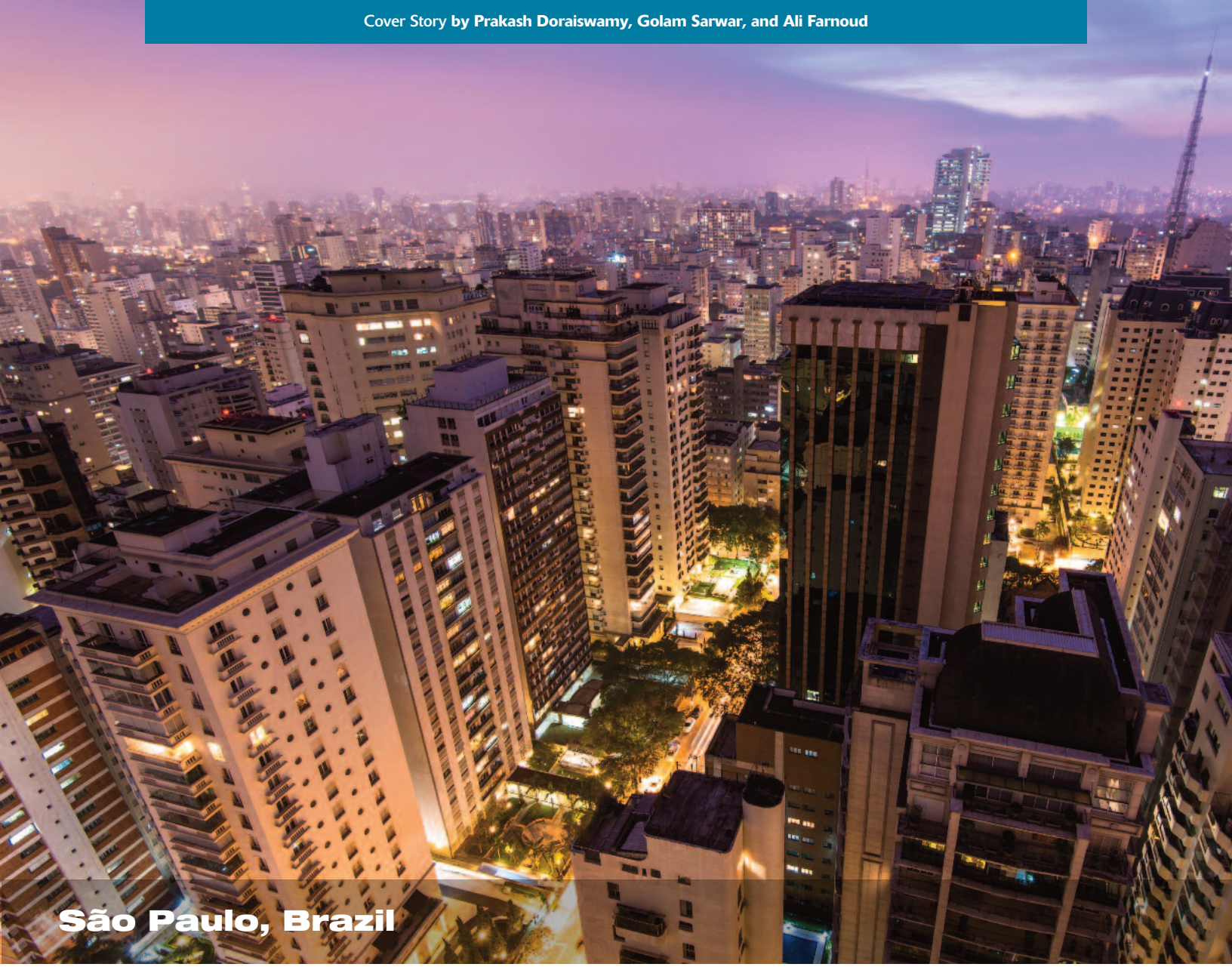
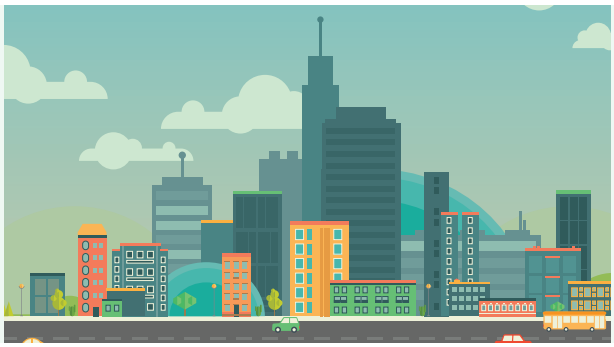


São Paulo, Brazil

Air Quality in Megacities Around the World

An overview of the air quality issues, trends, current initiatives, and potential path forward for improving air quality in five current or potential megacities around the world.

Megacities typically refer to urban agglomerations with a population of more than 10 million people.[1,2] The world's population was estimated to be around 7.3 billion in 2015 and is growing at a nearly linear rate of approximately 80 million people per year.[3] Likewise, around 36 urban agglomerations are projected to exceed 10 million in population by 2020, meeting the definition of a megacity.[4] Rapid urbanization is accompanied by challenges in transportation, energy demand, and industrialization that lead to a concomitant rise in air pollution in the absence of proper planning. In this issue, we have five articles presenting the air pollution challenges faced in five current or potential megacities around the world.



Around 36 urban agglomerations are projected to exceed 10 million in population by 2020, meeting the definition of a megacity.

In the first article, Maria de Fátima Andrade discusses the evolution of air pollution in São Paulo, Brazil. São Paulo has experienced rapid urbanization without proper urban planning. The region experiences exceedances of fine particle and ozone standards, resulting from a variety of sources, including biomass burning, transportation, and numerous other unregulated sources.

In the second article, authors Alan Gertler, Mounir Labib, and Douglas Lowenthal take us through the current status of air quality in Cairo, Egypt for particulate matter and lead. The article demonstrates the impact of specific control programs aimed at lead smelters that helped drastically reduce lead pollutant levels in the city. The region still suffers from the impacts from open burning, transportation, and geological dust, however.

The next article by Farhad Azarmi and Mohammad Arhami summarizes the air pollution burden in Tehran, Iran, and shows how the relative contribution of pollutants to air quality exceedances has changed over the years with fine particulate matter being primarily responsible in recent years.

The next article by Prakash Doraiswamy et al. presents an overview of the significant fine particulate matter pollution burden in Delhi, India, that has gained global attention in the past few years. The article discusses the current status and gaps, and provides recommendations generated through stakeholder group discussions to address the air pollution problem.

In the final article in this issue, authors Jia Xing et al. describe steps taken by China to tackle its poor air pollution, similar to that experienced in India. The article talks about a policy assessment system that was developed in collaboration with the U.S. Environmental Protection Agency (EPA), which helps address and evaluate control strategies and their benefits.

A review of all the articles in this issue reveals similarities among these regions in terms of their air pollution problem and the underlying causes. While each region may have unique issues impacting their environment, we may all benefit from the experiences of other regions/nations in how they are tackling the problem of poor air quality.

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3. *World Population Prospects: The 2015 Revision*; United Nations. See https://esa.un.org/unpd/wpp/ Download/Standard/Population (accessed February 19, 2017).
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