

## **Our Home IS burning: Extinguish the flames or add oil to it, is completely our choice!**

**Author:** Mahak Agrawal

### **Biography:**

Mahak Agrawal is an urban planner, researcher from India. Currently working on the issue of sanitation deprivation and climate change response across coastal districts of India, she has served as an expert reviewer to the Second Order Draft of the IPCC Special Report on Climate Change and Land.

She is also a Local Pathways Fellow to the United Nations Sustainable Development Solution Network (UN-SDSN). In different capacities, she has worked with non-profit organisations, development banks, universities and research institutes, as well as technical divisions of government-at the Centre and city level in India. Next to her contribution to the United for Smart Sustainable Cities (U4SSC) initiative, Mahak explores innovative, enduring research-guided solutions for pressing urban and regional environmental problems. She is specifically interested in climate change and urban studies investigating multi-track approach and inequalities of adaptations and transformations, development and geography, associated global challenges and human geography.

An advocate of open data for effective urban management, monitoring and response, she often provides thought leadership to the Young Academic Network of the Association of European Schools of Planning (AESOP) and the South Asia Centre at London School of Economics. In 2017, she was awarded the Prof. V.N. Prasad Best Thesis Award for best thesis in Master of Planning in India.

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Prime Minister of India Sh. Narendra Modi, at the COP 21, Paris, 2015 [Source: The Guardian (2016)]

India emerged as one of the leading nations with the Paris Agreement signed in 2015. Submitting its first Intended Nationally Determined Contribution (INDC), on 2 October 2016, government at the Centre aims to (Government of India, 2015):

- Reduce the emissions intensity of GDP by 33% – 35% by 2030 below 2005 levels
- Increase the share of non-fossil fuel based energy resources to 40% of installed electric power capacity by 2030, with help of transfer of technology and low cost international finance including from Green Climate Fund (GCF)
- Create an additional (cumulative) carbon sink of 2.5–3 GtCO<sub>2</sub>e through additional forest and tree cover by 2030

The first kink in the chain of climate action in India is that it fails to specify coverage and metrics of the emissions intensity target in its INDC. The second kink is lack of coherent action and monitoring between different ministries working in different capacities to achieve targets marked with India’s INDC. Third kink, which could have a domino effect to entire efforts and financial resources put together at the Centre, is limited or complete absence of climate action at urban level- a level which is rapidly expanding spatially and numerically and is the contributor of over half of country’s emissions.

Great proposals, policies and programmes are being formulated at the Centre, and some states are taking action as well, but at city level, efforts remain minimal. Urban planners and their efforts to climate action remain silent. Plan documents, often a master plan or comprehensive plan or a strategic plan, fail to even acknowledge the global phenomenon. Majority of documents do not even mention the word climate in their notified document.

### Missing Link – Holistic actions at City level

There exists a relationship between GHG emissions and urban centre’s population, location, area and extent, as hypothesized and proved in the last such study which dates back to the year 2011 but notes data from the year 2000. In the Indian context, only a few studies have been conducted to establish the relationship or dig deeper into the issue. Plethora of documentations can be accessed on pollution, deforestation, land use- land cover change or climate variability. But only a few of them look at multiple dimensions and relations that exist between cities and climate change.

One such effort includes a study published in 2011 examining patterns of greenhouse gas emissions from urban centres in India. The study is based on Emission Dataset for Global Atmospheric Research (EDGAR) for estimating urban share of national GHG emissions. The dependent variables of the research include emissions from 14 source activities, which includes agriculture soil, agriculture wastes, aviation, energy, fossil fuel fires, fugitive escapes from solids, industry, livestock, navigation, non-road transport, oil and gas production, residential, road transport and waste. It indicates that urban centres in India have a close relationship with urban population (as indicated in Table 1) as well as its size, location and extent (as indicated in Table 2).

Table1: Relationship between urban population and emissions in India, 2000

Urban Population	GHG emissions (million tonnesCO <sub>2</sub> eq.)	% of total GHG emissions	% of total population
50,000-1,00,000	21.6	5.4	10.7
1,00,000-5,00,000	155.1	<b>39.1</b>	<b>24.7</b>
5,00,000- 1 million	18.7	4.7	9.7
1-5 million	92.8	<b>23.4</b>	<b>24.4</b>
5-10 million	34.2	8.6	8.7
>10 million	74.4	<b>18.7</b>	<b>21.7</b>
<b>All Urban</b>	<b>397.1</b>	<b>100</b>	<b>100</b>

Source: [Albretch et al \(2011\)](#)

The study notes that although small and medium towns are the largest emitters of greenhouse gas emissions in India, the problem is much severe for mega cities since only 53 cities out of 7,935 urban centres account for more than 18 per cent of country's total emissions.

Table 2: Relationship between urban extent and emissions in India, 2000

Urban extent (in sqkm)	GHG emissions (million tonnesCO <sub>2</sub> eq.)	% of total GHG emissions	% of total population
Small (<54.78)	3	0.8	3.7
Medium-small (54.78-119.74)	38.1	9.6	13.4
Medium-large (119.74-302.20)	76.4	19.2	17.8
Large (>302.21)	279.5	70.4	65.2
<b>All Urban</b>	<b>397.1</b>	<b>100</b>	<b>100</b>

Source: [Albretch et al \(2011\)](#)

Comparing the emissions with urban extent, the study indicates that despite the small number of mega cities, their location and extent, have a major role to play in determining share of total greenhouse gas emissions. Thus, mega cities are the biggest culprit when it comes to producers of climate change (as illustrated in Fig. 1 wherein top 25 emitters in the country are visualised against their share of urban population). These also happen to be largest hotspots of climate risks, as they inhabit larger share of total urban population. To sum it up, amongst Indian cities and climate change, cohort of mega cities are largest emitters, with the capital city of India- National Capital Territory of Delhi being the prime offender.

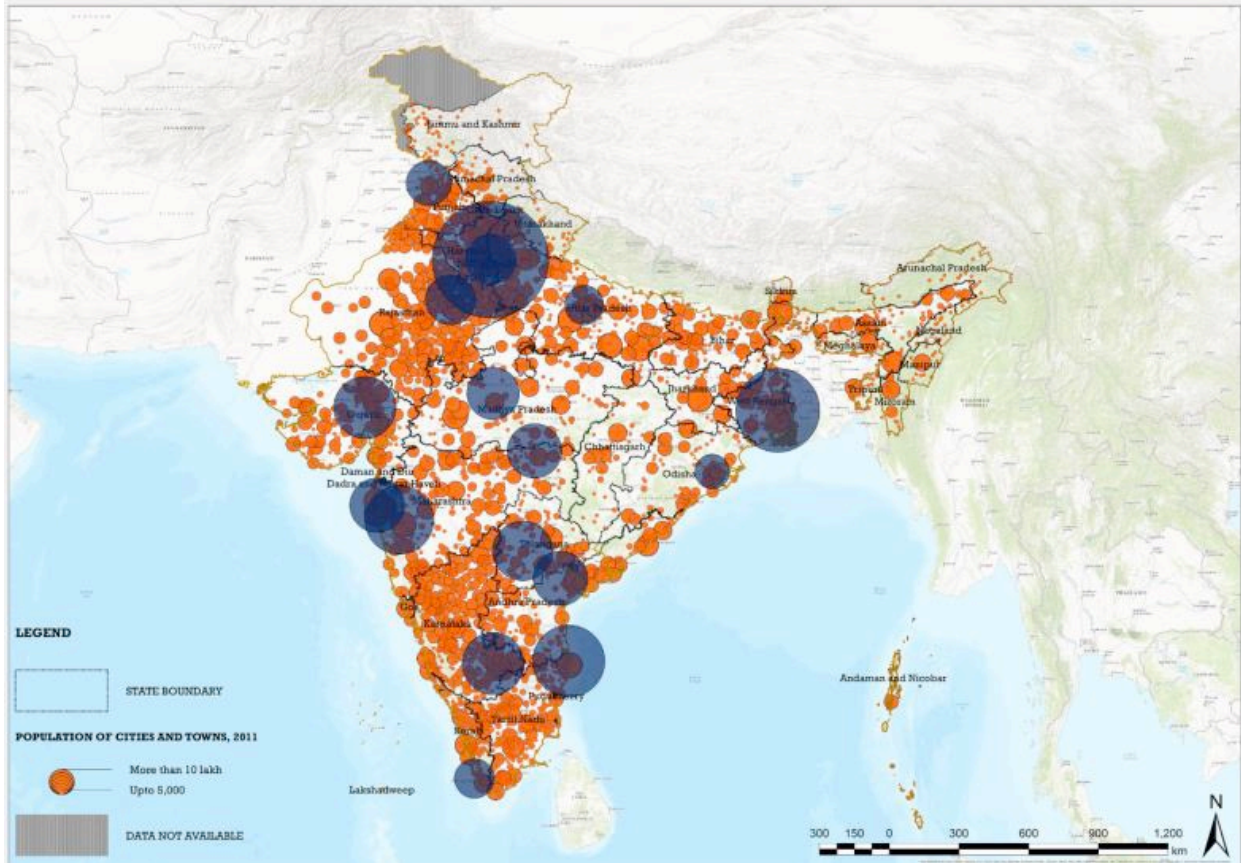


Fig. 1: Urban GHG emissions in India from top 25 emitters since 2000  
 Illustrations by Author (2017) from (Albrecht, et al., 2011)

India has around 8,000 urban centres, while only 120 of them have a development plan of some sort, meaning not all of these plans are statutory or meant for implementation. In an assessment by the author of the 120 master plans, city development plans, smart city plans, and such others, it is construed that no plan acknowledges climate change as a phenomenon, let alone a challenge to urban development and sustenance. It is further accentuated by limited scope of climate knowledge in urban planning, restricted to implicit focus on mass transit, environment protection or curbing and management of air pollution and emissions. It can be noted that even the Master Plan of Delhi, which is believed to have been a guiding document for several other cities, fails to mention climate or climate change in the city, let alone identify it as a challenge to urban development.