EMERALD

EMERALD

Teaching Case #08:

India in the Middle:

Balancing Development and Climate Responsibility in the Paris Agreement

Developing an Erasmus Mundus Joint Master's Degree on Sustainable Natural Resource Management and Long-run Economic Development (EMERALD).

Project number: 2020-1-NO01-KA203-076528

NTNU
Norwegian University of Science and Technology

University of Bucharest

Universidad Complutense Madrid

Universitas Gothoburgensis 1891

University of Helsinki

Universität Bayreuth

Co-funded by the Erasmus+ Programme of the European Union

NTNU | Institutt for moderne samfunnshistorie

EMERALD CASE #08

Case #7-2021

November 2021

Madeleine Dungy

India in the Middle: Balancing Development and Climate Responsibility in the Paris Agreement

A few weeks before 196 governments gathered in Paris in 2015 to conclude a landmark international agreement on climate change, the US Secretary of State John Kerry told the *Financial Times* that India was a central "challenge" in the negotiations, remarking, "we have a lot of focus on India right now to try to bring them along." The spotlight was on India because by 2015, it was the world's fourth largest emitter of Carbon Dioxide (CO_2). Yet, it also had the fastest growing population, and it remained firmly committed to expanding employment, electricity, and basic services to the large share of its citizens living in poverty, even if this meant increasing the use of dirty energy sources such as coal. Moreover, India was adamant that the developed world should be responsible for funding climate-change mitigation, while China, by contrast, was more open to "putting up some money," as Kerry phrased it.[1]

Since 1992, the United Nations Framework Convention on Climate Change (UNFCCC) has provided a platform for governments to cooperate in the fight against climate change. Its over-arching goal is the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."[2] International debate has consequently focused on global warming caused by greenhouse gases, especially CO_2, among the many complex forms of climate change and resource exhaustion that face the world. All the governments participating in the UNFCCC meet regularly for a Conference of Parties (COP) to decide on implementation plans - the Paris Agreement was negotiated at COP 21. From the outset, the COP gatherings have been marked by sharp tensions between developed and developing countries.

The root problem is that prosperity brings pollution in today's world. Only the European Union (EU) has managed to combine substantial emissions reductions with growth. From the

UNFCCC in 1992 to the Paris Agreement in 2015, the EU cut CO_2 emissions by roughly 18% while increasing average GDP per capita from $29,000 to $40,000. This record reflects unusually favorable political and technical conditions in the EU, where there is a solid foundation for green infrastructure (for example extensive public transport networks) as well as relatively broad popular support for combatting climate change. Neither of these conditions can be taken for granted in developing countries such as China and India. From 1992 to 2015, India registered more impressive growth than the EU, increasing GDP per capita nearly three-fold, but its CO_2 output also spiked 265% over the same period. India did improve its energy usage - reducing the amount of carbon that went into each dollar of its GDP by 13% - but this did not balance out its high emissions. Across the globe, GDP growth has been closely correlated with rising emissions, despite significant gains in energy efficiency (see Annex 4). This is because growth depends on activities such as construction, transportation, and industry that are very energy intensive.

Many developing countries have declared categorically that they will not sacrifice their population's immediate welfare needs in order to combat climate change, demanding deeper sacrifices from rich countries.[3] The Indian government has been the most prominent and consistent champion of this view over the last thirty years. In 2015, the Indian Prime Minister Narendra Modi responded to John Kerry with his own editorial in the *Financial Times* that highlighted the delicate balance between development and climate action. Modi emphasized that a large share of India's population still lived below the level of subsistence. 22% of India's population was living on less than $1.90 a day, compared to 7.9% in China and 1% in the United States (See Annex 2).

Modi argued that the burden of adjustment to combat global warming should fall on the rich world: "Justice demands that, with what little carbon we can still safely burn, developing countries are allowed to grow. The lifestyles of a few must not crowd out opportunities for the many still on the first steps of the development ladder." He also assigned historical responsibility for climate change to countries that owe their current affluence to the coal-belching industrial production of past generations:

> Some say advanced countries powered their way to prosperity on fossil fuel when humanity was unaware of its impact. Since science has moved on and alternative energy sources are available, they argue that those just beginning their development journey bear no less responsibility than those who have reached the zenith of their progress. New awareness, however, should lead advanced countries to assume more responsibility. Just because technology exists does not mean it is affordable and accessible.[4]

The issue of historical responsibility has been a central red thread running through international climate debates since the 1990s. In 2015, Modi was voicing views that had remained quite consistent through a long succession of Indian Prime Ministers.

Economic Development and Historical Responsibility for Climate Change

As soon as the UN General Assembly announced in 1989 that it was going to sponsor a framework convention on climate change, India stepped in to voice concerns about how this

would affect global economic development. It hosted a Conference of Select Developing Countries on Global Environmental Issues in New Delhi in 1990, and it then intervened aggressively to shape the UNFCCC negotiations in 1992.[5] The final UNFCCC divided participating countries into three categories, based on their relative levels of development, and its preamble also linked climate change to the process of industrialization, both past and present, acknowledging:

> …that the largest share of historical and current global emissions of greenhouse gases has originated in developed countries, that per capita emissions in developing countries are still relatively low and that the share of global emissions originating in developing countries will grow to meet their social and development needs.[6]

Yet, from the outset, there was disagreement about how "historical responsibility" for climate change should be used to apportion mitigation obligations.

In principle, acknowledging historical responsibility for climate change would mean distributing current obligations according to a country's contribution to the cumulative build-up of greenhouse gases in our atmosphere. There is a scientific basis for this approach. CO_2, the most abundant and long-lasting of the major greenhouse gases, can stay in the atmosphere for 300 to 1000 years. The Orbiting Carbon Observatory estimates that human activity has increased the concentration of atmospheric CO_2 by roughly 45% since the beginning of the industrial age (see Annex 3).[7] The United States stands out as the largest emitter in historical terms, having produced 25% of the world's cumulative CO_2 emissions. This is nearly twice historical output registered for China, today's largest emitter.

Unsurprisingly, China, India and other developing countries have pushed hard to include historical responsibility in international climate discussions, while leaders in the developed world focus on current and projected emissions. Yet even those who fully accept the principle of historical responsibility disagree about how to implement it. Should the United States contribute twice as much as China to international climate finance, because has produced twice the cumulative CO_2. output? Should it set emissions reduction targets that are twice as ambitious as China's? Would that mean reducing emissions annually by twice the level? Or would it mean that the United States should commit to reach a "net-zero" goal in half the time? Moreover, historical responsibility can be defined in qualitative as well as quantitative terms. Many argue that the United States and Europe should shoulder more of the burden for climate-change mitigation because they played a leading role in the construction of today's resource-intensive system of global capitalism through their past colonial and commercial ventures. This "conceptual" version of historical responsibility is even more difficult to translate into concrete action.[8]

In practice, the protocol to implement the UNFCCC that was agreed in 1997 at Kyoto roughly defined the differential historical responsibilities of developed and developing countries as "something" versus "nothing." The Kyoto Protocol bound developed countries to reduce their emissions by five percent before 2012 and imposed no obligations on other countries. At that stage, India and China joined together with the rest of the G77 to rule out even voluntary commitments from developing countries.[9] The share that these two countries contributed to

global CO_2 output increased rapidly in the late 1990s and early 2000s, however, spurring demands that they contribute to international climate action. Evidence mounted that even very deep emissions cuts in the Global North simply would not be sufficient to arrest global warming.[10]

Moreover, major emitters in the developed world such the United States and Canada cited inaction from China and India to justify their own refusal participate in the Kyoto Protocol.[11] With many large countries on the sidelines, the Kyoto Protocol had limited legitimacy as a framework for global climate cooperation. Therefore, as the end of the protocol's first "commitment period" approached in 2012, international leaders began to explore new strategies.

Setting the Stage for the Paris Climate Talks

Starting in 2009, the Obama government led a concerted drive to expand the scope of international action against climate change. This signaled renewed US engagement, but at the cost of eroding the "firewall" between developed and developing countries in the original UNFCCC. US leaders capitalized on the growing fragmentation in the developed world, where support for a simple two-tiered model with obligations borne solely by developed countries was collapsing. By the end of the 2000s, smaller negotiating blocs had begun to strike independent positions, with both the Small Island Developing States and the Least Developed Countries expressing growing concern about the effects of climate change and demanding more from large emitters such as China and India. These new groupings made common cause with the United States and the EU to spread international climate obligations more broadly.[12]

India found itself increasingly isolated as other large developing nations announced binding targets for emissions reduction. In 2014 China and the United States jointly declared that they would reach an emissions peak by 2030, sending a powerful message that the two wayward giants had joined the international fold. China also proposed $3 million in climate aid to help poorer countries adapt, breaking with the precedent that such financing should come solely from the developed world. Pressure mounted for India to follow suit. Indian leaders countered that many of their citizens were still living in dire poverty, and the country's mitigation actions must not impede the provision of fundamental infrastructure and welfare. Among the BASIC group of large developing economies (Brazil, South Africa, India, China), India's population is still the poorest by a considerable margin, when measured in terms of GDP per-capita and access to essential services (See Annex 2).[13]

In order to emphasize individual welfare, Indian leaders frequently note that their country's per-capita CO_2 output is relatively low (See Annex 1).[14] In 2007, Prime Minister Manmohan Singh pledged that India's per-capita emissions are "not going to exceed those of the developed countries even while pursuing development and economic growth."[15] Yet India's concept of "carbon equity" has been highly controversial. For, if India increased its per-capita emissions to the current levels in the developed world, it would massively expand global CO_2 levels. For example: if in 2015, India's per-capita CO_2 output of 1.72 tons had been on par with the United

States, at 16.87 tons, this would increase India's absolute emissions to 22.09 billion tons and would raise world's total CO_2 emissions for 2015 by nearly 40%.[16] Climate experts therefore argue that equity should be achieved by levelling down emissions in the developed world rather than by levelling up emissions in countries like India and China, but the difficult question remains just how far each side will have to move and what material sacrifices will be required to get there.

The relatively flexible structure of the Paris Agreement gave India latitude to craft a national climate program that fit its social and economic priorities. In the Paris negotiations, there was a shift away from the top-down approach which had been used in the Kyoto Protocol, based on internationally prescribed obligations, towards a bottom-up approach, based on voluntary commitments or "nationally determined contributions" (NDCs). This new "pledge and verify" strategy had already been attempted at the Copenhagen COP of 2009, but national submissions had not been collated adequately to allow for effective negotiations. To avoid a similar failure, the French government assiduously prepared the Paris talks, conducting a whirlwind diplomatic tour to sound out all the key players, including India.[17]

Basing negotiations on voluntary NDCs allowed governments to tailor their mitigation commitments in order to build on past successes and ensure domestic support for climate cooperation. Although India long resisted calls for developing countries to adopt firm targets for emissions reduction, the government did independently engage in a range of mitigation actions that were aligned with its economic development goals. These included promoting sustainable forestry, renewable energy, and energy efficiency. As these measures bore fruit, they helped persuade Indian officials that economic growth and climate mitigation were not always incompatible goals, and this made them more willing to offer formal climate pledges at the international level. The Indian government's NDC for the Paris negotiations did not include a quantified commitment to reduce emissions, but it did contain three other quantified pledges in areas where the government had already achieved positive results: increasing the share of energy coming from non-carbon sources, using energy more intensely, and increasing the absorption of CO_2 in the environment by expanding forested carbon sinks.[18]

Reaching Agreement in Paris: Compromises and Trade-offs

While giving governments the flexibility to set their own targets enabled them to consolidate previous gains, it also brought new challenges. When added together, the NDCs that governments submitted ahead of the Paris conference would only restrain the rise in global temperatures to 2.7-3.4°C, far above the official target of 2°C and the more ambitious goal proposed by the Small Island Developing Countries of 1.5°C. Negotiations at Paris thus focused on how to ratchet up NDCs over time and how to monitor progress. EU leaders demanded a thorough review at regular intervals. Over the first week of negotiations, they secured a consensus that new NDCs would be submitted every five years, accompanied by regular scientific assessments in order to gauge how far ambitions must be increased.[19]

Within this framework, the Indian delegation argued that developed countries should still undertake more extensive commitments. An Indian negotiator told his foreign counterparts:

> We quite understand that the problem of climate change is on account of the path followed in the past by the countries that have prospered. We are willing to take a different path and be guided, but don't simply tell us what not to do; instead tell us what to do and how. Understand the barriers in the path you suggest and see how they can be removed. [20]

Such views were reflected in the Paris Agreement, which retains a minimal acknowledgement of the developed world's historical responsibility, but it is much vaguer than in the original UNFCCC. The Paris Agreement enjoins developed countries to "continue to take the lead by undertaking economy-wide absolute emission reduction targets" while developing countries must simply "continue enhancing their mitigation efforts" and "move over time towards economy-wide reduction or limitation targets."[21] Moreover, the Paris Agreement does not specify which countries fall into each category.[22]

There was sharp disagreement in Paris among developed countries about just how firm their commitments should be. EU leaders wanted a binding commitment that they "shall" undertake economy-wide emissions reductions. US negotiators insisted on softening this article by replacing "shall" with "should," leading to a 90-minute standoff with the Europeans before the latter finally relented. As one EU official remarked at the time, "if we insist on legally binding, the deal will not be global because we will lose the US."[23] The Paris Agreement soon "lost the US" in any case, when Donald Trump announced the US withdrawal shortly after taking office in 2017.[24]

In the developing world, India diverged from the Small Island Developing States as they called for more precise and ambitious targets. They demanded a formal international commitment to "reach global peaking of greenhouse gas emissions as soon as possible," which India then tempered by securing an indefinite timeline for everyone as well as an explicit acknowledgement "that peaking will take longer for developing country Parties."[25] The Paris Agreement partially meets longstanding demand from the island states to limit global warming to 1.5° C by aiming to keep temperatures "well below 2°C," while "pursuing efforts to limit the temperature increase to 1.5°." Although one hundred countries, led by France and Germany, endorsed a firmer 1.5°C target in Paris, India joined with Saudia Arabia to oppose them by questioning the science behind this ambition.[26] The UN has since commissioned a further scientific report, which corroborates the urgency and the feasibility of the 1.5°C target.[27]

India and the Small Island Developing States did band together to demand that climate finance support mitigation efforts as well as adaption to the effects of climate change (the latter has received short shrift in the past). This reflects the fact that may of the negative consequences of rising temperatures are likely to hit India hard, including seawater rise and drought.[28] Thus, in its own internal politics the Indian government must balance concerns from citizens who may soon be deprived of their drinking water and livelihoods by climate change with citizens who are demanding access to those same benefits right now.

In Paris, Modi helped create a powerful new vehicle for climate investment by marking the first day of negotiations with the launch of an International Solar Alliance, together with his French counterpart François Hollande. Over one hundred sunny nations in the tropics agreed to pool technology and expertise in order to expand their solar energy capacity. The alliance also committed to raise $1 trillion in funding by 2030, largely from outside partners in the developed world such as France.[29] The Alliance has now begun operations at its Indian headquarters, although initial work has mainly focused on securing funding and preparing for concrete implementation over the coming decade.[30]

Taking Stock after Paris

After five years, the time has already come to begin to assess the results of the Paris Agreement. In 2020, governments were due to update their NDCs, defining new targets for 2030 ahead of the COP that was scheduled for Glasgow. Because of Covid-19, this process was shifted forward one year to November 2021. In 2020-2021 governments were thus under pressure to announce new national climate goals.[31] Ahead of Glasgow, approximately 1/4 of the countries participating in the Paris Agreement have not yet updated their NDCs, including India.

The UN's provisional assessment indicates that the countries that have revised their NDCs have committed to reduce their global emissions by roughly 9% by 2030, but overall global emissions are still projected to increase by 16%. This means that by 2030, the world would use up nearly 90% of the carbon budget remaining before we reach the 1.5°C threshold, and one year's carbon output (at current rates) would likely put us over the line. We would have to transform the projected 16% increase in global emissions into a 45% reduction by 2030 in order to keep the limit of 1.5°C with reach (an emissions reduction of 25% would be required to attain the goal of 2°C).[32]

Financial cooperation to support climate mitigation is also flagging. 2020 was the deadline for the UNFCCC to mobilize an annual stream of $100 billion in climate finance. Climate finance coming through the UNFCCC rose from $52.4 billion to $79.6 billion from 2013 to 2019, but despite this progress the world is far off track to meet the $100 billion mark.[33] India and other developing countries have argued that they cannot undertake more ambitious climate goals unless adequate funding is assured.

The wavering political commitment to climate cooperation in the rich world also makes it more difficult to demand ambitious action from countries like India. Eyes have been on the United States, which rejoined the Paris Agreement shortly after Joe Biden took office in 2021. In fact, the United States was only formally out of the agreement for a few months. Anticipating objections from Republican colleagues, the Obama team deliberately made withdrawal from the Paris Agreement a cumbersome four-year process while re-entry only takes about one month. Nevertheless, simply announcing the US withdrawal in 2017 sent a clear signal that Trump intended to deprioritize climate change across all areas of federal policy.[34] Domestic political

constraints may hinder aggressive climate action from Biden as well, and any promises that he does make may be rolled back in three years.[35]

With such an uncertain commitment from the world's largest historic emitter, Indian leaders contest being characterized as laggards, noting that they have already over-delivered on many of the pledges in their original NDC. It is true that India is well on-track to meet its goal to increase the energy efficiency of its economy by 35% by 2030, having already achieved gains of 21%. The government successfully promoted more efficient energy consumption at the household level by using bulk purchases and competitive bidding to bring down the unit price for LED bulbs, while also bypassing commercial retail networks. This initiative has increased demand for LED lights roughly fifty-fold while reducing the unit price by 1/3.[36] In addition, India has managed to meet 38% of its power needs from non-carbon sources, very near the 40% ambition for 2030.[37] This figure does include non-renewable nuclear power, while the government will struggle to reach its goal to expand renewable capacity by 175 GW by 2022 (and 450 GW by 2030) at current rates of construction.

Although India is likely to achieve several of its climate goals, many observers argue that the government set itself a low bar in 2015. In particular, the country did not commit to a comprehensive program of decarbonization. Yet recently, Modi has been criticized for investing too much in coal power but also for not investing enough. With its renewable energy sources stretched to the limit, India is now facing critical coal shortages amid a global energy crisis. It remains to be seen how far this experience will undermine political support for the transition away from dirty but reliable fossil fuels, in India as in other countries.[38] India's pledge to counteract new emissions by expanding its forested carbon sink is also in doubt. Reaching the target to absorb an additional 2.5-3 billion tons of CO_2 by 2030 would require India to increase its tree cover by 1/3, and current rates of new planting are not on pace. Moreover, the drive to plant trees demonstrates how the emphasis on greenhouse gases in the Paris Agreement may detract from other ecological priorities. Ambitious government targets have created pressure to plant fast-growing, thirsty trees such as Acacia and Eucalyptus that could durably deplete groundwater. Moreover, these varieties are generally grown in monoculture plantations rather than forests, and so they do not enhance biodiversity. [39]

The Indian government may announce a new NDC during the Glasgow COP, but in any case, a more substantial reckoning will shortly follow. The first full "stock-take" is due to happen from 2021 to 2023, when the parties to the Paris Agreement will collectively evaluate their progress and set new common goals. Governments will then have two years to process the results and prepare new NDCs for 2025. In principle, each round of NDCs should be more ambitious for all governments, although it is still unclear how the additional obligations will be distributed. [40]

Although the process to evaluate and revise the commitments made in Paris has already begun, some of the agreement's core components are still being fleshed out. Notably, the implementation procedures for Article 6, which allows for the transfer of carbon-offsets between countries, have not yet been finalized. This is a potentially transformative mechanism

that would help governments and firms cooperate to reduce carbon outputs along transnational supply chains, but disagreement has been fierce over several rounds of negotiation. Conflict has notably centered on how to prevent "double counting" a given mitigation action towards more than one country's NDC targets. Another point of contention is whether to roll over credits from a similar program under the Kyoto Protocol. China, India, and Brazil are demanding such a transfer, since they had accumulated sufficient carbon-offsets under the old scheme to cover nearly 40% of their current NDCs.[41] Allowing this additional carbon space to three major emitters would require the rest of the world to make deeper emissions cuts to achieve a target of 1.5°-2°C. Expect sharp debate over Article 6 in Glasgow!

Annex 1: Global Emissions in Numbers

1. The World's Largest Producers of CO_2 from the UNFCCC (1992) to the Paris Agreement (2015)

1992 (UNFCCC)	
	Share of global emissions
United States	23%
EU-28*	19%
China	12%
Russia	9%
Japan	5%

2015 (Paris Agreement)		
	Share of global emissions	*Change in annual emissions, 1992-2015*
China	27%	+ 265% (+7.03 billion tons)
United States	15%	+ 4% (+229.3 million tons)
EU-28	10%	– 18% (– 752.74 million tons)
India	6%	+ 243% (+ 1.6 billion tons)
Russia	5%	– 17% (– 334.8 million tons)

2. Per-capita Emissions (2015)

	Based on production	*Based on consumption*
India	1.72 tons	1.58 tons
China	6.88 tons	6.05 tons
EU-28	6.92 tons	7.96 tons
Russia	11.19 tons	9.57 tons
United States	16.87 tons	17.85 tons

Notes: Calculating per-capita CO_2 emissions based on consumption has the advantage of factoring-in the carbon used to produce goods and services along transnational supply chains. However, most emissions targets under the Paris Agreement are based on total production of emissions within a national territory, as represented in the first set of graphs.

The EU is treated as a single unit here, because it functions as a fairly cohesive bloc in international climate talks. EU-28 (including Britain) is used because that was the membership composition at the time of the Paris negotiations in 2015.

Data Sources: Hanna Ritchie and Max Roser, "Our World in Data: CO_2 emissions," accessed October 14, 2021, https://ourworldindata.org/co2-emissions?country=; Hanna Ritchie and Mx Roser, "Our World in Data: CO_2 and Greenhouse Gas Emissions, accessed October 14, 2021, https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions#co2-embedded-in-trade.

Annex 2: India's Development in Comparison with other Large Economies

	GDP per capita *(2015)*	*% Population living below $1.90/day* *(2011)*	*Income share held by lowest 20%* *(2011)*
Brazil	$15,064	5%	3%
China	$12,692	8%	5%
India	**$5,464**	**22%**	**8%**
South Africa	$12,840	16% (2010)	3% (2010)
United States	$58,540	1%	5%
Germany	$51,084	0%	9%

	% Population using basic drinking water services (2015)	*% Population using basic sanitation* *(2015)*	*% Rural population with access to electricity (2015)*
Brazil	98%	86%	98%
China	92%	84%	100%
India	**88%**	**57%**	**83%**
South Africa	85%	73%	81%
United States	99%	100%	100%
Germany	100%	99%	100%

Notes: Here data is provided for the BASIC group of large developing economies (Brazil, South Africa, India, China). For reference, data is also provided for the United States and Germany.

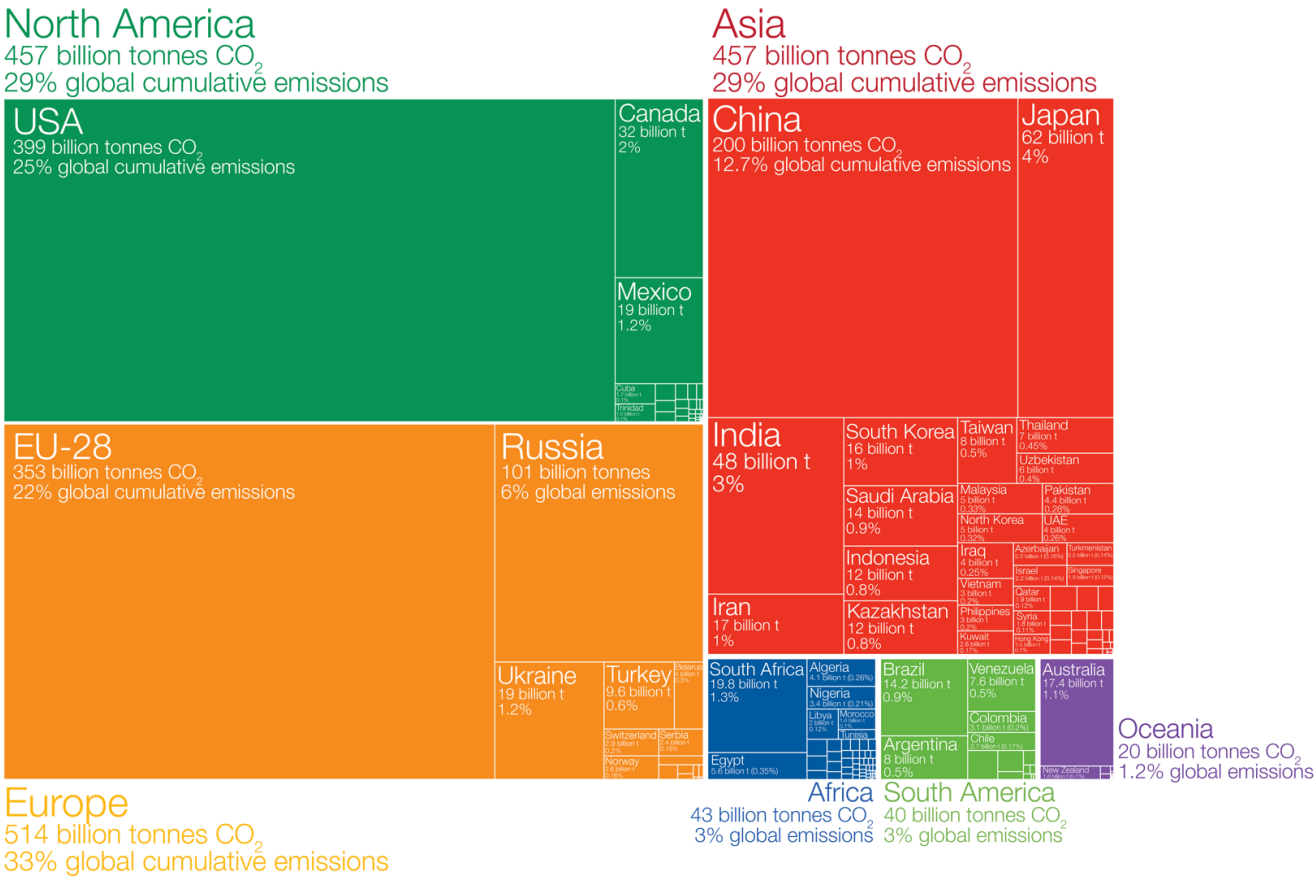
Data sources: "GDP per Capita," Our World in Data, accessed October 14, 2021, https://ourworldindata.org/grapher/gdp-per-capita-worldbank; The World Bank, "World Development Indicators | DataBank," accessed October 25, 2021, https://databank.worldbank.org/source/world-development-indicators#.

Annex 3: Historical Responsibility for Global Warming

Who has contributed most to global CO_2 emissions?

Our World in Data

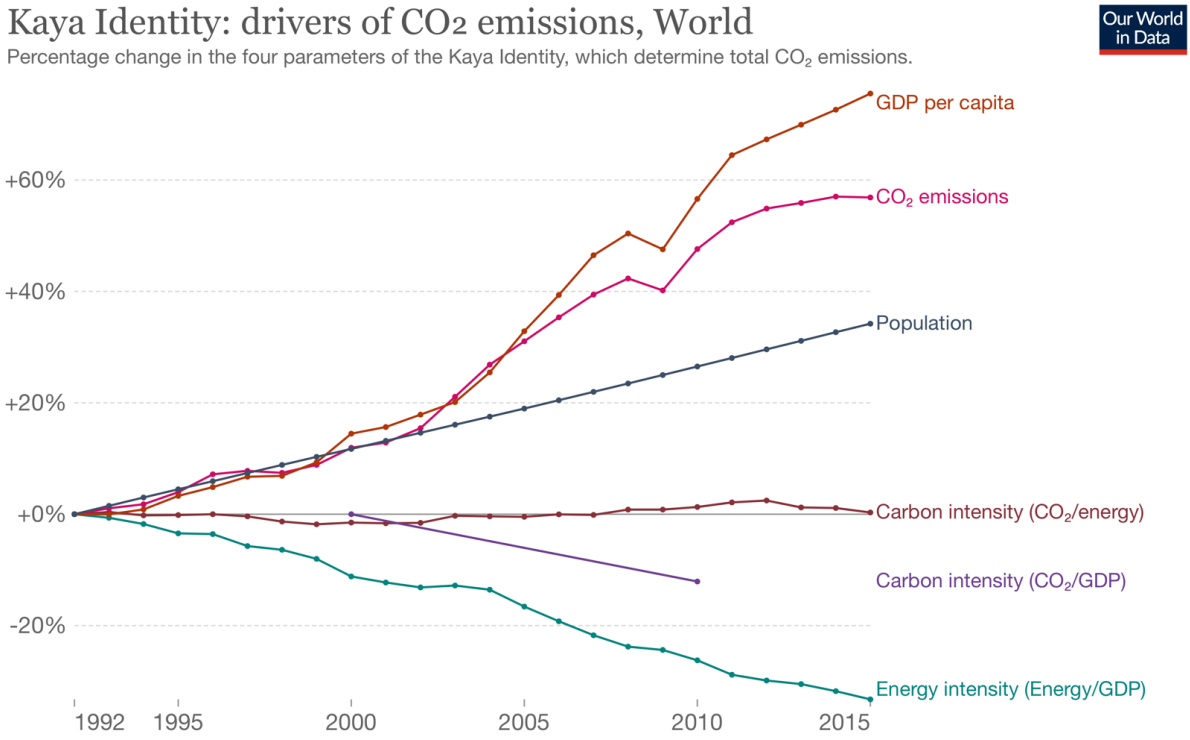
Cumulative carbon dioxide (CO_2) emissions over the period from 1751 to 2017. Figures are based on production-based emissions which measure CO_2 produced domestically from fossil fuel combustion and cement, and do not correct for emissions embedded in trade (i.e. consumption-based). Emissions from international travel are not included.



Figures for the 28 countries in the European Union have been grouped as the 'EU-28' since international targets and negotiations are typically set as a collaborative target between EU countries. Values may not sum to 100% due to rounding.

Data source: Calculated by Our World in Data based on data from the Global Carbon Project (GCP) and Carbon Dioxide Analysis Center (CDIAC).
This is a visualization from OurWorldinData.org, where you find data and research on how the world is changing.

Annex 4: Economic Growth, Emissions, and Energy Efficiency



Source: Our World in Data based on Global Carbon Project; UN; BP; World Bank; Maddison Project Database
Note: GDP per capita is measured in 2011 international-$ (PPP). This adjusts for inflation and cross-country price differences.
OurWorldInData.org/co2-and-other-greenhouse-gas-emissions • CC BY

[1] Demetri Sevastopulo and Pilita Clark, "Paris Climate Deal Will Not Be a Legally Binding Treaty," *The Financial Times*, November 11, 2015, https://www.ft.com/content/79daf872-8894-11e5-90de-f44762bf9896; Victor Mallet, "COP21 Paris Climate Talks: India Looms as Obstacle to Deal," *The Financial Times*, November 29, 2015, https://www.ft.com/content/bfb36a16-94e5-11e5-bd82-c1fb87bef7af; Ashok Lavasa, "Reaching Agreement in Paris: A Negotiator's Perspective," in *India in a Warming World: Integrating Climate Change and Development*, ed. Navroz K. Dubash (Oxford University Press, 2019), 170, https://doi.org/10.1093/oso/9780199498734.003.0007.

[2] "United Nations Framework Convention on Climate Change" (United Nations, 1992), https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf.

[3] Hannah Ritchie and Max Roser, "Emissions Drivers," Our World in Data, May 11, 2020, https://ourworldindata.org/emissions-drivers; "GDP per Capita," Our World in Data, accessed October 14, 2021, https://ourworldindata.org/grapher/gdp-per-capita-worldbank.

[4] Narendra Modi, "The Rich World Must Take Greater Responsibility for Climate Change," *Financial Times*, November 29, 2015, https://www.ft.com/content/03a251c6-95f7-11e5-9228-87e603d47bdc.

[5] Sandeep Sengupta, "India's Engagement in Global Climate Negotiations from Rio to Paris," in *India in a Warming World: Integrating Climate Change and Development*, ed. Navroz K. Dubash (Oxford University Press, 2019), 116, https://doi.org/10.1093/oso/9780199498734.003.0007.

[6] "United Nations Framework Convention on Climate Change." https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

[7] Alan Buis and NASA's Jet Propulson Laboratory, "The Atmosphere: Getting a Handle on Carbon Dioxide," NASA Global Climate Change: Vital Signs of the Planet, October 9, 2019, https://climate.nasa.gov/news/2915/the-atmosphere-getting-a-handle-on-carbon-dioxide.

[8] Mathias Friman and Mattias Hjerpe, "Agreement, Significance, and Understandings of Historical Responsibility in Climate Change Negotiations," *Climate Policy* 15, no. 3 (May 4, 2015): 302–20, https://doi.org/10.1080/14693062.2014.916598.

[9] Sengupta, "India's Engagement in Global Climate Negotiations from Rio to Paris," 119.

[10] Annalisa Savaresi, "The Paris Agreement: A New Beginning?," *Journal of Energy & Natural Resources Law* 34, no. 1 (January 2, 2016): 16–17, https://doi.org/10.1080/02646811.2016.1133983.

[11] Aaron M. McCright and Riley E. Dunlap, "Defeating Kyoto: The Conservative Movement's Impact on U.S. Climate Change Policy," *Social Problems* 50, no. 3 (August 2003): 349, https://doi.org/10.1525/sp.2003.50.3.348; Sengupta, "India's Engagement in Global Climate Negotiations from Rio to Paris," 120–21.

[12] D. Raghunandan, "India in International Climate Negotiations: Chequered Trajectory," in *India in a Warming World: Integrating Climate Change and Development*, ed. Navroz K. Dubash (Oxford University Press, 2019), 199, https://doi.org/10.1093/oso/9780199498734.003.0007.

[13] Fang Rong, "Understanding Developing Country Stances on Post-2012 Climate Change Negotiations: Comparative Analysis of Brazil, China, India, Mexico, and South Africa," *Energy Policy* 38, no. 8 (August 2010): 4583–86, https://doi.org/10.1016/j.enpol.2010.04.014; Raghunandan, "India in International Climate Negotiations: Chequered Trajectory," 196; Lavasa, "Reaching Agreement in Paris: A Negotiator's Perspective," 171, 175.

[14] See "Per capita emissions" in Hanna Ritchie and Max Roser, "Our World in Data: CO_2 emissions," available at https://ourworldindata.org/co2-emissions?country=.

[15] Quoted in Sengupta, "India's Engagement in Global Climate Negotiations from Rio to Paris," 121.

[16] Based on data from Hanna Ritchie and Max Roser, "Our World in Data: CO_2 emissions," available at https://ourworldindata.org/co2-emissions?country=.

[17] Savaresi, "The Paris Agreement," 18; Lavasa, "Reaching Agreement in Paris: A Negotiator's Perspective," 173.

[18] Ajay Mathur, "India and Paris: A Pragmatic Way Forward," in *India in a Warming World : Integrating Climate Change and Development*, ed. Navroz K. Dubash (Oxford University Press, 2019), 225–26, https://doi.org/10.1093/oso/9780199498734.003.0013.

[19] Savaresi, "The Paris Agreement," 18; Mathur, "India and Paris," 227; "India's Intended Nationally Determined Contribution: Working Towards Climate Justice" (UNFCCC NDC Registry), accessed October 14, 2021, https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/India%20First/INDIA%20INDC%20TO%20UNFCCC.pdf.

[20] Quoted in Lavasa, "Reaching Agreement in Paris: A Negotiator's Perspective," 179.

[21] "Paris Agreement" (United Nations, 2015), https://unfccc.int/sites/default/files/english_paris_agreement.pdf.

[22] Lavasa, "Reaching Agreement in Paris: A Negotiator's Perspective," 182.

[23] Quoted in Radoslav S. Dimitrov, "The Paris Agreement on Climate Change: Behind Closed Doors," *Global Environmental Politics* 16, no. 3 (August 2016): 1–11, https://doi.org/10.1162/GLEP_a_00361.

[24] Matt McGrath, "Climate Change: US Formally Withdraws from Paris Agreement," *BBC News*, November 4, 2020, sec. Science & Environment, https://www.bbc.com/news/science-environment-54797743.

[25] Savaresi, "The Paris Agreement," 20.

[26] Karl Mathiesen and Diego Arguedas, "India and Saudi Arabia Reject Science for 1.5 Degrees Goal," *SciDev.Net*, August 12, 2015, Asia&Pacific edition, https://www.scidev.net/asia-pacific/news/india-saudi-arabia-reject-science-degrees-goal-1-1/.

[27] Intergovernmental Panel on Climate Change, "Special Report: Global Warming of 1.5°C," accessed October 6, 2021, https://www.ipcc.ch/sr15/.

[28] Raghunandan, "India in International Climate Negotiations: Chequered Trajectory," 190; Mathur, "India and Paris," 224.

[29] Lavasa, "Reaching Agreement in Paris: A Negotiator's Perspective," 178; Mathur, "India and Paris," 228–29.

[30] "International Solar Alliance - Our Work - Activities," accessed October 21, 2021, https://isolaralliance.org/work/activites.

[31] UN Climate Change Conference UK 2021, in Partnership with Italy, "COP 26 Explained," accessed October 13, 2021, https://ukcop26.org/wp-content/uploads/2021/07/COP26-Explained.pdf.

[32] UNFCCC, "Nationally Determined Contributions under the Paris Agreement: Revised Synthesis Report by the Secretariat," accessed October 26, 2021, https://unfccc.int/sites/default/files/resource/cma2021_08rev01_adv.pdf.

[33] OECD, *Climate Finance Provided and Mobilised by Developed Countries: Aggregate Trends Updated with 2019 Data*, Climate Finance and the USD 100 Billion Goal (OECD, 2021), https://doi.org/10.1787/03590fb7-en.

[34] UNFCCC, "Full NDC Synthesis Report: Some Progress, but Still a Big Concern."

[35] Coral Davenport, "Key to Biden's Climate Agenda Likely to Be Cut Because of Manchin Opposition," *The New York Times*, October 15, 2021, sec. Climate, https://www.nytimes.com/2021/10/15/climate/biden-clean-energy-manchin.html.

[36] Aditya Chunekar and Sanjana Mulay, "Plugging-in: India's LED Lighting Story," November 14, 2017, https://cprindia.org/news/6527.

[37] Anjali Jaiswal and Madhura Joshi, "Climate Action: All Eyes on India," NRDC, accessed October 13, 2021, https://www.nrdc.org/experts/anjali-jaiswal/climate-action-all-eyes-india.

[38] "No Reason for Any Country to Include Coal in COVID-19 Recovery Plans, Says UN Chief," *The Hindu*, June 26, 2020, sec. International, https://www.thehindu.com/news/international/no-reason-for-any-country-to-include-coal-in-covid-19-recovery-plans-un-chief/article31920491.ece; Arunoday Mukharji, "Why India Is on the Brink of an Unprecedented Power Crisis - BBC News," accessed October 21, 2021, https://www.bbc.com/news/business-58824804.

[39] Alice Saju, "Can India Meet Its NDC Target under Paris Climate Agreement by 2030," @businessline, accessed October 13, 2021, https://www.thehindubusinessline.com/news/can-india-meet-its-ndc-target-under-paris-climate-agreement-by-2030/article33640924.ece; Press Trust of India, "Centre Approves Strategy to Create Carbon Sink of 3 Billion Tonnes from Forests by 2030," *Business Standard India*, March 8, 2019, https://www.business-standard.com/article/pti-stories/centre-approves-strategy-to-create-carbon-sink-of-3-billion-tonnes-from-forests-by-2030-119030800890_1.html; Joydeep Gupta, "While Meeting Its Unambitious Climate Pledge, India Is Pushing Coal-Fired Power Plants," Scroll.in (https://scroll.in), accessed October 13, 2021, https://scroll.in/article/981113/while-meeting-its-unambitious-climate-pledge-india-is-pushing-coal-fired-power-plants.

[40] "Global Stocktake | UNFCCC," accessed October 13, 2021, https://unfccc.int/topics/global-stocktake#eq-1.

[41] Kartik Chandramouli, "Talks on Carbon Markets Put Climate Future in a Fix," *Mongabay*, December 12, 2019, sec. Environmental news, https://india.mongabay.com/2019/12/article-6-cop-25-talks-on-carbon-markets-put-climate-future-in-a-fix/.