



## WORLD SUSTAINABLE DEVELOPMENT SUMMIT

BEYOND 2015: PEOPLE, PLANET & PROGRESS

### **Air pollution in India: A Problem with Scalable Solutions**

#### ***Case Studies: Solutions for Delhi and Uttar Pradesh***

October 6, 2016 | 10:00 to 12:00 noon

Hall No.2, Vigyan Bhawan, New Delhi

#### **Background**

Air pollution is a key concern in a developing economy like India. Despite several efforts by the Government of India, more than 80% of Indian cities violate the prescribed standards of air quality. More than 0.6 million people die prematurely in India just due to deteriorated quality of air. More than 30% of wheat is lost in the agricultural fields due to high ground level ozone concentrations in India. Delhi being the capital has remained in limelight due to its alarmingly polluted air in the last few years, while there are several other regions which are equally or polluted in the country. Economic estimates point to a degradation cost of Rs. 1.1 trillion by the outdoor and of Rs 0.9 trillion by the indoor air pollution in India, which is about 3% of the total GDP of the country. Many of these air pollutants like black carbon (which is a constituent of combustion based particulate matter emissions), and ozone (formed at ground level by reactions of precursor pollutants gases like NO<sub>x</sub> and VOCs) also have warming potential, and hence, are known as short lived climate pollutants (SLCPs). World-wide, SLCPs have emerged as a powerful strategy for reducing the projected warming trends from now to mid-century by as much as 50%. While doing so, 4 million annual deaths and billions of dollars of crop damages can be saved globally, while climate benefits remain additional to these.

There is multiplicity of sources which contribute to pool of emissions which eventually deteriorate the quality of air in India. While on one hand, the poverty driven issues of energy access lead to the use of biomass based fuels for cooking purpose, on the other hand, growing aspirations enhanced by limitations in public transport have led to unprecedented growth in number of vehicles in the cities. Growing power demands and dependence on coal also contribute significantly to emissions along with industrial pollution. Improper management of waste-municipal and agricultural is also a key issue which eventually leads to emissions of pollutants, as significant quantities of these wastes are combusted for volume reduction and heating purposes. Other than the emission sources, meteorology plays its role in defining the air pollutant concentrations. In India, the Indo-Gangetic Plain show the highest pollutant concentrations due to the presence of high intensity emission sources and adverse meteorological conditions, specifically in winters. It is in this scenario, it becomes very important to understand the chemistry and transport of pollutants to identify measures for effective and optimal control of pollution.

#### **The proposed action**

While there are many global efforts in assessing the issue, in India, there are limited initiatives for studying the effect of possible measures on air quality improvement in densely polluted regions in India. This project aims to develop a white paper based on simulation studies to assess different options which can reduce air pollution in a

city like Delhi and also in the whole Indo-Gangetic Plain (especially Uttar Pradesh). The simulations will be carried out using state-of-the-art regional scale air quality models (CMAQ) using emission inventories at a resolution of 4x4 km for Delhi and 36x36 for the Indo-Gangetic Plain. Simulations will also test the effectiveness of different interventions in bringing air quality benefits to the region. Accordingly a list of possible options that can be recommended for reduction of air pollutants will be prepared.

### **Thematic Event**

The findings of the draft white-paper will be deliberated in a workshop which is being planned as a thematic event in the World Sustainable Development Summit being organized by TERI during 6<sup>th</sup> October 2016. The workshop will bring together policy makers; air pollution and climate science experts; civil society; business and financial institutions; and the media to highlight the importance of air pollutant reduction and their associated benefits related to human health, agriculture and climate. The workshop aims to target interventions in different sectors such as residential cooking and transport to reduce their contributions to the pollutant concentrations. It proposes to evolve a framework for the integrated role of science, policy, business and civil society for addressing air pollution concerns and indicate a pathway for emission reduction from different sectors.

### **The broad objectives are as follows:**

Objective 1: How can we catalyze scientific research to mitigate PM and ozone precursor emissions from different contributing sectors? Which are the key strategies that can work in reducing pollution in Indian cities and other highly polluted regions?

Objective 2: What will encourage the policy makers to set time bound targets for air pollution mitigation?

Objective 3: What factors impede the focus on mitigation strategies for emissions from different sectors and how do we jointly address them?

Objective 4: What should be the immediate role of science, policy, business, financial institutions and advocacy groups and what will drive their collaborated action?

### **Contact Us:**

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