the region has no plan to deal with flooding of that magnitude.

"We don't hear too much about adaptation, and we need to," said Paul Kirshen, a Tufts University research professor of engineering who recently outfitted his house with extra large gutters to handle more intense rain storms. He said cities and states should include the expected impact of climate change in environmental reviews of new construction and building codes. "It's a lot less expensive to deal with adaptation now," he said.

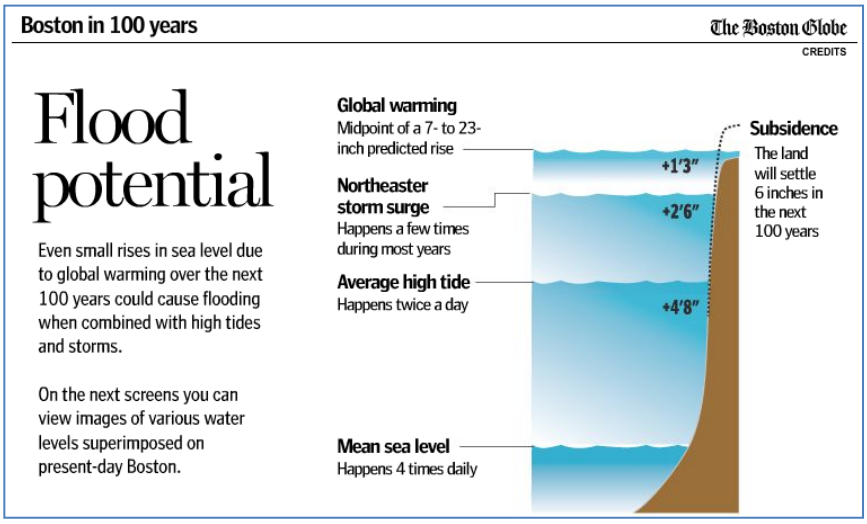
Tomorrow, the United Nations' Intergovernmental Panel on Climate Change, the leading scientific authority on global warming, is scheduled to release a report underscoring the need for adaptation strategies. Adaptation is of growing importance because even if greenhouse gas emissions from power plants, factories, and cars were eliminated today, scientists say the heat-trapping gases already in the atmosphere would cause sea-level rise and warming temperatures for generations.

"It's the lag effect ... and some governments around the world are finally catching on to that point," said Ian Burton, scientist emeritus with Environment Canada and a lead author of the IPCC report coming out tomorrow. "Hitherto [climate change] has been regarded as a mitigation problem - reducing emissions."

Until recently, there has been little discussion of climate change adaptation in the United States, primarily because the federal government was reluctant to even acknowledge manmade warming, climate policy experts say. Also, environmental groups did not talk about adaptation because they believed it would weaken the focus on the need to reduce greenhouse gas emissions.

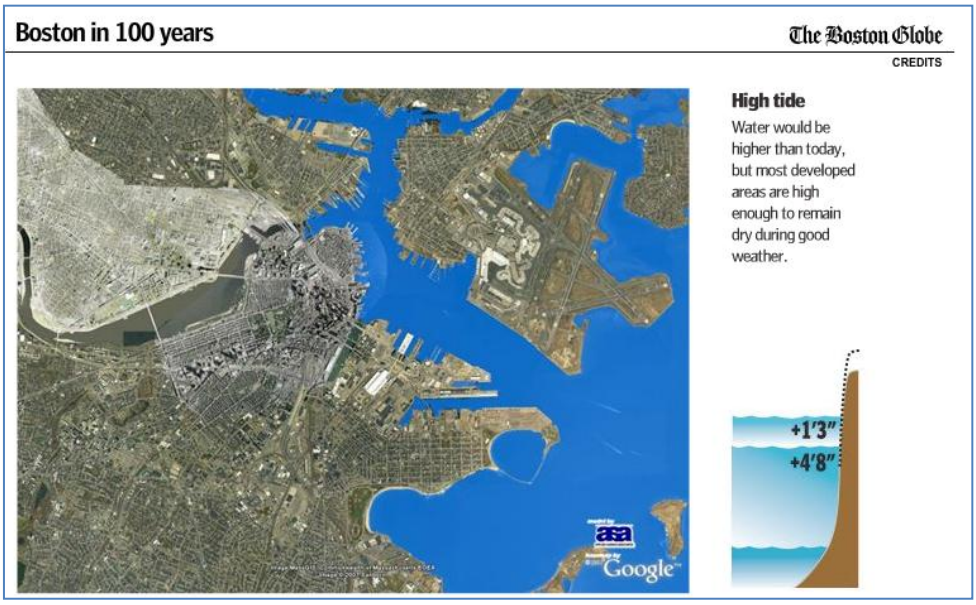
"People were afraid, but now we are getting momentum on reducing emissions and people are feeling more comfortable talking about adaptation," said Seth Kaplan, senior attorney for the Conservation Law Foundation, a Boston-based advocacy group. "You don't want a debate of should we reduce greenhouse gases or adapt. You need both."

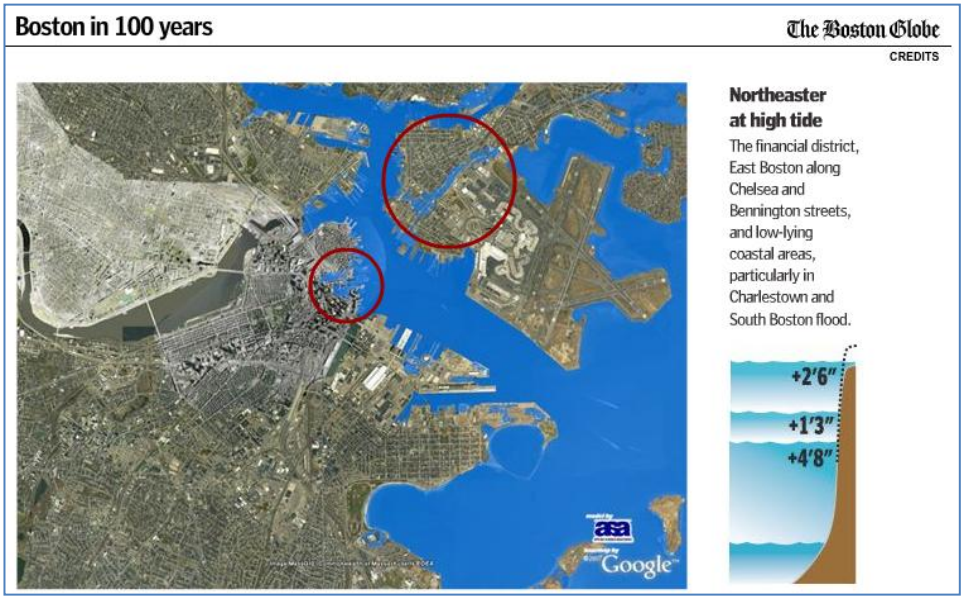
By the end of this century, the IPCC projects global temperatures will rise 3.2 to 7.2 degrees Fahrenheit and oceans will rise 7 to 23 inches and possibly more, depending on how much carbon dioxide and other manmade greenhouse gases are released into the atmosphere. As a result, weather will become more erratic and severe.

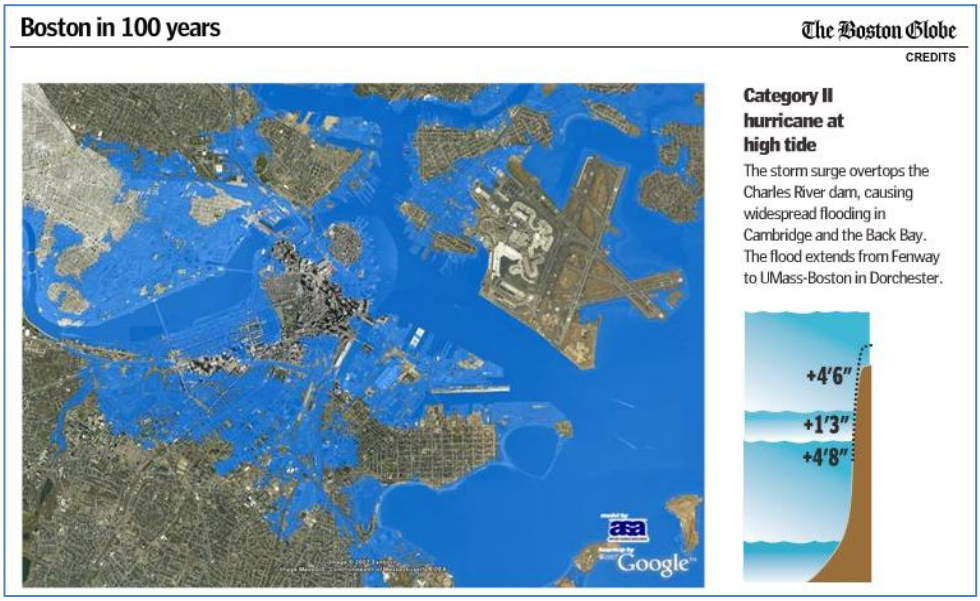


New England is already experiencing sustained warming and a changing climate that scientists say is consistent with a warming world. Winter temperatures have increased an average of 4.4 degrees Fahrenheit in the last 30 years, according to national climatic data, leading to less snow on the ground and ice on lakes. The growing season has extended by more than 10 days in some places, and rainstorms are becoming fiercer.

HUB SCENARIOS - If sea levels rise 15 inches, flooding could range from minimal to severe, with parts of Back Bay, East Boston, South Boston, the South End, the Financial District, Roxbury, Dorchester, and Cambridge inundated.







There are isolated examples of adaptation to climate change in New England. In 1988, Maine adopted a regulation requiring that anyone building on coastal dunes - mostly found south of Portland - had to ensure that construction could withstand a 3-foot rise in sea level because of global warming, one of the few such rules in the country. Today, Maine Geological Survey officials are beginning to redraw maps that identify areas at risk for flooding with global warming in mind.

And in Massachusetts, Boston's Deer Island Sewage Treatment Plant, completed in 2001, was built on land 2 feet higher than originally planned to keep it from being flooded by rising sea levels caused by climate change.

Officials in Massachusetts and most other New England states say they are just beginning to look at how to prepare for climate change.

"Frankly, we've been focused on ... reducing greenhouse gases," said James W. Hunt, Boston's chief of environment and energy. He said discussions about adaptation are beginning, brought on in part by the realization that powerful storms are becoming more frequent. In the last decade alone, Boston has experienced two "100-year storms," so named because storms with that much rain are predicted to happen only once every century. In the last decade, there have also been three "50-year" storms.

While the federal government has no national adaptation policy, some initiatives are underway. California has launched a major effort to understand its vulnerability to climate change and help it plan for such possibilities as the intrusion of saltwater into seaside power plants. Earlier this year, the San Francisco Public Utilities Commission held a summit for water managers from around the country to discuss coping with expected water shortages and other issues from climate change. Many western cities' drinking water comes from melting mountain snow, which is disappearing.

In King County, Wash., ground was recently broken on Brightwater, a wastewater treatment plant that will recycle water and redistribute it for watering crops and golf courses. The system was added to compensate for increasing droughts because of global warming, officials there said. The county, which includes Seattle, is also creating a guidebook to help governments across the country prepare for global warming.

Other countries have done far more to get ready for the effects of global warming than the United States. Britain's far-reaching Climate Impacts Program includes strategies to ensure that construction projects address future climate change and gives communities and businesses specific suggestions to adapt, such as changing building codes. Denmark is designing ways to funnel floodwater away from populated areas during storms. To deal with warming temperatures, Manitoba, Canada, over the last five years has moved more than 300 miles of a winter road system that used to traverse frozen waterways, bogs, and swamps to permanent land.

Still, many developing countries don't have any money to adapt to higher sea levels and changing precipitation. They are becoming increasingly vocal that they are bearing the brunt of the developed world's greenhouse gas emissions.

"If you look at the poorest parts of the world ... the resources to adapt don't exist locally," said James McCarthy, professor of biological oceanography at Harvard University.

Even in the United States, climate experts say, without federal direction it can be difficult for local governments to respond. Many have never planned 100 years into the future. And officials may have more immediate priorities or lack the expertise to know how to prepare.

"People are overwhelmed, they don't have a legal mandate or resources to deal with it," said Susanne Moser, a geographer at the National Center for Atmospheric Research in Colorado and a contributing author to tomorrow's IPCC report. "But we need to."

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