GREENHOUSE GASES EMISSIONS
AFTER KYOTO PROTOCOL

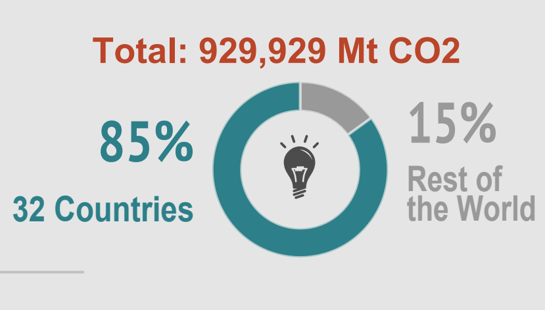
Exploring 20-year result of global effort to reduce greenhouse gas Emissions

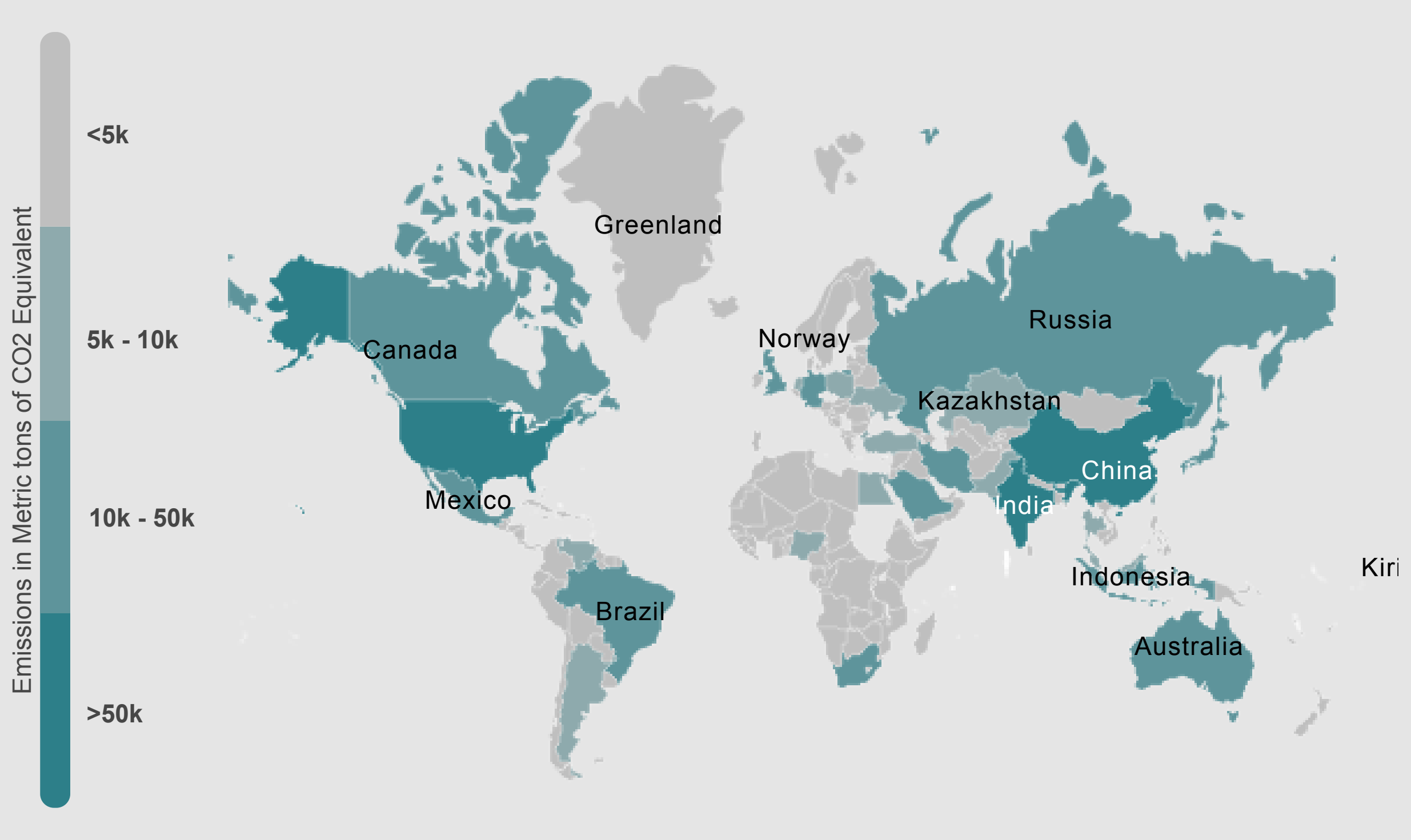
Overview of GHG Emissions Since 1997

World Map Showing Total GHG Emissions Across Countries

After the Global decision to reduce GHG emissions - The Kyoto Protocol - countries have released as much as 50,000 Metric tons of C02 equivalent into the environmnet. This chart displays the colour variations of countries based on their emission quantities. The darker shades have the highest emssions.

Total: 929,929 Mt CO2

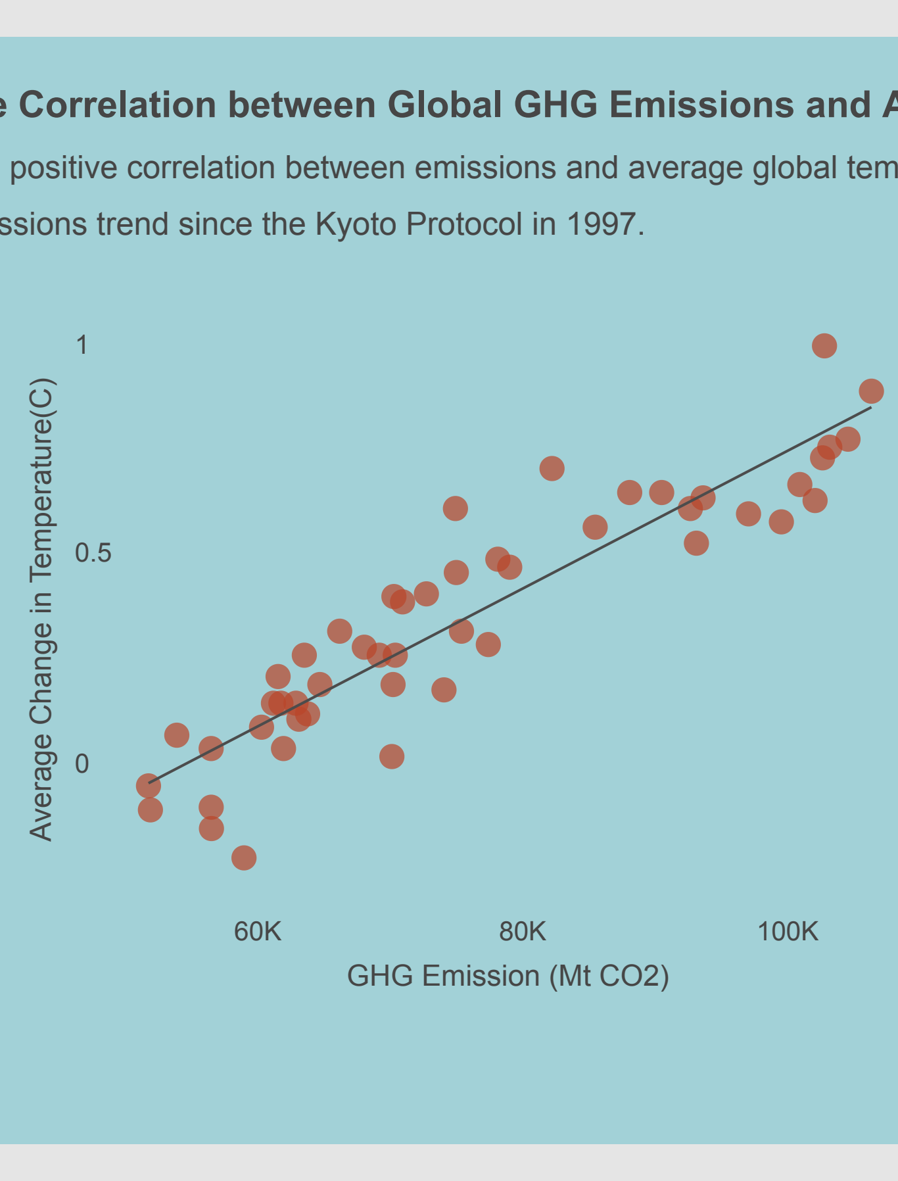




Why the concern about Greenhouse Gases?

The Correlation between Global GHG Emissions and Average Temperature Change

The positive correlation between emissions and average global temperture indicates a need explore the emissions trend since the Kyoto Protocol in 1997.



Key Findings

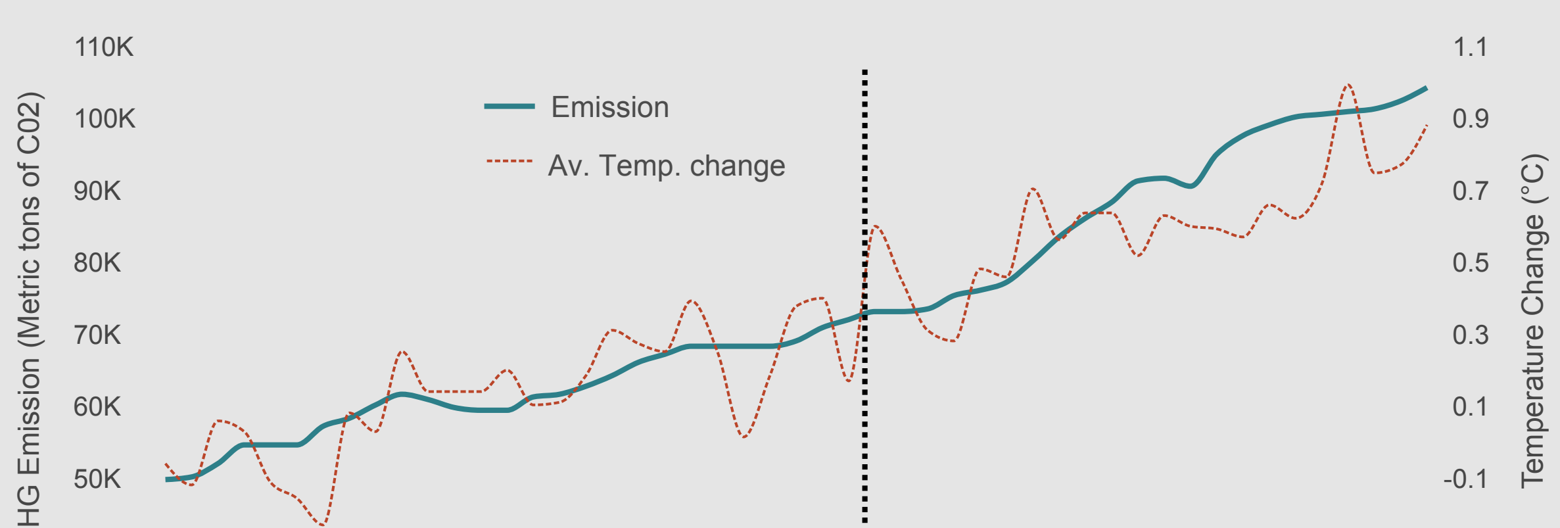
The positive correlation that exists between GHG and Temperature change indicates the need for joint global action to cut emissions - The Kyoto Protocol 1997.

Analysing GHG Trends could reveal the direction of emission change.

Emission Trend After the Kyoto Protocol?

Current Trend in Global Emissions and Average Temperature Change

20 years after Kyoto protocol, global emissions have contunued to rise, as well as average temperature.



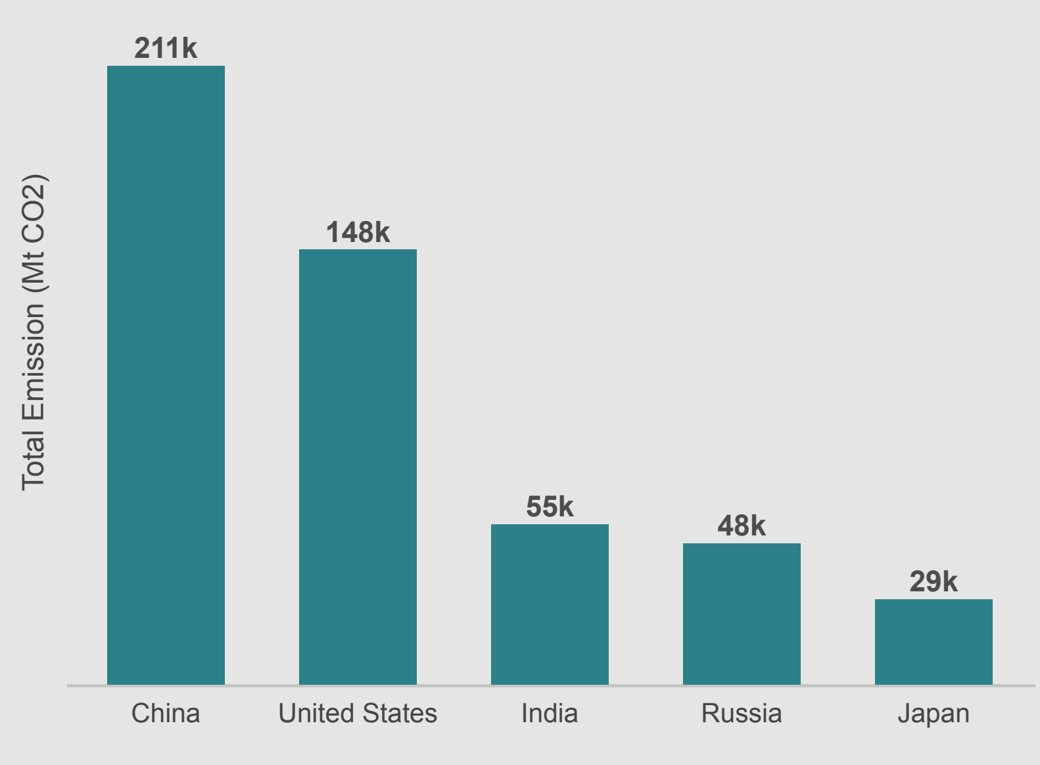
Key Findings

- Despite Kyoto Protocol, emissions continue to rise at an alarming rate.
- A drill down into countries' emissions could reveal the top contributors to this rise in Global Emissions

Which Countries Contribute the Most?

20-year Emission Totals (MtCO2) by Top Contributing Countries

The column chart shows China has emitted more quantity of GHG - 211,000 Metric tons of CO2 equivalent - since 1997. USA follows with 143,000, and then India, Russia and Japan.



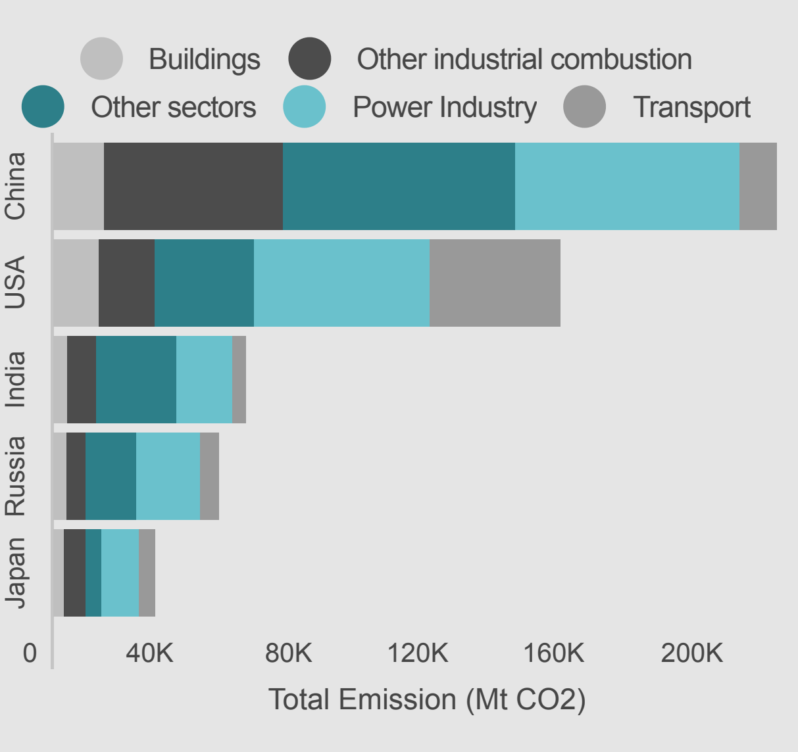
Key Findings

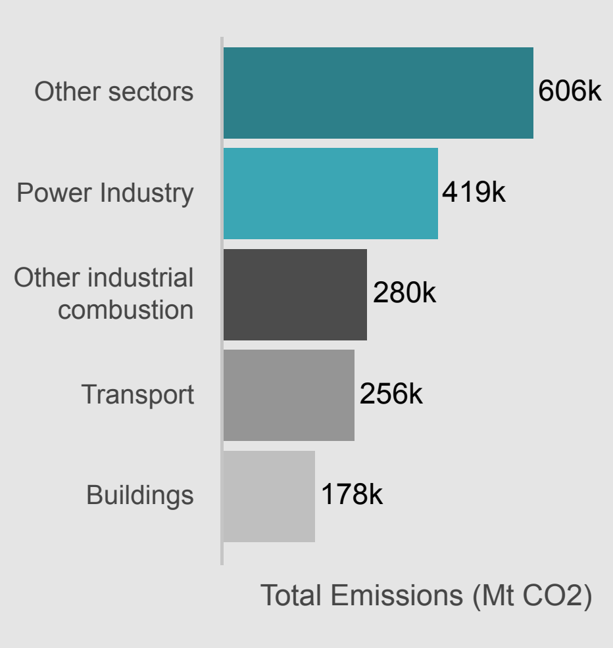
- China's emission is more than that of USA and India combined.
- USA's emission is more that India, Russia and japan combined.
- More drill down into these countries could revel the sectors that contributed the most.

What Sectors have contributed the most?

Sectors Contributing to Global Emissions Since The Kyoto Protocol

Ranking the top five contributing countries to global GHG emissions after the Kyoto Protocol, China is the top emitting country, followed by USA, India, Russia and Japan, consecutively.





Key Findings

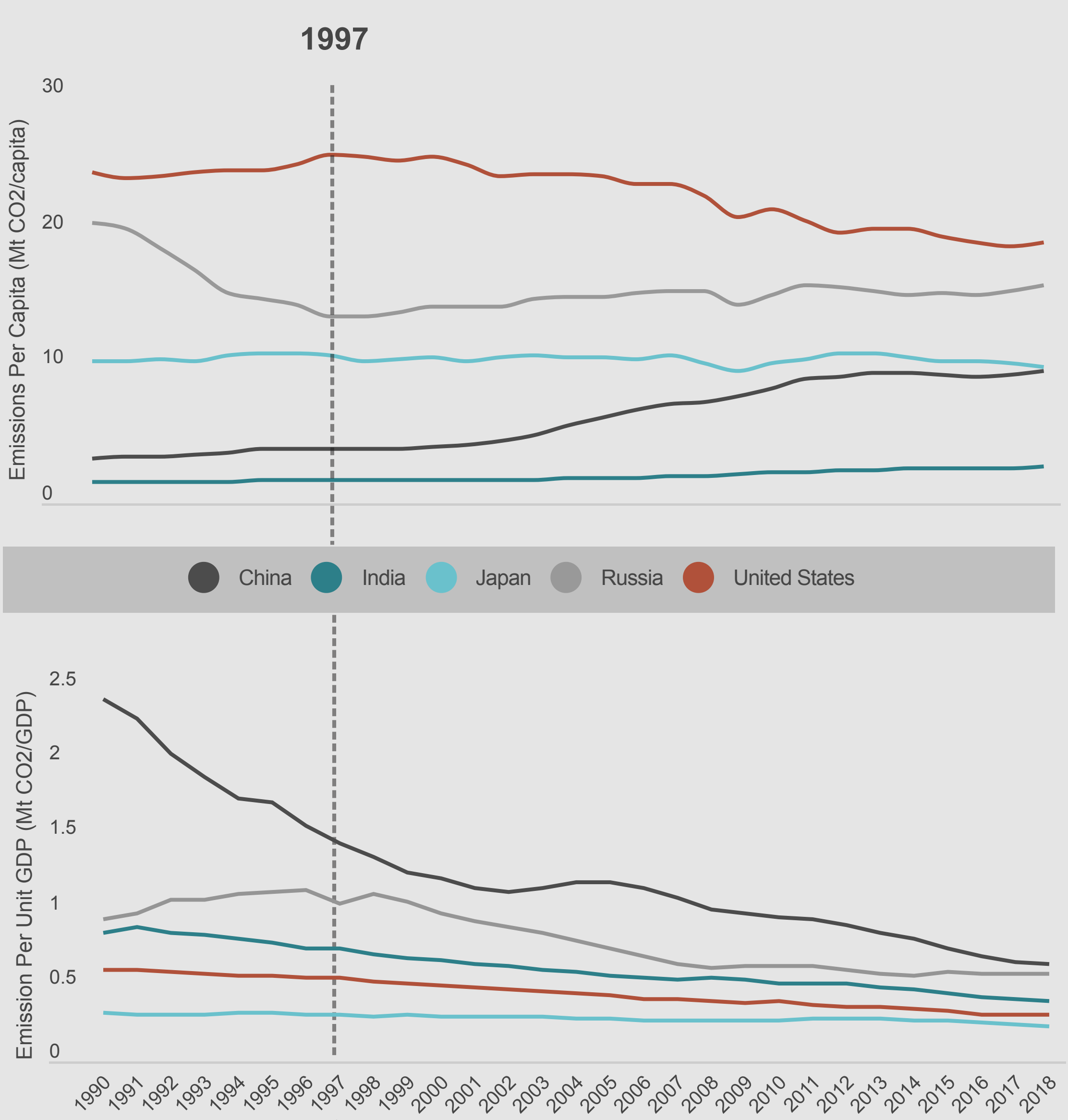
- Other sectors contributes more GHG emission than Power Industry.
- This is an indication that "other sectors" is a grey area which needs to be explored based on data availability for the components

Has Population and Development influenced the emissions?

Comparing Emissions per Person and Emissions Per Unit GDP

United States has the highest emission per person. However, the significant drop is a positive indicator as opposed to China's rise while the others stayed fairly constant.

The general drop in emissions per GDP indicates a drop in emission-generation production processes.



Key Findings

- In China, increasing emissions per person is an indication of increased production. Whereas the drop in emissions per GDP is an indication of good climate change practices for production.
- How much have average emissions changed after 20 years of intentional effort?

What is the difference in Average Annual Emission after 20 years?

▲ +45%
Global Change

▲ +172%
China

▼ -10%
USA

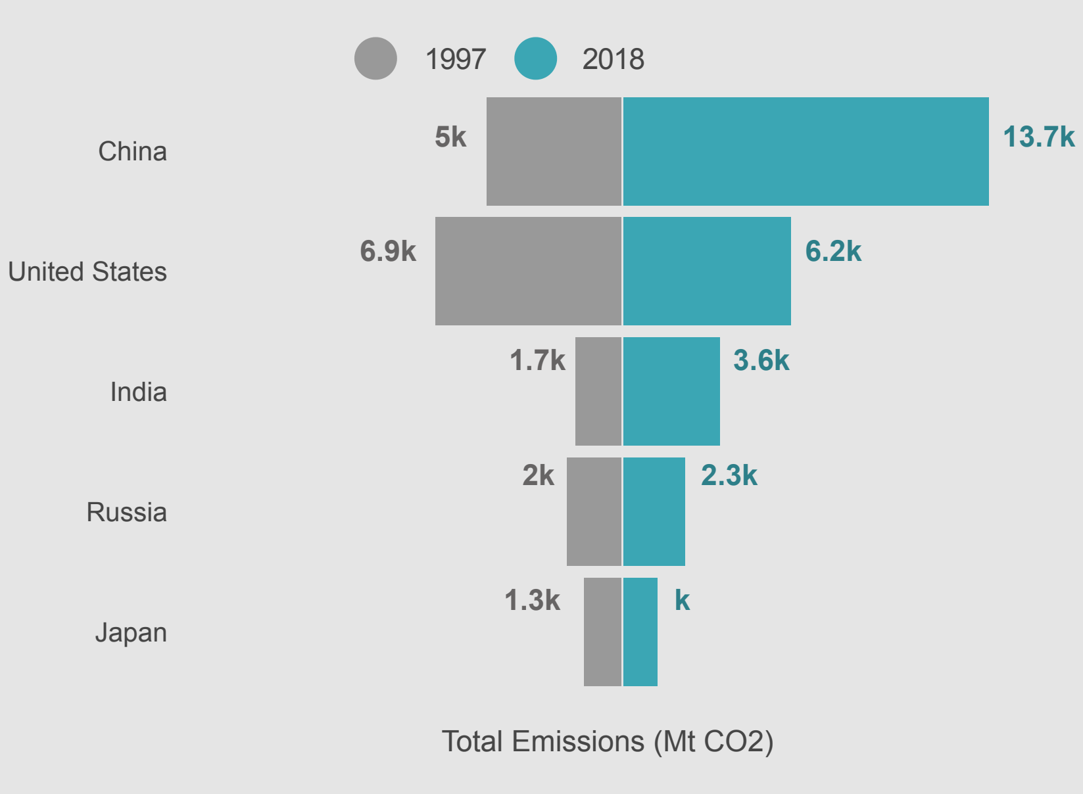
▲ +110%
India

▼ +13%
Russia

▼ -9%
Japan

Variations in Country Emissions between 1997 and 2018

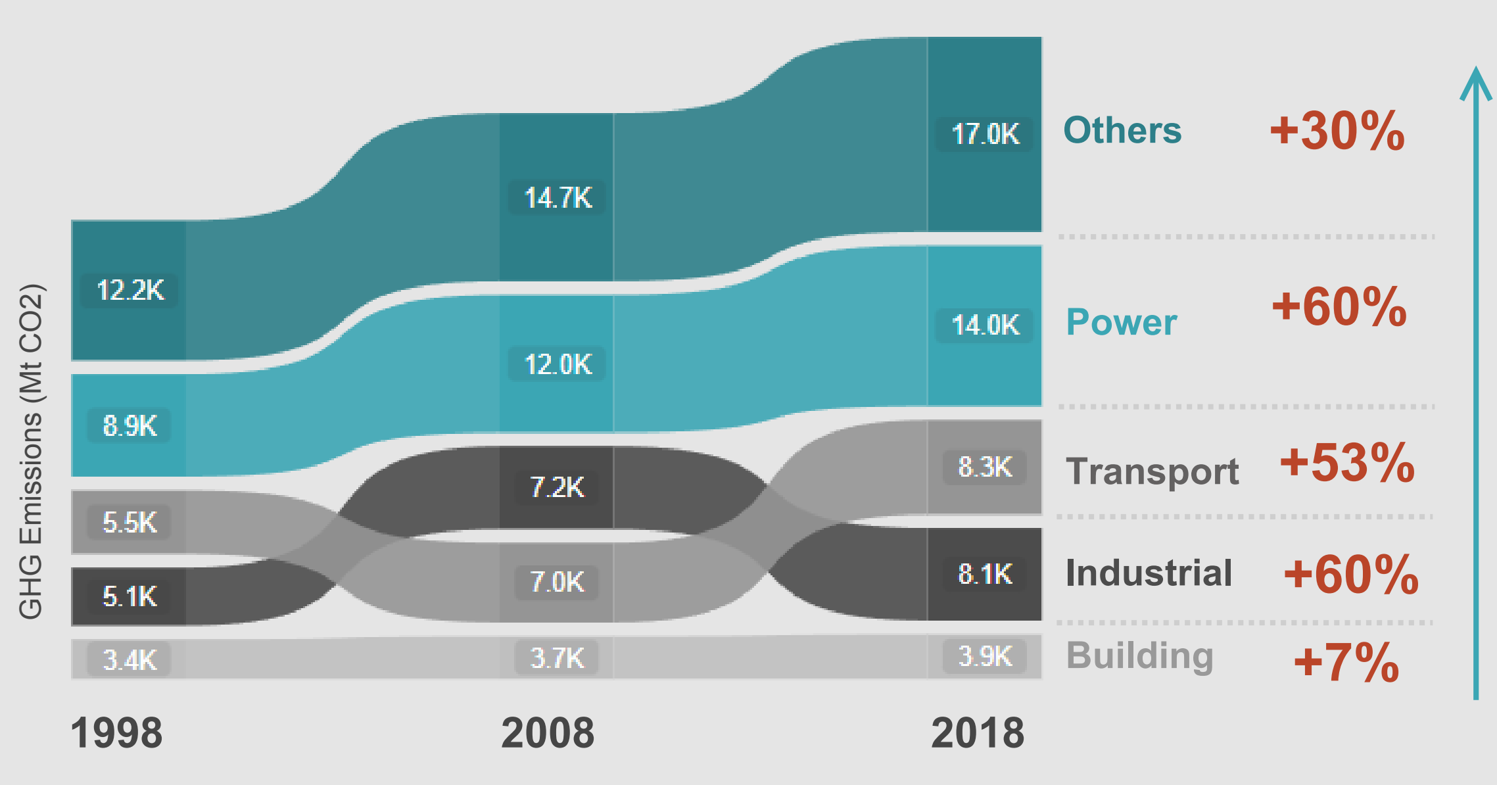
Ranking the top five contributing countries to global GHG emissions after the Kyoto Protocol, China is the top emitting country, followed by USA, India, Russia and Japan, consecutively.



What is the difference in Average Annual Emission after 20 years?

Variations in Country Emissions after Kyoto Protocol

Visualising 20-year sectorial change in GHG emissions after the Kyoto Protocol. Power, Industrial and Transport sectors have each had over 50% increase in emission quantities.



What is the Global Impact of the 20-year Emission Changes?

Top 5 countries based on global impact of emission changes

These countries have had a negative change in emissions which is a positive indicator. USA's change reduced global average emissions by 1.99%, followed by United Kingdom, Germany, Ukraine and Italy.

COUNTRY	GHG EMISSION (Mt CO2)	EMISSION CHANGE	GLOBAL EFFECT
United States	-683	-0.38%	-1.99%
United Kingdom	-255	-1.65%	-0.75%
Germany	-232	-1.04%	-0.68%
Ukraine	-201	-2.09%	-0.59%
Italy	-124	-1.14%	-0.36%

Bottom 5 countries based on global impact of emission changes

These countries have had the highest positive change in GHG emissions which is a negative indicator. China's change increased global average emissions by 25%, followed by India, Indonesia, Iran and Saudi Arabia.

COUNTRY	GHG EMISSION (Mt CO2)	EMISSION CHANGE	GLOBAL EFFECT
China	8690	11.48%	+25.32%
India	1901	7.63%	+5.54%
Indonesia	510	6.13%	+1.49%
Iran	465	5.92%	+1.36%
Saudi Arabia	445	6.25%	+1.30%