CONFRONTING CARBON INEQUALITY

Putting climate justice at the heart of the COVID-19 recovery

Despite sharp falls in carbon emissions in 2020 linked to the COVID-19 pandemic, the climate crisis – which is driven by the accumulation of emissions in the atmosphere over time – continued to grow. This briefing describes new research that shows how extreme carbon inequality in recent decades has brought the world to the climate brink. It sets out how governments must use this historic juncture to build fairer economies within the limits our planet can bear.

'As Oxfam's new report shows, our current economic model has been an enabler of catastrophic climate change and equally catastrophic inequality. The COVID-19 pandemic provides an incontestable imperative to rebuild better and place the global economy on a more sustainable, resilient and fairer footing. Addressing the disproportionate carbon emissions from the wealthiest in society must be a key priority as part of this collective commitment.'

Ban Ki-moon, Deputy Chair of The Elders, former Secretary-General of the United Nations

'Oxfam's timely report shows once again that to tackle climate change we must fight for social and economic justice for everyone. My indigenous peoples have long borne the brunt of environmental destruction, and now is the time to listen, to integrate our knowledge, and to prioritize saving nature to save ourselves.'

Hindou Oumarou Ibrahim, environmental activist, member of Chad's pastoralist Mbororo community, and President of the Association for Indigenous Women and Peoples of Chad (**AFPAT**).

'The manifest refusal of leaders to deal with massive inequality stands in the way of urgently needed climate ambition. We need a Just Transition, for workers, their families and communities at all levels, from the work floor, in economic sectors, at the national level and at the global climate negotiations. We need climate justice and a voice at the table for those most affected by the climate emergency.'

Sharan Burrow, General Secretary of the International Trade Union Congress

OXFAM

SUMMARY

Amidst the global health and economic crises, the climate crisis continues to grow. Extreme weather disasters have not stalled during the COVID-19 pandemic – from cyclone Amphan in India and Bangladesh to the wildfires raging in the USA – serving as a potent reminder that the world stands perilously close to exceeding the 1.5C goal of the Paris Agreement.

New research by Oxfam and the Stockholm Environment Institute (SEI) reveals the extreme carbon inequality in recent decades that has driven the world to the climate brink. From 1990 to 2015, a critical period in which annual emissions grew 60% and cumulative emissions doubled, we estimate that:

- The richest 10% of the world's population (c.630 million people) were responsible for 52% of the cumulative carbon emissions – depleting the global carbon budget by nearly a third (31%) in those 25 years alone (see Figure 1);
- The poorest 50% (c.3.1 billion people) were responsible for just 7% of cumulative emissions, and used just 4% of the available carbon budget (see Figure 1);
- The richest 1% (c.63 million people) alone were responsible for 15% of cumulative emissions, and 9% of the carbon budget – twice as much as the poorest half of the world's population (see Figure 1);
- The richest 5% (c.315 million people) were responsible for over a third (37%) of the total growth in emissions (see Figure 2), while the total growth in emissions of the richest 1% was three times that of the poorest 50% (see Figure 6).

Cumulative emissions, COVID-19 and the global carbon budget

The climate crisis is driven by the accumulation of emissions added to the atmosphere over time – which is why the drop in emissions due to lockdowns in 2020 will have only a tiny impact without further, year-on-year emissions cuts.[1]

The global carbon budget defines the maximum amount of cumulative emissions that can be added if the rise in average global temperature is to be kept below a certain level, such as the Paris Agreement's 1.5C goal, after which net emissions must be zero.

Allocating global carbon emissions to individuals

Oxfam and SEI's research estimates how global carbon emissions are attributed to individuals who are the end consumers of goods and services for which the emissions were generated. See Box 2.

Restrictions related to the pandemic saw global emissions fall this year. But unless emissions continue to decline rapidly, the 1.5C global carbon budget will be fully depleted by 2030. The inequality is such that the richest 10% alone would fully deplete it by just a few years later, even if everyone else's emissions dropped to zero tomorrow.

Over the past 20-30 years, the climate crisis has been fuelled and our limited global carbon budget squandered in the service of increasing the consumption of the already affluent, rather than lifting people out of poverty. The two groups that suffer most from this injustice are those least responsible for the climate crisis: poorer and marginalized people already struggling with climate impacts today, and future generations who will inherit a depleted carbon budget and a world accelerating towards climate breakdown.

It took about 140 years to use 750Gt of the global carbon budget, and just 25 years from 1990 to 2015 to use about the same again – over half of which linked to the consumption of just the richest 10% of people. The remainder will be entirely used up by 2030, without urgent action now.

Governments must put tackling the twin climate and inequality crises at the heart of the COVID-19 recovery. A failure to confront extreme carbon inequality at this historic juncture – prioritizing yet more grossly unequal, carbon intensive economic growth to the benefit of the rich minority – will mean jumping from the frying pan of the current pandemic to the fire of an uncontrolled and irreversible climate crisis.

Yet while the pandemic triggered a chaotic and often inequitable contraction in consumption around the world, it has also shown that once unthinkable changes to the lifestyles of the richest in society can be adopted in the interests of us all. Public policies – from taxing luxury carbon like SUVs, frequent business class flights and private jets, to expanding digital and public transport infrastructure – can cut emissions, reduce inequality and boost public health. But to do so before the carbon budget for 1.5C is totally depleted, they must happen now.

1 THE ERA OF EXTREME CARBON INEQUALITY

The 25 years from 1990 to 2015 saw a rapid escalation of the climate crisis, as global annual carbon emissions grew by around 60%, and the total emissions added to the atmosphere since the mid-1800s approximately doubled.[2]

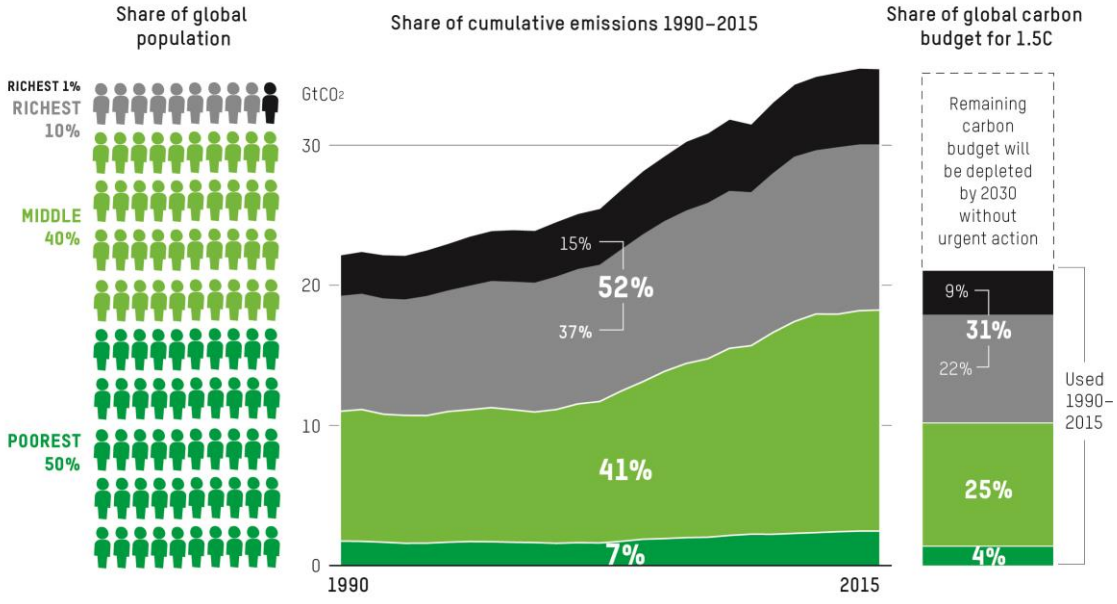
Global GDP doubled in this period too, and while there was significant progress in reducing the proportion of humanity living in extreme poverty (on less than $1.90/day),[3] income inequality grew around the world, with the share of national income captured by the richest 1% increasing in most countries.[4] It is striking that in 2015 – even after that huge expansion in global GDP – nearly half the world's population still earned less than the more realistic $5.50/day poverty line.[5]

Figure 1 shows our estimate of the carbon emissions associated with consumption by different global income groups in this period, and the corresponding depletion of the 1.5C global carbon budget. For details of the methodology, see Box 2 and the accompanying Oxfam/SEI research report.[6] We estimate that between 1990 and 2015:

- The richest 10% of humanity (c.630 million people) accounted for 52% of the cumulative emissions, depleting the global carbon budget for 1.5C by nearly a third (31%);
- The richest 1% (c.63 million people) alone accounted for over 15% of the cumulative emissions, using up 9% of the carbon budget: more than twice the poorest 50% (c.3.1 billion people), or more than the entire cumulative emissions of citizens in the EU;[7]
- The 40% of humanity in the global middle class (c.2.5 billion people) accounted for 41% of the cumulative emissions, and 25% of the carbon budget, while the poorest 50% accounted for just 7% of cumulative emissions, and a mere 4% of the budget.

If emissions re-bound as restrictions related to the coronavirus pandemic are lifted the 1.5C global carbon budget will be fully depleted by 2030, the richest 10% alone would fully deplete it by just a few years later, even if everyone else's emissions dropped to zero tomorrow.

Figure 1: Share of cumulative emissions from 1990 to 2015 and use of the global carbon budget for 1.5C linked to consumption by different global income groups



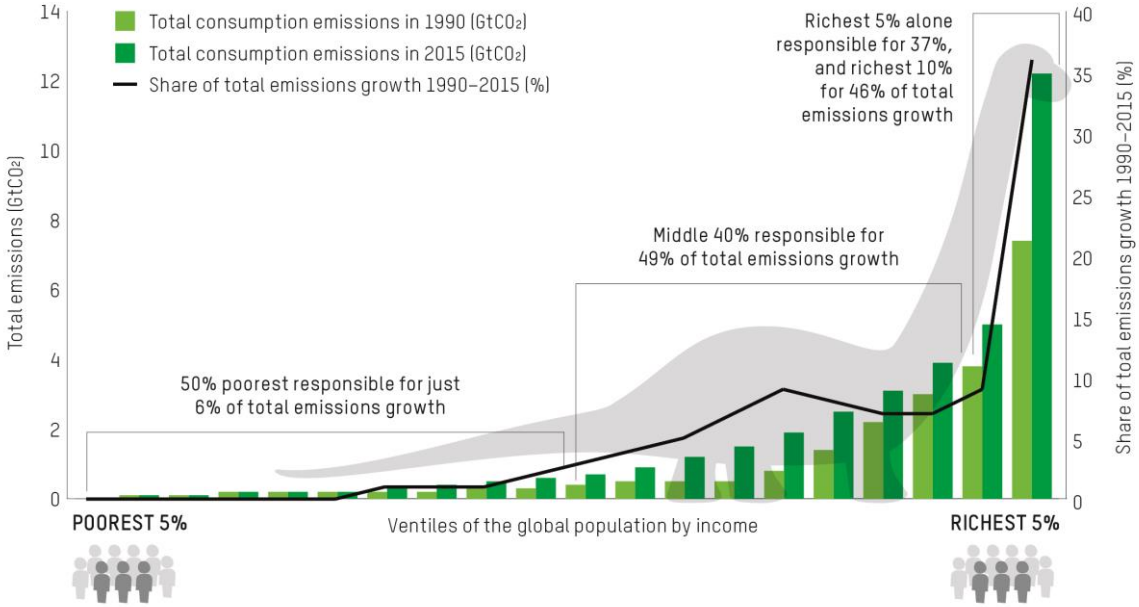
Per capita income threshold (SPPP2011) of richest 1%: $109k; richest 10%: $38k; middle 40%: $6k; and bottom 50%: less than $6k.
Global carbon budget from 1990 for 33% risk of exceeding 1.5C: 1,205Gt.

It is striking that the shares of emissions across income groups have remained essentially unchanged across the period. While millions of people escaped extreme poverty in countries like China and India, significantly increasing their incomes and associated consumption emissions, consumption emissions also continued to grow among the richest.

Figure 2 shows how consumption emissions grew between 1990 and 2015 for each ventile (5%) of the population. While *per capita* consumption emissions increased the most among the global middle classes – from a very low starting point – the richest income groups contributed most to the *absolute* growth in global emissions – the shape of the curve resembling a dinosaur. We estimate that from 1990 to 2015:

- The richest 5% (around 315 million people) accounted for over a third (37%) of the total growth in emissions;
- The richest 10% (around 630 million people) accounted for 46% of the total emissions growth – only marginally less than the 49% contributed by the middle 40%. The poorest 50% barely increased their consumption emissions at all.

Figure 2: The 'dinosaur graph' of unequal carbon emissions growth 1990-2015



Unequal growth and climate justice

Unequal economic growth slows poverty reduction rates. The World Bank recently concluded that continued unequal growth will barely make a dent in the number of people living on less than $1.90 per day by 2030; only a reduction in income inequality will help.[8] One estimate suggests it would take around 200 years at current rates to lift everyone above the $5.50 poverty line – a terribly inefficient and morally indefensible approach to poverty reduction.[9]

But unequal growth has another cost: it means that the global carbon budget is being rapidly depleted, not for the purpose of lifting all of humanity to a decent standard of living, but to a large extent to expand the consumption of a minority of the world's very richest people.[10]

Doubling the per capita footprint of the poorest 50% of the world's population from 1990 to 2015 would have increased total global emissions by *less than* the growth in emissions associated with the richest 1% in this period.

This is an injustice which is felt most cruelly by two groups who have contributed least to the climate crisis: the world's poorest and most vulnerable people around the world today – already experiencing the impacts of a world that is 1C hotter – and future generations who will inherit a depleted carbon budget and an even more dangerous climate.

Box 1: Intersectional climate injustice

It is vital to recognize that the income-based carbon inequalities explored here are inter-twined with and reinforce other power structures associated with gender, race, age or caste, among others. This helps to explain why in many countries, for example, white men tend to be over-represented among the highest income groups, and women of colour among the lowest.[11]

Our dataset is built on household surveys that do not allow for disaggregation by gender or any other category, although there is plenty of evidence that household members do not have equal access to resources,[12] which would very likely be reflected in varying carbon consumption footprints. For example, in poorer countries, women and girls of reproductive age were found to be more likely to live in low-income households,[13] while poverty and deprivation have been found among women in non-poor households[14]. In richer countries, studies have found that men in Sweden accounted for 75% of all driving in person-kilometres,[15] and that women in Canada account for only 31% of carbon emissions from light vehicles.[16]

Women also often experience the impacts of climate change differently from men: whether walking further to collect water, being last to eat during droughts, or assuming most of the household caring responsibilities in the wake of extreme weather.[17] But these inequalities can be seen in many other, often overlapping, dimensions too, as consideration of just one climate impact, extreme heat, reveals:

- By income: in hot countries, poorer households are more likely to be exposed to higher temperatures than richer ones;[18]
- By race: in the USA, so-called 'redlined', predominantly black neighbourhoods that were historically denied access to investment, experience temperatures up to 7C (12F) hotter than in other neighbourhoods in the same city, a result of fewer green areas;[19]
- By age: in Canada, 8 in 10 premature deaths from heat-related causes are in victims aged 60 and over;[20]
- By occupation: in India, outdoor workers in sectors like agriculture and construction, comprising 75% of the workforce (and in the case of agriculture employing 80% of economically active women[21]), are particularly exposed in a country that could be the first to see heatwaves that cross the survivability limit for a healthy person.[22]

Box 2: Methodological approach to estimating carbon inequality

Oxfam and SEI's approach to estimating how global carbon emissions can be attributed to individuals based on their consumption builds on Oxfam's 2015 report 'Extreme Carbon Inequality,'[23] which gave a snapshot of the global distribution of emissions in a single year, and that of Chancel and Piketty[24] among others. It is explained in detail in the accompanying research report.[25]

We start with national consumption emissions data for 117 countries from 1990 to 2015 period. This reflects both the emissions produced in a country and those embedded in imports, while excluding those embedded in exports. We allocate national consumption emissions to individuals within each country based on a functional relationship between income and emissions, drawing on new income distribution datasets.

We assume, based on numerous studies at national, regional and global levels, that emissions rise in proportion to income, above a minimum emissions floor and to a maximum emissions ceiling. These estimates of the consumption emissions of individuals in each country are then sorted into a global distribution according to income.

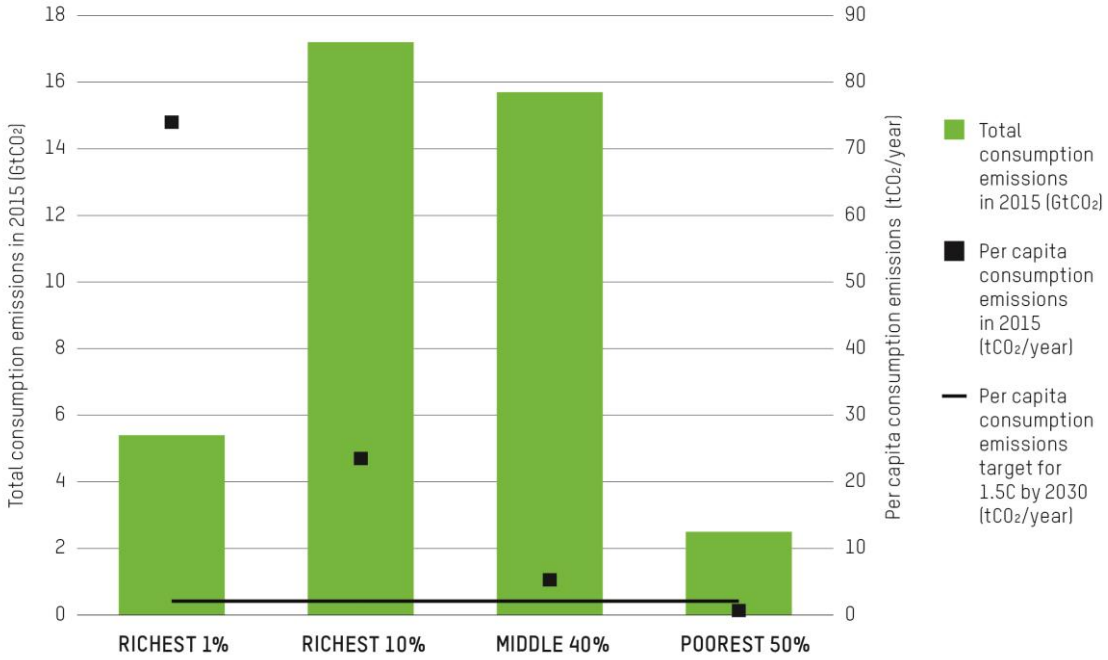
2 TACKLING CARBON INEQUALITY

Over the past 20 years, much of the popular and political debate about climate change has focused on the impact of the global middle class in countries like China and India. While this is important, our analysis suggests that close attention is also needed on the out-sized impact of the world's richest people – wherever they live – to encourage a more equitable use of the remaining global carbon budget.

To limit global heating to 1.5C, global average per capita emissions should be approximately 2.1t/year by 2030.[26] Based on our estimates, as shown in Figure 3:

- The per capita consumption footprints of the richest 1% are currently around 35 times higher than the target for 2030, and more than 100 times higher than the poorest 50%. The per capita footprint of the richest 10% is more than 10 times the 1.5C-consistent target for 2030, and more than 30 times higher than the poorest 50%.
- Reducing the per capita footprint of the richest 10% to the 1.5C-consistent level by 2030 would cut annual carbon emissions by over a third (>15Gt), and even reducing it just to the level of the EU average (8.2t/year) would cut annual emissions by over a quarter (c.10Gt).

Figure 3: Total and per capita consumption emissions of individuals in different global income groups in 2015

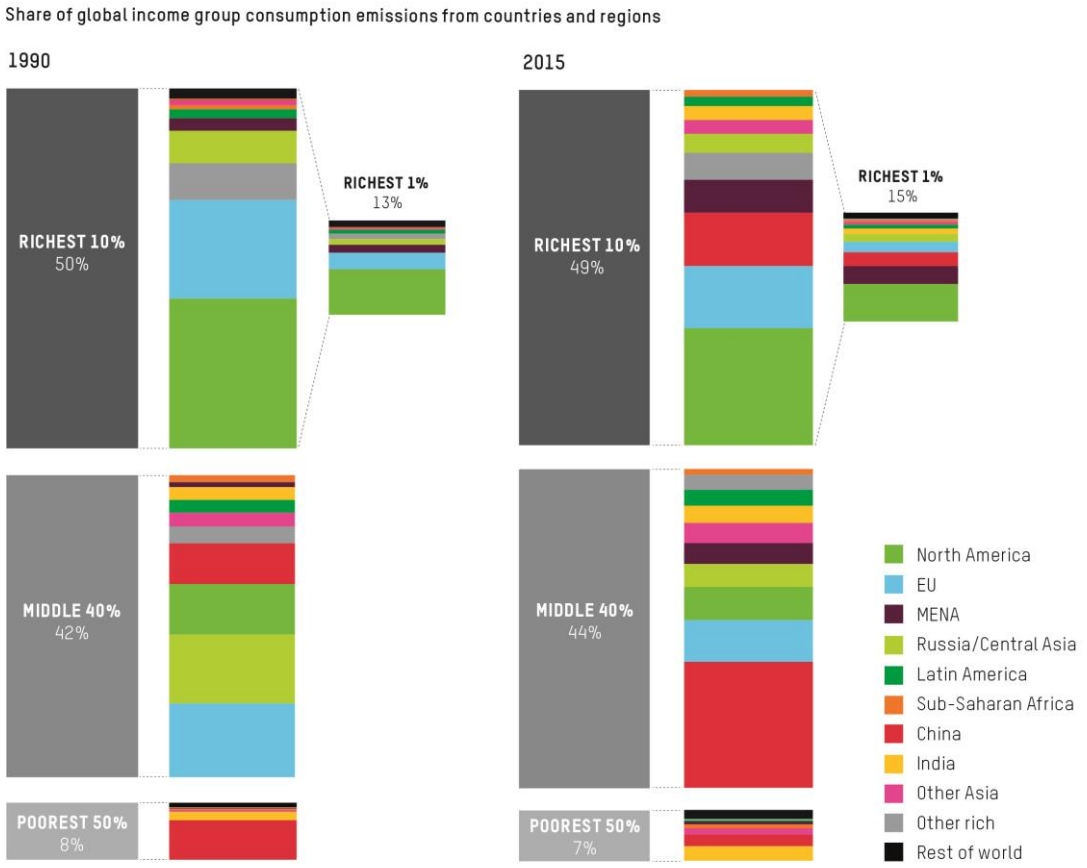


Where to start?

The richest 10% of the world population live in every continent, and the geographic composition of the group has evolved over the last 20-30 years. As indicated in Figure 4:

- Around half the emissions of the richest 10% (24.5% of global emissions) are today associated with the consumption of citizens of North America[27] and the EU, and around a fifth (9.2% of global emissions) with citizens of China and India.
- Over a third of the emissions of the richest 1% (5.7% of global emissions) are today linked to citizens in the US, with the next biggest contributions coming from residents of the Middle East and China (2.7% and 2.1% of global emissions respectively).

Figure 4: The changing geographic composition of consumption emissions in different global income groups 1990-2015



The forms of consumption that make up the very high footprints of these groups may vary considerably depending on the national context in which they live, among other factors. For example, emissions from driving will likely be higher in less densely populated countries; emissions from home heating will be higher in colder ones.[28] Nonetheless, some patterns in the consumption habits of high-income people can be identified based on nationally specific studies. As an example, Figure 5 shows the consumption categories associated with households in the top 10% and 1% of emitters in the EU, based on another recent analysis.[29]

Figure 5: Main categories of consumption among highest emitters in the EU (2010)[30]

By far the largest share of emissions among these high EU emitters is from transport: car journeys, and especially for the very highest emitters, flights. This pattern seems to be common across regions: another recent study estimated that the top 10% richest households globally use around 45% of all the energy linked to land transport, and around 75% of all energy linked to aviation, compared with just 10% and 5% respectively for the poorest 50%.[32]

In the USA, transport emissions have been rising every year since 2012, and since 2016 have been the country's single biggest source of emissions, surpassing the power sector.[31]

Transport – which accounts for around a quarter of global carbon emissions today, most of which are from road vehicles, and rising fast in many countries – was found to be the most unequal consumption category, with an income elasticity of demand much higher than 1 (i.e. if income increases 100%, spending on transport increases by more than 100%). By contrast, home heating and electricity are found to be more inelastic, implying they are more basic goods, which tend to constitute the majority of emissions footprints of lower income groups.

The International Energy Agency calculated that the luxury car market for Sports Utility Vehicles (SUVs) was the biggest driver of carbon emissions growth from 2010 to 2018 after the power sector. Today almost half of new cars sold in the USA and a third in the EU are SUVs.[33]

Understanding these differences is critical to identifying policy measures to reduce consumption emissions footprints equitably. Taxes or bans are more appropriate measures to curtail luxury carbon consumption of items like SUVs and high-end sports cars, or frequent business-class and private jet flights.[34] Alternatively, public investment, such as in energy efficiency improvements in affordable housing, is more appropriate to improve footprints associated with home heating, to avoid regressive impacts on lower income households.

Box 3: Individual responsibility versus systemic change

While relatively rich individuals can make a significant difference through voluntary action – such as by flying less or choosing public transport – much more is needed.

Today's extreme carbon inequality is the result of political choices made over the past 20-30 years, a period dominated by neoliberal economic thinking and elite political capture that has seen income and wealth inequality in most countries soar,[35] reflecting deeply entrenched systems of patriarchy and colonialism that prioritize domination and enrichment of some, at the cost of others.

These systemic causes require systemic solutions: new economic models that don't depend on the endless growth in consumption of the already affluent. Beyond shifting energy supply, policies are needed that reduce demand among the richest, highest emitters, while prioritizing efforts to ensure everyone can realize their human rights.[36]

Such progressive, demand-side policies might include special taxes or bans for high carbon luxury goods and services; wider carbon prices with pro-poor revenue recycling; broader income and wealth redistribution; or challenging stereotypes that promote growth and individual consumerism as normal, desirable, 'powerful' and 'masculine'.

Beyond cutting high income footprints alone, such measures may lead to a broader 'social tipping point'[37] that makes reductions by other relatively high emitters more acceptable,[38] challenges the political influence of high emitters,[39] and sparks wider shifts in social, gendered and racial norms about endless consumption.[40]

Recommendations for economic recovery from COVID-19

Governments must put tackling the twin crises of climate and inequality at the heart of recovery efforts from the COVID-19 pandemic. They have an historic, and final, opportunity to start building fairer economies within the limits of our planet, creating decent jobs that people need now and strengthening the resilience of the most vulnerable to future shocks, while safeguarding our climate for future generations.

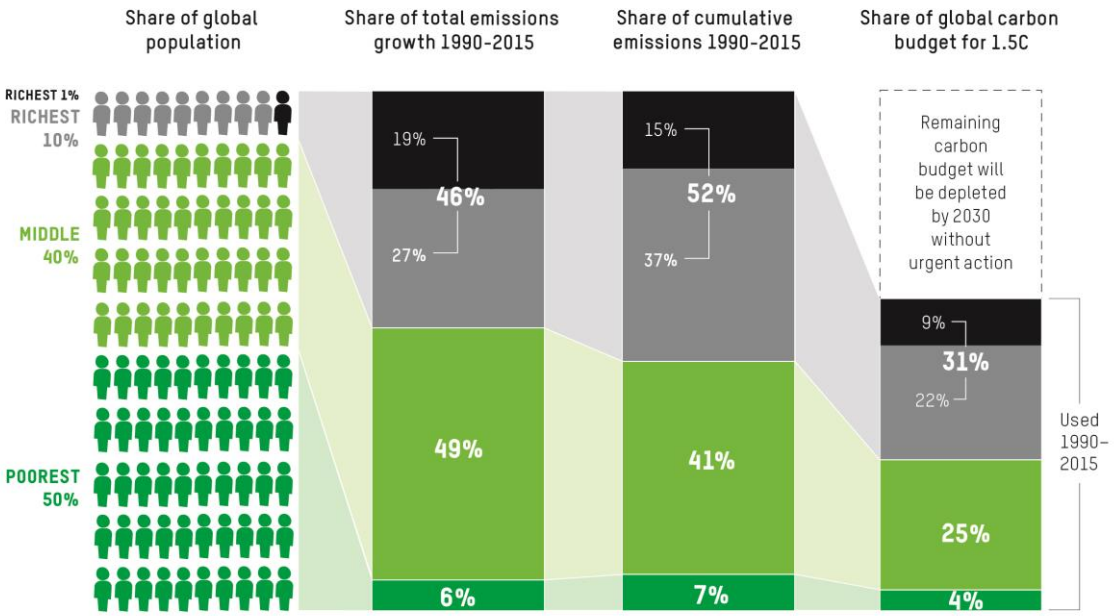
The pandemic triggered an unplanned and often inequitable contraction in consumption around the world. But it has also shown that governments can act radically in the face of an imminent threat, and that once unthinkable changes to the lifestyles of the global rich can be adopted in the interests of us all.

The right public policy measures, enacted now, can both cut the emissions of the richest before the 1.5C global carbon budget is completely depleted, and create healthier, more

cohesive and resilient societies. In addition to essential measures to rapidly shift energy supply to sustainable renewable sources, governments should consider:

- Wealth taxes, luxury carbon taxes – such as carbon sales taxes on SUVs, private jets or super yachts, or levies on business class or frequent flights – and wider progressive carbon pricing to fund, for example, the expansion of universal social services;
- Ending the tax-free status of aircraft fuel, unconditional aviation industry bailouts and tax breaks for company cars;
- Public investment, including to create decent job guarantees, alongside working-time reductions where appropriate, for example in:
    - building infrastructure for electric mobility, public transport, cycling, walking and digital communications to create alternatives to carbon-intensive transport;
    - improving energy efficiency of housing, especially to reduce energy bills for low-income or marginalized groups;
    - expanding low-carbon sectors like health and social care which overwhelmingly benefit women, low-income and marginalized groups;
- Banning advertising in public spaces, requiring more circular business models and a right to repair on manufactured goods, and changing corporate governance to curtail companies' short-termism and create accountability for long-term social and environmental impacts;
- Setting science- and equity-based national targets to reduce carbon emissions from consumption as well as production, and developing a wider set of gender-transformative indicators of economic progress beyond GDP, such as New Zealand's Wellbeing Budget;
- And, critically, incorporating principles of social dialogue at all levels to ensure that the voices of workers in affected industries, women, low-income and marginalized groups are heard in designing just transitions to an economy that keeps global heating below 1.5C and a society that enables all its members to thrive.

Figure 6: Summary of headline findings from Oxfam and SEI's new research



Per capita income threshold (SPPP2011) of richest 1%: $109k; richest 10%: $38k; middle 40%: $6k; and bottom 50%: less than $6k.
Global carbon budget from 1990 for 33% risk of exceeding 1.5C: 1,205Gt.

NOTES

1 R. Betts et al. (2020). Analysis: What impact will the coronavirus pandemic have on atmospheric CO2? https://www.carbonbrief.org/analysis-what-impact-will-the-coronavirus-pandemic-have-on-atmospheric-co2

2 Global cumulative CO2 emissions 1850-1989 were approximately 753Gt according to http://cait.wri.org/ and were 722Gt 1990-2015 in our dataset.

3 From 1990-2015, the poverty rate at $1.90/day fell from 36% to 10%. See https://data.worldbank.org/

4 United Nations Department of Economic and Social Affairs (UNDESA) (2020). World Social Report 2020: Inequality In A Rapidly Changing World. https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/01/World-Social-Report-2020-FullReport.pdf

5 From 1990-2015, the poverty rate at $5.50/day fell from 67.1% to 46.2%. See https://data.worldbank.org/

6 S. Kartha, E. Kempt-Benedict, E. Ghosh, A. Nazareth and T. Gore. (2020). The Carbon Inequality Era: An assessment of the global distribution of consumption emissions among individuals from 1990 to 2015 and beyond. Oxfam and SEI. [URL]

7 We estimate the cumulative emissions 1990-2015 of the richest 1% to be 111Gt, and EU cumulative emissions 1990-2015 to be 108Gt.

8 C. Lakner, D.G. Mahler, M. Negre and E.B. Prydz. (2019). How Much Does Reducing Inequality Matter for Global Poverty? http://documents1.worldbank.org/curated/en/328651559243659214/pdf/How-Much-Does-Reducing-Inequality-Matter-for-Global-Poverty.pdf

9 D. Woodward. (2015). Incrementum ad Absurdum: Global growth, inequality and poverty eradication in a carbon-constrained world. World Economic Review 4:43-62. http://wer.worldeconomicsassociation.org/files/WEA-WER-4-Woodward.pdf

10 For a similar argument, see: T. Wiedmann, M. Lenzen, L.T. Keyßer and J.K. Steinberger. (2020). Scientists' warning on affluence. Nature communications, 11(1):1-10 https://www.nature.com/articles/s41467-020-16941-y

11 Inequality.org (n.d). Facts: Gender Economic Inequality. https://inequality.org/facts/gender-inequality/ and C. Coffey, P. Espinoza Revollo, R. Harvey, M. Lawson, A. Parvez Butt, K. Piaget, D. Sarosi and J. Thekkudan. (2020). Time to Care: Unpaid and underpaid care work and the global inequality crisis. Oxfam. https://dx.doi.org/10.21201/2020.5419 https://www.oxfam.org/en/research/time-care

12 S.H. Chant (Ed.). (2011). The international handbook of gender and poverty: concepts, research, policy. Edward Elgar Publishing. https://www.researchgate.net/publication/44019425_The_International_Handbook_of_Gender_and_Poverty_Concepts_Research_Policy

13 A.M.M. Boudet, P. Buitrago, B.L. de la Briere, D. Newhouse, E.R. Matulevich, K. Scott and P. Suarez-Becerra. (2018). Gender differences in poverty and household composition through the life-cycle: A global perspective. http://documents1.worldbank.org/curated/en/135731520343670750/pdf/WPS8360.pdf

14 C. Brown, M. Ravallion and D. Van De Walle. (2017). Are poor individuals mainly found in poor households? Evidence using nutrition data for Africa. The World Bank. http://documents1.worldbank.org/curated/en/427491489094206188/pdf/WPS8001.pdf

15 A. Kronsell, L. Smidfelt Rosqvist and L. Winslott Hiselius. (2014). Sustainability transitions and gender in transport sector decisions. https://www.researchgate.net/publication/272448017_Sustainability_transitions_and_gender_in_transport_sector_decisions

16 M.G. Cohen. (2014). Gendered emissions: counting greenhouse gas emissions by gender and why it matters. Alternate Routes: A Journal of Critical Social Research, 25. http://www.alternateroutes.ca/index.php/ar/article/view/20595

17 United Nations Women Watch (2009). Factsheet: Women, Gender Equality and Climate Change. https://www.un.org/womenwatch/feature/climate_change/factsheet.html

18 J. Park, M. Bangalore, S. Hallegatte and E. Sandhoefner. (2018). Households and heat stress: estimating the distributional consequences of climate change. Environment and Development Economics. http://eprints.lse.ac.uk/87547/1/Bangalore_Households%20and%20heat%20stress_2018.pdf

19 J.S. Hoffman, V. Shandas and N. Pendleton. (2020). The effects of historical housing policies on resident exposure to intra-urban heat: A study of 108 US urban areas. Climate, 8(1):12. https://www.mdpi.com/2225-1154/8/1/12/htm

20 G.P. Kenny, J. Yardley, C. Brown, R.J. Sigal and O. Jay. (2010). Heat stress in older individuals and patients with common chronic diseases. Cmaj, 182(10):1053-1060. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2900329/

21 Oxfam India. (2018, 15 November). Move over 'Sons of the soil': Why you need to know the female farmers that are revolutionizing agriculture in India. https://www.oxfamindia.org/women-empowerment-india-farmers

22 M. Jena. (2020, 7 September). India's Outdoor Workers on the Frontlines of Climate Change. Inter Press Service. http://www.ipsnews.net/2020/02/indias-outdoor-workers-frontlines-climate-change/

23 T. Gore. (2015). Extreme Carbon Inequality: Why the Paris climate deal must put the poorest, lowest emitting and most vulnerable people first. Oxfam. https://oxfamilibrary.openrepository.com/handle/10546/582545?show=full

24 T. Piketty and L. Chancel. (2015). Carbon and inequality: from Kyoto to Paris. Trends in the Global Inequality of Carbon Emissions (1998-2013) and Prospects for An Equitable Adaptation Fund. Paris: Paris School of Economics. http://piketty.pse.ens.fr/files/ChancelPiketty2015.pdf

25 S. Kartha et al. (2020). The Carbon Inequality Era. Op. cit.

26 Based on the median estimate of 'Below 1.5C' pathways assessed in the IPCC 1.5C Report for gross CO2 emissions from fossil fuels and industry in 2030 of 18Gt divided by UN population estimate for 2030 of 8.5bn. See Table 2.4 in https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf

27 Canada and USA.

28 In this study, individual consumption footprint estimates include an allocation of the minor share of national consumption emissions attributed to governments and capital formation, on the basis that it is reasonable to assume – as Chancel and Piketty (2015) did – that these also ultimately benefit individuals. This is a further reason that emissions footprints of high-income individuals will vary between countries.

29 D. Ivanova. and R. Wood. (2020). The unequal distribution of household carbon footprints in Europe and its link to sustainability. Global Sustainability 3. e18. https://www.cambridge.org/core/services/aop-cambridge-core/content/view/F1ED4F705AF1C6C1FCAD477398353DC2/S2059479820000125a.pdf/unequal_distribution_of_household_carbon_footprints_in_europe_and_its_link_to_sustainability.pdf

The estimated footprint of the EU top 10% emitters in this study is 22.9 tCO2e and the EU top 1% is 54.9 tCO2e, which is comparable to our estimates for the global 10% and 1% richest, at 23.8 tCO2 and 74 tCO2, respectively, and our estimates of the EU top 10% and 1% richest, at 15.8 tCO2 and 49.7 tCO2, respectively.

30 D. Ivanova and R. Wood. (2020). Op. cit.

31 P. Benoit. (2020, March). Everything You Need to Know About the Fastest-Growing Source of Global Emissions: Transport. Ethics and International Affairs. https://www.wri.org/blog/2019/10/everything-you-need-know-about-fastest-growing-source-global-emissions-transport

32 Y. Oswald, A. Owen and J.K. Steinberger. (2020). Large inequality in international and intranational energy footprints between income groups and across consumption categories. Nature Energy, 5(3): 231-239. https://www.nature.com/articles/s41560-020-0579-8

33 L. Cozzi and A. Petropoulos. (2019). Growing preference for SUVs challenges emissions reductions in passenger car market. https://www.iea.org/commentaries/growing-preference-for-suvs-challenges-emissions-reductions-in-passenger-car-market

34 P. Benoit. (2020, March). A Luxury Carbon Tax to Address Climate Change and Inequality: Not All Carbon Is Created Equal. Ethics and International Affairs. https://www.ethicsandinternationalaffairs.org/2020/a-luxury-carbon-tax-to-address-climate-change-and-inequality-not-all-carbon-is-created-equal/

35 D. Hardoon. (2017). An Economy for the 99%: It's time to build a human economy that benefits everyone, not just the privileged few. Oxfam. DOI: http://dx.doi.org/10.21201/2017.8616; D. Alejo Vázquez Pimentel, I. Macías Aymar and M. Lawson (2018). Reward Work, Not Wealth: To end the inequality crisis, we must build an economy for ordinary working people, not the rich and powerful. Oxfam. DOI: http://dx.doi.org/10.21201/2017.1350

36 T. Wiedmann, M. Lenzen, L.T. Keyßer and J.K. Steinberger. (2020). Scientists' warning on affluence. Nature communications, 11(1): 1-10. Retrieved from: https://www.nature.com/articles/s41467-020-16941-y. https://www.nature.com/articles/s41467-020-16941-y

37 I.M. Otto, J.F. Donges, R. Cremades, A. Bhowmik, R.J. Hewitt, W. Lucht, J. Rockström, F. Allerberger, M. McCaffrey, S.S. Doe and A. Lenferna. (2020). Social tipping dynamics for stabilizing Earth's climate by 2050. Proceedings of the National Academy of Sciences, 117(5):2354-2365. https://www.pnas.org/content/117/5/2354

38 T. Piketty. (2019, 11 June). The illusion of centrist ecology. Le Monde. https://www.lemonde.fr/blog/piketty/2019/06/11/the-illusion-of-centrist-ecology/

39 D. Fuchs, A. Di Giulio, K. Glaab, S. Lorek, M. Maniates, T. Princen and I. Røpke. (2016). Power: the missing element in sustainable consumption and absolute reductions research and action. Journal of Cleaner Production, 132: 298-307 https://www.sciencedirect.com/science/article/abs/pii/S0959652615001109?via%3Dihub

40 S. Gössling. (2019). Celebrities, air travel, and social norms. Annals of Tourism Research. 79: 102775. https://www.sciencedirect.com/science/article/abs/pii/S016073831930132X

OXFAM

This paper was written by Tim Gore, with the assistance of Mira Alestig and Anna Ratcliff.

Oxfam is an international confederation of 20 organizations networked together in more than 90 countries, as part of a global movement for change, to build a future free from the injustice of poverty. Please write to any of the agencies for further information, or visit www.oxfam.org.

Oxfam America (www.oxfamamerica.org)
Oxfam Australia (www.oxfam.org.au)
Oxfam-in-Belgium (www.oxfamsol.be)
Oxfam Brasil (www.oxfam.org.br)
Oxfam Canada (www.oxfam.ca)
Oxfam France (www.oxfamfrance.org)
Oxfam Germany (www.oxfam.de)
Oxfam GB (www.oxfam.org.uk)
Oxfam Hong Kong (www.oxfam.org.hk)
Oxfam IBIS (Denmark) (www.oxfamibis.dk)
Oxfam India (www.oxfamindia.org)
Oxfam Intermón (Spain) (www.oxfamintermon.org)
Oxfam Ireland (www.oxfamireland.org)
Oxfam Italy (www.oxfamitalia.org)
Oxfam Mexico (www.oxfammexico.org)
Oxfam New Zealand (www.oxfam.org.nz)
Oxfam Novib (Netherlands) (www.oxfamnovib.nl)
Oxfam Québec (www.oxfam.qc.ca)
Oxfam South Africa (www.oxfam.org.za)
KEDV (www.kedv.org.tr/)

OXFAM