

## Chapter 1

### Justice, Peace and Inclusion for Sustainability or Climate Apartheid?

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#### Big Picture

All of the United Nations Sustainable Development Goal (SDGs) are integral to configuring, advancing and delivering the sufficiently robust multilateral response to confront and thwart the unfolding planetary climate emergency.

The 16<sup>th</sup> United Nations Sustainable Development Goal (UN SDG 16, or simply: SDG16) advances the idea that the *sine qua non* “for sustainable development,” is the ‘promotion of just, peaceful and inclusive societies’ as they can “provide access to justice for all and build effective, accountable and inclusive institutions at all levels”.

If we are to abate and ultimately avert the unfolding climate emergency, we must leverage the spirit of SDG16 by building formidable institutions that marshal resources fit for purpose and scale of the crisis in an expeditious manner. Anything less may not only fail to stall the crisis, but much worse: mislead people and institutions into believing viable solutions are being deployed while the opposite is true. The foundational framework of the SDGs recognises the vital importance of the interlinkages between all of the different goals and targets and accordingly, in the case of, SDG16 it should be seen as fundamental to the delivery of all the goals and targets.

#### How Did We Get Here?

News headlines make it seem as if climate change and its underlying drivers—population dynamics; burgeoning urbanization; development and underdevelopment (particularly, in emerging markets like China and India); rising CO<sub>2</sub> and the accelerated greenhouse effect—are all relatively new phenomena. Contemporaneous hagiographies of the “godfather” of climate change: James Hansen abound. (Goodell, 2018) Yet the ongoing civil society battle against climate change is over a half century. While the science of climate change is older still, underway some two to three hundred years.

Many historians of science point to Swedish Svante Arrhenius (1859-1927), as the first to accurately measure the “greenhouse effect” or to what extent to which increases in atmospheric carbon dioxide (CO<sub>2</sub>) will increase Earth's surface temperature. (Henning, 1997) Arrhenius, a Nobel laureate (1903), was actually building on work by Fourier, Pouillet and Tyndall—all working a generation before him. Indeed, many credit Fourier with discovering the greenhouse effect. (Crawford, 1997) Even in the US, a century before the climate “godfather”, Hansen, was born Eunice Newton Foote (1819-1888), a scientist and suffragette discovered the absorption of thermal radiation by carbon dioxide and water vapour. She did so three years *before* John Tyndall, who is generally credited with this discovery—a cornerstone of our current understanding of the greenhouse effect, climate change, weather and meteorology (Jackson, 1856). When Newton Foote

“presented” her findings to the American Association for the Advancement of Science it was done by a man – since the august Association did not allow women to speak. The findings, however, were published under her name and appeared in the 1856 issue of *The American Journal of Science*, titled “Circumstances affecting the Heat of the Sun’s Rays” (Foote, 1856). Whether for animus, ignorance or some (masculine) admixture: Tyndall never cited or credited her.

It is atop this multi-century old legacy and accumulated record that scientists in particular, and more recently policy makers, activists and growing numbers of citizens are sufficiently worried about the extent of the current climate crisis to deem it an emergency. (Crawford, 1997)

Modern scientific warnings of the unfolding climate crisis have been steadily made with increasing frequency, over nearly the past two generations (1960-2020). By the late 1960s, multilateral institutions came together to implement the World Weather Watch and the joint World Meteorological Organization and [International Council for Science](#) (WMO-ICSU) Global Atmospheric Research Programme or GARP as scientific concern was beginning to mount, reinforced by the increasing carbon dioxide concentrations evident from the early observations at Mauna Loa, that human activities could, in fact, already be starting to impact on the Earth’s climate at global scales. (Oreskes, 2019)

Another decade of data provided the mandate and foundation to call The First World Climate Conference. It took place in Geneva in 1979. Some 350 specialists gathered from 53 countries and 24 international organizations from, representing a wide range of disciplines including agriculture, water resources, fisheries, energy, environment, ecology, biology, medicine, sociology and economics (White, 1979). Conference delegates agreed that alarming trends for climate change made it urgently necessary to act.

Since then, similar policy alarms have been made through at the 1992 Rio Summit, the 1997 Kyoto Protocol negotiations, and the 2015 Paris Agreement talks, at scores of other global assemblies and by a long list of scientists’ explicit admonishments of insufficient progress. (SMIC, 1971)

Alas, greenhouse gas (GHG) emissions, to this day, continue rapidly rising, with increasingly deleterious effects on the Earth's climate, ecosystems and livelihoods. Many poignantly make the case that an immense increase of scale in endeavors to protect and conserve our biosphere is urgently needed to further avoid untold suffering due to the climate crisis (IPCC 2018 & Ripple, et al. 2019).

It should come as no surprise then, for the first time in its 15-year history, the 2020 World Economic Forum’s [annual risks report](#) found that, the environment filled the top five places in the list of concerns likely to have a major impact over the next decade (World Economic Forum, 2020).

The report further notes that, “weak international agreements belie rising investor and popular pressure for action, against a backdrop of a multitude of natural catastrophes and indicators of longer-term disruptions.”

Empirically, 2019 not only was the second warmest year ever, it also marked the end of the hottest decade in recorded history. (Ripple, 2019)

As Gavin Schmidt, the Director of NASA's Goddard Institute for Space Studies (GISS), put it:

“We crossed over into more than 2 degrees Fahrenheit warming territory in 2015 and we are unlikely to go back. This shows that what's happening is persistent, not a fluke due to some weather phenomenon: we know that the long-term trends are being driven by the increasing levels of greenhouse gases in the atmosphere.” (Dennis, 2019)

The NASA/NOAA data reveal by continent, the 2019 temperature rankings:

*Australia (and Oceania): warmest year on record*

*Europe: 2<sup>nd</sup> warmest*

*South America: 2<sup>nd</sup> warmest*

*Asia: 3<sup>rd</sup> warmest*

*Africa: 3<sup>rd</sup> warmest*

*North America: 14<sup>th</sup> warmest (NASA, 2019)*

It is no wonder then that the United Nations Development Programme (UNDP) has noted:

“Climate change is the defining human development challenge of the 21st Century. Failure to respond to that challenge will stall and then reverse international efforts to reduce poverty. The poorest countries and most vulnerable citizens will suffer the earliest and most damaging setbacks, even though they have contributed least to the problem.” (UNDP, 2007)

These factors, in part, are precisely why in 2018 to mark its 50<sup>th</sup> anniversary, the Club of Rome declared a planetary climate emergency—that is “a result of inaction, and represents an existential risk to humanity” and is a risk posing permanent, massively negative consequences which can never be undone. The Club of Rome echoes and builds upon the work of UNDP and a litany of other scientists, public agencies and research institutions globally, noting how and why increasing climate chaos is a reality. In the 21st Century, increasing climate chaos will dictate and constrain the long-term prosperity and security of nations, affect the lives of millions and the entire planet, more than any other issue. (Masters, 2019)

## **Vicissitudes of Centuries of Climate Science**

Beyond the scourge of the unfolding climate emergency several factors further complicate this already grim picture. First, new data and studies indicate that scientists may be underestimating the extent of the climate crisis. This “consistent underestimation bias” highlights the need for even harsher and rapid institutional responses. Worryingly underestimating the extent of the climate crisis is being born out in the most recent empirical results—as well.

So-called climate deniers and skeptics, many of them funded by chief progenitors of CO2 emissions: the fossil fuel industry, have variously argued climate scientists exaggerate the extent of climate change and the worsening crisis. (Club of Rome, 2019)

A team of American researchers from Harvard, Princeton and New York University (NYU), however, make a distinctly more urgent point for institutions trying to thwart the unfolding crisis:

“...[R]ecent updates, suggesting that climate change and its impacts are emerging faster than scientists previously thought, are consistent with observations that we and other colleagues have made identifying a pattern in assessments of climate research of underestimation of certain key climate indicators, and therefore underestimation of the threat of climate disruption. When new observations of the climate system have provided more or better data, or permitted us to reevaluate old ones, the findings for ice extent, sea level rise and ocean temperature have generally been worse than earlier prevailing views.” (Exxon, 2019)

Critically the researchers add:

“We found little reason to doubt the results of scientific assessments, overall. We found no evidence of fraud, malfeasance or deliberate deception or manipulation. Nor did we find any reason to doubt that scientific assessments accurately reflect the views of their expert communities. But we did find that scientists tend to underestimate the severity of threats and the rapidity with which they might unfold.” (Oreske, 2019)

Reasons for underestimation bias vary. Over the three century arc of climate science and even shorter mid-20<sup>th</sup> to early 21<sup>st</sup> century “modern” era, scientists have developed better instruments to monitor and share data about the crisis: notably satellites and the internet—the stuff of Jules Vernian scale science fiction during Eunice Newton Foote’s time, have led to major revisions of the variability in extent, speed and adverse impact of the unfolding climate crisis.

Additionally, scientific advancements driven by improvements in technology, improve empirical findings which in turn force reconfigurations of basic theoretical assumptions, which further push the development of new technology to better understand phenomena in an emergent process, that feeds upon itself. At its apogee we might call this process: the development of knowledge. This process does not only apply to science writ large it applies to many fields and climate science in particular.

This process of developing and revising climate science has happened over and over again—and will continue, *ad infinitum*. In mid-2019 the [UK’s Met Office](#) released the largest single update since 2011 to its widely used sea surface temperature (SST) record. The HadSST.4.0.0.0 or HadSST4 for short, is a monthly global field of the ocean’s surface on a 5° latitude by 5° longitude grid from 1850 to date. (Oreske, 2019) The 2019 update provides a more accurate estimate of SSTs in the period during and after World War II as well as over the past decade.

The Met Office’s update suggests that the world’s oceans have warmed by 0.1C *more* than previously thought since pre-industrial times. To the untrained eye this maybe meaningless drivel.

Yet to those tracking the planet's carbon budget –the allowable amount of additional emissions, we theoretically can use (emit) to avoid further or irreparable damage to the planet —revisions to the Hadley SST record would reduce the carbon budget between 24% and 33%, if we want to limit average planetary warming to 1.5C, depending on how the budget is calculated. (Met Office, 2019) A smaller budget would mean humanity has fewer carbon emissions it can still emit before locking the world into 1.5C of global warming—if these current estimates are not underestimated, like the previous ones.

Paralleling the HadSST4 updates, and following the 2019 Madrid climate negotiations new climate models —which will underpin the 2022 revised UN temperature projections— developed in parallel by separate teams in half-a-dozen countries, indicate scientists have for decades consistently underestimated the warming potential of CO2. (IPCC, 2019) This new modeling, a century on from the very same problem Eunice Newton Foote sought to understand, shows carbon dioxide is a much more potent greenhouse gas than previously understood. (Hood, 2020) This finding alone could push the Paris treaty goals for averting climate catastrophe well out of our reach. As the lead author of the first peer-reviewed assessment of the new generation of models, put it: “If you think the new models give a more realistic picture, then it will, of course, be harder to achieve the Paris targets, whether it is 1.5 or two degrees Celsius.” (Zelinka, M)

Thus underestimated science forecasts coeval with the ongoing improvement of scientific knowledge. Both can lead to suboptimal (or more dire) forecasts of the extent of the climate crisis –whether from the need for upward revisions to how much ocean temperature is increasing; further refinements in just how bad and fast CO2 emissions may accelerate catastrophic warming; and myriad other refinements to a litany of climate variables. Such scientific updates place a large premium on the need for robust, national and multilateral institutions capable of responding at the requisite scale, in more hasty fashion, in line with the evolution of changing science and coincident empirical findings.

Some, like the director of the International Centre for Climate Change and Development, have expressed doubt in the prospect for such needed institutional response:

“my main reason for declaring the [United Nations Framework Convention on Climate Change] process no longer fit for purpose is the fact that 2019 is the year that the reality of climate change all over the world overtook climate talks. Until now it was reasonable to meet every year in anticipation of being able to agree to take actions to prevent the worst impacts by both mitigation as well as adaptation actions.”

“Our failure to rise to this challenge, by assuming that we had plenty of time left, was clearly wrong and we are now entering the world of real loss and damage due to human-induced climate change that is clearly attributable to the emissions of greenhouse gases.” (AFP, 2019)

So, the ability to thwart the climate emergency is ever dependent on strong institutions that premise the ‘promotion of just, peaceful and inclusive societies’ as they can “provide access to justice for all and build effective, accountable and inclusive institutions at all levels”. (We will return to this point below.)

Beyond course correcting scientific underestimates of the extent of the climate crisis, as the uneven continental warming shows above: the climate crisis does not unfold evenly across the planet. This is especially true given the amazingly stochastic economic, social and political realities and injustices that define humanity's (under)development predicament to date. This nexus –where climate crisis intersects with uneven development—delineates the particularly thorny problem of climate injustice – and what some have gone as far to warn is its proverbial bastard step-child: climate apartheid. (Huq, 2019)

## **From Climate Injustice Towards Climate Apartheid**

Over a decade ago, a group of researchers led, in part, by University of California public health professor Rachel Morello-Frosch published: “The Climate Gap: Inequalities in How Climate Change Hurts Americans & How to Close the Gap”. (Frosch, 2009)

The report detailed succinctly, that:

“Extreme weather events such as heat waves, droughts and floods as well as increased air pollution and higher prices for basic necessities will disproportionately impact people of color and the poor. For example, African Americans in Los Angeles are twice as likely to die from a heat wave as other residents, and the additional costs for air conditioning during heat waves are challenging, or unattainable for the poor.”

A decade on Morello-Frosch and colleague's updated results refine and reinforce their earlier findings:

“climate change will cause unprecedented harm to human populations, with the greatest burden falling on children, the elderly, those with underlying ill-nesses, and the poor, particularly poor women; and climate change will disproportionately affect low income countries, especially their coastal cities, and will also disproportionately affect poorer people within wealthier countries.” (Frosch, 2009)

Frosch, et. al., show the manner in which climate injustices play out in case after case around the world. The case of Hurricane Katrina is illustrative. In New Orleans the elderly, the disabled, the poorest segments of the population, and African Americans were least likely to have the means to evacuate the city of New Orleans before the storm. The greatest risk of death, property loss, and displacement fell on the poor and on African American residents of New Orleans. (Forman, 2019)

Similarly, researchers at the University of Miami Center for Disaster and Extreme Event Preparedness collaborating with scholars in the Bahamas found similar results. (Forman, 2019) Across the Caribbean region, for example, socioeconomically disadvantaged and marginalized populations sustain disproportionate harm and loss, with more hazardous storms exacerbating the inequity; and while the populations most vulnerable to Atlantic hurricanes, especially those in small-island states, contribute virtually nothing to climate change, they are among those most exposed to risks that are worsened by the carbon emissions from higher-income countries. (Shultz, 2019)

The last point is remarkable inasmuch as it is seen repeatedly across the globe whereby those harmed worst, most and often first from the unfolding climate crisis contribute the least to it. (Shultz, 2019) A late 2019 report by Christian Aid found that the 10 most food-insecure countries in the world generate less than half a ton of CO<sub>2</sub> per person. Collectively, they generate just 0.08% of total global CO<sub>2</sub> –almost ten times less than the global average of 4.8 tonnes per person. (Roberts, 2001) More populous countries with some of the highest per capita emissions – and therefore some of the highest [total emissions](#) – are Australia, the United States and Canada. Australia has an average per capita footprint of 17 tonnes, followed by the US at 16.2 tonnes, and Canada at 15.6 tonnes –some 31-34 times those who generate the least yet suffer from a host of other (under)development calamities, the least of which is food insecurity. (Union of Concerned Scientists, 2019)

## **Is Multilateral Climate Governance Enough?**

Coeval with researchers who have painstakingly sketched the empirical extent of climate injustices and so sounded the alarm to check the problem—surprising for some, others have consistently, perhaps worryingly or disturbingly (sheepishly and brazenly) openly downplayed the need to tackle such injustices, and instead, pretend as if the world was more akin to a laboratory setting where CO<sub>2</sub> emissions were seemingly, magically generated and distributed uniformly over the planet.

As Keohane put it “in world politics, turning justice into a standard of acceptability is in my view often unrealistic and may lead to mistaken rejection of institutional changes that represent valuable, if incremental progress.” (Ritchie, 2019) This line of reason builds on comments US climate negotiators have made.

As Pickering, et. al., noted near the conclusion of the 2011 UN climate talks in Durban South Africa:

“[US President Obama’s] lead negotiator, Todd Stern quipped: “If equity’s in, we’re out.” In other words, if the [negotiated texts] contained any references to the term “equity,” the United States would refuse to participate. As it transpired, the United States and like-minded countries succeeded on this point. The agreed upon Durban Platform for Enhanced Action contained no references either to equity or to the “common but differentiated responsibilities” of all parties for protecting the climate system. These omissions were notable since both are core principles of the United Nations Framework Convention on Climate Change (UNFCCC, Articles 3.1; Art. 4.2, Art. 4.4), under whose auspices the negotiations took place.”

So while the foundational climate accord (the UNFCCC) and its basic institutional infrastructures (the Conference and Meetings of the Parties, or COP and MOP) codified, from its outset, that nations have a common responsibility to avoid the climate crisis yet differentiated abilities to do so, certain powerful individuals, institutions and nations opt to advocate otherwise—and even go so far as to threaten to abandon accords if justice or equity-based solutions are premised, backed or legitimized. Such explicit (Stern) or implicit (Keohane) advocacy against justice is

counterproductive at best and downright dangerous in the face of the burgeoning scientific findings and especially some of the worsening revisions. Anti-equity positioning and brinkmanship against delivering climate justice mark the genesis of climate apartheid and albeit, less common, yet still proffered proposals for forms of eco-totalitarianism.

The UN Special Rapporteur on extreme poverty and human rights, Philip Alston, argues:

“Even if current targets are met, tens of millions will be impoverished, leading to widespread displacement and hunger ... We risk a ‘climate apartheid’ scenario where the wealthy pay to escape overheating, hunger and conflict while the rest of the world is left to suffer. ... Climate change carries immense implications for human rights, including to life, food, housing and water. It will also impact democracy as governments struggle to cope with climate consequences and persuade constituents to accept the major social and economic transformations required – rendering civil and political rights vulnerable. Most human rights bodies have barely begun to grapple with what climate change portends for human rights, and it remains one on a long laundry list of ‘issues’, despite the extraordinarily short time to avoid catastrophic consequences.” (Keohane, 2019)

Jorgen Randers, professor of “climate strategy” at BI Norwegian Business School (and a Club of Rome member) has openly advocated for such usurpations of civil and political rights. According to Randers, “Democracies are inherently biased towards short-term fixes, and therefore fundamentally unable to address long-term challenges such as climate change.” (UN, 2019)

Contrastingly, the UN Special Rapporteur on extreme poverty and human rights, Alston, reminds us, “A robust social safety net will be the best response to the unavoidable harms that climate change will bring.” (Randers, 2012) For Alston such a safety net, in lieu of the suspension of democracy or the wayward imposition of a kind of climate crisis inspired martial law, could be a catalyst for nations to fulfill “long ignored and overlooked economic and social rights”, including access to food, healthcare, shelter, and decent work. (UN, 2019)

## **Road to Justice**

The notion of climate justice is now a decades old name of and demand from a variety of multilaterally networked, social movements that fuses a variety of progressive political-economic and political-ecological currents to combat the most serious threat humanity and most other species face in the 21st century.

As colleagues and I have detailed previously:

“The climate justice lineage includes 1990s environmental anti-racism; the late 1990s Jubilee movement against Northern financial domination of the South; the 2000s global justice movement (which came to the fore with the December 1999 Seattle World Trade Organization protest); environmentalists and corporate critics who in 2004 started the Durban Group for Climate Justice (Lohmann 2006); the 2007 founding of the Climate Justice Now! (CJN) network; the 2009 rise of the European left’s Climate Justice Alliance in advance of the Copenhagen COP; the ongoing role

of Malaysia-based Third World Network in amplifying the critique by both South states and radical civil society in COP and related negotiations; and much more.” (UN, 2019)

The inability of global elite actors to solve major environmental, geopolitical, social and economic problems puts added emphasis on the need for a climate justice based philosophy, ideology, principles, strategies and tactics. The time is opportune to dissect the socio-cultural basis of knowledge production and resistance formation against hegemonic climate policy making—especially those either openly or tacitly anti-justice.

One reason is the ongoing fracturing of elite power including acquiescence by large environmental non-governmental organizations (NGOs) - in an era of extreme global state-failure and market-failure.

One challenge along that route is to establish the most appropriate climate justice narratives, by identifying what gaps exist in climate justice constituencies, and which alliances are moving the politics of climate justice forward. This can be done, in part, through case studies that illustrate approaches to climate *in*justice spanning campaigns and institutional critique.

As Klinsky, et. al, offer:

“In a world characterized by vast disparities of wellbeing, it is naïve and dangerous to analyse climate policies (or the lack of them) without considering how humans in starkly different structural positions are affected by them differently. By excluding equity, we risk ignoring, or will fully omitting, the implications of decision-making on those who are most vulnerable and are most likely to face severe costs of any action (or inaction).” (Klinsky, 2017)

## **Configuring Climate Justice by Delivering Letter & Spirit of the SDGs**

We can architect justice-based sustainability by leveraging the spirit and intent of all of the UN Sustainable Development Goals, emphasizing SDG16 in particular. In so doing, we can promote just, peaceful and inclusive societies that premise democracy, not subvert it as the *sine qua non* of both delivering sustainability and avoiding the looming climate catastrophe.

At barest minimum national governments and multilateral institutions must dramatically increase the monetary commitments to fighting the unfolding climate crisis. In the best cases tens-of-millions of dollars have been assembled to fight climate change, when even conservative estimate place the appropriate need at tens of billions, if not trillions per year. The Africa Climate Change Fund (ACCF), established by the African Development Bank (AfDB) in April 2014, is worryingly illustrative. Since its inception it has received some € 11.4 million—under €2 per annum. (Africa Development Bank, 2020) At the beginning of 2020 ACCF announced it approved seven new project proposals amounting to around \$4.7 million. (African Development Bank, 2020) To the untrained eye these sums may be deemed impressive. Yet just one climate intensified cyclonic event—Cyclone Idai—left more than \$2 billion in damages, by some estimates. The total ACCF to date then is less than 1% of the low end damage estimate of one catastrophic climate intensified event. In the face of such sums—gargantuan and paltry—it becomes impossible to overstate the

case that more funds are desperately needed to deliver climate justice responses at the requisite scale.

Beyond money to fight climate intensified calamities be they cyclones; landscape size fire events—like those that plagued Australia from late 2019 into early 2020; or a litany of emergency events, the time has also come to urgently accelerate the exit from propping up industries that drive emissions, namely fossil fuels and simultaneously rapidly increase investments into and build out of renewable energy technologies—especially wind and solar resources.

Thus the ability to upend the planetary climate emergency will, at minimum certainly depend on strong institutions which premise the ‘promotion of just, peaceful and inclusive societies’ in order to “provide access to justice for all and build effective, accountable and inclusive institutions at all levels”. Climate justice will also rest upon and derive from those institutions that marshal appropriately sized resources, urgently. Climate justice will spring forth from those that can ultimately facilitate and configure need changes in contraindicated economic and political policies and practices—sustained national and multilateral support for fossil fuel technologies in lieu of drastically increasing, for example—that drive us hastily away from climate emergencies toward climate justice for all.

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