

SETTING THE PATH TOWARDS 1.5°C

A CIVIL SOCIETY EQUITY REVIEW OF PRE-2020 AMBITION

REPORT

NOVEMBER 2016



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- #PowerShiftMsia, Malaysia
- Aksi! for gender, social and ecological justice, Indonesia
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- All Nepal National Free Student Union (ANNFSU)
- All Nepal Peasants Federation
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- Campaign for Climate Justice Nepal
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- CEED – Center for Ecology and Economic Development, Philippines
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- Center for Socio-Economic Research and Development Nepal (CERDN)
- Centre for Technology and Development, India
- Civic Concern Nepal (CCN)
- Climate Watch Thailand
- Coastal Association for Social Transformation (COAST), Bangladesh
- Coastal Women's Movement, India
- Digo Bikas Institute, Nepal
- Ecology Collective Association, Turkey
- Environics Trust, India
- Environmental Protection Society Malaysia
- Equity and Justice Working Group Bangladesh (EquityBD)
- Freedom from Debt Coalition, Philippines
- GITIB, Philippines
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- Malaysian Nature Society
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- National Women Peasants Association, Nepal
- National Women's Movement, India
- Nepal Youth Peasants Association, Nepal
- Pakistan Fisherfolk Forum

- Pambansang Koalisyon ng Pabahay, Philippines
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- Philippine Rural Reconstruction Movement (PRRM), Philippines
- Rural Reconstruction Nepal (RRN)
- SANLAKAS, Philippines
- Task Force Detainees of the Philippines (TFDP)
- Tax and Fiscal Justice Alliance – Nepal (TFJAN)
- Tax and Fiscal Justice Alliance, Nepal
- The NGO Forum on Cambodia
- VOICE, Bangladesh
- WomanHealth Philippines
- Women Welfare Society (WWS), Nepal
- World March of Women, Nepal
- Youth Federation Nepal (YFN)
- Zo Indigenous Forum, India

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- 10:10, United Kingdom
- 11.11.11, Belgium
- Amigos de la Tierra – Friends of the Earth Spain
- An Taisce – The National Trust for Ireland
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- Climate Revolution, United Kingdom
- Ecologistas en Acción, Spain
- HELVETAS Swiss Intercooperation
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- Rainforest Foundation Norway
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- UK Youth Climate Coalition
- United Kingdom Without Incineration Network (UKWIN)

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- Aclimatando, Argentina
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- Engajamundo, Brazil
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- Association québécoise de lutte contre la pollution atmosphérique (AQLPA), Canada
- Brighter Green, United States
- Canadian Interfaith Fast for the Climate
- Canadian Unitarians for Social Justice
- Canadian Voice of Women for Peace
- Canadian Youth Climate Coalition
- Center for Biological Diversity, United States
- Church World Service, United States
- Climate Action Network Canada – Réseau action climat Canada
- Climate Action NOW, Canada
- ClimateFast, Canada
- David Suzuki Foundation, Canada
- Development and Peace – Caritas Canada
- Earth in Brackets (EIB), United States
- EcoEquity, United States
- Environmental Defence Canada
- ENvironnement JEUnesse, Canada
- Friends of the Earth Canada
- Green 13, Canada
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- The Alabama Center for Rural Enterprise (ACRE), United States
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- Climate Action Monaro, Australia
- Climate and Health Alliance, Australia
- Climate Change Balmain-Rozelle, Australia
- Climate Justice Program, Australia
- Human Rights Foundation Aotearoa New Zealand
- New Zealand Climate Action Network
- New Zealand College of Public Health Medicine
- OraTaiao: New Zealand Climate & Health Council
- P3 Foundation, New Zealand
- Pacific Calling Partnership (Edmund Rice Centre), Australia
- Parramatta Climate Action Network, Australia

Our pre-Paris report “Fair Shares: A Civil Society Equity Review of the INDCs” is available at civilsocietyreview.org/report

SUMMARY

We cannot wait until 2020 to take accelerated global action.

This short report focuses on the urgent need to increase mitigation ambition. It proceeds by way of a fair-shares analysis of 2020 pledges and support, against a 2020 emissions benchmark that is consistent with a true 1.5°C mobilization. It draws simple but challenging conclusions about the changes that will be needed, before 2020, if we honestly intend to make a just and successful transition to a zero carbon world.

Low pre-2020 ambition will deepen the post-2020 challenge in terrible ways, to the detriment of the poor, the vulnerable, future generations, other species, and soon the privileged as well. It will lock in high-carbon infrastructure, prolong our dependence on fossil fuels, and increase the risk that, as climate impacts intensify, future

decision makers will resort to damaging and unjust ‘negative emissions’ technologies in desperate attempts to mitigate at least their extremes. Critically, low pre-2020 ambition will increase the odds that the Paris goals will simply never be met.

To deepen the low-carbon transition, wealthy countries must sharply accelerate their domestic shifts to low-carbon economies, while at the same time intensifying cooperation with developing countries to define and drive towards a just future. This means provision of significant technological and financial resources for developing countries, to help them leapfrog onto rapid, and extremely challenging, low-carbon development paths.

This transition must start immediately, and its benefits must go to all.

A CONTEXT OF URGENCY

The Paris Agreement set out a global goal of limiting the increase in global average temperature to well below 2°C, and expresses the collective intent to limit the temperature increase to 1.5°C. Ambition is increasing around the world, but not enough to meet this goal. As numerous studies have shown¹, including our own pre-Paris *Fair Shares: A Civil Society Equity Review of INDCs*,² the collective action embodied in the current pledges (the Nationally Determined Contributions – NDCs) is insufficient to hold the warming below 2°C, and far short of what is needed to keep it to a still risky 1.5°C.³ In fact, even if all the commitments in the current NDCs are met – an uncertain prospect, given the lack of financial and technological resources from wealthier countries – they would lead to a warming of about 3°C.⁴

Indeed, the UNFCCC Secretariat found in its assessment of the Paris INDCs⁵ that they provide only about one fourth of the mitigation needed to keep to a 2°C pathway, and that the 1.5°C budget would be exhausted by 2025. Whereas the most technically viable, cost effective and equitable routes to the Paris temperature targets would require global carbon emissions to peak and begin to decline *before 2020*⁶, emissions under the INDCs would *still be rising in 2030*.

Some are now claiming that 1.5°C is no longer “realistic.” And, indeed, we could endlessly lament the small size of the remaining 1.5°C carbon budget. But one cannot overstate the importance of fighting to hold the 1.5°C line. This is already obvious in small island states and other highly vulnerable countries, but given the impacts that we all face, it is true everywhere.

“The pre-2020 period will define the post-2020 reality.”

The 1.5°C Goal and the Urgency of Action

Is action really so desperately urgent? Even if emissions don't peak in the next few years, and we shoot past the 1.5°C budget, can't we still make up for this later with negative emissions technologies? Aren't modelers finding that negative emissions later in the century can make things easier in the near-term?

Perhaps modest amounts of negative emissions, say from ecosystem restoration and reforestation, will eventually prove to be safe and viable. But to assume that major, “game changing” amounts will be available would be extraordinarily reckless, and many are now raising the alarm against just this assumption.⁷ Simply put, we can't assume negative emission schemes will be economically, or even technically, feasible. Or that they can be used without social and ecological devastation, particularly if they would demand vast swaths of agricultural land. Or that, while we're “temporarily” overshooting our temperature goal, we won't encounter catastrophic tipping points and suffer unbearable, irreversible damage. Or that our negative emissions reservoirs won't morph into huge exhalations of carbon, as droughts and climate-induced pestilence kill off bioenergy crops and plantations.

Safe and affordable negative emissions technologies may someday be available. But they may not be, and the danger – a very real one – is that technological optimism will lull us into further delay. We could easily find ourselves, around 2030, stranded, with our economies still deeply bound to fossil fuels, suffering far more warming and greater impacts than we bargained for. Desperate, we could yield to the temptation to divert massive amounts of land to unproven and risky ventures, notwithstanding long chains of human and ecological costs – the land-grabs, the destroyed habitat, the food insecurity, the human rights violations.

As always, the dangers are greatest for the poor and vulnerable. And the greatest danger of all is the justification of further delay. For if we accept that future negative emissions breakthroughs will relieve us of the need to immediately mobilize, at scale, we more easily shrink from the challenges and opportunities of the moment.

Nor must we wait for the IPCC's Special Report on 1.5°C to know the importance of immediately increased ambition. The evidence is already quite clear enough. Going all the way to 2°C could shift us into a new and extremely dangerous regime, with catastrophic impacts in agricultural areas, in tropical and polar regions, and in critical ecosystems.⁸

With the stakes so tremendously high, mounting an immediate, intensive effort is a moral imperative. Trying and nearly succeeding is far better than failing catastrophically.

This implies an urgent need to accelerate emissions reductions in the next four years. There must be a tremendous push for a rapid global emissions peak, and this must happen despite the core reality – ours is a world of nations at starkly disparate levels of economic and material development.

For just this reason, the necessary mobilization will not be achieved without equity. To succeed, the global low-carbon transition must be widely seen as both beneficial and fair. Moreover, the pre-2020 period will define the post-2020 reality, both politically (can we work together to solve this problem?) and in terms of the hard numbers (is there enough carbon budget left?). Some of these numbers are laid out below, where we also raise key political questions that must be faced at COP22 in Marrakesh.

PLEDGES FOR 2020 AND FAIR SHARES – ANALYSIS & RESULTS

This brief report is based on 2015's *A Civil Society Equity Review*, which offers a more detailed explanation of the approach and methodology used here. And see as well the *Climate Equity Reference Project* website.⁹ Note that, unlike 2015's report, which reviewed countries' INDC pledges for the post-2020 period, this report is focused on their 2020 pledges, and on the action that is needed during the pre-2020 period

A 1.5°C level of effort

Any pathway that has a reasonable chance of holding the warming to 1.5°C requires an extremely ambitious mitigation effort that should begin very soon. In this report, we take 40 GtCO₂eq as a 2020 emissions level that is consistent with a rapid shift to a 1.5°C pathway.¹⁰ Relative to a business as usual emissions level (roughly 54 GtCO₂eq in 2020; see below), reaching this 40 GtCO₂eq benchmark will require about 14 GtCO₂eq of annual mitigation to be put in place by 2020.

This is of course an extremely challenging prospect, given that emissions are now nearing 50 GtCO₂eq.

We need to work together to quickly and decisively decrease real emissions. We must do so by way of urgent measures

designed to rapidly end new fossil energy development, sunset existing fossil infrastructure, and establish the expansive low-carbon development and “just transitions” programs needed to make such measures acceptable, in both the wealthy and the developing worlds.

Such measures will not come easily, but they are the inevitable goals of all our plans and strategies. Which is to say that the long-term effort to achieve both the 2°C and 1.5°C goals begins now, before 2020. Climate policy must be designed to foster a race to the top, and this means that it must be as fair as it is ambitious. Failing this, disaster is inevitable.

Mitigation Finance Need

The international financial resources required to enable rapid mitigation in developing countries are an integral part of the mitigation story. While there is no universally recognized methodology for estimating the needed international finance, several sources can provide indications.¹¹

One such source is the International Energy Agency's *World Energy Outlook Special Report on Redrawing the Climate-Energy Map*,¹² which concluded that, in their 450ppm scenario (a rather weak 2°C scenario), incremental energy-related investments for the power, buildings, transport, and industry sectors reach \$375 billion per year in 2020, rising to \$1.3 trillion per year in 2035. A more recent study estimates that, overall, 1.5°C-compliant pathways cost twice as much as a 2°C pathways, or even more. Taken together with the \$375

Adaptation Finance Need

Even if the warming remains below 1.5°C, there will be an immense need for adaptation (and loss & damage) finance and support, and it will be most acute in the developing world. Hurricane Matthew did enormous damage to South Carolina and its people, but pales before the destruction and suffering in Haiti.

The challenge here is still largely unreckoned, and estimates are getting worse. The 2014 *Adaptation Finance Gap Report*,¹³ reported additional costs for all developing countries of \$150 billion per year by 2025/2030, and \$250 billion to \$500 billion per year by 2050 (for a scenario of 2°C increase by 2050). Only two years later, these numbers had been superseded by the 2016 *Adaptation Finance Gap Report*,¹⁴ which tells us that by 2030, adaptation costs will reach \$140-300 billion annually, with the potential to be *five times greater* by 2050. This comes to \$700 billion to \$1.5 trillion, a bracing range. And, of course, if we cross critical tipping points, the costs will quickly become astronomical.

This report is focused on 2020, and the 2020 finance pledges would be completely inadequate for meeting the adaptation need even if they were dedicated exclusively for adaptation, which they are not. Oxfam estimates that only 16% of international climate finance is currently dedicated to adaptation, with a mere \$4 – 8 billion per year as public adaptation finance.¹⁵

billion estimate above, this suggests that a true 1.5°C effort could require incremental investments of at least \$750 billion in 2020,¹⁶ relative to those needed to fulfil current climate policies.

When investments in other sectors of the economy are also taken into account, total incremental mitigation costs will be higher still. Thankfully, over the longer term many of these up-front investments will yield critical benefits in addition to mitigation, including improved air quality and domestic energy security from renewables, and reduced overall fuel costs from energy efficiency.

Fair shares

Equity matters, not only because it is a good in itself but also because it is a key to cooperation. Climate change is one of the largest and most difficult commons problems that humanity has ever faced, and it will not be solved without robust systems of coordination and solidarity, systems that can survive concerted opposition. In particular, a global drive towards a 1.5°C pathway will be extremely challenging, and success is only possible if the efforts it demands are widely seen as being fairly shared. So while there is plenty of room for debate about the precise definition of national fair shares, and while the world's nations will never precisely agree on a formulaic quantification, this does not mean that climate equity is something that every country can judge on its own. There must be shared understandings. Norms, including equity norms, are not mere matters of opinion.

Fair shares can in fact be defined and quantified in a robust, transparent, and scientific manner that is anchored in the core principles of the UN Framework Convention on Climate Change. This can be done while taking account of a range of interpretations of these principles. Moreover, such quantifications can be useful, because they offer decision-makers and citizens **equity benchmarks** that represent a broad spectrum of legitimate interpretations of the Convention's core equity principles.

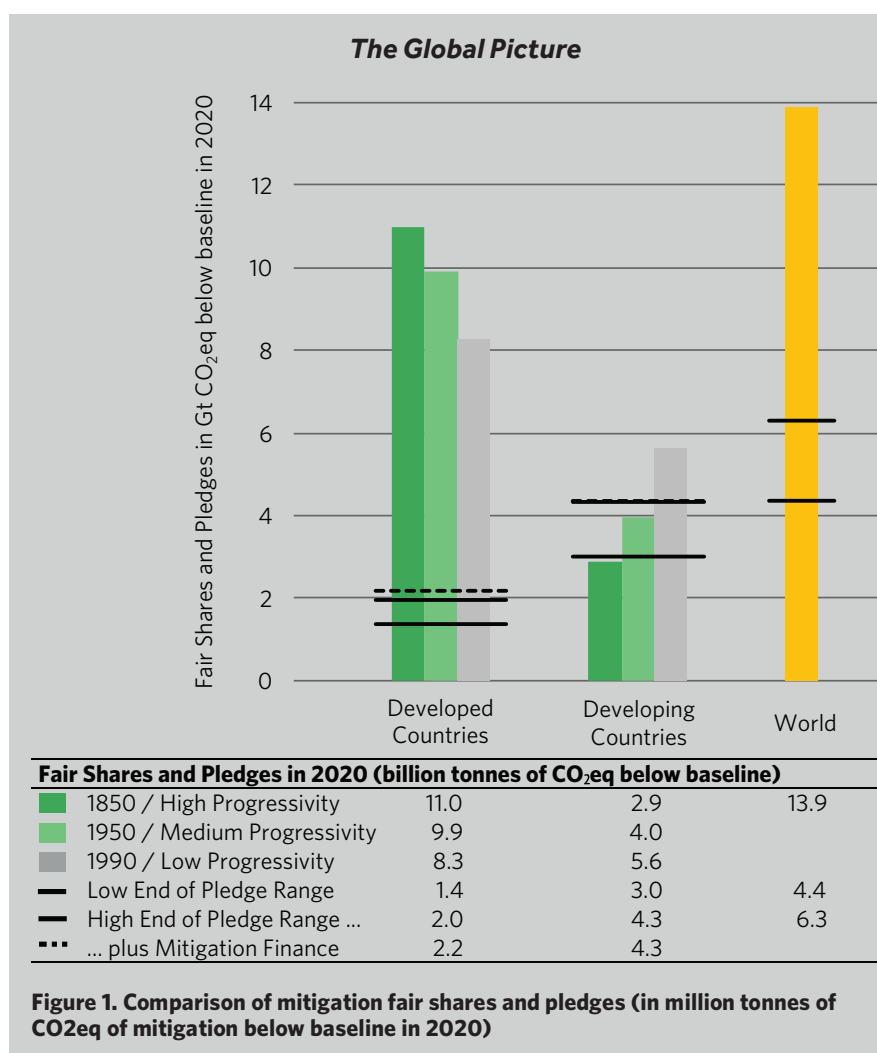
The equity modelling approach that underlies this report¹⁷ can produce a large number of benchmarks, but only some of them will be defensibly fair. Below, we show evaluations of the 2020 domestic mitigation pledges, relative to the two benchmarks that define our **equity range**, plus a third benchmark that falls outside this range, though it reflects positions

that are held by some Parties. These kinds of benchmarks were also presented in the pre-Paris *Civil Society Equity Review*. Our equity range is defined by a set of perspectives on capacity and historic responsibility that was agreed to by the civil society organizations involved in this report, based on extensive deliberations prior to Paris.¹⁸

The global picture

Figure 1 shows the results at the aggregate level for developed countries, developing countries and the whole world. These are resented in terms of total tons of mitigation in 2020 below business as usual.¹⁹ For each of the two "regions", the green bars show the bounds of our equity range.

- The first (dark green) bar gives the fair share of mitigation under an equity benchmark that fully accounts for responsibility (i.e., historical emissions since 1850) and accounts for capacity in a highly progressive²⁰ manner.
- The second (light green) bar gives the fair share accounting for historical emissions since 1950, and accounts for capacity in a medium progressivity manner.
- The chart also shows (in grey) a third bar, which presents a



benchmark relative to 1990, while taking a low progressivity interpretation of capacity. The gray color denotes the fact that, while such settings are politically salient, we do not consider this to be an equitable benchmark.

- The horizontal black lines reflect the pledged domestic mitigation for each region, including both the more ambitious (conditional) and less ambitious (unconditional) pledges.

The most striking aspect of our results is that the developed countries, despite having larger fair shares of emissions reductions than developing countries (according to any of these benchmarks; see *Equity Settings Explained*) are also offering a markedly less ambitious level of mitigation. On the other hand, the developing countries have as a group made pledges that, even at the low end of the pledge range, meet or come close to meeting both of the equity benchmarks. At the high end of the pledge range, they exceed them both.

Given that still much more mitigation would be required in developing countries to be on a 1.5°C course, still more action would be required as well, though enabled by financial and technological resources from wealthier countries. Note that, in aggregate, across the world, only 30-44% of the mitigation needed in 2020 to shift us rapidly toward a 1.5°C pathway has been pledged.

Comparison of national 2020 pledges

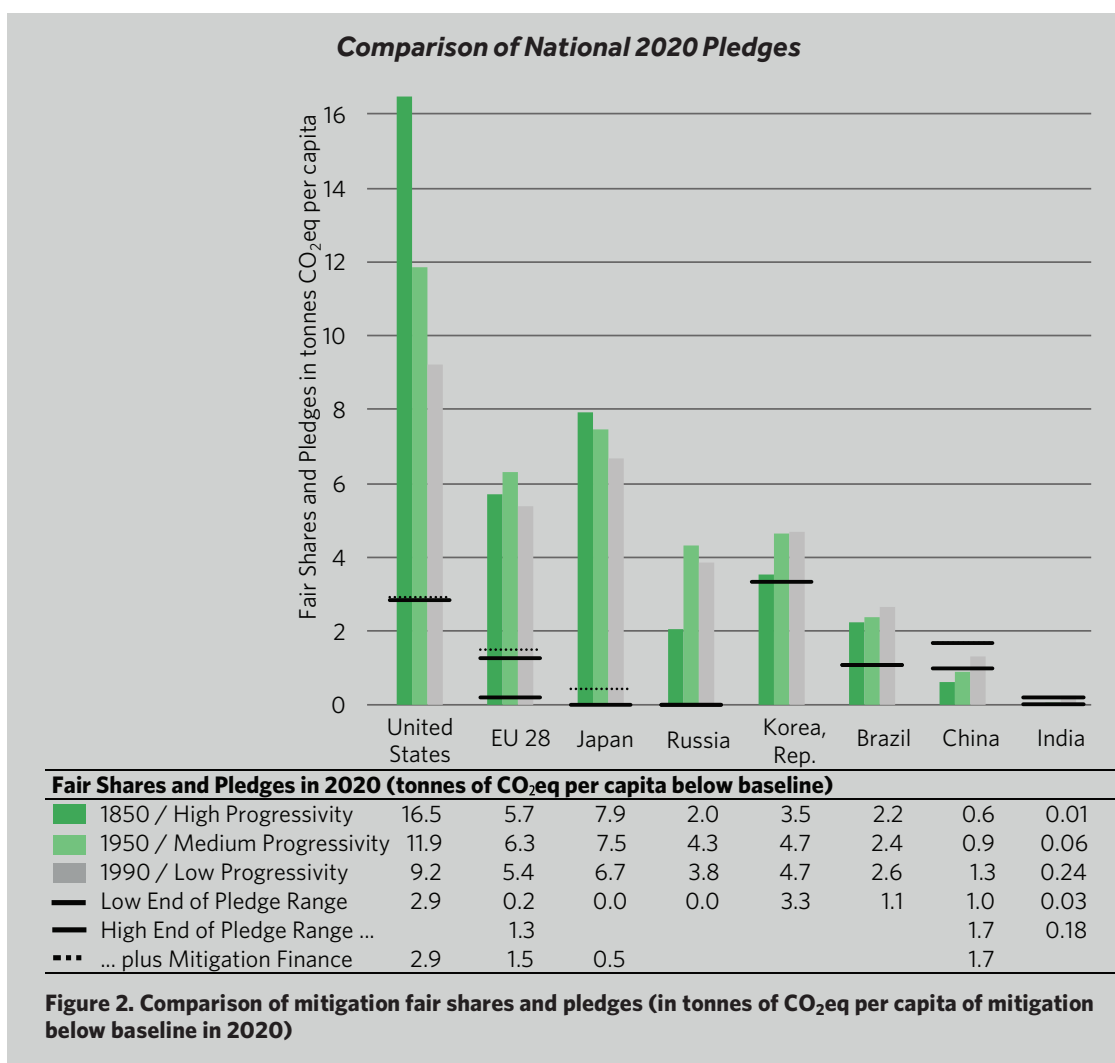
Figure 2 shows the results of an equity assessment of the 2020 pledges for six countries (or regions), comparing the pledges to the equity benchmarks. (For precise data, on a much larger set of countries, see <https://climateequityreference.org/cop22-review/appendix>).²¹ It reports results in terms of per-capita mitigation below the 2020 baseline – which allows us to directly compare national pledges, without the results being overwhelmed simply by the relative sizes of the national populations. The black lines show the

amount of domestic mitigation implied by each country's 2020 pledge. Some countries have expressed their pledge as a range, sometimes associating the higher end of that range with a condition or conditions of various kind. In such cases, two lines are shown, the lower representing the less ambitious end of the range.

Comparing the pledged mitigation to the country's fair share, particular observations stand out. Specifically, for many countries, including the United States, the EU28, Brazil, Japan, and Russia, the pledged action falls far short of *any* definition of the country's fair share. (The latter two countries, in fact, have put forward pledges that could be met with no actual mitigation effort.) For other countries, such as China and South Korea, the pledged mitigation is seen to fall within, or even surpass, what is required to meet the fair share.

Mitigation Finance

It is important, here, to state the obvious. Even in today's rapidly changing world, most of the responsibility for the climate problem and most of the capacity to solve it still reside in the wealthier countries. Thus, their 2020 emissions reduction targets should be as strong as possible. However,



most wealthy countries have fair shares that are too large to be fulfilled solely within their borders, even with extremely ambitious domestic actions. This simply follows from the fact that their share of the global capacity and responsibility greatly exceeds their share of the global mitigation potential.

Thus, for wealthy (developed) countries to do their global fair shares, they must, in addition to making very deep domestic reductions, also enable a considerable amount of emissions reductions in developing countries. These reductions account for almost half of the global mitigation need, underscoring the necessity of a greatly scaled up system of international finance, technology sharing, and capacity-building support. This in turn highlights the importance of a deeply cooperative approach to enable scaled-up ambition.

Despite the importance of this cooperation, the total amount of finance that the developed countries have pledged for 2020 is absolutely minimal. Based on an Oxfam analysis of the climate finance announcements, we estimate that a total grant equivalent of \$14 billion has been pledged by developed countries for investment in mitigation activities in developing countries in 2020²². Assuming an optimistic leverage ratio²³, this represents an additional mitigation effort by developed countries of merely 239 MtCO₂.

“ The need for wealthy countries to provide resources follows simply from the fact that their share of global capacity and responsibility greatly exceeds their share of global mitigation potential. ”

Just how miniscule this is, compared to the need, can also be illustrated by adding this 239 MtCO₂ to the developed countries' domestic mitigation pledges (shown as a dashed line in figure 1). Neither the shortfall in the developed countries' fair share nor the overall global ambition gap is appreciably smaller than it was before the international support is taken into account.

It should also be noted some developing countries have pledged climate finance, notably China, which has pledged to deliver some \$3 billion over the coming years.

IMPLICATIONS

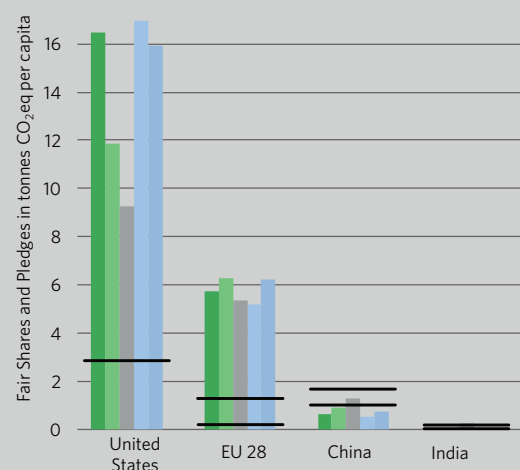
We are nowhere near being on track. As Figure 1 shows, there is neither enough mitigation action globally, nor enough implementation support from developed countries, to indicate a good faith effort toward meeting the Paris commitment to keep warming below 2°C, let alone 1.5°C.

The longer we delay the worse things get, which is exactly why this post-Paris, pre-2020 moment is so critical. If ever

Equity Settings Explained

The benchmarks shown in this report are all based on the core equity principles of the UNFCCC, under which countries have committed to contribute in accordance with their responsibility for causing to the problem and their capacity to help solve it. Further, those shown in Figures 1 and 2 are all conceptually similar in that they all *combine* straightforward indicators of responsibility (historic emissions since a specific starting year) and capacity (income, calculated in a more or less progressive manner), which are drawn from standard data sets.²⁴

To dig a bit deeper, see Figure 3 below. Note that the upper and lower bounds of our equity range are defined by the two benchmarks which are illustrated here as green bars. The dark green benchmark uses a responsibility start date of 1850 and calculates national capacity in a progressive manner, while the light green benchmark uses a responsibility start date of 1950 and calculates national capacity in a not very progressive manner. The third (grey) benchmark is included because it is considered politically salient. In each of these benchmarks, historical responsibility and capacity are treated as equally important principles and thus weighted equally (i.e., by averaging the two indicators).



Fair Shares and Pledges in 2020 (tonnes of CO ₂ eq per capita below baseline)				
1850 / High Progressivity	16.5	5.7	0.6	0.01
1950 / Medium Progressivity	11.9	6.3	0.9	0.06
1990 / Low Progressivity	9.2	5.4	1.3	0.24
C only / High Progressivity	15.9	6.2	0.8	0.01
HR only / 1850 start date	17.0	5.2	0.5	0.00
Low End of Pledge Range	2.9	0.2	1.0	0.03
High End of Pledge Range		1.3	1.7	0.18

Figure 3. Comparison of mitigation fair shares and pledges, as in Figure 1, with two additional equity benchmarks, as per the discussion

To illustrate the implications of a different weighting, Figure 3 shows our three standard benchmarks, and then adds two new ones, shown as blue bars. One shows a High Responsibility benchmark (with a start date of 1850 and capacity not considered at all), the other shows a High Capacity benchmark (with a progressive capacity calculation, and responsibility not considered at all). Note how the dark green bar falls evenly between the two blue bars. Similarly, if a Low Responsibility benchmark and a Low Capacity benchmark were added, the grey bar would fall evenly between them.

For more examples, and a detailed discussion, see <https://climateequityreference.org/cop22-review/appendix>. For an interactive experience and a finer set of controls, see the Climate Equity Reference Calculator (calculator.climateequityreference.org).

there was a moment of opportunity, a precious moment that was not to be wasted, this is it.

Decisive action is now essential, and we all know it. This means low-carbon transformation in both developed and developing countries. And, as the above analysis shows, it means a substantial scaling of international cooperative action in support of accelerated low-carbon transformation. The cold truth is that the costs of the necessary climate action are already beyond the capacity of many developing countries, to say nothing of the costs of adaptation and loss & damage, which, properly reckoned, will almost certainly be greater than the costs of mitigation. If the necessary resources are not flowing effectively by 2020, any subsequent ambition ratcheting system will be extremely hard pressed to deliver the long-term goals of the Paris Agreement.

Moreover, in the absence of robust pre-2020 action, the still-continuing process of fossil-fuel “lock in” will continue. Where additional energy is needed, new fossil-fuel infrastructure will be constructed, which would only increase the number of workers and communities that are dependent on fossil fuels. This is of course exactly the opposite of the fossil phase-out we need, and would make ambitious post-2020 reductions even more challenging.

The implication is that absent a course correction, the NDCs foretell a world in which 2030 emissions are higher than they are today. As the Paris temperature goal recedes into the distance, a desperate Faustian bargain with geoengineering and negative emissions would loom ever larger on the horizon.

The central claim in this report is that all countries must mobilize for extremely deep reductions. To realize such a mobilization, *all* countries must do *at least* their fair shares, while at the same time developed and developing countries work together to establish a new period of global cooperation, one that empowers all countries to decarbonize quickly and at the necessary scale. In such a context – the only context in which the Paris targets are likely to be met – there is no conflict between equity and ambition. Just the contrary.

Beyond this, it is necessary to be frank about the kinds of actions that are actually needed. To borrow the words of a recent report, the 1.5°C challenge can best be met by a strategy that, simply stated, comes to “ending new fossil fuel development in the context of a just transition and managed decline of the fossil fuel industry.”²⁵ Which is to say a fossil-energy investment and development moratorium that is accompanied by a comprehensive and explicitly fair global transition that is designed to deliver us all, together, into a low-carbon, just, and sustainable future.

This, of course, is a rather challenging prospect. And it would pit the climate movement against huge incumbent interests, corporate and otherwise, that are deeply invested in business

as usual. Further – and this must be stressed – such a transition program is incompatible with a world where the continued failure of the wealthy to take on their fair share of global emissions reductions, both domestically and internationally, only continues to place ever greater burdens on poorer people and poorer countries. It will also be impossible to achieve without strong and highly visible commitments to Just Transition programs that safeguard the livelihoods of workers’ and communities that are dependent on fossil fuels.

The Lessons of the African Renewable Energy Initiative

The Africa Renewable Energy Initiative (AREI, www.arei.org) offers a fine example of the urgent efforts needed everywhere, and a fine illustration of the type of cooperation that could lead to real, on-the-ground, low-carbon development, right where it’s most needed.

AREI promises to immediately deliver 10 GW of *new and additional renewables*, and to scale up to 300 GW by 2030. This means a pre-2020 doubling of installation rates, and the addition by 2030 of at least double the continent’s current energy generation capacity, purely through renewables. In less than 15 years one billion people would get their first access to electricity.

AREI has been driven by Africans who have formulated their own bold vision, which in turn has garnered large international pledges of public financial support. In the initial, pre-2020 period, these have come to about \$10 billion. If used, as they should be, on Africa’s terms, these funds will allow AREI to demonstrate how developing countries can plan for and begin building the smart, distributed, sustainable energy systems of the future, systems that meet people where they live, generate local jobs, and support both local and national economies.

AREI illustrates several key points in this report.

1. AREI begins with meaningful pre-2020 action, which is explicitly planned as a means of launching much larger, truly transformative policies and programs.
2. AREI illustrates how developing countries can, on their own terms, outline the full extent of the mitigation that must take place within their borders – including *both* their own ‘fair shares’ and the additional ‘international mitigation’ that must be undertaken, with resource assistance from rich countries.
3. AREI shows that developing countries, while providing leadership and ambitious domestic efforts, can only act *on the necessary scale* if they receive real and predictable support from the wealthy countries. At the same time, it illustrates the importance of a genuinely cooperative approach.

AREI brings concreteness to the climate finance debate. To ratchet ambition to the necessary scale, meaningful levels of international support are necessary. One-off projects, double-counting of existing aid, and strained optimism about private-sector leadership will not suffice. Over decades, hundreds of billions of dollars in public climate finance is needed to direct, enable, and focus both public and private investments at vastly larger scale. Likewise, efforts must empower the public planning that can ensure that these investments serve the goal of sustainable, people-centered development.

The post-Paris, pre-2020 moment is a rare opportunity to act, at the necessary scale. We can and must seize this opportunity to steer the world to a livable and decent future. Further, the rewards of decisive action would be incalculable, and not only by virtue of keeping temperature stabilization in reach. The effort of doing so would be transformational, for it would entail organized people mobilizing together for their common future.

HOW TO DELIVER URGENT PRE-2020 AMBITION

COP22 in Marrakesh has been framed as the “Action COP,” where the Paris pledges are converted to national and global actions. This means all countries working in partnership to deliver a credible path to a 1.5°C world.

The key point is obvious. Paris’ aspirational and widely celebrated 1.5°C goal will not be met if the weak pre-2020 pledges, and the Paris NDCs, define the level of global ambition. Both pre- and post-2020 ambition must be sharply increased. Nor can a meaningful “ratcheting up” wait for 2018’s “facilitative dialogue.” The 2018 push can only succeed if prior actions have already set the necessary pace.

What is needed to set such a pace? To begin with:

Ambition and fair shares: No country is on a 1.5°C pathway. This must be universally recognized and turned to action, to ratchet up both pre- and post-2020 efforts. All countries, everywhere, must do at least their fair shares.

No creative accounting: We must cease to imagine that we can buy time with hypothetical negative emissions. Nor can countries with “hot air” 2020 pledges “bank” their “surplus,” as if this could legitimately justify taking less action post-2020. Nor can we allow double counting in any form. Every molecule of CO₂ adds to the problem. All excessive emissions by today’s wealthy and privileged mean increased suffering and death for the poor and the vulnerable elsewhere, and greater risks to all. Creative accounting will not stabilize the climate.

Wealthy countries and people: The pre-2020 transition requires the wealthy to take the lead in delivering urgent, scaled up action to reduce their carbon emissions well beyond current pledges. This means a very rapid 100% renewables transition. It also means just transition policies at every level, including income and pension protection, community renewal, investment diversification, and robust social dialogues, so that workers, communities and society as a whole can embrace the changes that are now so pressing.

Climate finance: Developed countries must deliver their fair share of public climate finance needed to enable transformation across all sectors. Various innovative mechanisms can be implemented to help generate the needed revenue in ways that can be made quite equitable, such as an aviation levy, financial transaction tax, a progressive carbon tax, etc. On the mitigation side, all countries must be enabled to rapidly shift to low-carbon energy, with public mitigation finance used, in particular, to reduce the costs and risks of financing renewable energy investments. On the adaptation side, the need will be immense. Adaptation finance must be on par with mitigation, and must not be allowed to slip behind.

Developing countries: Developing countries can and must take ambitious action, but will require cooperation and resources from wealthy countries if they are to move fast enough. They must take on not only their own fair shares of the global mitigation effort, but also host the “international” efforts that wealthy countries, even after the most ambitious conceivable domestic actions, must support if they’re to do their global fair shares. This means planning for ambitious leapfrogging to zero-carbon societies, assessing the necessary resources, and internalizing how such development trajectories can enhance well-being and provide meaningful economic development.

All this means major shifts in the real economy:

- All G20 governments must immediately phase out all fossil-fuel production subsidies. All public support for fossil exploration should be immediately terminated.
- All international bilateral and multilateral support for energy development must prioritize the 7th Sustainable Development Goal, ensuring access to affordable, reliable, sustainable and modern energy.
- All countries must develop concrete long-term plans for a just and sustainable energy shift, in line with the Paris targets, the Sustainable Development Goals, and the overarching need for the managed decline and rapid sunset of the entire fossil-fuel energy sector.
- National NDCs must then be strengthened to provide the resources necessary to these plans, in particular by elaborating conditional policies and programs that require resources from international development partners.
- A global renewable energy partnership should be established to exchange best practices, spur a race to the top, and share technologies and solutions, as well as organize an ambitious and adequately financed system for resourcing renewable energy initiatives around the world.
- Similar partnerships should be initiated across other sectors, such as public transportation, housing, and agriculture. In particular, we need to plan a comprehensive shift to resilient, ecologically beneficial, non-fossil fuel based agro-ecological farming practices.

- To ‘shift of the trillions’ in time, all infrastructure investment, public and private, must be fully transparent about climate change risk exposure, thus allowing all investments to be assessed in terms of their impacts on the climate.
- Engagement and leadership by all sectors of society and all major constituencies, including women, workers, youth, indigenous peoples, local communities, migrants, and all other people and communities committed to a better future.

CONCLUSIONS

The climate crisis deepens all existing inequalities, endangers all human civilization, threatens the breakdown of ecosystems everywhere. We know this, just as we know that we must act, urgently and on a global scale.

We also know that we cannot hope for the necessary action unless we prioritize equity. To be successful, our actions must drive fundamental system transformations across all sectors, changing the way we produce and consume our food and energy while ensuring the right to dignity and just development for all. If they do not, they will fail.

The Paris Agreements, for all their limitations, express a common desire to keep temperature rise below 1.5°C. The Sustainable Development Goals, which can be too easily forgotten, announce broad agreement on a future without poverty. The next steps must go beyond words, and deliver tangible and massively scaled up changes on the ground. The science makes this crystal clear. Only pre-2020 action can set the stage for the required post-2020 mobilization.

Many of the changes needed to address the climate crisis are also needed to create a fairer world and better lives for us all. These include building people-centered clean energy systems, and the sustainable production and distribution of healthy food for all people. Many of the required measures also make economic sense.

There can be no further delay. Delay, however, is what will happen if we allow shallow realism and powerful vested interests to sideline “the equity question.” We’ve already seen

how privileged elites fight back or foster false solutions to maintain their economic power and dominance.

The rapid transition we need will involve disruptions, especially for the poor and most vulnerable who will simultaneously be dealing with displacement and ongoing, worsening climate change impacts. We need strong and visible commitment to make this ambitious transition work for all, especially for the most vulnerable communities, for farmers, workers, women and indigenous peoples.

The thorough, rapid, global just transition needed can only be delivered with a new era of global co-operation, one that includes the fair sharing of efforts and resources and public climate finance.

Paris has put the spotlight on domestic action, and for good reason. Real action means country-wide transition planning and implementation at all levels, it means new kinds of ambitious regulations and governance, it means effective support systems that protect those most vulnerable as we make the shift from fossil energy driven economies to post carbon, equitable societies. But action cannot and should not remain confined to national borders. Climate finance, technology, and cooperative international partnerships are just as important as domestic action.

Climate change affirms the urgency and necessity to shift to an equitable and just pathway of development. The global transition must be just and fair enough to actually work.

COP22 in Marrakesh must launch the global community into a post-Paris future of decisive and vastly accelerated action.

When, a few years hence, countries convene for the 2018 stocktake of climate actions, it must be a moment of honest and proud reflection and deepened ambition, not a meaningless pantomime.

By 2018, we must already be in a game-change, post-Paris world, in which both national commitments and on-the-ground action have been ramped up and scaled to match the challenge – ushering in a just and sustainable world.

The long term begins now.

ONLINE APPENDIX

An online appendix is available at <https://climateequityreference.org/cop22-review/appendix>

- It contains a description of the methodology for estimating the 2020 finance pledges. This uses OECD and Oxfam research, as well as information from the \$100bn Roadmap, and includes a complete table of grant equivalencies for the 2020 finance pledges, as estimated by this methodology.
- It also contains brief overview of the methodology used in the construction of our equity benchmarks, along with some commentary on the specific benchmarks used in this report. This commentary will compare “pure” responsibility and capacity benchmarks to the report’s core benchmarks, and the overarching importance of progressivity. It will also discuss the implications that production-side (rather than consumption-side) emissions accounting would have on our findings.

NOTES

- 1 *The Emissions Gap Report 2015*: A UNEP Synthesis Report. United Nations Environment Programme (UNEP), Nairobi. http://uneplive.unep.org/media/docs/theme/13/EGR_2015_Technical_Report_final_version.pdf. *Aggregate effect of the intended nationally determined contributions: an update*. Synthesis report by the Secretariat, No. FCCC/CP/2016/2. United Nations Framework Convention on Climate Change, Bonn, 2016.
- 2 *Fair Shares: A Civil Society Equity Review of INDCs*, November 2015, <http://civilsocietyreview.org/report>
- 3 Virtually all references to 1.5°C compliant pathways and budgets refers to a 50% chance of limiting warming to 1.5°C. The remaining budget available to keep warming below 2°C (with 66% chance) would be exceeded a few years after 2030. Note, even though scenarios are routinely cited with respect to their 33% or 50% risk levels of exceeding a temperature target, such levels would be considered both unacceptable and absurd in other areas of life. To fly with a 33% risk of crashing would mean boarding a plane while knowing full well that there will be 30,000 plane crashes globally on that very day.
- 4 This 3.5°C estimate was made by Climate Interactive. Straightforwardly, it assumes “no further action after the end of the country’s pledge period.” See <https://www.climateinteractive.org/programs/scoreboard>. The lower, often cited estimate of 2.7°C was made by Climate Analytics, and, critically, it depends on further assumptions – that the first-round NDCs are fully implemented and then followed by a “continued and comparable level of effort through the rest of the century.” See http://climateactiontracker.org/assets/publications/CAT_global_temperature_update_October_2015.pdf.
- 5 *Aggregate effect of the intended nationally determined contributions: an update*. Synthesis report by the secretariat. Op. Cit.
- 6 “Energy System Transformations for Limiting End-Of-Century Warming to Below 1.5°C,” Rogelj, et al., 2015, *Nature Climate Change*, 5(6), pp. 519–527.
- 7 See, for example, “The trouble with negative emissions,” Anderson and Peters, October 2016, *Science*, 354(6309), pp. 182–183, DOI: 10.1126/science.aah4567; “Betting on negative emissions,” Fuss, Canadell, Peters, Tavoni, Andrew, et al., 2014, *Nature Climate Change*, 4(10), pp. 850–53. DOI:10.1038/nclimate2392; *The risks of relying on tomorrow’s ‘negative emissions’ to guide today’s mitigation action*. Kartha and Dooley, 2016, SEI Working Paper No 2016-08. See also “Modeling meets science and technology: an introduction to a special issue on negative emissions,” Tavoni and Socolow, 2013. *Climatic Change*, 118(1). pp. 1–14. DOI:10.1007/s10584-013-0757-9.), who noted with irony: “paradoxically, despite little progress in international climate policy and increasing emissions, long-term climate stabilization through the lens of integrated assessment modelling appears easier and less expensive.” To helpfully inform policy today, mitigation models should at the very least be fully transparent about their negative emissions assumptions, reporting exactly how many negative tons they are assuming, when, and on the basis of what technologies. This at least makes it possible for other researchers to evaluate their social and environmental assumptions.
- 8 *Differential climate impacts for policy-relevant limits to global warming: the case of 1.5°C and 2°C*, Schleussner et al., 2016. <http://www.earth-syst-dynam.net/7/327/2016/>
- 9 <https://climateequityreference.org/>
- 10 This 2020 benchmark of 40 GtCO₂eq matches the “1.5°C Pathway” derived from the IPCC scenario database and presented by Climate Action Tracker (<http://climateactiontracker.org/global.html>). Beyond 2020, however, we support a mitigation pathway that reflects a higher level of emission reductions, both to improve that chance of keeping warming below 1.5°C (the cited 1.5°C Pathway has only a 50% chance of limiting warming to 1.5°C in 2100), and to avoid a heavy reliance on negative emissions. Also note that a 2020 emission benchmark of 40 GtCO₂eq is more ambitious than the “delayed action” 1.5°C and 2°C pathways used in various recent studies (e.g., *UNEP Emission Gap Report 2015*, op. cit.), in which emission reductions in 2020 are limited to the Cancun mitigation pledges. For more details, see *A Civil Society Equity Review of INDCs* (op. cit.).
- 11 See, for example, our pre-Paris *A Civil Society Equity Review of INDCs* (op. cit.), or the Stockholm Environment Institute’s 2014 *Brief Estimating international mitigation finance needs*, Tempest and Lararus, <https://www.sei-international.org/publications?pid=2620>
- 12 This incremental investment is relative to the IEA’s New Policies Scenario, and takes account of the avoided fossil fuel infrastructure investments. *World Energy Investment Outlook. Special Report*. IEA, 2014, OECD Publishing; International Energy Agency, Paris. <https://www.iea.org/publications/freepublications/publication/WEO2014.pdf>, p. 44.
- 13 *2014 Adaptation GAP Report*. <http://web.unep.org/adaptationgapreport/2014>
- 14 *2016 Adaptation GAP Report*. <http://web.unep.org/adaptationgapreport/2016>
- 15 See *Climate Finance Shadow Report 2016: Lifting the Lid on Progress Towards the \$100 Billion Commitment*, Oxfam, November 2016, <http://oxf.am/ZuGp>. Also, *Climate Finance in 2013-14 and the USD 100 Billion Goal*, OECD-CPI, 2015, <http://www.oecd.org/env/cc/Climate-Finance-in-2013-14-and-the-USD-billion-goal.pdf>
- 16 The authors of the study (Rogelj et. al., op. cit.) state that the costs of 1.5°C pathways is in a range of 2.2–3.7 times higher than for “medium 2°C scenarios,” such as the IEA’s. However, this range refers to the ratio of mitigation cost cumulatively from 2010 to 2100. We conservatively take the lower end of this range as the ratio of costs for the near-term, as it is reasonable to assume that mitigation costs increase at a quicker rate for more stringent pathways.
- 17 The best way to explore the full range of possibilities, and assess their fair share implications, is to play with the Climate Equity Reference Calculator itself, at <https://calculator.climateequityreference.org/>
- 18 See the *Equity Setting Explained* box for a further explanation of our equity range, comparisons between that range and equity benchmarks defined by pure capacity and pure responsibility, and pointers to a deeper analysis and the underlying online equity calculator.
- 19 This mitigation gap is defined relative to a global business-as-usual emissions path. Effort-sharing frameworks (unlike resource-sharing frameworks that divide up, say, a fixed emissions budget) require emissions baselines, because an “effort” must be measured against a pathway that reflects “no effort” or “no policies”. In this report, the calculations are based on a set of national no-effort baselines that, in turn, rely as heavily as possible on existing, widely-known and well-vetted national projections for all key indicators (i.e. population projections, GDP projections, carbon intensity projections) updated for recent history. For much more on all this, see *Definition, sourcing, and updating of the emissions baselines*, <https://climateequityreference.org/calculator-information/gdp-and-emissions-baselines/>.
- 20 “Progressive” is used here in the same way as, for example, income taxation systems in many countries are progressive: with exemptions for the poorest and tax rates progressively rising as incomes get higher. In the same fashion, more progressive benchmarks in this report assume that richer individuals are able to contribute more capacity for addressing the climate challenge.
- 21 For countries without Cancun pledges for the year 2020, or with obsolete Cancun pledges, we gauge their 2020 action based on interpolating from current levels to their post-2020 INDC.
- 22 The Oxfam analysis estimates the value of climate-specific net assistance that is implied by the face-value figures that developed countries and MDBs are reporting for climate finance. As such, the number is smaller than those reported in the recent *Climate Finance Roadmap* for 2020, published by developed countries, as the Oxfam research discounts *inter alia* for cases in which climate mitigation or adaptation is only a subordinate objective of a development project and estimates the grant-equivalent values of concessional loads which are reported at face value. Oxfam reports a range of \$18 to 34 billion per year in 2020 for all climate-specific net assistance, of which they estimate \$8 to 16 billion to be adaptation specific. This implies a range of \$10 to \$18 billion for mitigation; we use the central value of \$14 billion here. See, *Climate Finance Shadow Report 2016: Lifting the Lid on Progress Towards the \$100 Billion Commitment*. (op. cit.); *Climate Finance Roadmap to US\$ 100 Billion*, Australia, United Kingdom, et. al., 2016, <http://dfat.gov.au/international-relations/themes/climate-change/Documents/climate-finance-roadmap-to-us100-billion.pdf>
- 23 We are using an average leverage ratio of 1:1 for the mitigation portion of the climate finance portfolio. This is substantially higher than the portfolio-wide leverage ratios historically observed for climate finance provided by developed countries. The research that underpinned the *Climate Finance Roadmap* pegged the historical range at 1:0.35. The *Climate Finance Roadmap* (op. cit.) suggested that developed countries will aim moderately to increase these ratios, indicating a target range closer to 1:0.5 to 1:1. Given that we apply leverage ratios only to mitigation finance (which are plausibly higher than the total portfolio), we apply 1:1 as the upper end of that range.
- 24 For more details, see *About the Climate Equity Reference Project Effort-sharing Approach*. <https://climateequityreference.org/about-the-climate-equity-reference-project-effort-sharing-approach/>
- 25 See *The Sky’s Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production*, Oil Change International, September 2016, http://priceofoil.org/content/uploads/2016/09/OCL_the_skys_limit_2016_FI_NAL_2.pdf; The quote here is from an Oil Change International email, October 18, 2016.

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Analytical support provided by the Climate Equity Reference Project, an initiative of EcoEquity and the Stockholm Environment Institute.

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