

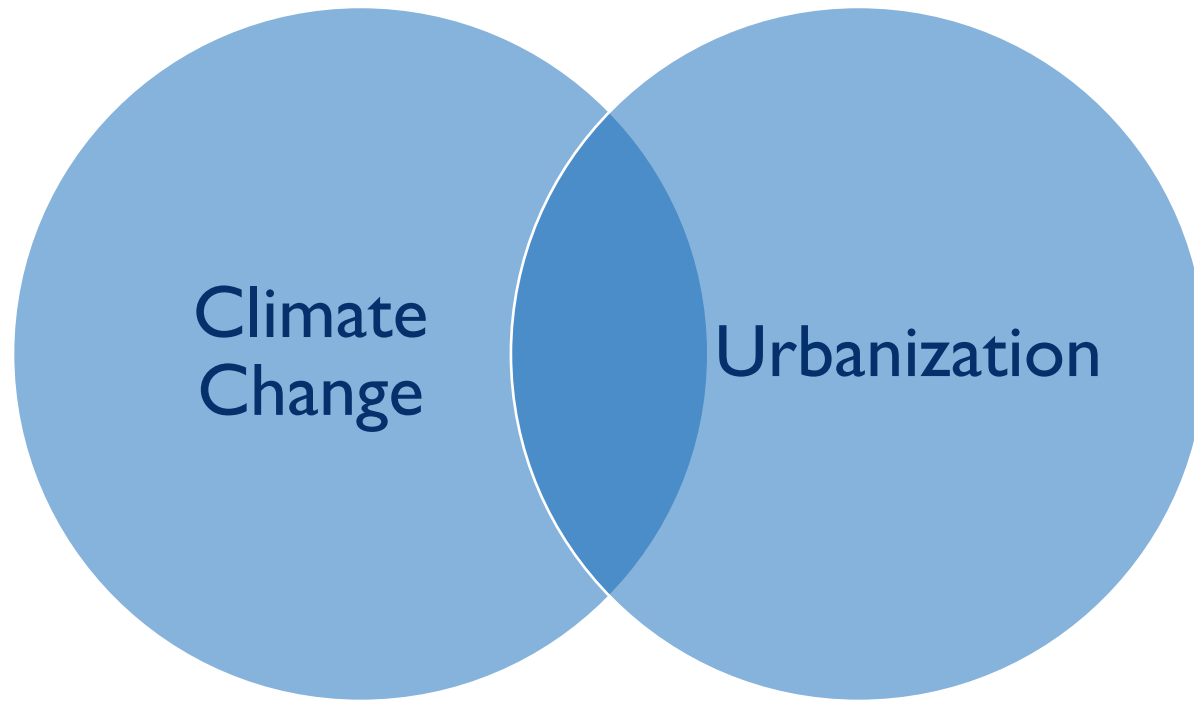
## USAID Clean Air

# Climate Injustice: Ethics, Distributions, Fairness, and Justice in the context of Kathmandu, Nepal

**Bhushan Tuladhar, Chief of Party**

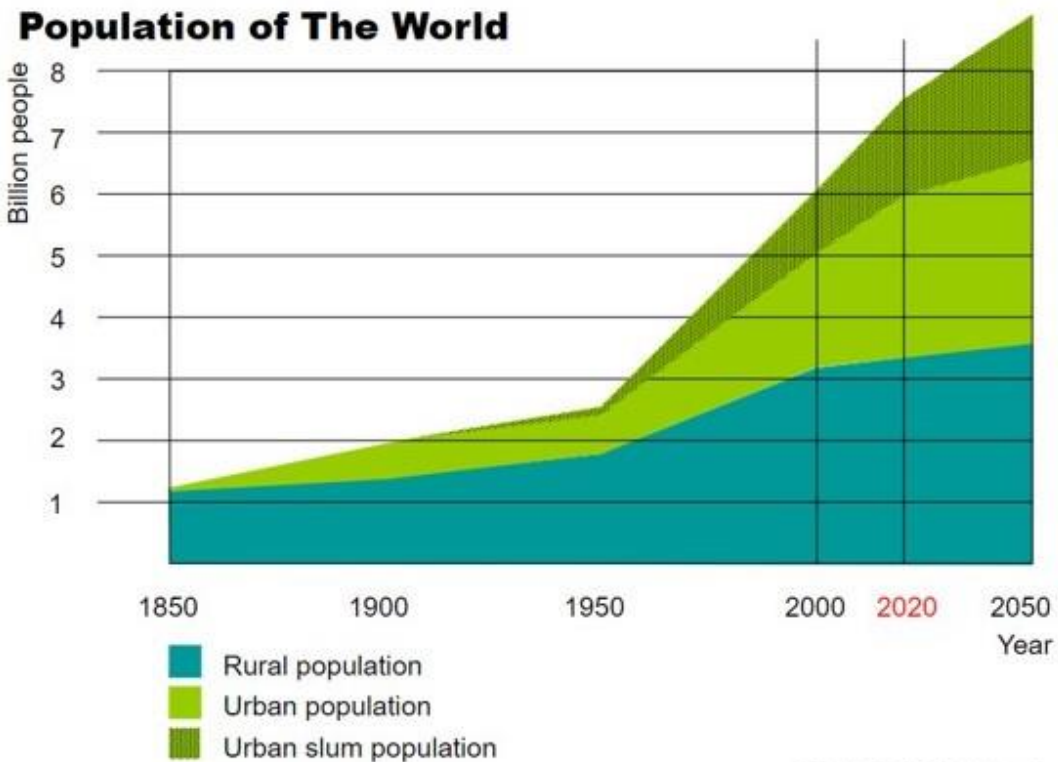
*January 27, 2023*

# Climate Change and Urbanization – Two big challenges facing humanity

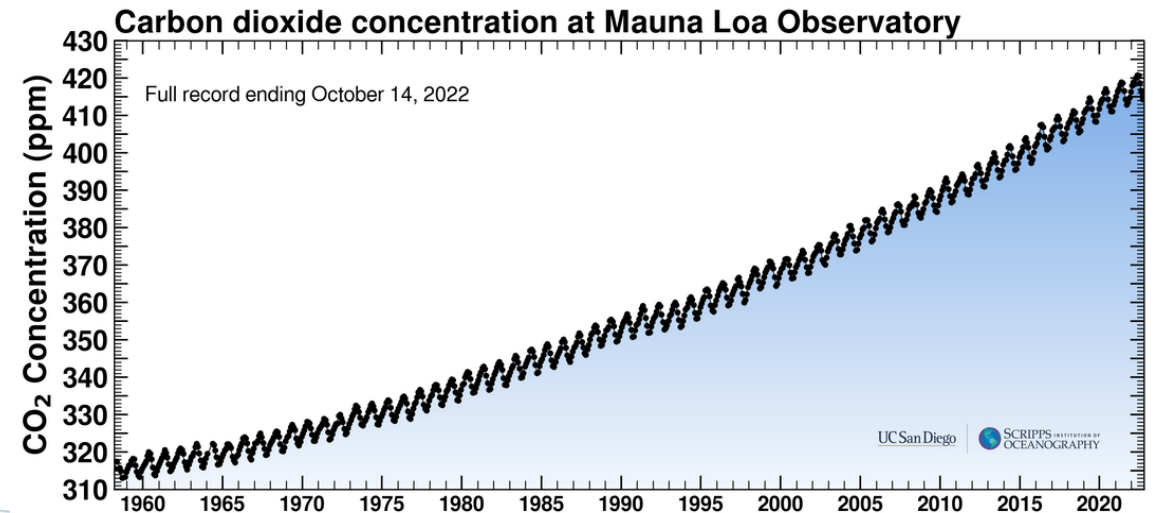


- **Natural System: Climate Change**
- **Human System: Urbanization**
- Both are human-induced
- Both are long term & converging
- Both will affect developing countries more

# Growth in Urban Population & CO<sub>2</sub>



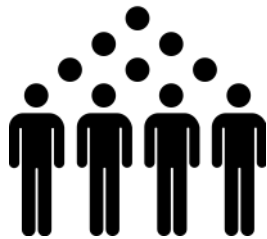
REF: UN-HABITAT, Global Urban Observatory



# Carbon Footprint of Cities



- **3%** of the land area



- **55%** of global population – 66% by 2030



- **70%** of GHG emissions
  - Transport & Buildings: Largest contributors

Cities are also centers for innovations & growth





## **Inequity & Justice in Urban Centers**





# Nepal & Climate Change

- A Least Developed Country with low per capita GDP
- Very low per capita emission (0.47 metric ton CO<sub>2</sub>eq/yr)
- Highly vulnerable to climate change impacts
  - Majority of people depend on nature & have limited ability to manage changes in natural systems
- One of the most rapidly urbanizing countries



2021: COP 26 in Glasgow - “Nepal remains firmly committed to the implementation of Paris Agreement. We have submitted an ambitious NDC that plans to decarbonize our economy in all sectors. Nepal aims to reach a net zero emission by 2045.” – PM Deuba



# “ Biggest Environmental Health Risk Globally” – WHO

Globally  
**99%** of people  
breathe polluted air

**7 million** deaths globally –  
of these, 90% are from  
low/mid income countries

In Nepal, **42,100** deaths  
In Kathmandu **5,084** deaths  
attributed to air pollution

Kathmandu's annual average  $PM_{2.5}$  is  
**10 times higher** than WHO  
guidelines

Cabinet has endorsed Kathmandu  
Valley Air Quality Management  
Plan, 2020



## Ranking of Cities with highest levels of Air Pollution (PM2.5) in 2021

| Rank | City  | 2021  | JAN   | FEB   | MAR   | APR   | MAY   | JUN  | JUL  | AUG  | SEP  | OCT   | NOV   | DEC   |
|------|---|-------|-------|-------|-------|-------|-------|------|------|------|------|-------|-------|-------|
| 1    |  Bhiwadi, India          | 106.2 | 145.8 | 129.8 | 120.2 | 125.7 | 86.5  | 95.9 | 55.6 | 55.4 | 37.1 | 91.1  | 188.6 | 136.6 |
| 2    |  Ghaziabad, India        | 102   | 199.9 | 172.2 | 97.8  | 86.3  | 52.9  | 47.2 | 35.3 | 37.6 | 30.8 | 89.7  | 218.3 | 163   |
| 3    |  Hotan, China            | 101.5 | -     | -     | 158   | 91.1  | 167.4 | 57.4 | 70.9 | 93.2 | 79.3 | 126.1 | 111.5 | 62.6  |
| 4    |  Delhi, India            | 96.4  | 183.7 | 142.2 | 80.5  | 72.9  | 47.4  | 47.1 | 35.6 | 36.9 | 30.2 | 73.7  | 224.1 | 186.4 |
| 5    |  Jaunpur, India          | 95.3  | 182.2 | 143.5 | 91    | 70    | 51.1  | 40.7 | 33.5 | 34.2 | 36.8 | 75.7  | 196   | 195.7 |
| 6    |  Faisalabad, Pakistan    | 94.2  | 207.1 | 118   | 71.2  | 44.6  | 51.2  | 44.7 | 50.4 | 50   | 51.9 | -     | 234.5 | 241.7 |
| 7    |  Noida, India            | 91.4  | 185.3 | 143.4 | 80.5  | 68.2  | 48    | 43.8 | 33.9 | 35   | 26.5 | 76.9  | 204.4 | 154.8 |
| 8    |  Bahawalpur, Pakistan    | 91    | 173.9 | 145.1 | 77.3  | 51.4  | 45.2  | 54.4 | 42.2 | 43.7 | 38.2 | 67.2  | 197   | 221.2 |
| 9    |  Peshawar, Pakistan      | 89.6  | 103.9 | 137.2 | 59.6  | 48    | 49.2  | 68.5 | 54.3 | 55.8 | 60.8 | 77.5  | 182.3 | 176.9 |
| 10   |  Bagpat, India         | 89.1  | 146.1 | 106.3 | 88.3  | 87.1  | 65.7  | 53.9 | 32.8 | 31.5 | 24.3 | 84.7  | 213.6 | 128.1 |
| 51   |  Siddharthanagar, N... | 64.7  | 149.6 | 151.7 | 80.7  | 85    | 32.4  | 23.5 | 18.8 | 21   | 22.7 | -     | -     | 81.8  |
| 91   |  Kathmandu, Nepal      | 50.9  | 103.5 | 79.1  | 108.6 | 89.1  | 30.2  | 22.1 | 15.6 | 14.7 | 18.2 | 26.1  | 46.6  | 59.8  |

Source: [World's Most Polluted Cities in 2021 - PM2.5 Ranking | AirVisual \(iqair.com\)](https://www.airvisual.com/global/cities/2021)





Photo: Bhushan Tuladhar



Photo: Bhushan Tuladhar



Photo: Bhushan Tuladhar

## Sources of Air Pollution



# Solutions to Household Air Pollution

- Clean Fuel
  - Gas or electricity can reduce pollution by 80-100%
- Efficient Stove
  - Chimney can reduce pollution by 30-90%
  - Combustion efficiency can reduce pollution by 30%
- Ventilation
  - Open windows can reduce pollution by up to 30%





# Solutions to Ambient Air Pollution

- Clean transport
  - Walking
  - Cycling
  - Public transport
  - Electric vehicles
- Cleaner production in industries
  - Efficient brick kilns
  - Cleaner fuels
  - Alternative to bricks
- Solid waste management
  - Door-to-door source separated waste collection
  - Recycling
  - Effective management of medical & hazardous waste
- Reduce/manage forest fires & open burning of agricultural residue





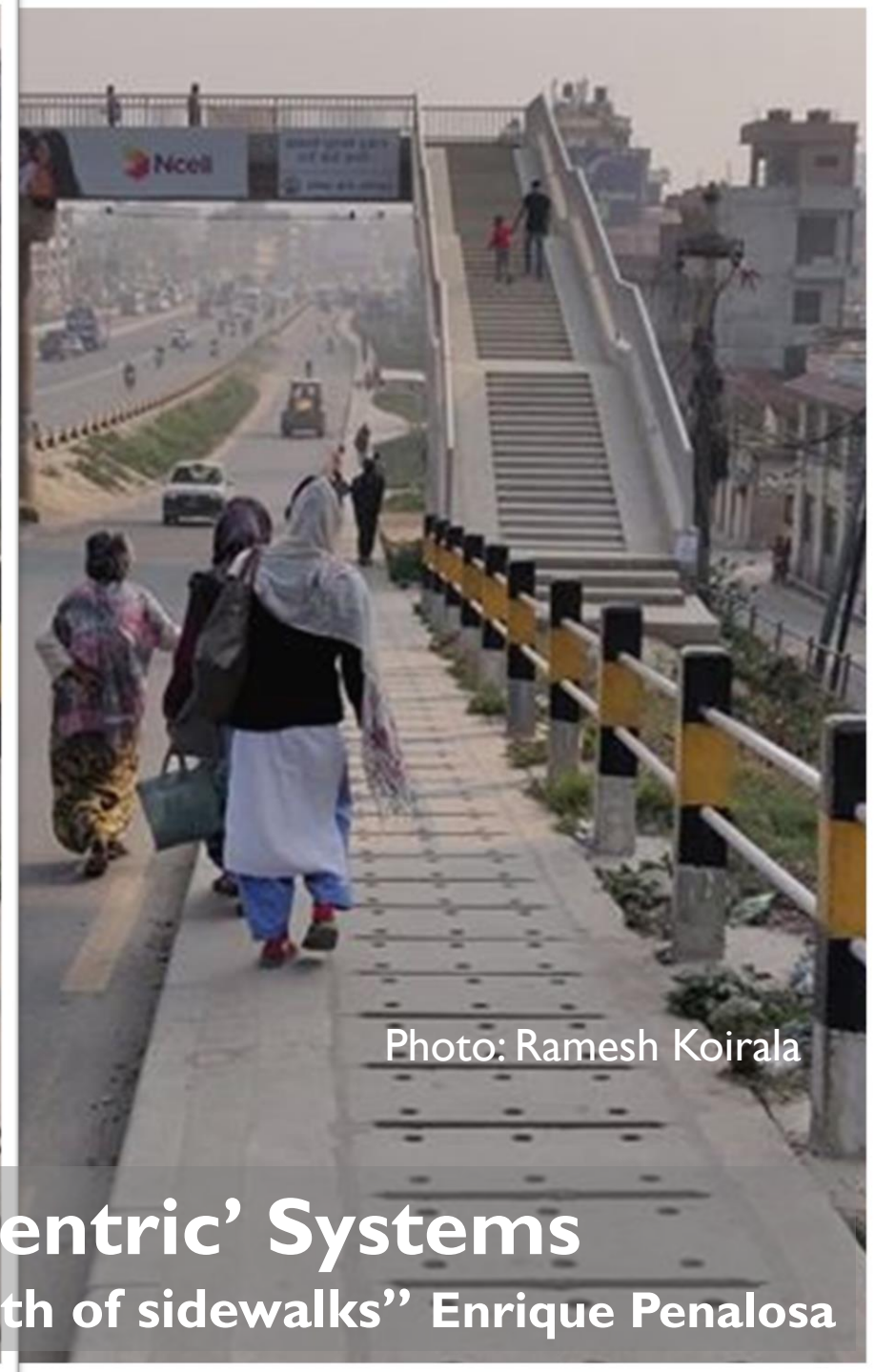


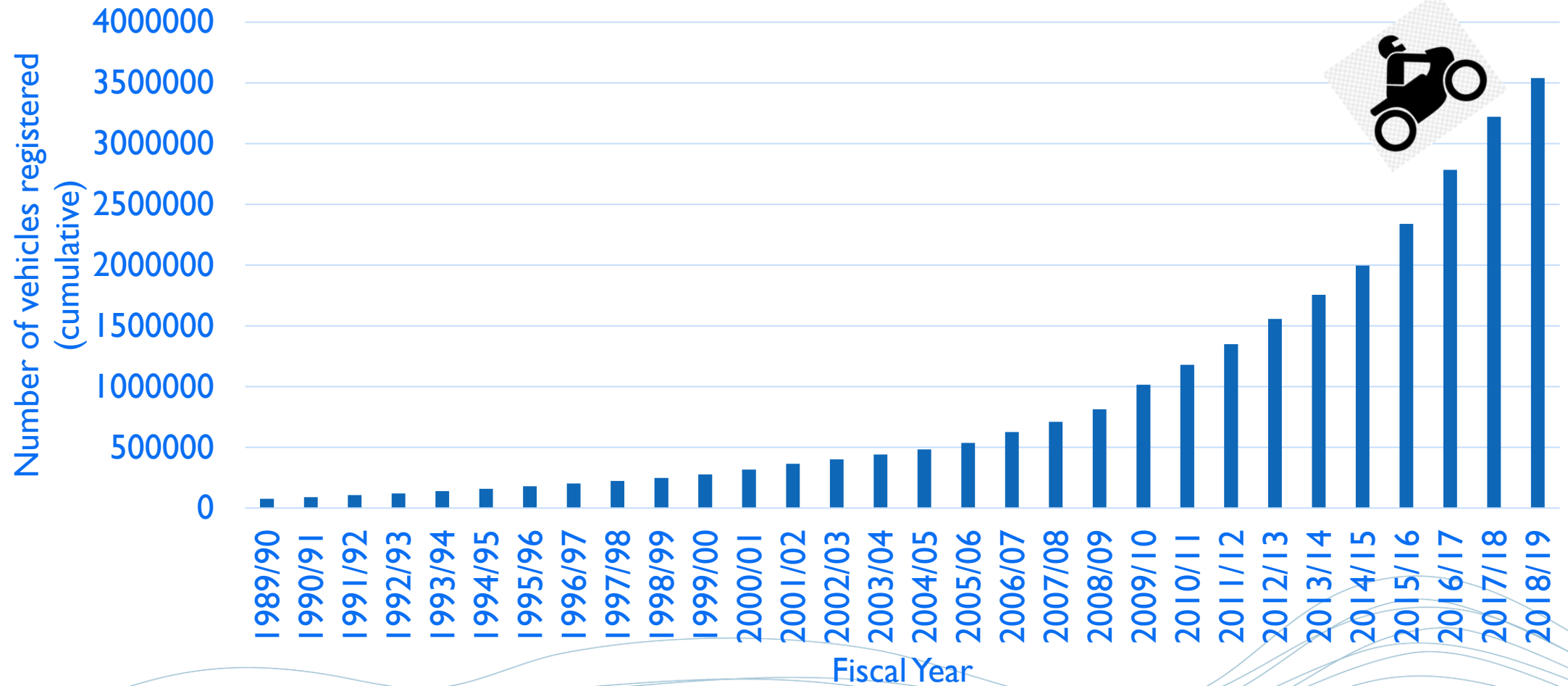
Photo: Ramesh Koirala

**‘People-centric’ rather than ‘Car-centric’ Systems**

**“Depth of Democracy in a City can be measured by the width of sidewalks” Enrique Penalosa**



# Annual Vehicle Growth Rate in Nepal



Vehicle growth rate: Between 1990 to 2018 - Overall 14% & 17% for two-wheelers



# Story of Kathmandu's Safa Tempos



USAID Clean Air

Thank you for your attention.

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