

# Climate catastrophe, Collapse, Democracy and Socialism

Noam Chomsky<sup>1</sup> – Miguel Fuentes<sup>2</sup> - Guy McPherson<sup>3</sup>

(Part I)<sup>4</sup>



## *Abstract*

The following is the first part of the interview-debate “Climate Catastrophe, Collapse, Democracy and Socialism” between the linguist and social scientist Noam Chomsky, one of the most important intellectuals of the last century, the Chilean social researcher and referent of the Marxist-Collapsist theoretical current Miguel Fuentes, and the American scientist Guy McPherson, a specialist in the topics of the ecological crisis and climate change. One of the most remarkable elements of this debate is the presentation of three perspectives which, although complementary in many respects, offer three different theoretical and political-programmatic approaches to the same problem: the imminence of a super-catastrophic climate change horizon and the possibility of a near civilisational collapse. Another noteworthy element of this debate is the series of interpretative challenges to which Chomsky’s positions are exposed and that give this discussion the character of a true “ideological contest” between certain worldviews which, although as said before common in many respects, are presented as ultimately opposed to each other. In a certain sense, this debate takes us back, from the field of reflection on the ecological catastrophe, to the old debates of the 20th century around the dilemma between “reform or revolution”, something that is undoubtedly necessary in the sphere of contemporary discussions of political ecology.

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<sup>1</sup> American linguist, philosopher, cognitive scientist, historian, social critic, and political activist. He adheres to the ideas of libertarian socialism and anarcho-syndicalism. He advocates a New Green Deal policy as one of the ways of dealing with the ecological crisis.

<sup>2</sup> Chilean social researcher in the fields of history, archaeology, and social sciences. International coordinator of the platform Marxism and Collapse and exponent of the new Marxist-Collapsist ideology. He proposes the need for a strategic-programmatic updating of revolutionary Marxism in the face of the new challenges of the Anthropocene and the VI mass extinction.

<sup>3</sup> American scientist, professor emeritus of natural resources, ecology, and evolutionary biology. He adheres to anarchism and argues the inevitability of human extinction and the need to address it from a perspective that emphasises acceptance, the pursuit of love and the value of excellence.

<sup>4</sup> The final version of this document has been edited by Dutch archaeologist Sven Ransijn.

1. **In a recent discussion between ecosocialist stances and collapsist approaches represented by Michael Lowy (France), Miguel Fuentes (Chile) and Antonio Turiel (Spain), Lowy constantly denied the possibility of a self-induced capitalist collapse and criticized the idea of the impossibility of stopping climate change before it reaches the catastrophic level of 1.5 centigrade degrees of global warming. Do you think that the current historical course is heading to a social global downfall comparable, for example, to previous processes of civilization collapse or maybe to something even worse than those seen in ancient Rome or other ancient civilizations? Is a catastrophic climate change nowadays unavoidable? Is a near process of human extinction as a result of the overlapping of the current climate, energetic, economic, social and political crisis and the suicidal path of capitalist destruction, conceivable?**<sup>5</sup> (*Marxism and Collapse*)

**-Noam Chomsky:**

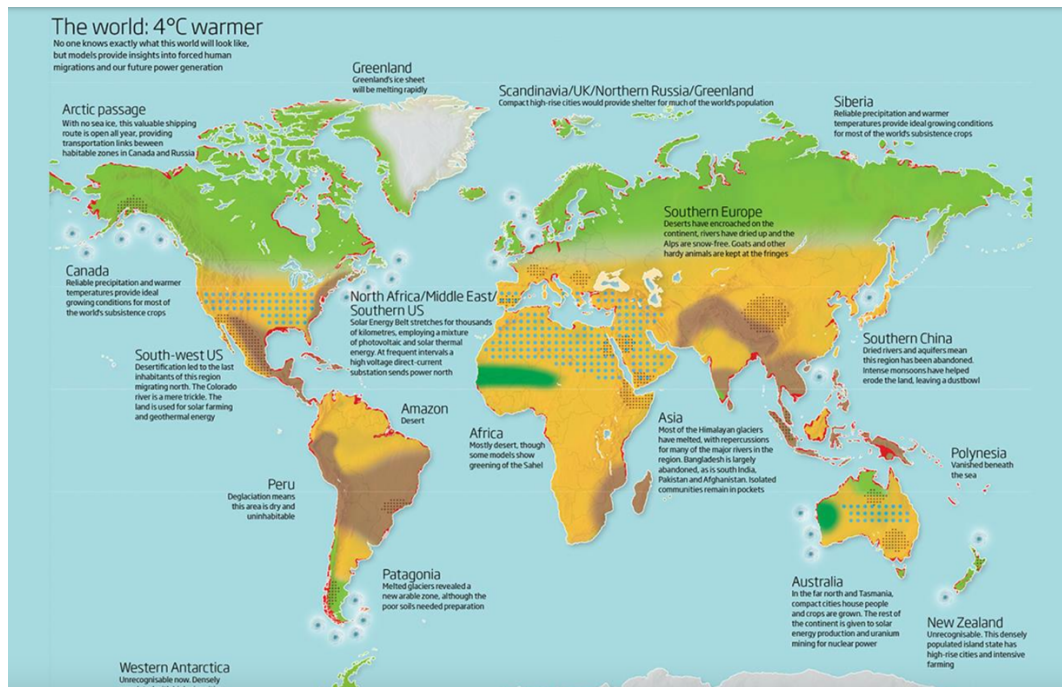
The situation is ominous, but I think Michael Lowy is correct. There are feasible means to reach the IPCC goals and avert catastrophe, and also moving on to a better world. There are careful studies showing persuasively that these goals can be attained at a cost of 2-3% of global GDP, a substantial sum but well within reach – a tiny fraction of what was spent during World War II, and serious as the stakes were in that global struggle, what we face today is more significant by orders of magnitude. At stake is the question whether the human experiment will survive in any recognizable form.

The most extensive and detailed work I know on how to reach these goals is by economist Robert Pollin. He presents a general review in our joint book *Climate Crisis and the Global Green New Deal*. His ideas are currently being implemented in a number of places, including some of the most difficult ones, where economies are still reliant on coal. Other eco-economists, using somewhat different models, have reached similar conclusions. Just recently IRENA, —the International Renewable Energy Agency, part of the UN— came out with the same estimate of clean energy investments to reach the IPCC goals.

There is not much time to implement these proposals. The real question is not so much feasibility as will. There is little doubt that it will be a major struggle. Powerful entrenched interests will work relentlessly to preserve short-term profit at the cost of incalculable disaster. Current scientific work conjectures that failure to reach the goal of net zero Carbon emissions by 2050 will set irreversible processes in motion that are likely to lead to a “hothouse earth,” reaching unthinkable temperatures 4-5° Celsius above pre-industrial levels, likely to result in an end to any form of organized human society.

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<sup>5</sup> The debate between Michael Lowy, Miguel Fuentes, and Antonio Turiel (which also included critical comments by Spanish Marxist ecologist Jaime Vindel, Argentinean left-wing leader Jorge Altamira and Chilean journalist Paul Walder) can be reviewed in full in the debate section of the *Marxism and Collapse* website at the following link: [www.marxismoycolapso.com/debates](http://www.marxismoycolapso.com/debates).



4 degrees Celsius of global warming (yellows and browns are uninhabitable)<sup>6</sup>

### -Miguel Fuentes:

Noam Chomsky highlights the possibility of a global warming that exceeds 4-5 degrees Celsius above pre-industrial levels within this century in his previous response, which according to him could mean, literally, the end of all forms of organised human society. Chomsky endorses what many other researchers and scientists around the world are saying. A recent report by the Breakthrough National Centre for Climate Restoration, for example, points to 2050 as the most likely date for the onset of widespread civilisational collapse. The central idea would be that, due to a sharp worsening of the current climate situation, and the possible transformation by the middle of this century of a large part of our planet into uninhabitable, a point of no return would then be reached in which the fracture and collapse of nation states and the world order would be inevitable<sup>7</sup>. At the same time, he states that the needed goals to avert this catastrophe which will lay the foundations for a transition to “clean energy”, and a more just society, would still be perfectly achievable. Specifically, Chomsky says that this would only require an investment of around 2-3% of world GDP, the latter within the framework of a plan of “environmental reforms” described in the so-called “Green New Deal” of which he is one of its main advocates.

Let’s reflect for a moment on the above. On the one hand, Chomsky accepts the possibility of a planetary civilisational collapse in the course of this century. On the other hand, he reduces the solution to this threat to nothing more than the application of a “green tax”. Literally the greatest historical, economic, social, cultural and even geological challenge that the human species and civilisation has faced since its origins reduced, roughly speaking, to a problem of “international financial fundraising” consisting of allocating approximately 3% of world GDP to the promotion of “clean energies”. Let’s think about this again. A danger that, as Chomsky puts it, would be even greater than the Second World War and could turn the Earth into a kind

<sup>6</sup> Source: <https://bigthink.com/strange-maps/what-the-world-will-look-like-4degc-warmer>.

<sup>7</sup> See this and other related reports on the Breakthrough National Centre for Climate Restoration website at the following link: <https://www.breakthroughonline.org.au/about-1>.

of uninhabitable rock, should be solved either by “international tax collection” or by a plan of limited “eco-reforms” of the capitalist economic model (known as the “Green New Deal”).

But how is it possible that Chomsky, one of the leading intellectuals of the 20th century, is able to make this “interpretive leap” between accepting the possibility of the “end of all organised human society” within this century and reducing the solution to that threat to what would appear to be no more than a (rather timid) cosmetic restructuring of international capitalist finance? Who knows! What is certain, however, is that Chomsky’s response to the climate threat lags far behind not only those advocated by the ecosocialist camp and even traditional Marxism to deal with the latter, based on posing the link between the problem of the root causes of the ecological crisis and the need for a politics that defends the abolition of private ownership of the means of production as a necessary step in confronting it. Moreover, Chomsky’s treatment of the ecological crisis seems to be inferior to that which characterises all those theoretical tendencies which, such as the theory of degrowth or a series of collapsist currents, advocate the imposition of drastic plans of economic degrowth and a substantial decrease in industrial activity and global consumption levels. The latter by promoting a process of “eco-social transition” which would not be reduced to a mere change in the energy matrix and the promotion of renewable energies, but would imply, on the contrary, the transition from one type of civilisation (modern and industrial) to another, better able to adapt to the new planetary scenarios that the ecological crisis, energy decline and global resource scarcity will bring with them.

But reducing the solution of the climate catastrophe to the need for a “green tax” on the capitalist market economy is not the only error in Chomsky’s response. In my view, the main problem of the arguments he uses to defend the possibility of a successful “energy transition” from fossil fuels to so-called “clean energy” would be that they are built on mud. First, because it is false to say that so-called “clean energies” are indeed “clean” if we consider the kind of resources and technological efforts required in the implementation of the energy systems based on them. Solar or wind energy, for example, depend not only on huge amounts of raw materials associated for their construction with high polluting extractive processes (e.g., the large quantities of steel required for the construction of wind turbines is just one illustration of this), but also on the use of extensive volumes of coal, natural gas or even oil. The construction of a single solar panel requires, for instance, enormous quantities of coal. Another striking example can be seen in the dependence of hydrogen plants (specially the “grey” or “blue” types) on vast quantities of natural gas for their operations. All this without it ever being clear that the reduction in the use of fossil fuels that should result from the implementation of these “clean” technologies will be capable of effectively offsetting a possible exponential increase in its “ecological footprint” in the context of a supposedly successful energy transition<sup>8</sup>.

Secondly, it is false to assume that an energy matrix based on renewable energies could satisfy the energy contribution of fossil fuels to the world economy in the short or medium term, at least, if a replication of current (ecologically unviable) patterns of economic growth is sought. Examples of this include the virtual inability of so-called “green hydrogen” power plants to become profitable systems in the long term, as well as the enormous challenges that some power sources such as solar or wind energy (highly unstable) would face in meeting sustained levels of energy demand over time. All this without even considering the significant maintenance costs of renewable energy systems, which are also associated (as said) with the

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<sup>8</sup> An explanation of this paradox can be found in Jorge Riechmann’s presentation “Where are we? Ecosocial crisis and climate emergency”, available on YouTube at the following link: <https://www.youtube.com/watch?v=KXwzJkDYtdE>.

use of highly polluting raw materials and a series of supplies whose manufacture also depend on the use of fossil fuels<sup>9</sup>.

But the argumentative problems in Chomsky's response are not limited to the above. More importantly is that the danger of the climate crisis and the possibility of a planetary collapse can no longer be confined to a purely financial issue (solvable by a hypothetical allocation of 3% of world GDP) or a strictly technical-engineering challenge (solvable by the advancement of a successful energy transition). This is because the magnitude of this problem has gone beyond the area of competence of economic and technological systems, and has moved to the sphere of the geological and biophysical relations of the planet itself, calling the very techno-scientific (and economic-financial) capacities of contemporary civilisation into question. In other words, the problem represented by the current levels of carbon dioxide in the atmosphere, or those related to the unprecedented advances in marine acidification, Arctic melting, or permafrost decomposition rates, would today constitute challenges whose solution would be largely beyond any of our scientific developments and technological capabilities. Let's just say that current atmospheric carbon dioxide levels (already close to 420 ppm) have not been seen for millions of years on Earth. On other occasions I have defined this situation as the development of a growing "terminal technological insufficiency" of our civilisation to face the challenges of the present planetary crisis<sup>10</sup>.

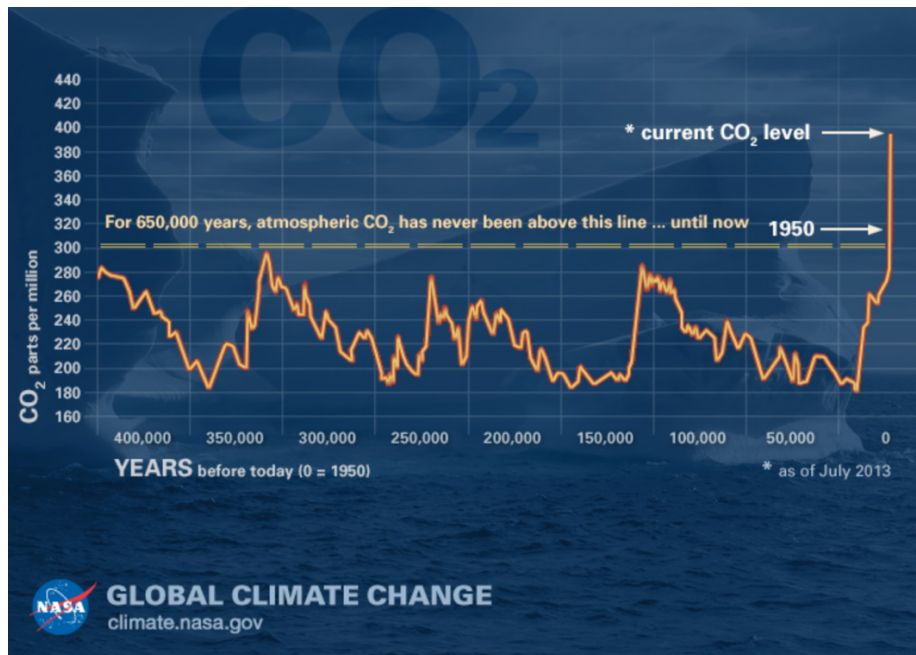
In the case of current atmospheric CO<sub>2</sub> concentrations, for example, there are not and will not be for a long time (possibly many decades or centuries), any kind of technology capable of achieving a substantial decrease of those concentrations. This at least not before such concentrations continue to skyrocket to levels that could soon guarantee that a large part of our planet will become completely uninhabitable in the short to medium term. In the case of CO<sub>2</sub> capture facilities, for instance, they have not yet been able to remove even a small (insignificant) fraction of the more than 40 billion tonnes of carbon dioxide emitted each year by industrial society<sup>11</sup>. Something similar would be the situation of other ecological problems such as the aforementioned increase in marine acidification levels, the rise in ocean levels or even the increasingly unmanageable proliferation of space debris and the consequent danger it represents for the (immediate) maintenance of contemporary telecommunication systems. In other words, again, increasing threatening problems for which humanity has no effective technologies to cope, at least not over the few remaining decades before these problems reach proportions that will soon call into question our very survival as a species.

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<sup>9</sup> More information about this topic can be found in Jeff Gibbs and Michael Moore's documentary *The Planet of Humans*.

<sup>10</sup> For a review of this concept, see the materials available in the strategy section of the Marxism and Collapse website at the following link: [www.marxismoycolapso.com/estrategia](http://www.marxismoycolapso.com/estrategia).

<sup>11</sup> See here, for example, the interview with Peter Wadhams, Martin Rees and Hugh Hunt entitled "Climate Change and Carbon Dioxide Removal", available at the following link: <https://www.youtube.com/watch?v=o-PITZo7qOY>.



*Current levels of atmospheric CO<sub>2</sub> (the highest in the last 650,000 years)*

Unsolvable problems, as unsolvable as those that would confront anyone seeking to “restore” a clay pot or a glass bottle to its original state after it has been shattered into a thousand fragments by smashing it against a concrete wall! To restore a glass of the finest crystal after it has been smashed to pieces? Not even with the investment of ten, a hundred world GDPs would it be possible! This is what we have done with the world, the most beautiful of the planetary crystals of our solar system, blown into a thousand pieces by ecocidal industrialism! To restore? To resolve? Bollocks! We have already destroyed it all! We have already finished it all! And no “financial investment” or “technological solution” can prevent what is coming: death! To die then! To die... and to fight to preserve what can be preserved! To die and to hope for the worst, to conquer socialism however we can, on whatever planet we have, and to take the future out of the hands of the devil himself if necessary! That is the task of socialist revolution in the 21st century! That is the duty of Marxist revolutionaries in the new epoch of darkness that is rising before us! That is the mission of Marxism-Collapsist!

**-Guy McPherson:**

There is no escape from the mass extinction event underway. Only human arrogance could suggest otherwise. Our situation is definitely terminal. I cannot imagine that there will be a habitat for *Homo sapiens* beyond a few years in the future. Soon after we lose our habitat, all individuals of our species will die out. Global warming has already passed two degrees Celsius above the 1750 baseline, as noted by the renowned Professor Andrew Glikson in his October 2020 book “The Event Horizon”. He wrote on page 31 of that book: “During the Anthropocene, greenhouse gas forcing increased by more than 2.0 W/m<sup>2</sup>, equivalent to more than > 2°C above pre-industrial temperatures, which is an abrupt (climate change) event taking place over a period not much longer than a generation”.

So yes. We have definitely passed the point of no return in the climate crisis. Even the incredibly conservative Intergovernmental Panel on Climate Change (IPCC) has already admitted the irreversibility of climate change in its 24 September 2019 “Special Report on the Ocean and Cryosphere in a Changing Climate”. A quick look around the globe will also reveal unprecedented events such as forest fires, floods and mega-droughts. The ongoing pandemic

is just one of many events that are beginning to overwhelm human systems and our ability to respond positively.

All species are going extinct, including more than half a dozen species of the genus *Homo* that have already disappeared. According to the scientific paper by Quintero and Wiens published in *Ecology Letters* on 26 June 2013, the projected rate of environmental change is 10.000 times faster than vertebrates can adapt to. Mammals also cannot keep up with these levels of change, as Davis and colleagues' paper published in the *Proceedings of the National Academy of Sciences* on 30 October 2018 points out. The fact that our species is a vertebrate mammal suggests that we will join more than 99% of the species that have existed on Earth that have already gone extinct. The only question in doubt is when. In fact, human extinction could have been triggered several years ago when the Earth's average global temperature exceeded 1.5 degrees Celsius above the 1750 baseline. According to a comprehensive overview of this situation published by the European Strategy and Policy Analysis System in April 2019, a "1.5 degree increase is the maximum the planet can tolerate; (...) in a worst-case scenario, [such a temperature increase above the 1750 baseline will result in] the extinction of humanity altogether".

All species need habitat to survive. As Hall and colleagues reported in the Spring 1997 issue of the *Wildlife Society Bulletin*: "We therefore define habitat 'as the resources and conditions present in an area that produce occupancy, including survival and reproduction, of a given organism. Habitat is organism-specific; it relates the presence of a species, population or individual (...) to the physical and biological characteristics of an area. Habitat implies more than vegetation or the structure of that vegetation; it is the sum of the specific resources needed by organisms. Whenever an organism is provided with resources that allow it to survive, that is its habitat'". Even tardigrades are not immune to extinction. Rather, they are sensitive to high temperatures, as reported in the 9 January 2020 issue of *Scientific Reports*. Ricardo Cardoso Neves and collaborators point out there that all life on Earth is threatened with extinction with an increase of 5-6 degrees Celsius in the global average temperature. As Strona and Corey state in another article in *Scientific Reports* (November 13, 2018) raising the issue of co-extinctions as a determinant of the loss of all life on Earth: "In a simplified view, the idea of co-extinction boils down to the obvious conclusion that a consumer cannot survive without its resources".

From the incredibly conservative Wikipedia entry entitled "Climate change" comes this supporting information: "Climate change includes both human-induced global warming and its large-scale impacts on weather patterns. There have been previous periods of climate change, but the current changes are more rapid than any known event in Earth's history." The Wikipedia entry further cites the 8 August 2019 report "Climate Change and Soils", published by the Intergovernmental Panel on Climate Change (IPCC). The IPCC is among the most conservative scientific bodies in history. Yet it concluded in 2019 that the Earth is in the midst of the most rapid environmental change seen in planetary history, citing scientific literature that concludes: "These rates of human-driven global change far exceed the rates of change driven by geophysical or biospheric forces that have altered the trajectory of the Earth System in the past (Summerhayes 2015; Foster et al. 2017); nor do even abrupt geophysical events approach current rates of human-driven change".

The Wikipedia entry also points out the consequences of the kind of abrupt climate change currently underway, including desert expansion, heat waves and wildfires becoming increasingly common, melting permafrost, glacier retreat, loss of sea ice, increased intensity of

storms and other extreme environmental events, along with widespread species extinctions. Another relevant issue is the fact that the World Health Organisation has already defined climate change as the greatest threat to global health in the 21st century. The Wikipedia entry continues: “Under the 2015 Paris Agreement, nations collectively agreed to keep warming ‘well below 2.0 degrees C (3.6 degrees F) through mitigation efforts’”. But Professor Andrew Glikson already pointed out as we said in his aforementioned book *The Event Horizon* that the 2 degrees C mark is already behind us. Furthermore, as we already indicated, the IPCC also admitted the irreversibility of climate change in its “Special Report on the Ocean and Cryosphere in a Changing Climate”. Therefore, 2019 was an exceptional year for the IPCC, as it concluded that climate change is abrupt and irreversible.

How conservative is the IPCC? Even the conservative and renowned journal *BioScience* includes an article in its March 2019 issue entitled “Statistical language supports conservatism in climate change assessments”. The paper by Herrando-Perez and colleagues includes this information: “We find that the tone of the IPCC’s probabilistic language is remarkably conservative (...) emanating from the IPCC’s own recommendations, the complexity of climate research and exposure to politically motivated debates. Harnessing the communication of uncertainty with an overwhelming scientific consensus on anthropogenic climate change should be one element of a broader reform, whereby the creation of an IPCC outreach working group could improve the transmission of climate science to the panel’s audiences”. Contrary to the conclusion of Herrando-Perez and colleagues, I cannot imagine that the IPCC is really interested in conveying accurate climate science to its audiences. After all, as Professor Michael Oppenheimer noted in 2007, the US government during the Reagan administration “saw the creation of the IPCC as a way to prevent the activism stimulated by my colleagues and me from controlling the political agenda”.

**2. Have the human species become a plague for the planet? If so, how can we still conciliate the survival of life on Earth with the promotion of traditional modern values associated with the defence of human and social rights (which require the use of vast amounts of planetary resources) in a context of a potential increase of world’s population that could reach over twelve billion people this century? The latter in a context in which (according to several studies) the maximum number of humans that Earth could have sustained without a catastrophic alteration of ecosystems should have never exceeded the billion. Can the modern concept of liberal (or even socialist) democracy and its supposedly related principles of individual, identity, gender, or cultural freedom survive our apparent terminal geological situation, or it will be necessary to find new models of social organization, for example, in those present in several indigenous or native societies? Can the rights of survival of living species on Earth, human rights, and the concept of modern individual freedom be harmoniously conciliated in the context of an impending global ecosocial disaster? (*Marxism and Collapse*)**

**-Noam Chomsky:**

Let’s begin with population growth. There is a humane and feasible method to constrain that: education of women. That has a major effect on fertility in both rich regions and poor, and should be expedited anyway. The effects are quite substantial leading to sharp population decline by now in parts of the developed world. The point generalizes. Measures to fend off “global ecosocial disaster” can and should proceed in parallel with social and institutional change to promote values of justice, freedom, mutual aid, collective responsibility, democratic control of institutions, concern for other species, harmony with nature –values that are commonly upheld by indigenous societies and that have deep roots in popular struggles in what



are called the “developed societies” –where, unfortunately, material and moral development are all too often uncorrelated.

**-Miguel Fuentes:**

Chomsky’s allusions to the promotion of women’s education and the social values of justice, freedom, mutual aid, and harmony with nature, as “moral values” disconnected from a broader critique of the industrial system, capitalism, and the class society within which threats such as global warming have been generated and aggravated, become mere phrases of good intentions. On the contrary, the realization of these principles must be thought within a context of a large-scale world social transformation. The latter if those principles are to be effective in combatting the challenges facing humanity today and the kind of civilisational crisis that is beginning to unfold as a product of the multiple eco-social (ecological, energy and resource) crises that are advancing globally. In other words, a process of historical transformation that can envisage the abolition of the current ecocidal industrial economic system, and its replacement by one in which production, exchange and distribution can be planned in accordance with social needs.

But even a traditional socialist approach to these problems, such as the one above, also falls short of accounting for the kind of planetary threats we face. Let’s put it this way, the discussion around the ecological crisis and the rest of the existential dangers hanging over the fate of our civilisation today really only begins, not ends, by giving it a proper Marxist contextualisation. One of the underlying reasons for this is that the traditional socialist project itself, in all its variants (including its more recent ecosocialist versions), would also already be completely insufficient to respond to the dangers we are facing as a species. That is, the kind of dangers and interpretative problems that none of the Marxists theoreticians of social revolution over the last centuries had ever imagined possible, from Marx and Engels to some of the present-day exponents of ecosocialism such as John Bellamy Foster or Michael Lowy<sup>12</sup>.

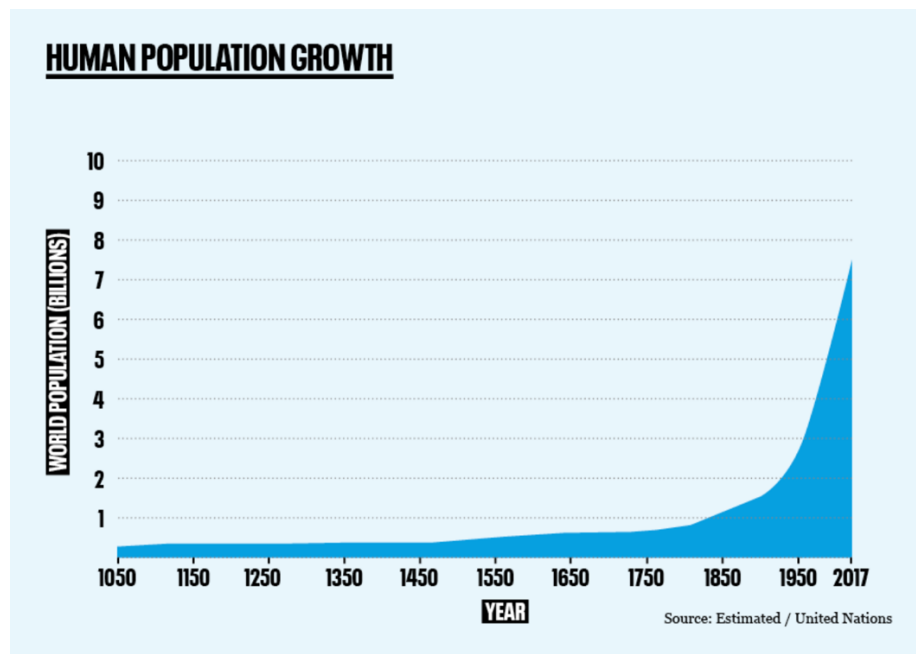
One of these new types of problems that revolutionary theories are facing today is that of the current uncontrolled demographic growth rates of humanity. A problem that would already confer on us, amongst other things, the condition of one of the worst biological (or, in our case, “biosocial”) plagues existing to this day. This if we consider the absolutely devastating role that our species has been exerting on the biosphere in the last centuries. A plague that would be even comparable in its destructive power to that represented by the cyanobacteria that triggered the first mass extinction event on Earth some 2.4 billion years ago, although in our case at an even more accelerated and “efficient” pace than the latter. Is this statement too brutal? Maybe, from a purely humanist point of view, alien to the kind of problems we face today, but not from an eminently scientific perspective. Or can there be any doubt about our condition as a “planetary plague” for any ecologist studying the current patterns of behaviour, resource consumption and habitat destruction associated with our species? Too brutal a statement? Tell it to the more than 10.000 natural species that become extinct every year as a result of the role of a single species on the planet: ours! Tell it to the billions of animals killed in the great fires of Australia or the Amazon a few years ago! Tell it to the polar bears, koalas, pikas, tigers, lions, elephants, who succumb every year as a product of what we have done to the Earth! Very well, we are then a “plague”, although this term would only serve to classify

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<sup>12</sup> For a discussion of the unprecedented problems facing the socialist horizon today, see the articles “Socialist revolution in the face of the abyss” (2015-2019) and “Ecological crisis, civilisational collapse and terminal crisis of classical Marxism” (2019), available in the strategy section of the Marxism and Collapse website at the following link: [www.marxismoycolapso.com/estrategia](http://www.marxismoycolapso.com/estrategia).

us as a “biological species”, being therefore too “limited” a definition and lacking any social and historical perspective. Right?<sup>13</sup>

Not really. The fact that we possess social and cultural systems that differentiate us from other complex mammals does not mean that our current status as a “plague of the world” should be confined to the biological realm alone. On the contrary, this just means that this status could also have a certain correlation in the social and cultural dimension; that is, in the sphere of the social and cultural systems particular to modern society. To put it in another way, even though our current condition of “plague of the world” has been acquired by our species within the framework of a specific type of society, mode of production and framework of particular historical relations, characteristic of industrial modernity, this does not mean that this condition should be understood as a merely historical product. That is, excluding its biological and ecological dimension. In fact, beyond the differentiated position and role of the various social sectors that make up the productive structure and the socio-economic systems of the industrial society (for example, the exploiting and exploited social classes), it is indeed humanity as a whole: rich and poor, entrepreneurs and workers, men and women, who share (all of us) the same responsibility as a species (although admittedly in a differentiated way) for the current planetary disaster. An example of the above. Mostly everything produced today by the big multinationals, down to the last grain of rice or the last piece of plastic, is consumed by someone, whether in Paris, London, Chisinau or La Paz. And we should also remember that even biological plagues (such as locusts) may have different consumption patterns at the level of their populations, with certain sectors being able to consume more and others consuming less. However, just because one sector of a given biological plague consumes less (or even much less), this sector should not necessarily be considered as not belonging to that plague in question.



*Human population growth (1050-2017)<sup>14</sup>*

<sup>13</sup> A very suggestive graphic example of the impact that the current rates of human reproduction are having on the planet can be seen in the following audiovisual presentation entitled “World Population History (1 C.E. - 2050 C.E.)”, available at the following link: <https://www.youtube.com/watch?v=8X2n4uRvZ-M>.

<sup>14</sup> Source: <https://populationmatters.org/the-facts>.

Another similar example: it is often claimed in Marxist circles (sometimes the numbers vary according to each study) that 20% of humanity consumes 80% of the planetary resources. This means that approximately 1.600.000.000.000 people (assuming a total population of 8 billion) would be the consumers of that 80% of planetary resources; that is, a number roughly equivalent to three times the current European population. In other words, what this sentence really tells us is that a much larger segment of the world's population than the capitalist elites (or their political servants) would also bear a direct, even grotesque, responsibility for the unsustainable consumption patterns that have been aggravating the current planetary crisis. Or, to put it in more "Marxist" terms, that a large percentage (or even the totality) of the working classes and popular sectors in Europe, the United States, and a significant part of those in Latin America and other regions of the so-called "developing countries", would also be "directly complicit", at least in regards of the reproduction of the current ecocidal modern urban lifestyle, in the destruction of our planet.

But let us extend the discussion to the remaining 80% of humanity; that is, to the approximately 6.400.000.000.000 people who consume 20% of the planetary resources used in a year. To begin with, let us say that 20% of global resources is not a negligible percentage, representing in fact a fifth of them and whose production would be associated with substantial and sustained levels of environmental destruction. The latter in the context of an ever-growing world population that possibly should never have exceeded one billion inhabitants, so that we would have been in a position today to stop or slow down the disastrous impact we are having on ecosystems. Let us not forget that the number of people included in this 80% of the world's population is more than four times higher than the entire human population at the beginning of the 20th century, which means that the number of basic resources necessary for the survival of this sector is an inevitable pressure on the earth's natural systems, even if consumption levels are kept to a minimum.

In short, there is therefore no doubt that humanity has indeed become one of the worst planetary plagues in the history of terrestrial life, constituting this a (fundamental) problem in itself for contemporary revolutionary thought and, more generally, for the human and social sciences as a whole. In other words, a problem that today would not be solved by a mere change in the mode of production, the class structure, or the socio-political system, but would be associated with the very "genetics" of the development of industrial society. That is to say, a society based on a particularly destructive (voracious) form of human-nature relationships, which would be at the same time the "structural basis" of all possible and conceivable models of it (capitalists, socialists or any other type). Whether in the framework of a neo-liberal market economy or a socialist and/or collectivist planned economy, it is the industrial system and modern mass society in all its variants, whether capitalist or socialist, its mega-cities, its productive levels, its consumption patterns and lifestyles, its "anthropocentric spirit", structurally associated with certain demographic patterns in which the Earth is conceived as a mere space for human consumption and reproduction... that is the main problem.

Is it possible to reconcile current levels of overpopulation with the survival requirements of our species? No. We have become a planetary plague and will remain a planetary plague until such time as, by hook or by crook (almost certainly by crook) our numbers are substantially reduced and remain at the minimum possible levels, for at least a few centuries or millennia. Is it possible to solve the problem of overpopulation and at the same time defend the legitimacy of traditional modern values associated with the promotion of human and social rights, at least as these values have been understood in recent centuries? No. Modernity has failed. Modernity is dead. We are going to have to rethink every single one of our values, including the most

basic ones, all of them. We are going to have to rethink who we are, where we are going and where we come from. The existence of almost 8 billion people on our planet today, and moreover the likely increase of this number to one that reaches 10 or even 12 billion is not only incompatible with the realisation of the very ideals and values of modern democracy in all its variants (capitalists or socialists), but also with the very survival of our species as a whole and, possibly, of all complex life on Earth. This simply because there will be nowhere near enough resources to ensure the realization of these values (or even our own subsistence) in such a demographic context (there simply won't be enough food and water). Our situation is terminal. Modernity is dead. Democracy is dead. Socialism is dead. And if we want these concepts - democracy or socialism- to really have any value in the face of the approaching catastrophe, then we will have to rethink them a little more humbly than we have done so far.

Modern civilisation has borne some of the best fruits of humanity's social development, but also some of the worst. We are in some ways like the younger brother of a large family whose early successes made him conceited, stupid and who, thinking of himself as "master of the world", began to lose everything. We are that young man. We should therefore shut up, put our ideologies (capitalists and socialists) in our pockets, and start learning a little more from our more modest, slower and more balanced "big brothers"; for example, each of the traditional or indigenous societies which have been able to ensure their subsistence for centuries and in some cases even millennia. The latter while industrial society would not even have completed three centuries before endangering its own existence and that of all other cultures on the planet. In a few words, start learning from all those traditional societies that have subsisted in the context of the development of social systems that are often much more respectful of ecological and ecosystemic balances. Those "ecosocial balances" which are, in the end, in the long view of the evolution of species, the real basis for the development of any society... because without species (be they animal or plant), any human culture is impossible. Scientific and technological progress? Excellent idea! But perhaps we could take the long route, think things through a bit more, and achieve the same as we have achieved today in two centuries, but perhaps taking a bit longer, say ten, twenty or even a hundred centuries? Who's in a hurry? Let us learn from the tortoise which, perhaps because it is slow, has survived on Earth for more than 220 million years, until we (who as *Homo sapiens* are no more than 250.000 years old) came along and endangered it.

#### **-Guy McPherson:**

As ecologists have been pointing out for decades, environmental impacts are the result of human population size and human consumption levels. The Earth can support many more hunter-gatherers than capitalists seeking more material possessions. Unfortunately, we are stuck with the latter rather than the former. Ecologists and environmentalists have been proposing changes in human behaviour since at least the early 20th century. These recommendations have fallen on deaf ears. However, even if it is possible to achieve substantial changes in human behaviour, and if they result in an effective slowing down or stopping of industrial activity, it is questionable whether this is a useful means of ensuring our continued survival. One reason for this lies in the knowledge of what the effect of "aerosol masking" could mean for the climate crisis.

The "climate masking" effect of aerosols has been discussed in the scientific literature since at least 1929, and consists of the following: at the same time as industrial activity produces greenhouse gases that trap part of the heat resulting from sunlight reaching the Earth, it also produces small particles that prevent this sunlight from even touching the surface of the planet. These particles, called "aerosols", thus act as a kind of umbrella that prevents some of the

sunlight from reaching the earth's surface (hence this phenomenon has also been referred to as "global dimming")<sup>15</sup>. In other words, these particles (aerosols) prevent part of the sun's rays from penetrating the atmosphere and thus inhibit further global warming. This means, then, that the current levels of global warming would in fact be much lower than those that should be associated with the volumes of greenhouse gases present in the atmosphere today (hence the designation of this phenomenon as "climate masking"). To put it in a simpler way, the global warming situation today would actually be far more serious than is indicated not only by the very high current global temperatures, but also by the (already catastrophic) projections of rising global temperatures over the coming decades. This is especially important if we consider the (overly optimistic) possibility of a future reduction in the amount of aerosols in the atmosphere as a result of a potential decrease in greenhouse gas emissions over the next few years, which should paradoxically lead, therefore, to a dramatic increase in global temperatures.



*Aerosol emissions and global warming*

Global temperatures should then not only be much higher than they are today, but the expected rise in global temperatures will necessarily be more intense than most climate models suggest. According to the father of climate science, James Hansen, it takes about five days for aerosols to fall from the atmosphere to the surface. More than two dozen peer-reviewed papers have been published on this subject and the latest of these indicates that the Earth would warm by an additional 55% if the "masking" effect of aerosols were lost, which should happen, as we said, as a result of a marked decrease or modification of industrial activity leading to a considerable reduction in greenhouse gas emissions. This study suggests that this could potentially lead to an additional (sudden) increase in the earth's surface temperature by about 133% at the continental level. This article was published in the prestigious journal *Nature Communications* on 15 June 2021. In conclusion, the loss or substantial decrease of aerosols in the atmosphere could therefore lead to a potential increase of more than 3 degrees Celsius of global warming above the 1750 baseline very quickly. I find it very difficult to imagine

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<sup>15</sup> For an informed and didactic explanation of this phenomenon, see the documentary "Global Dimming" at the following

link: <https://www.dailymotion.com/embed/video/xp3p67?autoplay=1&logo=0&hideInfos=1&start=0&syndication=208464&foreground=&highlight=&background=>.

many natural species (including our own) being able to withstand this rapid pace of environmental change.

In reality, a mass extinction event has been underway since at least 1992. This was reported by Harvard professor Edward O. Wilson, the so-called “father of biodiversity”, in his 1992 and 2002 books *The Diversity of Life* and *The Future of Life*, respectively. The United Nations Environment Programme also reported in August 2010 that every day we are leading to the extinction of 150 to 200 species. This would thus be at least the eighth mass extinction event on Earth. The scientific literature finally acknowledged the ongoing mass extinction event on 2 March 2011 in *Nature*. Further research along these lines was published on 19 June 2015 in *Science Advances* by conservation biologist Gerardo Ceballos and colleagues entitled “Accelerated human-induced losses of modern species: entering the sixth mass extinction”. Coinciding with the publication of this article, lead author Ceballos stated that “life would take many millions of years to recover and that our species would probably soon disappear”. This conclusion is supported by subsequent work indicating that terrestrial life did not recover from previous mass extinction events for millions of years. It is true, however, that indigenous perspectives can help us understand ongoing events. However, I am convinced that rationalism is key to a positive response to these events.