

# Striving for Clean Air

## Air Pollution and Public Health in South Asia

### Highlights

- South Asia is home to 9 of the world's 10 cities with the worst air pollution, which causes an estimated 2 million premature deaths across the region each year and incurs significant economic costs.
- The report finds that concentrations of fine particulate matter such as soot and small dust (PM<sub>2.5</sub>) in some of the region's most densely populated and poor areas are up to 20 times higher than what WHO considers healthy (5 µg/m<sup>3</sup>).
- Exposure to such extreme air pollution has impacts ranging from stunting and reduced cognitive development in children, to respiratory infections and chronic and debilitating diseases.
- Current policy measures will only be partially successful in reducing PM<sub>2.5</sub> concentrations across South Asia even if fully implemented.
- Air pollution travels long distances— crossing municipal, state, and national boundaries—and gets trapped in large “airsheds” that are shaped by climatology and geography.
- Large industries, powerplants and vehicles are dominant sources of air pollution around the world, but in South Asia, other sources make substantial additional contributions. These include combustion of solid fuels for cooking and heating, emissions from small industries such as brick kilns, burning of municipal and agricultural waste, and human cremation.
- Curbing air pollution requires not only tackling its specific sources, but also close coordination among countries. Regional cooperation can help implement cost-effective joint strategies that leverage the interdependent nature of air quality.
- The report identifies six major airsheds in South Asia where spatial interdependence in air quality is high. Particulate matter in each airshed comes from various sources and locations, for example less than half of the air pollution in South Asia's major cities is produced within cities.
- The report analyzes four scenarios to reduce air pollution with varying degrees of policy implementation and cooperation among countries. The most cost-effective scenario, which calls for full coordination between airsheds, would cut the average exposure of PM<sub>2.5</sub> in South Asia to 30 µg/m<sup>3</sup> at a cost of \$278 million per µg/m<sup>3</sup> of reduced exposure, and save more than 750,000 lives annually.
- The report offers a three-phased roadmap:
  - Phase 1:** Sets the condition for airshed wide coordination by expanding the monitoring of air pollution beyond the big cities, sharing data with the public, creating or strengthening credible scientific institutes that analyze airsheds, and taking a whole-of-government approach.
  - Phase 2:** Abatement interventions are broadened beyond the traditional targets of powerplants, large factories and transportation. During this phase major progress can be made in reducing air pollution from agriculture, solid waste management, cookstoves, brick kilns, and other small firms. At the same time, airshed-wide standards can be introduced.
  - Phase 3:** Economic incentives are finetuned to enable private-sector solutions, to address distributional impacts, and to exploit synergies with climate change policies. In this phase trading of emission permits can also be introduced to optimize abatement across jurisdictions and firms.