

# Policy Brief: Top CO<sub>2</sub> Polluting Countries

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## Executive Summary

This policy brief analyzes the top carbon dioxide (CO<sub>2</sub>) emitting countries using data from multiple sectors between 2019 and 2023. The goal is to inform policy discussions on where to focus decarbonization efforts for maximum global impact.

The global fight against climate change depends heavily on action from major emitters. While global cooperation is vital, the responsibility of the largest contributors is particularly critical in achieving carbon neutrality goals.

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## Top 10 CO<sub>2</sub> Emitting Countries (2019–2023)

1. **China** – ~48,000 MtCO<sub>2</sub>
2. **United States** – ~21,600 MtCO<sub>2</sub>
3. **India** – ~11,100 MtCO<sub>2</sub>
4. **EU27 & United Kingdom** – ~14,000 MtCO<sub>2</sub>
5. **Russia** – ~7,000 MtCO<sub>2</sub>
6. **Japan** – ~5,000 MtCO<sub>2</sub>
7. **Brazil**
8. **South Korea**
9. **Canada**
10. **Indonesia**

These countries account for the vast majority of global emissions. Each must play a leading role in addressing the climate emergency.

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## Sectoral Emissions Breakdown

The sectoral breakdown reveals that CO<sub>2</sub> emissions are predominantly driven by:

- **Power Generation:** Largest contributor, especially in coal-dependent countries like China and India.
- **Industry:** Significant in manufacturing-heavy economies.
- **Ground Transport:** A major contributor in the US and Europe.
- **Residential & Aviation:** Smaller but non-negligible sources.

Year-on-year trends suggest:

- Emissions are plateauing or declining in parts of Europe.
- Steady or rising emissions in Asian and African countries.
- Short-term dips in 2020 due to pandemic lockdowns, followed by rebounds.

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## Strategic Policy Recommendations

To address the disparities and emission hot spots, the following strategies are recommended:

### 1. Decarbonize Power Sectors in Top Emitters

- Transition to renewable sources in China, India, and the US.
- Eliminate subsidies for fossil fuels.

### 2. Accelerate Green Industry Innovation

- Deploy carbon capture and low-emission technologies in heavy industry.
- Promote circular economy models.

### 3. Enhance Global Carbon Accountability

- Standardize emissions reporting and transparency.
- Encourage international cooperation through carbon pricing and climate finance.

### 4. Transport Transformation

- Incentivize electric vehicle infrastructure.
- Improve mass transit and discourage private fossil-fuel vehicle use.

### 5. Global Focus and Support

- Assist low- and middle-income countries with green tech.
- Channel climate finance to high-impact projects.

*This is the Power Bi Dashboard*



