

Changes in retail, driven by technological advancements and consumer preferences, have significantly increased emissions of fluorinated gases (F-gases). The expansion of supermarkets and convenience stores has led to a greater reliance on refrigeration and air conditioning systems, which often use hydrofluorocarbons (HFCs). Additionally, the growth of cold chain logistics and increased imports necessitate more cooling, contributing to higher F-gas emissions. Modern consumer habits favor convenience, resulting in greater consumption of processed foods that require refrigeration. Furthermore, outdated and inefficient refrigeration systems in many retail establishments lead to leaks. Although regulations are tightening, the legacy of existing systems continues to impact F-gas emissions, highlighting the need for sustainable practices in the retail sector.

The Emissions Pie is not cut Equally



F-gas emissions are highly skewed, with the top 10 nations contributing 60% of global emissions. Interestingly, only one industrialized nation appears among these top emitters; the rest are developing countries. Notably, populous countries such as India, China, and Indonesia are significant contributors, underscoring the impact of large populations on total emissions. While absolute emissions are important, it is essential to evaluate emissions per capita to provide a fairer assessment of environmental impact. This perspective emphasizes that addressing emissions must balance accountability with understanding population-driven contributions and the differing economic capabilities between industrialized and developing nations for sustainable solutions

Developing a Divergence

F-gases by Country Type



From 1995 to 2004, developing nations showed a clear trend of increasing per capita F-gas emissions, reflecting industrial growth and expanding economies. However, an interesting shift occurred in 2004 when per capita emissions stabilized for approximately a decade. This period of relative stability might suggest the influence of international agreements, technological shifts, or policy measures aimed at limiting emissions. Around 2014, the trend changed again, with emissions in developing nations beginning to diverge from those of industrialized nations. While industrialized nations maintained stricter controls and reduced emissions per capita, many developing countries saw a resurgence, driven by economic expansion and less stringent regulations

Ending on a hopeful note

Growth Rates of F-gases in Top 10 Emitting Nations



Top emitters that previously experienced growth rates of 60-90% in emissions have now significantly slowed, averaging only 5-10% growth, reflecting a stabilized situation that can be controlled by emission reduction efforts.