

An aerial view of a densely populated city, likely in South Asia, with a prominent mosque minaret in the foreground on the left. The city is characterized by numerous small, multi-story buildings and a hazy atmosphere. The right side of the image is a solid black background with white and orange text.


# Planning for **Children** amid a Warming World

Findings from a Review of Climate  
Action Plans of the Predicted Ten  
Most Populous Cities in 2100

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# The predicted 10 most populous cities in 2100 are **entirely in the Global South**.<sup>1</sup>

Their populations are predicted to grow by a median of 350% between 2022 to 2100.

Cities	2022 Population	Predicted 2100 Population
 Cape Town, South Africa	4.8 M	
<b>1</b> Lagos, Nigeria	15.3 M	88.3 M
<b>2</b> Kinshasa, DR Congo	15.6 M	83.5 M
<b>3</b> Dar es Salaam, Tanzania	7.5 M	73.7 M
<b>4</b> Mumbai, India	20.9 M	67.2 M
<b>5</b> Delhi, India	32 M	57.3 M
<b>6</b> Khartoum, Sudan	6.2 M	56.6 M
<b>7</b> Niamey, Niger	1.4 M	56.1 M
<b>8</b> Dhaka, Bangladesh	22.4 M	54.2 M
<b>9</b> Kolkata, India	15.1 M	52.4 M
<b>10</b> Kabul, Afghanistan	4.4 M	50.3 M



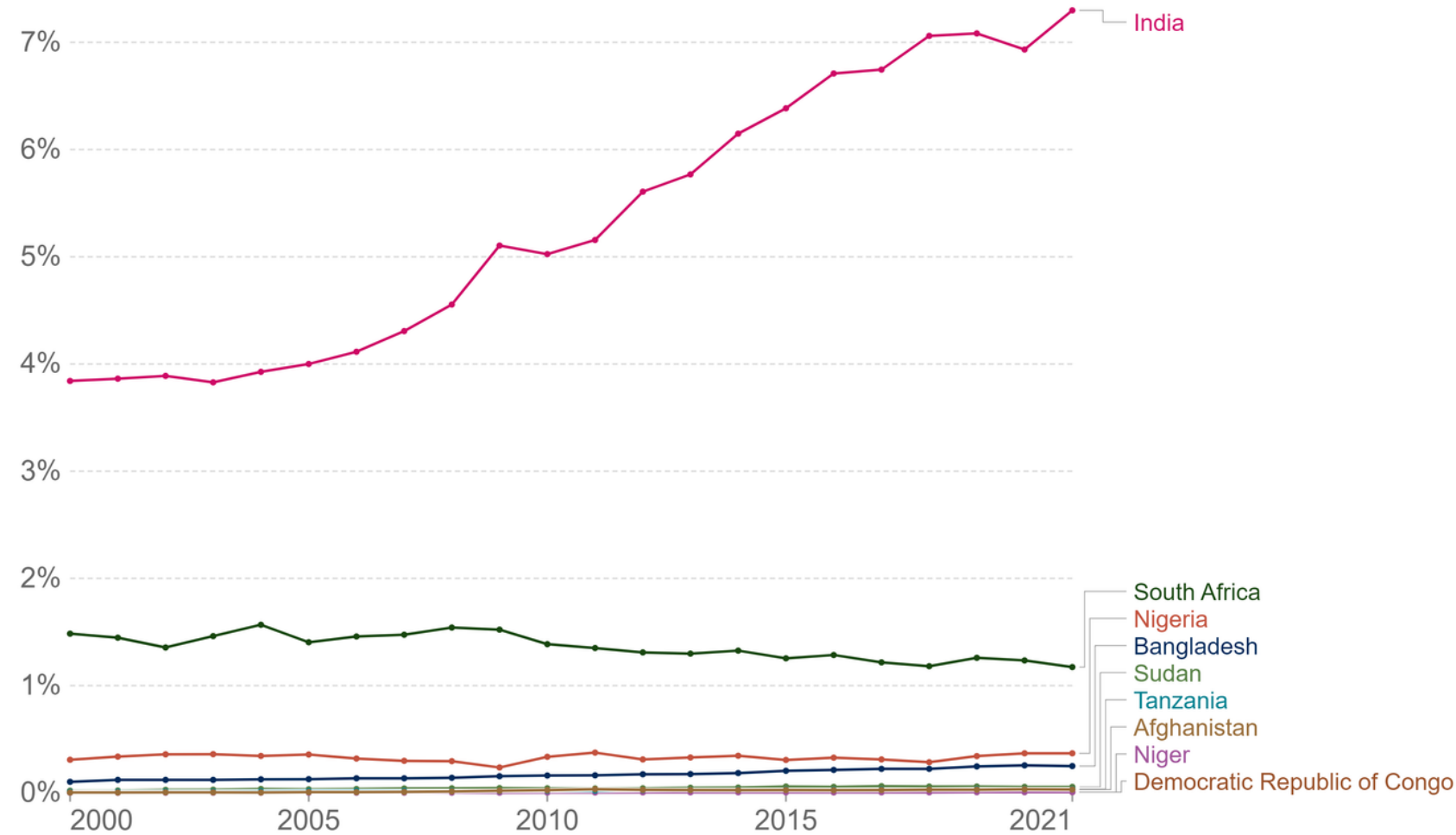
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# Climate change is a particular threat to these cities, despite their respective countries contributing **less than 10% of the share of worldwide CO<sub>2</sub> emissions** combined.

## Annual share of global CO<sub>2</sub> emissions

Carbon dioxide (CO<sub>2</sub>) emissions from fossil fuels and industry<sup>1</sup>. Land use change is not included.

Our World in Data



Source: Our World in Data based on the Global Carbon Project (2022)

OurWorldInData.org/co2-and-greenhouse-gas-emissions • CC BY

<sup>1</sup> **Fossil emissions:** Fossil emissions measure the quantity of carbon dioxide (CO<sub>2</sub>) emitted from the burning of fossil fuels, and directly from industrial processes such as cement and steel production. Fossil CO<sub>2</sub> includes emissions from coal, oil, gas, flaring, cement, steel, and other industrial processes. Fossil emissions do not include land use change, deforestation, soils, or vegetation.

## Climate Vulnerability Score\*<sub>2</sub> 0 (least vulnerable) - 100 (most vulnerable)

Median score for respective countries	Median score for all other countries	South Africa Vulnerability Score
<b>56</b>	<b>43</b>	<b>41</b>

\*Vulnerability score measures a country's exposure, sensitivity, and capacity to adapt to the negative effects of climate change by considering 6 life-supporting sectors: food, water, health, ecosystem service, human habitat, and infrastructure.

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High fertility rates mean **children** will make up a **growing share** of the population.

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**Fertility Rate**  
(births per woman, 2020 median)<sub>3</sub>

**4.6 children** (South Africa - 2.4)<sub>4</sub>



**Share of Population Under Age 14**  
(2020 median)

**42%** (South Africa - **28.7%**)<sub>4</sub>



How are the world's fastest growing cities meeting the needs of **their youngest residents** in adapting to climate change?

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8

Cities with a **Climate Action Plan** or equivalent

7

Cities which acknowledge their home country is part of **Paris Agreement**

4

**C40 cities** with a Paris Climate Agreement Compatible Climate Action Plan

3

Cities with no Climate Action Plan, but whose **home country** has a climate risk mitigation plan



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# Emergent Theme 1

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**8** plans acknowledge **children** as a vulnerable population with distinct health and quality of life concerns.<sup>5,6</sup>



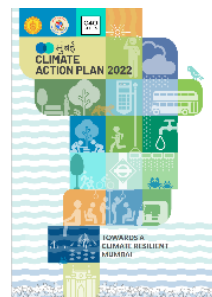
**Niger's National Climate Adaptation Plan** lists priority actions across five sectors for vulnerable populations, including children.

pg. 209 - *“Planning that includes women, the elderly, people with disabilities, and **young people** . . . is highly recommended to improve implementation of the options and actions in this plan . . . It will allow significant reduction of vulnerabilities and considerably increase the resilience of these populations.”*<sup>7</sup>

# Emergent Theme 1

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**Mumbai's Climate Adaptation Plan** lists sector-specific inclusive benefits, noting how each action item will avail women and children.

Pg. 151 - E.g. Inclusive Benefits for Urban Greening & Biodiversity Sector - *"Increasing per capita green cover would increase accessibility to open spaces, especially for women, **children** and the elderly, thereby improving health and livability."*



**Clean cooking** or **heat wave relief** are mentioned in 9 plans as ways to reduce the effects of pollution and climate change on **vulnerable populations**.<sup>8</sup>



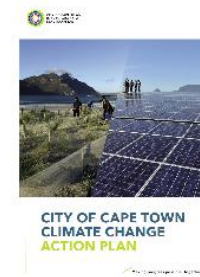
**Dar es Salaam Climate Action Plan:** Emphasis on Clean Cooking

Pg. 60 - "Charcoal demand has nearly doubled over the past ten years . . . carbon monoxide (CO) and particulate matter (PM) produced from traditional cooking practices can result in serious respiratory illnesses, *specifically among women and children.*"

Emergent  
Theme 2

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**Clean cooking** or **heat wave relief** are mentioned in 9 plans as ways to reduce the effects of pollution and climate change on **vulnerable populations**.<sup>8</sup>



**Cape Town Climate Change Action plan:** Section on Spatial and Resource Inclusivity

Pg. 55 - *“The spatial legacy of apartheid has positioned many communities, largely poor Capetonians, far from amenities and opportunities. Increased urbanisation has perpetuated this pattern, with the in-migrant poor settling informally in marginal locations, which are especially vulnerable to the impacts of climate change such as extreme heat and flooding.”*

Emergent  
Theme 2

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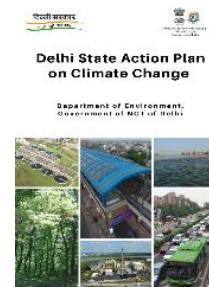
## Emergent Theme 3

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All 11 plans call for infrastructure projects to increase access to **clean water** and **public sanitation**, both of which have clear benefits for **children**.<sup>9</sup>

Even if children are not explicitly mentioned as beneficiaries, **reliable public infrastructure** in urban areas is essential to a child's quality of life. Access to clean water and public sanitation are **especially necessary in urban informal settlements and slums**, which 8 plans target for improvement.<sup>10</sup>

All 11 plans call for infrastructure projects to increase access to **clean water** and **public sanitation**, both of which have clear benefits for **children**.



**Delhi Action Plan on Climate Change:** pg. 189-190 - "... *informal settlements* in Delhi are most exposed to *poor drainage systems*. . . . Populations living in such settlements are also largely socially and economically disadvantaged and therefore cannot seek to augment or improve their water supply through bureaucratic lobbying."

# Emergent Theme 3

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# Notable Plan Partners

## C40 CITIES

A network of mayors of nearly 100 world-leading cities collaborating to deliver the urgent action needed right now to confront the climate crisis



Sustainable Energy Africa (SEA) promotes equitable, low carbon, clean energy development in urban South Africa and Africa.



ICLEI builds connections across local, regional, national and global actors and policies, creating systems change and developing integrated solutions along five interconnected development pathways that transform urban areas.



UNDP is the United Nations' lead agency on international development, supporting countries and communities as they work to eradicate poverty, implement the Paris Agreement on climate change and achieve the Sustainable Development Goals..



The Global Environment Fund: Least Developed Countries Fund helps recipient countries address their short-, medium-, and long-term resilience needs and reduce climate change vulnerability in priority sectors and ecosystems.



World Resources India works closely with leaders to turn big ideas into action at the nexus of environment, economic opportunity and human well-being, with two critical lenses – Urban Development and Climate.

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# Plan Links

## City Plans Reviewed

Cape Town, South Africa - [Cape Town Climate Action Plan](#)

Lagos, Nigeria - [Lagos Climate Action Plan Second 5 Year Plan 2020-2025](#)

Mumbai, India - [Mumbai Climate Action Plan 2022](#)

Kinshasa, Democratic Republic of Congo - [Kin Elenda Project](#) - [Project Information Document](#)

Delhi, India - [Delhi State Action Plan on Climate Change](#)

Khartoum, Sudan - [Khartoum Disaster Risk Reduction Action Plan](#)

Kolkata, India - [Roadmap for Low Carbon & Climate Resilient Kolkata](#)

Dar es Salaam, Nigeria - [Dar Es Salaam Climate Action Plan](#)

## Country Plans Reviewed

Bangladesh (Dhaka) - [National Adaptation Plan of Bangladesh \(2023-2050\)](#)

Afghanistan (Kabul) - [Climate Change & Governance in Afghanistan \(2015\)](#)

Niger (Niamey) - [Plan National D'Adaptation Aux Changement Climatiques](#)

# Endnotes

<sup>1</sup> Hoornweg, Daniel and Kevin Pope (2017), "Population predictions of the world's largest cities in the 21st century", Environment and Urbanization Vol 29, No 1, pages 195-216

<sup>2</sup> Chen C, Noble I, J C, M M, N C. University of Notre Dame Global Adaptation Index Country Index Technical Report Notre Dame Adaption Initiative; 2015. Accessed February 21, 2023. [https://gain.nd.edu/assets/254377/nd\\_gain\\_technical\\_document\\_2015.pdf](https://gain.nd.edu/assets/254377/nd_gain_technical_document_2015.pdf)

<sup>3</sup> Total fertility rate represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with age-specific fertility rates of the specified year.

<sup>4</sup> World Bank. "Fertility Rate, Total; Population ages 0-14 (% of total population)" World Development Indicators, The World Bank Group, 2020, URL. Accessed 23 - February - 2023.

<sup>5</sup> Article 24, part (c) of the UN Convention on the Rights of the Child says that "To combat disease and malnutrition . . . through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution;"

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<sup>6</sup> 5 city plans (including Cape Town), 3 country plans

<sup>7</sup> Translated from French

<sup>8</sup> 4 city plans mention heat wave relief and clean cooking, 2 city plans mention only heat wave relief, all 3 country plans mention heat wave relief

<sup>9</sup> Dhaka, Bangladesh only mentioned infrastructure development in the context of before, during, and after a natural disaster.

<sup>10</sup> Cape Town, Dar es Salaam, Delhi, Bangladesh (Dhaka), DR Congo (Kinshasa), Kolkata, Lagos, Mumbai

# Appendix: Plan Review Process

## Search Terms Used:

- Began with terms from a Harvard US Climate Change Plan Review. Terms focused on education and early childhood development.
- Added the following terms:
  - Girls
  - Children
  - Equity
  - Justice
  - Vulnerable
  - Births
  - Youth development
  - Inclusive
  - Gender
  - Cooking
  - Heat wave