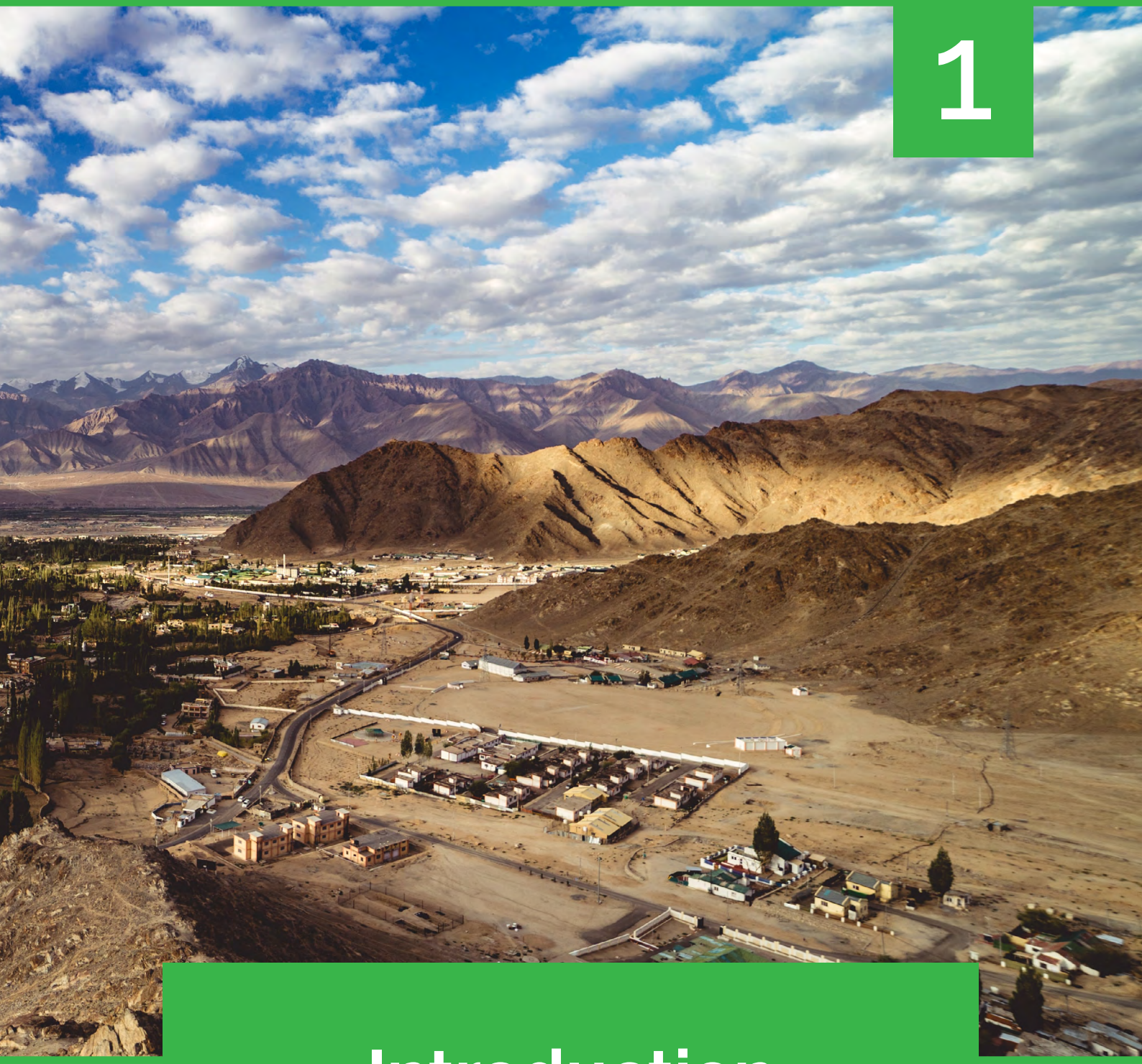
Credits:

Aerial view of Leh city
by Ashwini Chaudhary, 2018

1



Introduction

Introduction

India has been one of the fastest growing economies in the world as per the World Economic Outlook in 2020[1] and 2021[2]. Much of this growth has been driven by cities and towns. In 2011, India's urban centres constituted approximately 31% of the total population, contributing to 63% of the national GDP[3], and are projected to accommodate close to 40%[4] of the total population, contributing to 75%[5] of the national GDP very soon. An analysis of urban GDP growth to 2035 found 17 out of 20 the fastest-growing cities in the world would be in India.[6] As cities continue to fuel India's economic growth and remain centres for development, they also face challenges with respect to physical infrastructure, institutions, health and environmental degradation. Studies indicate that poor planning and urban management are expected to cost Indian cities somewhere between $2.6 and $13 billion annually.[7]

With a vision to provide a better quality of life for citizens through sustainable and inclusive development, and cater to the $5 trillion economy by 2025, the Ministry launched 6 key urban missions[8], including the Smart Cities Mission, in 2014. Through these missions, during 2014-2019, Government of India has allocated more than $30 billion[9] towards integrated and comprehensive development of cities and implementing several initiatives for promotion of sustainable transport, reduce air pollution, generation of renewable energy, scientific waste management, smart water and wastewater management. In addition, the recently launched Jal Jeevan Mission (urban) and the National Urban Digital Mission focus on universal coverage of water supply, sewage management and digital infrastructure for improved urban governance.

However, these investments and development goals would be severely affected unless cities address the impacts of climate variability and environmental changes manifesting in the increasing instances of extreme events such as floods, heat waves and droughts, cyclones and storm surges, among others. The recently released Global Climate Risk Index 2021 ranks India as the 7th most affected country from climate related extreme weather events (storms, floods, heatwaves etc.) based on the recorded data for loss and damage during 2000-2019 in terms of fatalities per 100,000 inhabitants and losses per unit GDP in percentage.[10] As hubs of population, infrastructure and economic activities, cities have been most impacted by extreme events which are expected to increase in frequency and intensity with the changing climate.

---

1 International Monetary Fund (IMF), 2020. World economic outlook. [Online]
Available at: https://www.imf.org/en/Publications/WEO/Issues/2020/09/30/world-economic-outlook-october-2020 [Accessed March 2021].

2. International Monetary Fund (IMF), 2021. World economic outlook update. [Online]
Available at: https://www.imf.org/en/Publications/WEO/Issues/2021/01/26/2021-world-economic-outlook-update [Accessed March 2021].

3. Ministry of Housing and Urban Affairs, Govt of India, 2015. Smart Cities: Mission Statement and Guidelines. [Online] Available at: https://smartcities.gov.in/themes/habikon/files/SmartCityGuidelines.pdf [Accessed March 2021].

4. Department of Economic and Social Affairs, United Nations, 2018. World Urbanization Prospects 2018. [Online] Available at: https://population.un.org/wup/Country-Profiles/ [Accessed March 2021].

5. Ministry of Housing and Urban Affairs, Govt of India, 2015. Smart Cities: Mission Statement and Guidelines. [Online] Available at: https://smartcities.gov.in/themes/habikon/files/SmartCityGuidelines.pdf [Accessed March 2021].

6. Oxford Econonics, 2018. Global Cities: The Future of the World's Leading Urban Economies to 2035

7. Mani, M. et al., 2018. South Asia's Hotspots: The Impact of Temperature and Precipitation Changes on Living Standards, Washington D.C.: World Bank Group.

8. Smart Cities Mission, Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Pradhan Mantri Awas Yojana (PMAY-U), Swachh Bharat Mission (SBM-U), National Heritage City Development and Augmentation Yojana (HRIDAY), National Urban Livelihood Mission (NULM)

9. Ministry of Housing and Urban Affairs, Govt of India, 2019. Transforming Urban Landscape 2014-19. [Online]
Available at: http://mohua.gov.in/upload/5c7faf00eac57UT%20Book1.pdf [Accessed March 2021].

10. Eckstein, D., Kunzel, V. & Schafer, L., 2021. Global Climate Risk Index 2021, s.l.: Germanwatch e.V.

Shri Kunal Kumar
Joint Secretary & Mission Director (SCM)
Ministry of Housing & Urban Affairs

"The Smart Cities Mission of Government of India focuses on sustainable, people-centric and climate resilient approach to urban development driven by innovation, digital governance and partnerships. The ClimateSmart Cities Assessment Framework is an initiative launched to support cities in assessing their development from a climate lens and further inform data driven decision making while designing their future plans and programs. The framework was developed after an extensive review of existing frameworks and assessment approaches adopted across the world followed by series of consultations with national and international organizations and experts. This report is an outcome of a gigantic cross-sectoral and multi-stakeholder effort to understand where we stand and how we can proceed towards building better climate action in cities."

Overview of Urban India

$2.94
Trillion
World's 5th largest economy
(nominal GDP) (IMF, 2019)

3rd
Rank
World Ranking in start-up ecosystem
(Economic Survey, 2018-19)

135
Crore in 2019
World's 2nd largest population
(IMF, 2019)

81%
Workers in informal economy
(ILO, 2018)

27,668
Number of registered start-ups
(StartupIndia website, 2020)

56.6
Crores
Internet users in India
(2018)

4400+
CITIES AND TOWNS
(Census 2011)

53
CITIES WITH MILLION+ POPULATION
(Census 2011)

60
Crore
people will be living in India's cities by 2031 (The Global Commission on the Economy and Climate, 2014)

Dr. Antje C. Berger
Councillor, Climate & Environment, Embassy of the Federal Republic of Germany in India

"Germany applauds India for its leadership in making cities more climate-friendly and more resilient and the current pandemic has shown us how important that is. We are committed to continue supporting India's Urban Missions and its efforts to find green and sustainable solutions for rapidly growing Indian cities for the benefit of the people, nature and climate."

Shri Hitesh Vaidya
Director
National Institute of Urban Affairs

> Initiating and sustaining cohesive climate action in urban India requires intensive capacity building of cities, robust research, innovation and knowledge sharing to leverage the available skills and resources towards meeting these goals.
>
> Results from this assessment will help not only mainstream climate actions at local level but also create action plans and capacities to address climate challenges and strive towards low carbon cities. NIUA established the Climate Centre for Cities (C-Cube) with support from MoHUA in 2020. As cities starts striving towards climate actions, we will establish and foster partnerships with cities to develop tools, templates, trainings, technologies to build local capacities to address challenges on a sustainable basis in the Indian context.

The frequency and severity of disasters have increased considerably in the country. In 2019, we experienced the highest rainfall since 1994 and the severe heatwave that swept the country put 10 Indian cities among the world's hottest places[11]. Between June and October 2020, the eastern coast of India experienced severe impacts from cyclone Amphan and extreme rainfall, and at least 10 million-plus cities were severely impacted[12] . Further, 43 smart cities in India are facing poor air quality that poses serious health concerns. Additionally, the CoVID-19 pandemic has severely impacted cities and highlighted the need for strengthening local capacities to address climate, environmental and public health risks.

Cities are also critical from a climate mitigation point-of-view as 70-80% of greenhouse gas emissions globally come from cities. As of 2017, India is the 3rd largest emitter of GHG emissions in the world.[13] While our per capita emissions are much lower - less than half - as compared to the global average, it is estimated that climate change will have an impact on Indian economy if emissions continue at their current rates[14]. India's Nationally Determined Contributions (NDCs), formulated in response to the Paris Climate Agreement, identify cities as one of the key sub-national actors and include commitments towards increasing energy efficiency of the buildings sector, developing climate resilient cities, emission reduction from the waste sector and developing sustainable transportation systems. The latest report from the Coalition for Urban Transitions (2021) projects substantial emission reduction potential in India's cities. It estimates that a set of proven low-carbon measures could reduce urban emissions from buildings, transport, waste and materials for infrastructure by 89% in 2050, saving 1,784 Mt CO_2e relative to a baseline scenario[15]. To that end, number of cities including Pune, Chennai, Indore, Surat, Coimbatore, Kochi, Gorakhpur, Bhubaneshwar, Guwahati and Shimla have been formulating and implementing urban climate actions[16]. However, there is a need to scale up and create a road map for cities to achieve various national and international targets and commitments while planning and implementing their local development agenda and urban infrastructure investments (ibid).

To build climate actions in cities, the Climate Centre for Cities (C-Cube) was established by Ministry of Housing and Urban Affairs (MoHUA), Government of India within the National Institute of Urban Affairs (NIUA). C-Cube is intended to support capacity building and knowledge retention for mainstreaming climate change action across urban India. C-Cube's work focuses on six key verticals – P4 Support; Research and knowledge Management; Technology, Data Solutions and Innovation; Capacity Building; Advocacy and Communication; and Partnerships.

Since its inception, the Centre has also set up the ClimateSmart Cities Alliance, which is a multi-stakeholder group of institutions and partners to support mainstreaming of climate actions across Indian cities. As of January, 2021, the Alliance has 50+ partner organizations including international agencies and networks, donors, (I)NGOs, private sector organizations, rating agencies, incubators, data and technology firms.

11. Bhattacharya, B., 2020. Is extreme heat making India unlivable?. Livemint, 26 Sep [Online] Available at: https://www.livemint.com/mint-lounge/features/is-extreme-heat-making-india-unlivable-11601034638011.html [Accessed March 2021].
12. Thakkar, H., 2020. Where's the roadmap to prevent the next Hyderabad-like flood?, Citizen Matters. 28 Oct [Online] Available at: https://citizenmatters.in/preventing-urban-floods-the-real-problem-and-solution-22015 [Accessed March 2021].
13. Sethi, M., 2015. Decoding Urban India's Carbon Footprint: Spatial Numerical Mapping of Thermal Energy Emissions. JSTOR, 10 May, 108(No. 9), pp. 1616-1623.
14. Ricke, K., Drouet, L., Caldeira, K. & Tavoni, M., 2018. Country-level social cost of carbon. Nature Climate Change, Volume 8, p. 895–900
15. Coalition of Urban Transitions, 2021. Siezing the Urban Opportunity. [Online] Available at: https://urbantransitions.global/wp-content/uploads/2021/03/Seizing_the_Urban_Opportunity_WEB-1.pdf [Accessed March 2021].
16. NIUA and TERI, 2020. Mainstreaming Urban Resilience: Lessons from Indian cities. Policy Brief, New Delhi

Overview of Climate Impact on India

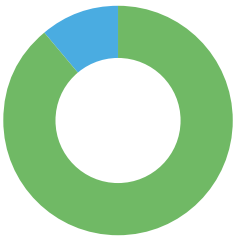
7th most affected country on Global Climate Risk Index (in 2019)

2.8% of the GDP could be the Climate Change cost for India as per The World Bank (2018)

70% GHG emissions from cities

21 major cities in India including Delhi, Bengaluru, Chennai, and Hyderabad heading towards zero groundwater levels, affecting access for 100 million people (2020)

18 Smart Cities and 124 AMRUT Cities prone to high risk of flooding



89% emission reduction potential through low-carbon measures in Indian cities by 2050