Johns Hopkins University is making a big bet to reduce air pollution through better transportation in Delhi

THE DELHI SUSTAINABLE MOBILITY PLAN

Together, we can make significant progress toward reducing greenhouse gas emissions

The Problem

The National Capital Territory of Delhi faces serious mobility challenges. Air pollution, greenhouse gas emissions, and congestion raise questions about the rapidly growing metropolis’s ability to provide its residents with comfortable and safe mobility. Delhi is the sixth city in the world for PM2.5 concentration according to the WHO. Levels of pollution are among the highest in the world even in proportion to its population.

Delhi’s Air Quality Index (AQI) consistently surpasses the safe level of 100, occasionally reaching peaks of 999. Sustained exposure to ambient pollution puts its 28 million residents at serious health risks, increasing their chances of developing various pulmonary and heart diseases.

Vehicle exhaust contributes to 30% of Delhi’s ambient pollution. Traffic levels rank fourth globally: in 2018 on average 58% of travel time is attributable to congestion and those numbers are increasing due to growth in Delhi’s economy and population.

To combat this, the city called for measures to reduce emissions, such as improving its public transportation system, infrastructure and electric vehicle adoption. For this to be successful, the implementation will require a concerted effort and careful planning.

The Proposal

Working with local partners and municipal government, the Alliance for a Healthier World (AHW) will develop a data-driven plan to achieve a sustainable mobility transition in Delhi. Here sustainable mobility includes electric vehicles, public transportation, demand management, and other municipal planning measures that reduce the public health and environmental cost of transportation.
The Delhi Sustainable Mobility Plan (DSMP) consists of the following activities:

- Review global experiences with sustainable mobility
- Collect data on historical and current mobility patterns to inform mobility planning
- Develop a set of scenarios and projections to inform future mobility needs based on cutting-edge models tailored to Delhi
- Using the scenarios and projections, develop and communicate actionable policy recommendations for mobility planning
- Evaluate the air pollution, climate change, and congestion benefits of these policy recommendations using models, air pollution monitors, and congestion measurements

This project is one component of JHU’s Primary Air Care (PAC), a package of interventions to reduce harmful emissions that has come out of a cross-divisional faculty collaboration at Johns Hopkins University through the Alliance for a Healthier World. PAC acts against the sources of emissions to reduce Ambient Air Pollution (AAP) and greenhouse gases. In contrast to other climate change initiatives, PAC focuses on human health outcomes to both reduce the impact on vulnerable populations and promote health equity, and to mobilize action to reduce all emissions through increased awareness and understanding of health impacts.

PAC will support DSMP by isolating and measuring individual emissions sources and particulates and then proposing a comprehensive package of interventions to address each source. Once developed, the PAC Package will provide decision makers and implementers in Delhi, with the data and tools they need to successfully implement strategies to combat ambient air pollution. Rather than focus on a wide variety of strategies that may or may not work, PAC provides teams in Delhi with the information they need to make thoughtful decisions and begin implementation. The Initiative for Sustainable Energy Policy (ISEP) at the Johns Hopkins School of Advanced International Studies will play a coordinating role between Johns Hopkins researchers and local partners leveraging existing relationships in the region.

The project runs for 24 months and can begin at any time during calendar year 2020.

The estimated cost of the project is approximately $300,000-$500,000. Cost items include:

- Faculty and staff salaries and fringe benefits (25%)
- Full-time post-doctoral fellow based in Delhi (25%)
- Junior research fellow based in Delhi (15%)
- Semi-annual workshops with government officials (5%)
- Travel between Johns Hopkins University and Delhi (5%)
- Project management costs (10%)
- Indirect costs (15%)