

Resolutely Promised Prosecutions of Climate Criminals May Force Urgent Climate Action

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Eminent climate scientist **Professor James Hansen** has published a must-read, 55-page summary of the worsening climate emergency.

In short, to correct the Earth's presently disastrous energy imbalance we must urgently reduce the atmospheric CO2 to 342-373 ppm CO2 from the present disastrous 407 ppm CO2.

The cost of extracting 1 ppm of CO2 from the atmosphere is \$878-1803 billion but continuing inaction is not an option – the Paris commitments mean a 3C temperature rise and eventual inundation of coastal areas by a 15-25 meters sea level rise. Hope is not lost – resolutely promised prosecutions of politician, corporate and media climate criminals may finally force urgent climate action.

Professor James Hansen was formerly head of NASA's Goddard Institute for Space Studies and is presently an adjunct professor directing the Program on Climate Science, Awareness and Solutions of the Earth Institute at 96-Nobel Laureate Columbia University [1]. However his latest summary of the science underlying the worsening climate emergency [3] will fall on deaf ears because climate criminal corporate Big Money malignantly dominates, perverts and subverts Mainstream media [4-10] and trumps the voices of Humanity's leading climate scientists such as James Hansen.

Indeed while scientists are overwhelmingly concerned about the worsening climate emergency as evidenced by a 2017 letter signed by over 15,000 scientists [11, 12], and the 2018 IPCC Report on plus 1.5C [13, 14], industrial carbon pollution and atmospheric CO2 continue to rise inexorably [3, 11-20].

Profit-driven, corporate-backed climate change denial has been well documented [7, 8] but Naomi Klein has summarized the fundamental neoliberal capitalist objection to climate change action:

"Many deniers are quite open about the fact that their distrust of the science grew out of the powerful fear that if climate change is real, the political implications would be catastrophic ... I think these hard-core ideologues understand the real significance of climate change better than most of the "warmists" in the political center , the ones who are still insisting that the response can be gradual and painless and that we don't need to go to war with anybody, including the fossil fuel companies... the real reason we are failing to rise to the climate moment is because the actions required directly challenge our reigning economic paradigm (deregulated capitalism combined with public austerity)... [and] spell extinction for the richest and most powerful industry the world has ever known – the oil and gas industry)" ([5], pages 42, 43 and

While there is "outright climate change denial" by right-wing, anti-science buffoons like US president Donald Trump, there is a dominant global political culture of "effective climate change denial" through climate change inaction that is best illustrated by the woefully insufficient national commitments at the 2015 Paris Climate Change Conference that even if adhered to will amount to a catastrophic 2-9-3.4°C temperature rise by 2100 [21, 22].

Grossly insufficient climate action through "outright climate change denial" and "effective climate change denial" is well illustrated by climate criminal Australia that is among the world leaders in 14 global warming-related areas of climate criminality, specifically

- (1) annual per capita greenhouse gas (GHG) pollution,
- (2) live methanogenic livestock exports,
- (3) natural gas exports,
- (4) actual or adumbrated exploitation of recoverable shale gas reserves that can be accessed by hydraulic fracturing (fracking),
- (5) coal exports,
- (6) land clearing, deforestation and ecocide,
- (7) speciescide species extinction,
- (8) coral reef destruction,
- (9) whale killing and extinction threat through global warming, (10) terminal carbon pollution budget exceedance,
- (11) per capita carbon debt,
- (12) GHG generating iron ore exports,
- (13) climate change inaction and
- (14) climate genocide and approaches towards omnicide and terracide [23].

While about half of the ruling Coalition Australian Government MPs idiotically espouse "outright climate change denial", the whole government is involved in "effective climate change denial" through climate change inaction in these 14 areas. While it pays lip service to the reality of global warming and the need for massive investment in renewable energy, the Labor Opposition is just as "effective climate change denialist" as the Coalition by having a common policy with the Coalition Government of unlimited exports of coal, gas and methanogenically-derived meat. A picture says a thousand words, and PM Scott "Scomo" Morrison, leader of the pro-coal Coalition (COALition) Government held up a lump of coal in the Australian Parliament, declaring "This is coal. Don't be afraid, don't be scared" [24].

However Humanity does have serious cause to be afraid and to be scared over coal and greenhouse gas (GHG) pollution. Thus air pollution from carbon fuel burning ultimately kills

about 7 million people globally each year, with pollutants from the burning of Australia's world-leading coal exports contributing to about 75,000 of these annual deaths [25]. Global warming from greenhouse gas (GHG) pollution has been estimated to kill about 0.4 million people annually [26], but this is surely an under-estimate because 15 million people die avoidably each year from deprivation in tropical and sub-tropical Developing countries (minus China) [27], countries that are disproportionately impacted by global warming through more severe droughts, forest fires, floods, intense storms, and storm surges. Several leading climate scientists, namely Dr James Lovelock FRS and Professor Kevin Anderson, have suggested that only 0.5 billion may survive this century if global warming is not requisitely tackled, this translating to a worsening climate genocide in which 10 billion people will die from climate change this century at an average rate of 100 million per year [26] i.e. 6 times greater than the current 15 million avoidable deaths from deprivation each year [27].

The present and predicted carnage poses the questions of personal responsibility, complicity, and climate criminality. Indeed one must consider individual and collective complicity in manslaughter, murder, genocide and depraved indifference to such deadly events. Briefly, manslaughter is unintentional killing, murder is intentional killing, and genocide is defined by Article 2 of the UN Genocide Convention which states

"In the present Convention, genocide means any of the following acts committed with intent to destroy, in whole or in part, a national, ethnic, racial or religious group, as such: a) Killing members of the group; b) Causing serious bodily or mental harm to members of the group; c) Deliberately inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part; d) Imposing measures intended to prevent births within the group; e) Forcibly transferring children of the group to another group" [28].

Individual or collective complicity is more difficult to define. Thus, for example, I spend a lot of my time researching and writing about the deadly consequences of man-made climate change but I am a citizen of a country, Australia, that is among world leaders in climate criminality and, as a measure of carbon footprint, has a per capita GDP (\$56,000) that is 35 times greater than that of acutely global warming-threatened Bangladesh (\$1,600) and 28 times greater than that of acutely global warming-threatened India (\$2,000) [29]. Setting aside these embarrassing realities, we can nevertheless readily identify the worst individual climate criminals – the directors of fossil fuel companies, "climate change denialist" or "effective climate change denialist" politicians guilty of deadly climate criminality through climate change inaction, and journalists, editors and commentators guilty of depraved indifference through espousing "outright climate change denial" or "effective climate change denial".

There is a compelling case for resolutely promised, global prosecutions of politician, corporate and media climate criminals – a resolute promise by decent Humanity that may finally force urgent climate action. However before considering this promised retribution in detail it is useful to consider the resolute rejection or ignoring by climate criminals of 3 key realities set out by leading climate scientist Professor James Hansen in his recent, must-read analysis of the worsening climate emergency, "the gathering storm" [3].

1. James Hansen on the Earth's energy imbalance and the need for negative CO2 emissions to 342-373 ppm CO2: "Earth is now substantially out of energy balance. The amount of solar energy that Earth absorbs exceeds

the energy radiated back to space. The principal manifestations of this energy imbalance are continued global warming on decadal time scales and continued increase in ocean heat content. Quantitative understanding of Earth's energy imbalance has improved over the past decade. The upper two kilometers of the ocean, where most of the excess energy is stored, has been well-monitored by the international Argo floats program since 2005. Over the full solar cycle 2005-2016 Earth's energy imbalance is 0.75 ± 0.25 W/m2 . The range 0.5 to 1 W/m2 is substantial. For example, in order to restore Earth's energy balance by reducing atmospheric CO2, which is the principal cause of the imbalance, CO2 would need to be reduced from its 2018 407 amount to 373 ppm if the imbalance is 0.50 W/m², but to 342 ppm if the imbalance is 1 W/m² . In reality CO2 is not only continuing to increase, its rate of growth is increasing. The reason is that global population and energy demands continue to increase, and about 85 percent of global energy is provided by fossil fuels" [3].

The climate criminal reality is that atmospheric CO2 is increasing [3, 18], the rate of growth of atmospheric CO2 is increasing [3, 18], electricity sector use of coal, gas and oil is remorselessly increasing [17], and annual industrial CO2 pollution is increasing [19, 20], as is atmospheric pollution by the potent greenhouse gases methane (CH4) [30, 31] and nitrous oxide (N2O) [31, 32]. The remorseless increase in carbon pollution and GHG pollution rejects even the notion of zero carbon pollution, and likewise the vital concepts of "negative carbon pollution" and "negative economic growth" are utterly ignored [15]. Using coral reefs as a "canary in the coal mine" one can estimate that coral reefs starting dying when the CO2 reached 320 ppm at a time (1965) when the world's population was 3.3 billion as compared to the present 7.5 billion i.e. on this basis the Earth is overpopulated by a factor of about 2 [15]. However the presently dominant neoliberal economists argue that present "negative population growth" in some advanced countries is bad for the "economic growth" to which they are ideologically committed.

2. James Hansen on paleoclimatological evidence for the predicted 3°C of warming meaning a long-term 15-25 meters sea level rise: "Sea level reached heights as great as 6-9 meters during the prior interglacial period, the Eemian about 120,000 years ago, when global temperature was only about 1°C above the pre-industrial level, i.e., similar to today's global temperature. During the early Pliocene, several million years ago, when global temperature was at most about 3°C warmer than pre-industrial conditions, sea level probably reached as high as 15-25 meters above today's level. In other words, there is plenty of vulnerable ice available to cause eventual sea level rise that would inundate today's coastal cities, in response to a warming level that we could produce this century. Burning all of the readily available fossil fuels would eventually melt almost all the ice on the planet, raising sea level 65-75 meters (more than 300 feet)" [3].

The climate criminal reality is that long-term sea level rise is essentially ignored by the North and the problem, if at all recognized, is left to future generations to deal with in a process of extraordinary intergenerational injustice [3, 33]. The Island Nations and megadelta countries of the South such as Bangladesh are acutely aware of the problem that is already impacting them severely, and indeed talk of a worsening climate genocide [26, 34].

3. James Hansen on the \$1-2 trillion cost of lowering atmospheric CO2 by

merely 1 ppm: "How much CO2 must be extracted from the air today to offset the excess growth of greenhouse gas forcing in a single year, i.e., to reduce climate forcing by 0.015 W/m2? Atmospheric CO2 must be reduced almost exactly 1 ppm CO2 to increase heat radiation to space by 0.015 W/m2. [We actually need to suck more than 1 ppm from the air, because the ocean reacts to the reduction of atmospheric CO2 by increasing the net backflux of CO2 to the atmosphere. However, we can make our point without including this added difficulty in achieving CO2 drawdown.] One ppm of CO2 is 2.12 billion tons of carbon or about 7.77 billion tons of CO2. Recently Keith et al.(2018) achieved a cost breakthrough in carbon capture, demonstrated with a pilot plant in Canada. Cost of carbon capture, not including the cost of transportation and storage of the CO2, is \$113-232 per ton of CO2. Thus the cost of extracting 1 ppm of CO2 from the atmosphere is \$878-1803 billion" [3].

The climate criminal reality is that in the last decade the atmospheric CO2 (as measured at Mauna Loa in Hawaii) has been increasing at about 2.5 ppm CO2 per year [18] and the cost of reducing atmospheric CO2 by this amount would accordingly be about \$2-4.5 trillion each year, a bill to be eventually and inescapably paid by future generations in a process of gross intergenerational injustice [3, 33]. In his Papal Encyclical "Laudato Si" Pope Francis cogently argued that the environmental and social costs of pollution must be "fully borne" by those incurring them (i.e. a full Carbon Price) ([35], Section 195 [36]. However the climate criminals insist that the environmental and social costs of pollution must be "fully borne" by the Biosphere, Humanity as a whole, and in particular by the young and future generations i.e. monstrous, "might is right" climate theft, climate larceny, climate murder, and intergenerational injustice. It is notable that climate economist Dr Chris Hope from 90-Nobel laureate Cambridge University has estimated a damage-related carbon price of about \$100-\$200 per tonne of CO2 [37, 38].

There still is hope - resolutely promised prosecutions of climate criminals may force urgent climate action

My science-informed and scientist friends and colleagues are very despondent about climate change inaction. As a scientist I am generally optimistic about things but in relation to climate change I have had to concede for several years now that avoiding a catastrophic plus 2°C temperature rise is now essentially unavoidable, while nevertheless asserting that we must do everything we can to help make the future "less bad" for our children and future generations. However 2 things augur well for "making the future less bad", specifically Climate Revolution [39] and Climate Justice involving resolutely promised prosecutions of climate criminals [40, 41].

At some point **Climate Revolution** will happen when the South and the Young revolt (nonviolently one hopes) against the rich, neoliberal One Percenters of the North who own half the world's wealth and are hell-bent on pushing Humanity and the Biosphere over the edge of the existential cliff. The key issue that is assiduously hidden by the mendacious, One Percenter-controlled Mainstream media is Humanity's gigantic, ever-increasing and inescapable Carbon Debt [38]. The Historical Carbon Debt (aka Historical Climate Debt) of a country can be measured by the amount of greenhouse gas (GHG) it has introduced into the atmosphere since the start of the Industrial Revolution in the mid-18th century.

Thus the total Carbon Debt of the world from 1751-2016 (including CO2 that has gone into

the oceans) is about 1,850 billion tonnes CO2. Assuming a damage-related Carbon Price of \$200 per tonne CO2-equivalent, this corresponds to a Carbon Debt of \$370 trillion, similar to the total wealth of the world and 4.5 times the world's total annual GDP. Using estimates of national contributions to Historical Carbon Debt and assuming a damage-related Carbon Price in USD of \$200 per tonne CO2, the World has a Carbon Debt of \$370 trillion that is increasing at \$13 trillion per year.

My own country, Australia, has a Carbon Debt of US\$7.5 trillion (A\$10.7 trillion) that is increasing at US\$400 billion (A\$570 billion) per year and at US\$40,000 (A\$57,000) per head per year for under-30 year old Australians. When young Australians realize the enormity of this imposition they will be enraged and take resolute action – but that day of reckoning has been delayed by the mendacity of largely US-owned Australian Mainstream media. Nevertheless young Australians are well aware that they have been horribly betrayed without realizing the enormity of the betrayal.

Already the climate criminal, pro-coal COALition is facing a landslide electoral loss in the mid-year 2019 Federal elections. In 2018 thousands of school children across the country skipped school to demonstrate for climate action (after PM Scott Morrison asserted that they should go back to school, the children correctly replied that it is PM Morrison who should go back to school). When under-30 year old young Australians realize their inescapable Carbon Debt is increasing at about A\$60,000 per year per person they will utterly reject the climate criminal parties at the ballot box.

There is a real prospect of Climate Justice involving resolutely promised prosecutions of climate criminals and confiscation of their assets (as presently happens to traders in illicit drugs). There is no legislative retrospectivity required in this – climate murder, climate homicide and climate genocide are presently just as deadly as "conventional" murder, homicide and genocide. Something of the order of 1 million people die climate-related deaths annually, with this set to soar to an average of 100 million such deaths per year this century if man-made climate change is not requisitely addressed [26]. Of course such punishments will be scant comfort to the loved ones of those who have died. However most importantly it is the resolute threat of prosecutions of climate criminals that may finally force urgent climate action. There needs to be a new globally-endorsed social contract to the effect that significant, present-day climate criminals will be inescapably held to account with judicially-imposed penalties ranging up to life imprisonment with confiscation of all assets. Please tell everyone you can – there still is realistic hope that we can stop the present slide to disaster.

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