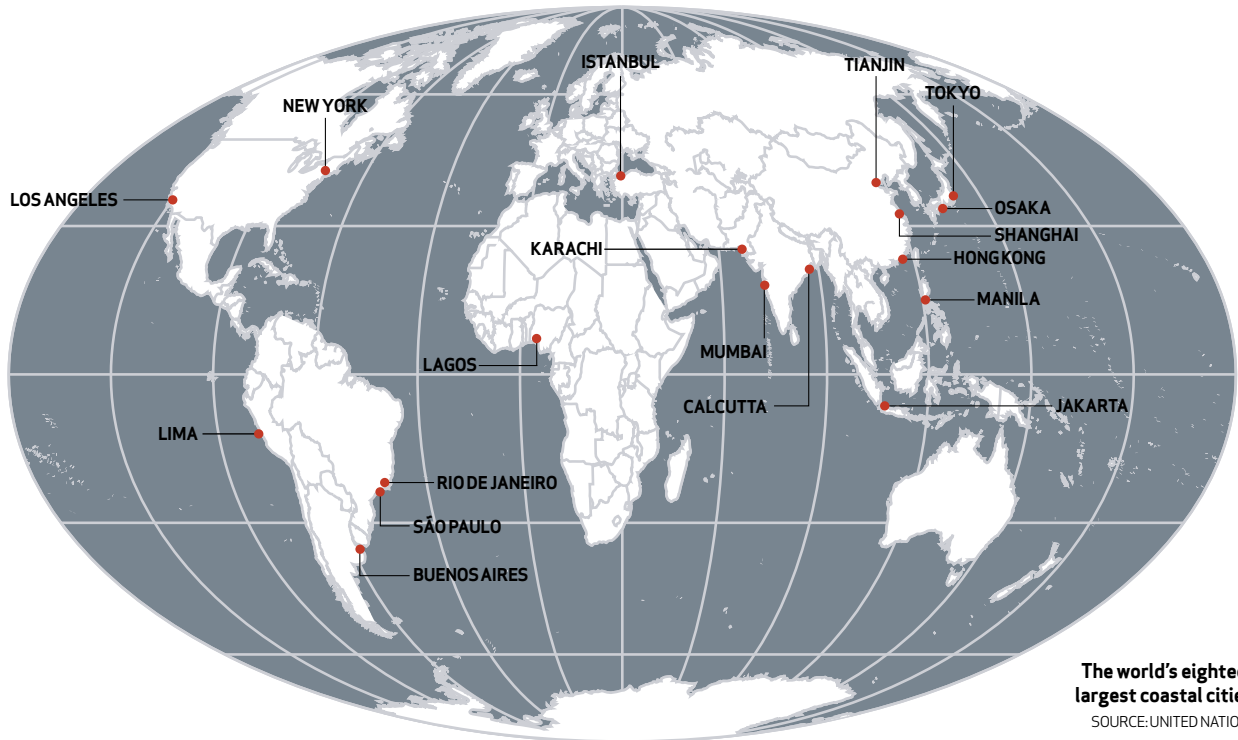


THE COASTAL-CITIES
PHENOMENON

The world's eighteen
largest coastal cities.

SOURCE: UNITED NATIONS

Half of all humanity, including 53 percent of all Americans, live in or in proximity to a coastal city. And whether in Miami or Mumbai, these people are most severely affected by many of the planet's most pressing problems: global warming, violent weather, dangerous pollution, immigration, and more. As a result, coastal cities around the globe are beginning to realize that they may have more in common with one another than with their own countries. It's a new way of looking at the world, and it's giving rise to a new phenomenon: the cross-border study of coastal cities. At Rice University's Shell Center for Sustainability, we have recently initiated an interdisciplinary study with various research institutions in China. Here are five problems endemic to coastal cities we are studying together for common solutions. —AMY MYERS JAFFE

> FLOODING

Global mean sea level is projected to rise fifty centimeters by 2100, threatening life and property and challenging canals and levees. While channeling off surface water eases urban flooding, it also increases the salinity of coastal aquifers, which threatens agriculture, industrial plants, and, perhaps most significantly, drinking water.

> SEVERE STORMS

Global-warming specialists predict that the combination of warming ocean temperatures, high levels of particulate pollution, and rising sea levels will increase the frequency of severe storms. The Pew Center on Global Climate Change estimates that future hurricane damages, projected from experiences of past storms, could average about \$5 billion in losses per year in the U.S.

> AIR POLLUTION

Coastal cities tend to attract industrial plants and petrochemical industries because of their excellent access to ports. This creates special challenges for regulating air quality, as seen in many U.S. coastal cities, including Los Angeles, Houston, and New York, where air quality remains a major challenge. In China, nearly 45 percent of 319 cities being monitored for air pollution can't attain national ambient-air-quality standards.

> CONGESTION

Population density in coastal cities is expected to rise significantly in the coming decades, severely straining roads and transit systems. Congestion causes more than 3.7 billion hours of travel delay and more than two billion gallons of wasted fuel in the United States each year. In China, where, according to the Population Reference Bureau, an estimated one thousand people move to coastal cities each day, the number of automobiles on the road has grown almost twice as quickly as highway-expansion projects. Learning from the Hurricane Katrina disaster, many Chinese cities, which have traditionally waited for postdisaster relief from government agencies, are studying the evacuation systems of other cities.

> ETHNIC TENSION

By 2025, 75 percent of the world's population, approximately 6.2 billion people, including 262 million Americans, will live on or near a coast, as immigrants flock to port communities in search of jobs and other opportunities. With half of these new residents coming from abroad and the other half from domestic rural areas, interethnic tensions will grow, deepening the economic anxieties and insecurities of native workers. Finding effective ways to mitigate those tensions and build structures of economic opportunity will be major challenges facing nearly every coastal city in the years ahead.