Addressing Urban Air Quality:
the Case of Industry in India

12 December 2019
9:00-10:30
Chile Pavilion
Urban Air Quality Case Study Series

**Case Studies in Improving Urban Air Quality**

**2019**

**TORONTO**

Removing coal from electricity generation reduced sulfur dioxide emissions by 56% from 2005 to 2014 and helped to mitigate the pollution problems in the city.

**BERLIN**

1990-2012 share of natural gas in city's primary energy grew from 17% to 41% resulting in reductions in SOx, NOx, and PM10 by 95%, 76%, and 83% from 1989 levels.

**ISTANBUL**

Banning lignite coal and gradually replacing it with natural gas for residential heating resulted in reduction of PM concentration levels by 50% and SOx by 98% (from 220 µg/m³ to 5) in under a decade.

**MORBI, INDIA**

Coal to gas conversion program supported by the government of India and companies resulted in 80-90% reduction in

**LONDON, UK**

**BOGOTÁ, COLOMBIA**
2.1 **CASE STUDY: MORBI**

Moving Industry from Coal to Gas to Rapidly Improve Air Quality
India’s War on Pollution

1.24 million people died from air pollution in India in 2017

= 12.5% of all deaths that year

War Against Pollution: declared by the government in January, 2019

National Clean Air Program: plans to reduce PM10 and PM2.5 by 20-30% from 2017 levels in 102 cities, by 2024

A Gas-Based Economy: commitment to more than double the share of natural gas in energy mix - from 6% to 15% by 2022

City Gas Distribution (CGD) network extension planned to connect 70% of India’s population, from current ~ 20% (per 2014)
The Morbi Industry Gas Switch

- Major global ceramics manufacturing hub
- In March, 2019 National Green Tribunal ordered immediate closure of all coal gasifiers in the ceramic units, for environmental violations

Natural Gas Consumption After NGT Order

- 75% ↓ PM$_{2.5}$
- 72% ↓ PM$_{10}$
- 85% ↓ SO$_2$

Sources: Hon. NGT Committee, “Report on technological & environmental issues related to coal gasifier in ceramic industries of Morbi-Wankaner area, Gujarat”; GPCB Monitoring Data
### Other Environmental Benefits

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Total Consumption in area</th>
<th>Positive impacts due to use of NG as a fuel</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reduction in coal consumption</strong></td>
<td>900 MT/Day</td>
<td>Reduced truck movement - less vehicular emission, prevention of fugitive emission due to storage and handling of the coal</td>
</tr>
<tr>
<td><strong>Tarry waste</strong></td>
<td>900 MT/Day</td>
<td>No generation of Tarry waste now so no transportation and disposal</td>
</tr>
<tr>
<td><strong>Wastewater management</strong></td>
<td>3150 KL/Day</td>
<td>No wastewater generation now due to use of NG as a fuel so no energy utilization for disposal of wastewater</td>
</tr>
<tr>
<td><strong>Water Consumption</strong></td>
<td>2250 KL/Day</td>
<td>Reduced Consumption of fresh water which can cater to the town of @16,000 Population</td>
</tr>
<tr>
<td><strong>Improved public perception</strong></td>
<td>Low smog conditions, improved water sources, etc</td>
<td>Image of the industry in the public has improved due to improved ambient air quality and cleanliness in the area.</td>
</tr>
</tbody>
</table>

Source: GPCB, Case Summary, 2019
Lessons: Policy Matters

Gracias!