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Harvey, Irma and the World

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The startling scenes of urban devastation in Texas following Hurricane Harvey and in Florida, Georgia and South Carolina following Hurricane Irma are a microcosm of what climate change holds for major cities throughout the world—and a wake-up call for the United States that it is time to get serious about climate adaptation both at home and abroad.

The horrendous impacts of Harvey on Houston, Beaumont, Port Arthur and other Texas communities and of Irma on the Florida Keys, Tampa, St. Petersburg on the west, Miami on the east and Charleston on the north have revealed in the starkest terms the need for both short and long-term adaptation to climate change in urban areas. The short-term recovery cost alone for Texas is likely to cost well over the $80 billion that Sandy required in the New York area, and long-term relocation of critical roads, water treatment facilities, power plants, industrial facilities, and entire neighborhoods will almost certainly bring the total cost closer to $200 billion. Recovery in Florida, which was better prepared because of lessons learned from previous hurricanes, will surely run to tens of billions as well. Fortunately, Texas, Florida and the U.S. Congress have, collectively, the financial resources, technical skills and public and private institutions to carry out both near-term recovery and longer-term resiliency planning (whether they will do so is another matter). But what of the many small and large cities in the world— especially in developing countries—that are already experience equally or greater climate-related destruction but do not have access to any significant resources to help their residents survive floods, droughts, heat waves and loss of basic services like water, electricity, hospitals, transportation and police?

Americans responded with concern, courage and generosity to the heartbreaking scenes of Houston's flooded neighborhoods (and 38 reported deaths) and to the widely reported scenes of Austin's 118,000 citizens doing without potable water for nearly a week (until bottled water could be delivered to the city) and hospital and nursing home patients being evacuated by air. Similar scenes are now playing out in Florida, where many elderly residents were unable to join the large-scale evacuation ordered by state and local authorities. At the same time, however, more than 1,000 people died or were missing in rain-induced mudslides in Freetown, Sierra Leone, flooding killed more than another 1,000 people in Bangladesh, Nepal and India and millions of people have been displaced by flooding in other parts of Asia, virtually all as a result of climate change. Many other megacities in the developing world, with far larger populations than Houston, Miami or even New York, are facing similar threats to millions of their citizens as a result of a changing climate that they had little or no role in causing and have the fewest resources to combat.

Rather than isolated industrial fires as in Houston, Lagos, Nigeria, for example, faces the real risk that a heavily polluted hazardous waste lagoon can overflow in torrential rains and threaten the lives of hundreds of thousands of nearby residents living in makeshift housing around that lagoon. Other cites face the prospect of no potable water (indeed, no water at all) for extended periods of times, the complete loss of transportation corridors, hospitals, power plants, sewage treatment facilities or police presence and the realization that their national governments do not have the ability to help them either rescue their residents or avoid these risks through adaptation before these crises strike.

Adaptation Programs Abroad

It is not as if these cities have failed to anticipate or plan for the climate—change impacts that threaten both individual residents and the entire social and economic structure of the cities themselves. Indeed, unlike most of their American counterparts, many of the developing world's largest cities have recognized their vulnerability to climate change and have submitted detailed "resiliency" or "adaptation" plans to the United Nations under the UN's 1992 Framework Convention on Climate Change and the UN's more recent Sustainable Development Goals. What these plans almost uniformly lack is not foresight but money to carry them out (as well, in many cases, as the governmental agencies with sufficient authority to implement complex multi-year adaptation programs). An extensive listing and analysis of urban adaptation plans around the world, published by the ICLEI World Secretariat in May 2017, shows how seriously many large cities are taking climate change and how, if given the resources, they could begin to protect both their residents and their environments from the disparate climate impacts that they know are coming their way.

That is what makes Trump's recent statement repudiating—and mocking—the Paris Agreement's call for developed countries to contribute $100 billion annually for the entire developing world beginning in 2020 so shocking and irresponsible. This is, by any reasonable measure, a grossly inadequate sum, even today, to help all developing countries plan for and adapt to the virtually inevitable impacts of climate change, impacts that most developing countries did little to cause and yet will threaten the lives, health and economic survival of millions of the world's poorest residents on a scale far exceeding Harvey and Irma. Even if (as appears highly unlikely) the world manages to reduce its cumulative emissions to the levels contemplated by the Paris Agreement by mid-century, the carbon dioxide and other greenhouse gases already in the atmosphere and the oceans will continue to drive global temperatures and sea levels higher for at least another 50 years, and probably much longer.

This makes the need for serious preventive adaptation absolutely imperative for the world's coastal and river cities, where a substantial share of the human population now lives. Absent prompt and continuing adaptation efforts, hundreds of millions of people who have done little or nothing to cause climate change face the likelihood of increasingly severe floods, droughts, heat waves, food shortages, uncontrolled disease and urban chaos as local governments that are already overburdened attempt fruitlessly to deal with these challenges through martial law and as the world's 60 million refugees and internally displaced persons are joined by an equal or greater number of people fleeing their homelands because of climate change.

Financing Adaptation

Trump was also wrong, and misleading, in claiming that the Paris Agreement's call for cumulative contributions of $100 billion in 2020 and beyond would have to come from U.S. taxpayers. In fact, some Paris signatories are already making their initial payments into the UN's Green Climate and Adaptation Funds as part of their "fast start" efforts to help developing countries deal with climate change. What is essential, however, is that developing countries be able to count on continuing long-term funding from the developed world to plan, approve and implement the capital-intensive and politically sensitive adaptation necessary to protect urban coastlines, relocate highways, hospitals, power stations and entire neighborhoods over a decade or more. Annual appropriations from even well-intended donor countries are not sufficiently reliable for this purpose since priorities and governments will change over time, especially as developed countries are themselves faced with severe climate impacts and conflicting demands to increase domestic programs while reducing their citizens' tax burden.

Yet the failure to help developing countries' cities to become more resilient ahead of foreseeable climate impacts will, as the Stern Commission report to the British government noted in 2006, impose far greater costs on the developed world than helping vulnerable countries adapt to those impacts. As the news reports of damage and loss of life from Harvey and Irma make clear, there are immediate repercussions for the United States, the European Union and other developed countries from foreign disasters. The United States is already sending significant financial aid to ravaged communities in the British and U.S. Virgin Islands, and France is sending gendarmes to St. Maarten to help restore order in lawless towns and villages. The prospect of substantial collapse of economic life in similar disaster areas, if replicated across continents, has long-term implications for many firms not in the recovery or resiliency business. More broadly, the inability of the European Union to deal

adequately even today with the current level of legal and illegal migration from Africa, the Middle East and Asia gives a small indication of the social, political and economic costs that can be expected when climate change leads to vastly higher numbers of refugees and internally displaced persons fleeing cities that are no longer habitable or safe.

In November 2016, this tension between the unreliability of annual appropriations from reluctant governments and the imperative of continuing large-scale financial assistance for developing countries and their cities led the New York City Bar Association's Task force on Climate Adaptation to propose a small international "financial transaction microtax" (FTM) on international money transfers, with the proceeds specifically dedicated to climate adaptation in vulnerable countries. The Task Force estimated that even a very modest tax on such transactions could over time yield all or most of the $100 billion promised by the Paris Agreement and do so on a continuing basis that would not be noticed by taxpayers or consumers but would permit the necessary longterm planning by cities, states and national governments. This approach would, to be sure, require a degree of international cooperation by governments and exchanges to implement, but, once established, the FTM would function independently of legislative and executive fickleness and derive its revenues from the international financial community's daily operations.

Green Climate Fund

There are already reliable candidates to receive and disburse the FTM proceeds. The most obvious is the UN's Green Climate Fund (GCF), which was established following the 2009 Copenhagen conference on climate change precisely in order to receive national contributions toward the $100 billion goal that the Copenhagen parties agreed upon to help developing countries reduce their own GHG emissions and deal with the threats posed by emissions already in the atmosphere and oceans. As of July 2017, the GCF had already received signed pledges of just over $10 billion from 40 countries, with additional pledges from seven countries, as part of the "fast start" initiative (the United States has pledged $3 billion of this total but had disbursed only $1 billion as of July). Although this is far short of what is required (or contemplated by the Paris Agreement), the GCF has begun to disburse these funds to developing countries for both GHG reduction ("mitigation") and adaptation projects, most recently a major renewable energy project in Egypt jointly funded with the European Bank for Reconstruction and Development, and has also entered into a working agreement with the Asian Development Bank to collaborate on low-emission projects and resilient development in Asia.

Beyond the GCF, the Paris Agreement calls for a separate new adaptation fund to assist developing countries with climate resiliency projects. Some of the advanced developing countries are also moving forward on their own with GHG mitigation projects (Chile, for example, is aiming to produce 90 percent of its energy from wind, solar and volcanoes, rather than coal, natural gas or even hydropower (which is itself threatened by dwindling water supplies). As those mitigation projects come on line and begin to generate energy savings, they can become of source of funding for domestic adaptation programs.

None of this is to say that climate adaptation should displace efforts to sharply reduce GHG emissions in the United States or elsewhere. Both mitigation and adaptation are essential if current patterns of human habitation and governance are to continue. However, the United States in particular has been inexcusably derelict in failing to include adaptation—both at home and abroad—in its climate debates. While Trump has displayed the most aggressive ignorance and irresponsibility on climate change, not even the Clinton or Obama administrations, which knew better, alerted the American public to the necessity, in its own self-interest, of helping developing countries adapt successfully to the inevitable impacts of climate change. It is time for those challenging the Trump administration's willful blindness to insist that climate adaptation in developing countries, and particularly their megacities, must become an urgent priority in our own climate policies.

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