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# Theories of Global Collapse: Closing Down or Opening Up the Futures?

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## Abstract

In this essay, we first ask what kind of rhetorical styles the theories of global collapse have when talking about futures. We claim that these theories manifest in one of three forms: prospective, prophecy, and science-fiction. We then ask if such theories tend to close down or rather open up the space of possible futures. While some observers have argued that they reduce the trajectories of human development to a unique catastrophic one, we will show that they actually give rise to a number of alternative imaginaries for the post-capitalist and post-oil era.

## Keywords

Collapse, Futures regimes, Prospective, Prophecy, Science-fiction

## Introduction

In 2015, French agronomist Pablo Servigne and Belgian eco-advisor Raphael Stevens published a book entitled *Comment tout peut s'effondrer* (“*How everything can collapse*”) (Servigne & Stevens, 2015). Their thesis is that the “thermo-industrial society” is going to decomplexify in the next few decades, due to the concomitant processes of its internal economic fragilities and contradictions, the depletion of resources, as well as the ecosystemic and sociopolitical disruption that capitalism produces. At the beginning, the book was – like others in its collection<sup>1</sup> – a relatively confidential publication. Surprisingly, it became a national bestseller within a few years, selling more than 100 000 copies. For a book halfway between scientific popularisation and ecological militancy, this is an unusual success. But the rhetorical strength of the book explains only part of it. Admittedly, one of the two authors – Pablo Servigne – had been active in “popular education” in Belgium from 2010 to 2014, after having obtained his PhD on myrmecology (the study of ants) at the Free University of Brussels (ULB) in 2008 (“Pablo Servigne”, 2021). In that context, he had been able to acquire doubtless pedagogic efficacy, visible not only in his multiple writings but also in his interventions available on YouTube<sup>2</sup>. Yet, the national and international historical context, marked by the rise of environmental movements like Extinction Rebellion and the Fridays for Future, was favourable for the reception of the book, despite the bad news it contained. Around 2018, the discourse about the collapse of global capitalism had gained momentum in France and, as a result, by 2019 virtually every textual, audio-visual and radiophonic media in the country had either invited Servigne (and more rarely Stevens) or talked about their book<sup>3</sup>. Even though the vast debate it contributed to generate has no equivalent yet in other countries (Cassely & Fourquet, 2020), the French “nebula” of global collapse theories (Salerno, 2018)

belongs to an international trend. Old but still mostly underground, the debate about collapse bridges the entire political spectrum, involving both far right survivalists (San Giorgio, 2013; Orlov, 2011, 2013) and radical left environmentalists (Malm, 2021; Morel Darleux 2019), along with technical-minded professionals, leaning towards the centre, and hostile to open partisanship. In light of the rising threats that the international community is facing, the French case can be seen as both pioneer and prototypical of what may soon become a global mass debate.

In this article, we ask two simple questions. First, what kind of rhetorical styles do the theories of collapse have when talking about futures: Do they predict, do they scenarise, do they prophesise, or what else? In the first section, we claim that the theories of global collapse manifest in one of three forms: prospective, prophecy, and science-fiction. Second, we ask if such theories tend to close down or rather open up the space of possible futures. This question naturally leads to another: Do Cassandras<sup>4</sup> necessarily demobilise people? Some observers and actors argue that the theories of collapse reduce the trajectories of human development to a unique and catastrophic one, which has the consequence of making people apathetic and resigned. Leaning on a discursive analysis, on the synthesis of some preliminary research and on the ethnographic work done by one of us, we will rather show that they can actually give rise to alternative imaginaries for the post-capitalist/post-oil era and that they can also have the power to mobilise people individually and collectively. Some foresight scholars have warned about the issue of collapse (Taylor & Taylor, 2007; Randers, 2008; Slaughter, 2020) and even more have investigated the question of humanity's eventual extinction, a subject called "existential risk" (Bostrom, 2002; Kareiva & Carranza, 2018; Moynihan, 2020; Tonn & Tonn, 2009; Torres, 2019). But few works exist that tackle the issue we treat in the second part of our piece, which Swedish sociologists Carl Cassegård and Hakan Thörn have framed in interesting terms:

For a long time, the environmental movement's rallying cry has been that we must act before it is too late. [...] dreams of a better or utopian future have been less important as a mobilizing tool than fear of the coming catastrophe or collapse. [...] At the same time, this apocalyptic discourse is being challenged in various ways by different groups in the environmental movement [i.e. Greenpeace and WWF] [...] [which argue] that messages emphasizing the hope of a possible, better future should replace images of the apocalypse because the latter do not have a mobilizing function. (Cassegård & Thörn, 2018, p. 2).

But in their text, Cassegård and Thörn focus on what they call "postapocalyptic environmentalism", a discourse that is "based on a catastrophic loss experienced as already having occurred, as ongoing or as impossible to prevent, rather than as a future risk or threat" (Cassegård & Thörn, 2018, p. 3). In our article, we focus precisely on this kind of discourse as opposed to the "classical" apocalyptic one, and like Cassegård and Thörn we suggest that "[t]he fact that a catastrophe appears irreparable or impossible to prevent may fuel political action" (Cassegård & Thörn, 2018, p. 9).

## **The Futures Regimes of Collapse**

The collapse of human civilisations is not a new topic. Archaeology and history have investigated the sociopolitical, economic and environmental reasons that have led complex societies such as Egyptians, Romans, Mayas, Incas, Minoans or Mesopotamians, to disappear or decline (Diamond, 2013; Knappett et al., 2011; Schwartz & Nichols, 2010; Tainter, 1988). Several concurrent or complementary explanations have been given by scholars and experts:

environmental modifications, techno-economic decreasing returns and elite incompetency are just some examples. Interestingly, most of these works have tried to learn lessons from the past in order to warn present societies against the risks of collapse. Yet, none of these books actually proposes an anticipatory estimation of the future decline of our societies. The first text that advanced some prospective scenarios about it is the *Limits to Growth* report, funded by the Club of Rome think tank and conducted by an MIT research team in the 1970s (Meadows et al., 2004). In this report, the authors provide the results of a complex digital simulation – called “World3” – composed of many variables, such as demography, production, energy, agriculture, water, pollution, etc., connected through differential equations from dynamical systems theory (Bloomfield, 1986). Among the several scenarios produced through the model, only one did not lead to a starvation-led population decrease and thus to collapse: the degrowth scenario. All the others led to the demographic, economic and environmental decline of world societies around 2030. Not only has this book inspired environmental movements during the 1970s and 1980s, but it also generated an important scientific and political debate at the time, which led some teams of modelers in other countries to propose alternative simulations and scenarios (Vieille Blanchard, 2010). Despite the mediatic echo of the MIT report, the neoliberal twist of the 1980s (Harvey, 2007) and the economic boom of the 1990s (Stiglitz, 2002) contributed to silence the debate about global collapse and to marginalise the few experts and activists that continued to warn against it.

Servigne and Stevens’ book – now translated into English (Servigne & Stevens, 2020) – is but one of the examples that mark the reopening of such a debate today, with recurrent references to complexity sciences (Ferguson, 2010). The recent reports of the United Nations, of the Intergovernmental Panel for Climate Change and of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services have all become increasingly catastrophic in their tones (Cochet, 2021). Some scientific teams and individuals around the world have also renewed the Club of Rome’s message with new data, new models and new warnings. Some, like Australian physicist Graham Turner from the University of Melbourne, write research papers to update the *Limits to Growth* report and to confirm that “a relatively rapid fall in economic conditions and the population could be imminent, because of oil shortages which would have catastrophic consequences on food, finance and the economy” (Turner, 2012, 2014). Others, like British investigative journalist and academic Nafeez Ahmed, write books and papers to propose “an empirically-ground theoretical model of the complex interaction between biophysical processes and geopolitical crises, demonstrated through the analysis of a wide range of detailed case studies of historic, concurrent and probable state failures in the Middle East, Northwest Africa, South and Southeast Asia, Europe and North America” (Ahmed, 2017, 2019). Yet others write books describing the collapse of different systems, highlighting the fact that “growth is slow, but the way to ruin is rapid”, to help the readers “navigate the swirl of events that frequently threaten [one’s] balance and happiness” and claiming that if one wants “to avoid collapse [one]need[s]to embrace change, not fight it” (Bardi, 2017, 2020). Last but not least, the researchers of the National Centre for Climate Restoration in Australia have recently published a report where they draw attention on the climate mechanism of the “long term carbon feedback”. This amplifies man-made global warming and could bring the planet to 3°C more than the pre-industrialisation era average by 2050 and to 5°C by 2100, thus positing near- to mid-term existential threat to human civilisation (Spratt & Dunlop, 2019).

Faced with these scientific and political productions, the fundamental question we want to ask here concerns the relationships that the theories of collapse have with futurities. We will use a framework elaborated by French sociologists Francis Chateauraynaud and Josquin Debaz.

They offer a rich taxonomy of “futures regimes” by considering two fundamental parameters to isolate them: “time modelling” (is time seen as linear or non-linear, is it perceived as regular or accelerating, is it viewed as imminent or not?) and “logic of action” (do actors intervene on an ongoing process or do they calculate a linearised time in order to plan the future? Do they build a desirable outcome or do they work to thwart an undesirable one?) (Chateauraynaud & Debaz, 2017). Applying these parameters to a variety of issues (energy, biotechnologies, nanotechnologies, whistle-blowing, etc.), Chateauraynaud and Debaz list the following modes of relating to futures: “urgency”, “expectation”, “anticipation”, “prediction”, “prospective”, “promise”, “prophecy” and “science-fiction” (Chateauraynaud & Debaz, 2017, pp. 168-169). The lack of space prevents us from going over the whole list, but three are sufficient to describe most of collapse discourses and will be defined and illustrated in the following. These are “prospective”, “prophecy” and “science-fiction”.

## Prospective

If “anticipation” and “prediction” regimes imply some form of calculating precision that allows experts to foretell the near future in more or less precise a way, “prospective” or “foresight” activity implies “the production of different scenarios, allowing for the opening and exploring [of]the space of the possible” (Chateauraynaud and Lehtonen 2013, p. 9). In more detail, foresight “visualizes a plurality of futures to constrain reasoning and deliberation, and to make visible the expected cognitive and normative frames that make some future directions more plausible and more desirable than others” (Chateauraynaud and Lehtonen 2013, p. 9). This regime functions through scenarisation in situations of high uncertainty. Contrary to the situations in which one can anticipate the future, uncertain situations can only be prospected through hypothetical, coarse-grained and imprecise scenarios. While these can also be used in the “anticipation” regime, they are the only tool for “prospective”, which indeed operates in more chaotic situations and often on a longer-term breadth. That is precisely what the “*Limits to Growth*” team, as well as Servigne and Stevens, do in their books. They do not cease to repeat that uncertainties are high, yet they maintain that the fundamental insights describing the ongoing mechanisms have to be taken seriously. Scenarios are less a way to provide an exact prediction than a tool to think through about the futures of the world:

Because of the uncertainties and simplifications we know exist in the model [...], we do not put faith in the precise numerical path the model generates for population, pollution, capital, or food production. Still, we think the primary interconnections in World3 are good representations of the important causal mechanisms in human society. Those interconnections, not the precise numbers, determine the model’s general behavior. As a consequence, we do have faith in the dynamic behaviors generated by World3. We will present 11 different scenarios for the future, through the year 2100, and we believe those scenarios substantiate important insights and principles about whether and under what conditions population, industry, pollution, and related factors in the future may grow, hold steady, oscillate, or collapse (Meadows et al., 2004, p. 141).

Similarly, Servigne & Stevens (2020) claim that “[u]ncertainty is the territory of the black swans; it is not quantifiable. You can’t chart your way through it with Gauss curves and other risk-management tools”; yet, they claim that “the existence of uncertainty does not mean that the threat is any the less or that we have nothing to worry about”. Focusing on the problem of oil supply and laying upon a study (Hallock et al., 2014), they for example report that:

[this group of researchers]has looked into the matter, comparing a range of scenarios from the most optimistic to the most pessimistic. The result was that only the scenarios considered to be pessimistic fit the actual data observed over the last eleven years. The study thus confirmed that the worldwide production of conventional oil has entered an irreversible decline (Servigne & Stevens, 2020).

Ultimately, Meadows, Servigne and others are persuaded that a collapse of global societies is very likely. Does this mean that their contributions are to be classified as prophecies? Not quite.

## **Prophecy**

The future regime of “prophecy” is to be distinguished from that of “prospective” because of its stronger affirmative tone. “Prophecy” does not concern only religious discourses: Scientists and experts of all kinds can be producers of prophetic speech too. As defined by Chateauraynaud and Lehtonen (2013, p. 10):

a prophecy announces an inescapable future, attributing determination to what seems to be fundamentally indeterminate. At its extreme end, the regime of prophecy meets eschatology. [...] In analyses conducted to date, doomsday prophecies have been the dominant figure, which may announce a collapse, a crisis, depletion or the end of something well established in the past.

In the “prophecy” regime, experts may be limited to spread their word through media and publications, with the objective of raising public opinion consciousness, governmental intervention, or with the hope of pushing for social movements. This is the case of a book (accompanied by a successful video in English<sup>5</sup>) that Julien Wosnitza – a former business school student – published when the collapse debate was reaching its peak in France:

I am 24 years old and I understood that the world was going to collapse. This is not an intuition but a reality. All the clues, all the scientific publications, all the observations agree [...] And what is being done? Nothing! Or almost nothing. Worse, we still believe that we can solve these fundamental crises through the very system that created them. If we can’t stop this headlong rush, here is a real manifesto that gives the exact measure of this coming collapse in order to raise awareness (Wosnitza, 2018).

In the same vein, an article published on the pages of *Libération* by French mathematician and former minister of the ecology Yves Cochet – also founder of the Institut Momentum, a think tank specialised in the study of the post-collapse society – declared that:

Although political prudence invites one to remain vague and the intellectual fashion is to be uncertain as for the future, I estimate on the contrary that the next thirty-three years on Earth are already written, roughly, and that the honest action is to risk stating a coarse-grained calendar. The period from 2020 to 2050 will be the most disruptive that humanity has ever experienced in such a short time. Give or take some years, it will consist of three successive stages: the end of the world as we know it (2020-2030), the survival interval (2030-2040), the beginning of a renaissance (2040-2050)<sup>6</sup>.

“Prospective” and “prophecy” are two different ways to push the reader to change their own perspectives and to embrace action. Their epistemic and literary styles diverge: While

“prospective” puts the accent on probability and on science, “prophecy” may combine knowledges from science with religious-like revelations.

If we may risk an interpretation on the basis of our empirical findings, the emergence of “collapsology” – the aspirational science of collapse according to Servigne and Stevens – could be seen as a short-circuit between the two “regimes of the utterance of futures” (Chateauraynaud & Debaz, 2019) that are “prophecy” and “prospective”. In the mid-2010s, the instruments of rational projection in a homogenised and linearised space (such as global climate or energy models) point to discontinuities steep enough to derail their users toward the prophetic regime of cosmological and existential upheaval, that only a personalised and emotional discourse could support. The collapsological style is a hybrid between these two regimes, hence both its appeal outside professional circles and the scholarly anger it arouses.

### **Science-fiction**

The third and last regime has been explored by novelists as well as scholars. What makes science-fiction so interesting to futures research is that, in some cases, fictional narratives about the possible forthcoming spill out from the entertainment sphere and become objects of political debate, nourishing people’s imaginaries and actions. Science-fiction can be a way to examine models of social change (Nikolova, 2021) and to raise questions about unexpected consequences (Rumpala, 2021). The authors of this genre are indeed capable of advancing serious hypotheses about the future, by expanding the space of possibilities with innovative reasonings. Science-fiction is particularly capable of opening up the political discussions to new territories and of problematising social problems, by tackling potential concatenations and consequences that have not yet been considered: “Freed from the constraints of cross-checking and argumentation proper to the academic field, the science fiction author can explore futures without being bound by reference to the past or present conditions, which tend to close the angle of futures” (Chateauraynaud and Debaz 2017, p. 174). A remarkable example of this future regime is a small book written by two American historians of science, Naomi Oreskes and Eric Conway, and entitled *The Collapse of Western Civilization. A View from the Future*. Here’s the description of the content of this hard-to-classify text:

The year is 2393, and the world is almost unrecognisable. Clear warnings of climate catastrophe went ignored for decades, leading to soaring temperatures, rising sea levels, widespread drought and – finally – the disaster now known as the Great Collapse of 2093, when the disintegration of the West Antarctica Ice Sheet led to mass migration and a complete reshuffling of the global order. Writing from the Second People’s Republic of China on the 300th anniversary of the Great Collapse, a senior scholar presents a gripping and deeply disturbing account of how the children of the Enlightenment – the political and economic elites of the so-called advanced industrial societies – failed to act, and so brought about the collapse of Western civilization (Oreskes & Conway, 2014).

A second central appeal of science-fiction to futures research is its difference in terms of barriers to entry when compared to academic and political fields. The ability to contribute in this way is more evenly spread, even among populations often barred from public discourse (discriminated ethnic groups, disabled people, refugees, etc.). When thinking about collapse, we have a confluence where those most removed from the public debate are not only already experienced in some of the expected effects, but are also the ones most at risk in general. This is true for refugees (with estimates of climate refugees going as high as 1.2 billion by 2050<sup>7</sup>), but also for many people with chronic conditions who already have experience handling the

effects of both pandemics and runaway pollution on their bodies (Blanchard et al., 2021). These communities seldom see themselves represented in futures discussions, and generally consider full de-industrialisation as unacceptable, as they depend on some industry for necessities (from medications to prostheses). As a reaction, they have produced an independent body of works exploring futures using science-fiction while asserting their right to exist in these representations of collapsing and post-collapse societies (Dolichva & Kench, 2016; Herrero, 2017).

Openly invented, many science-fiction discourses – just like prospective and prophecy ones – lay upon the certainty that, despite the unfathomable character of the world future, if we continue on the present trajectory, catastrophes will multiply and become even more intense than those we face today. Yet, does this mean that, as some observers have argued, the theories of collapse close down futures and prevent us from thinking of and acting for potential alternatives?

### **Do the Theories of Collapse Close Down or Open Up Futures?**

In France, the theories of collapse have been criticised upon different grounds (Cravatte, 2018). For example, philosopher of the environment Pierre Charbonnier has written that, “[r]elying on very real and legitimate fears, they innocently instil a survivalist discourse from which politics is absent”; he also accuses collapse theorists of forgetting “the millions of people trapped in urban sprawl” as well as “those who cannot access the luxuries that too often constitute an ecological lifestyle” (Charbonnier, 2019)<sup>8</sup>. Historian of the environment Jean-Baptiste Fressoz has, for his part, reminded that “the collapse of civilizations is a problem that has obsessed the West for at least two centuries” and that the discourses about it “do not necessarily make us aware of the ecological emergency”<sup>9</sup>. Similarly, philosopher Catherine Larrère has argued that the theories of collapse risk “leading to a form of impotence, as the catastrophism that accompanies this awareness seems to prohibit any possibility of transition and action”<sup>10</sup>. Transversal to these, and to other more specific critiques, is the one that points at the tendency of collapse discourses to neglect alternatives. By engaging an “irreversibility figure of style, marked by the imperative reference to the tipping points”, the discourses about collapse “may prevent us from thinking about the real issues, the movements of forces, the new forms of power and government” (Chateauraynaud and Debaz 2017, pp. 47-48). Against the view which erects collapse into our common destiny, several observers draw attention on the fact that “[i]t is in [the environmental]struggles that the habitability of the Earth and the fate of the planet are decided. It becomes evident thus that, by leaving behind catastrophism, we can move from the uniformity of the global to the diversity of the local to see the possibilities of action reopen in their plurality”<sup>11</sup>. In these texts, the problem that is often pointed out is that the discourses about collapse focus on the planetary level, by definition ungovernable, leading people to inaction – reason why “we must not let ourselves be blinded by the black hole of a global collapse. We must free ecology from the imaginary of collapse that has colonized it”<sup>12</sup>.

Notwithstanding this common critique, some elements suggest the need to introduce some nuance about the demobilising power of Cassandras. A discourse analysis of the theories of collapse under their varied forms (articles, books, videos), a short paragraph on academic literature having dealt with their political impact and some preliminary sociological inquiries on the environmental communities inspired and mobilised by these theories, show in fact that the perspective of a global decline of the thermo-industrial societies may be less unequivocally debilitating than it is often thought.



## Empowering Discourses from Within the Collapse Sphere

First, one must acknowledge that collapse theorists themselves, or associated authors, have endeavoured to offer positive alternatives to the helplessness their message could spread. Far from being insensitive to the psychological distress of coping with the perspective of collapse, Servigne and Stevens – with the collaboration of biologist Gauthier Chapelle – have written a book to explore the “new horizons” that a collapsed world opens up to one’s inner development (Servigne et al., 2018). The “ecosophy” (a neologism for collapse wisdom) they advocate relies on ecopsychology (Chamel, 2019), and is further developed in the magazine *Yggdrasil* (the “tree of the world” in Old Norse), which Servigne, along with a few partners, launched in 2019, in order to add a more practical dimension to his philosophical and psychological collapse discourse<sup>13</sup>.

As an alternative to the “collapsosophic” handling of the collapse vertigo, which has been criticised as depoliticising (Cravatte, 2018), literary academics reflect upon the narrative dimensions of dealing with catastrophic futures. One draws attention to the power of storytelling in order to encourage the emergence of new utopias (Engélibert, 2019), while others navigate among the intellectual and militant vanguards to help environmental movements reinvent themselves, without falling into the denial of collapse nor into the acritical fascination for it (Citton & Rasmi, 2020).

These books are destined to restricted, highly educated publics, but several YouTube chains referring to collapsology burgeoned in recent years, and can reach wider audiences. Some imagine post-collapse futures and share knowledges in order to adapt oneself, to restore ecosystems, to make community and to find a happy way through a collapsed world. For example, the chain “*After the collapse*”<sup>14</sup> relies upon scientific publications and speculations, to imagining what the world may be after the end of cheap oil: Will people be more urban or rural? What kind of housing will they privilege? What future for medicine and health? How to get around in such a world? What place for the disabled ones? It endeavours to project a sensible agency into a post-collapse future.

Beyond these efforts to allow positive subjectivations on the basis of a catastrophist hypothesis, the political dimension is not absent in the discourse of Servigne, who self-defines as an anarchist<sup>15</sup> and has shown support for movements such as Extinction Rebellion. His reflection on this issue is rooted in degrowth thinking, and is particularly close to the Paris-based “Institut Momentum” with which he collaborated (Sinai et al., 2015). This think tank is dedicated to the study of viable models for a post-collapse society, among which the model of “bioregion” – introduced by Italian urbanist Alberto Magnaghi (Garçon & Navarro, 2012; Magnaghi, 2005; Sinai et al., 2020) – is the privileged one:

The urban bioregion is the appropriate conceptual referent to deal in an integrated way with the economic (local territorial system), political (self-government), environmental (territorial ecosystem) and living (functional and living places in a set of cities, towns and villages) domains of a socio-territorial system that cultivates a co-evolutionary equilibrium between the human settlement and the surrounding environment, re-establishing in a new form the long-lasting relations between city and country to achieve territorial equity<sup>16</sup>.

The concept of bioregion is so used to paradoxically reenchant a catastrophic future:

What if the first garden cities in the Paris region served as a reference for new garden cities, all brought together in a farandole of habitable places allowing different urban bioregions to become a reality? The urbanisation of the Île-de-France region can be reoriented in such a way that several urban bioregions can be developed by creating territorial entities of high environmental quality, landscape cities concerned with energy savings, reduced travel, relative food autonomy, controlled urban metabolism, real friendship between humans and the living world, architecture with reused materials, housing and shared gardens, and constant participation by the inhabitants<sup>17</sup>.

In other words, even if some collapse theorists do not hesitate to discuss the possibility of humankind's extinction (Jorion, 2017), many stress the transformative power of such a horizon – even when these discourses are apolitical or explicitly anti-conflictual (Kenis and Mathijs, 2014). What is more, the impacts of the debates and discussions on an eventual global collapse are not constrained to academic scholarship, science-fiction, or prospective policy-making. They have indeed shined a light on some present issues – that had not been frontally tackled by policy-makers for decades. The difficulties that will be faced by the most vulnerable populations often correspond to present realities affecting limited groups of people. The renewed discussions on these difficulties have allowed more concerted efforts to address them. For example, the CoViD-19 crisis, sometimes presented as a precursor of common issues in a collapsing world, has given more visibility to the hardships faced by groups such as the Navajo in the USA<sup>18</sup> (Kuecker, 2020; Waitzkin, 2021).

### **Collapse-related motives within environmental movements**

If what is at stake in the discussion on collapse is the possibility that it brings positive contributions to environmental movements, we can expect decisive elements to come from scholars studying these movements.

One of the conclusions of a recent series of interviews conducted among young environmental activists in France is that “the thought of collapse” played a significant part in the personal trajectories of many interviewees, and “holds a remarkable potential for sparking collective action” (Mallet, 2020, p. 138). Mallet thus confirms the conclusions from political scientist Luc Semal's fieldwork study inside the Transition Towns movement in the United-Kingdom, as well as the degrowth movement in France. Semal observed that catastrophism is not necessarily depoliticising. He reminds that ecological catastrophism is consubstantial with political ecology, which in the 20th century had focused on nuclear proliferation dangers, before the race between global warming and oil depletion settled at the centre of its preoccupations in the 21st century (Semal, 2019). Luc Semal goes further, claiming that catastrophism is less a vehicle of an authoritarian drift or of an apathetic and indifferent attitude in front of the collapse than an ideology which can allow democracy to reinvent itself, “in the shadow of catastrophes”, mostly at a local scale. A rational fear can thus become source for an inspiring political project, and is at the core of the commitment of both Transition Towns and Degrowth's members' trajectories. Besides, under certain conditions, such as facing it in collective meetings, under the guidance of experienced activists, fear can be more motivating than hope.

That is also what a sociological work on social movements has shown by analysing climate activists in the Global North and in the Global South:

We suggest that the pattern of fear and hope as motivating emotions is representative of the northern political and socio-material context, whereas the pattern of fear, guilt, and anger as motivating appears in the southern context. We found that our northern interviewees embrace fear but emphasize hope, reject guilt, and treat anger with caution. Our interviewees from the global south are instead more acutely frightened, less hopeful, and more angered, ascribing guilt – responsibility – to northern countries. These differences may indicate a relatively depoliticised activist approach to climate change in the north, as opposed to a more politicised approach in the south. (Kleres & Wettergren, 2017, p. 508)

In a similar vein, sociologist Heather Alberro has worked on “radical environmental activists” (REAs), about whom she writes that:

When *all* hope fails, and being itself is perceived as meaningless, “there is *nothing but despair* [emphasis added],” which can in turn morph into nihilistic complacency in the face of climate chaos and biological annihilation. Yet, REAs vehemently repudiate complacency and passivity; many are hopeless, indeed, but hopeless in the narrow sense of recovering *specific* loss [...] Many REAs continue to fight not on behalf of hope for a benign futurity but for those cherished Earth kin who are still under threat *in the here and now* [...]. (Alberro, 2021, p. 45).

As Cassegård and Thörn would comment, “[p]ostapocalypse does not mean that it will not get any worse. It may certainly grow worse. But while preventing that, people must also redress wrongs, help victims, and do what they can in the ruins” (Cassegård & Thörn, 2018, p. 14). Conversely, a researcher building on the basis of Cassegård & Thörn has shown that postapocalyptic considerations were present among European Climate Change activists, but were mostly repressed “out of strategising”, in order to “keep their focus on mitigation unchallenged by the growing sense that it might be too late to avert catastrophic climate change” (de Moor, 2021, p. 19). Containing post-apocalypticism to one’s inner “dark thoughts” entails the risk for environmental movements to lose touch with a growing – and potentially powerful – sense of irreversibility regarding climate change.

### **From inchoate collapse organising to public policies**

Not only is the notion of a global collapse present within environmental movements, but it is also a basis for specific organisations. Several researches on these movements in France are ongoing<sup>19</sup> and some results are already available.

One of the authors conducted an ethnographic study of a small association named Adrastia (the unavoidable, in ancient Greek) created in 2014. Its manifesto claims that its “choice” to “consider the decline as unavoidable offers the chance to discuss calmly and reasonably” about issues such as facing “collective death”, the evolution of political systems and dealing with conflicts triggered by increasing scarcity<sup>20</sup>. Members of Adrastia are typically highly educated executives or independent professionals who had joined the association after their increasing ecological concern crystallised on the idea of collapse, usually encountered while watching online conferences or reading books by P. Servigne or others. Despite Adrastia’s deterministic framework, based on principles of thermodynamic and the *Limits to Growth* report, nearly three quarters of respondents to a survey addressed to members of the association in 2019 said they had undertaken personal reforms such as, in the case of an insurance executive in his late 30s: “consumption reduction, DIY practices (home-made soap, tinned food). [...] Using my car as little as possible. Interest in and practices of cooperation,

shared governance, collective decision making”, as well as meditation. An engineer in his 40s got rid of one of the two cars of his family, rides a bike to work, is learning permaculture, will not travel by plane any more, increasingly feeds himself from local producers, and tries to get his relatives acquainted with the topic of collapse. Since their access to a “systemic” understanding of collapse dynamics, many members of Adrastia had changed jobs, or planned to do so, usually from ecologically controversial sectors to positions they deemed less harmful, such as teaching, coaching, or independent environmental consultancy. Some moved to the countryside. This is the case of a retired commercial executive, who saves money for a project of citizen-owned electric windmill, which he hopes shall benefit his grandchildren. Following Adrastia’s encouragements to its six hundred members, the engineer in his 40s also intends to “launch projects through [his]city council”. Actually, Adrastia exhorts to run for mayoral office, and as simple citizens, to invest the administrative tools of climate and energy planification (often superficially applied) that could be relevant to alleviate locally the forthcoming shocks.

This interest in local politics on the basis of a concern for collapse is not specific to Adrastia, which is linked to another movement called “SOS mayors”, founded by a “citizen economist” and an ancient bodyguard of the French president of the Republic – now carrying a utopian ecovillage project. Their manifesto encourages citizens to challenge their mayors on resilience policies, in order to prepare cities and towns to food, water and energy shortages. They aim to “organize the autonomy of the vital services of the municipalities and, without expecting anything from the State, to make them as resilient as possible” (Boisson & Holbecq, 2019).

Although the perspective of “resilience” – a very common concept in ecological discourses today – is criticised, even from within the Momentum Institute, for its neoliberal ambiguities (Carton, 2013), it can lead to ambitious public policies aimed at civic empowerment. Through speakers familiar with business language, the wave of collapse-thinking can get the attention of regional-level public decision makers. This happened in Gironde, in the South-West of France, where an “electroshock” conference inspired by collapsology was attended by the president of the council of elected representatives in 2018, who reacted by launching new programs of food production, participative democracy, and ambitious social policies aimed at the young, in order to strengthen the region’s capacity to react to environmental shocks (Rumin, 2021).

## **Conclusion**

Despite the preliminary nature of these inquiries, we can state that, contrary to what their detractors believe, the theories of collapse do not inevitably close down futures nor necessarily lead people to apathy and impotence. Rather, the evidence we gathered from various sources suggest that closing the future of capitalistic societies into a global dead end may paradoxically have emancipatory, or at least empowering effects. By drawing those who take it seriously off from their immersion in the normal order of things, the perspective of a global collapse may open up an interior arena of alarmed reflexivity (echoing the experiences of whistle-blowers) from which – at best – creative bifurcations may stem.

As argued by the coordinators of a journal issue provocatively titled “Is it too late for collapse?”, “The reception of collapsology gives rise to complex interplays between helpless distress and capacities to act: the sharing of an existential shock in the face of the inexorability of deep-set global trends tends to constitute a milieu within which possibilities are generated” (Allard, Monnin & Tasset, 2019, p. IX). It is therefore possible to highlight the

irregular, but sometimes strong mobilising power of collapse discourses, be it on the individual (Bidet & Sarnowski, 2021) or on the collective level, as the studies of survivalists and preppers have also shown (Parkkinen, 2021).

On more a normative level, we want to claim in conclusion that, if environmental movements have to be pluralist (as it is wished by some of the anti-collapse authors cited above), then they are not obliged to evacuate the catastrophist discourse from their rhetorical devices. In certain conditions, Cassandras can encourage action more than the technocratic, optimistic and reactionary discourses of official institutions in charge of climate change negotiations and mitigation (Swyngedouw, 2010). An impending collapse sometimes is what it takes to set people into motion.

## Notes

1. Called “Anthropocene”, this series is held at *Seuil*, one of the main French publishers.
2. By today, his video on the French YouTube chain “*Thinkerview*” has been viewed more than 1,6 million times (<https://www.youtube.com/watch?v=5xziAeW716w>), while his conference at AgroParisTech has been viewed more than 500 thousand times (<https://www.youtube.com/watch?v=kSVA5Q79Urc&t=384s>).
3. <https://obveco.com/2019/11/23/comment-les-francais-se-representent-ils-collectivement-la-narration-collapsologique/>.
4. We use this term to denote people who prophesize catastrophically negative events, after the Cassandra in Greek mythology who had the gift of prophecy and predicted the fall of Troy but was cursed not to be believed.
5. <https://www.youtube.com/watch?v=YsA3PK8bQd8&t=7s>.
6. [https://www.liberation.fr/debats/2017/08/23/de-la-fin-d-un-monde-a-la-renaissance-en-2050\\_1591503/](https://www.liberation.fr/debats/2017/08/23/de-la-fin-d-un-monde-a-la-renaissance-en-2050_1591503/).
7. <https://www.weforum.org/agenda/2021/06/climate-refugees-the-world-s-forgotten-victims/>.
8. This echoes criticisms of both the general ecological movement and collapse theorists by activists denouncing arguments perceived as racist, classist or ableist (Matisons & Ross, 2015). Some remind indeed that the socio-ecological consequences and implications of environmental disasters are uneven (Swyngedouw, 2013), so much that “for some populations on the planet, such as indigenous peoples, the Collapse has been unfolding for the last 500 years” (Jones, 2021).
9. [https://www.lemonde.fr/festival/article/2019/07/23/jean-baptiste-fressoz-depuis-la-genese-on-pratique-la-collapsologie-sans-le-savoir\\_5492314\\_4415198.html](https://www.lemonde.fr/festival/article/2019/07/23/jean-baptiste-fressoz-depuis-la-genese-on-pratique-la-collapsologie-sans-le-savoir_5492314_4415198.html).
10. <https://aoc.media/opinion/2019/07/09/faut-il-etre-catastrophiste-pour-echapper-a-la-catastrophe/>.
11. *Ibid.*
12. <https://aoc.media/analyse/2020/09/13/liberer-lecologie-de-limaginaire-effondriste/>.
13. <https://yggdrasil-mag.com/>.
14. [https://www.youtube.com/channel/UCkJJzII9NrWanvrDvLh\\_jbQ](https://www.youtube.com/channel/UCkJJzII9NrWanvrDvLh_jbQ).
15. <https://www.contretemps.eu/effondrement-ou-autre-futur-entretien-avec-pablo-servigne/>.
16. <https://www.institutmomentum.org/cites-jardins-communs-bioregions-ile-de-france-utopie-2050/>.
17. *Ibid.*
18. [https://www.terraviva.com/reports/In\\_Navajo\\_Nation\\_pandemic\\_exposes\\_water\\_crisis\\_and\\_health\\_disparities\\_999.html](https://www.terraviva.com/reports/In_Navajo_Nation_pandemic_exposes_water_crisis_and_health_disparities_999.html).

19. <https://collapsocio.hypotheses.org/repertoire-des-travaux>.
20. Manifesto captured in February 2016 from <http://adrastia.org>.

## References

- Ahmed, N. (2019, August 29). Brexit: Stage one in Europe's slow-burn energy collapse. *Medium*. <https://medium.com/insurge-intelligence/brexit-stage-one-in-europes-slow-burn-energy-collapse-1f520d7e2d89>
- Ahmed, N. M. (2017). *Failing States, Collapsing Systems: BioPhysical Triggers of Political Violence*. Springer International Publishing. <https://doi.org/10.1007/978-3-319-47816-6>
- Alberro, H. (2021). In and Against Eco-Apocalypse: On the Terrestrial Ecotopianism of Radical Environmental Activists. *Utopian Studies*, 32(1), 36–55. <https://doi.org/10.5325/utopianstudies.32.1.0036><https://doi.org/10.5325/utopianstudies.32.1.0036>
- Allard, L., Monnin, A. & Tasset, C. (2019). Is it too late for collapse? *Multitudes*, 76, 53-67. <https://doi-org.inshs.bib.cnrs.fr/10.3917/mult.076.0053>
- Bardi, U. (2017). *The Seneca Effect: Why Growth is Slow but Collapse is Rapid*. Springer.
- Bardi, U. (2020). *Before the Collapse: A Guide to the Other Side of Growth*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-29038-2>
- Bidet, A. & Sarnowski, S. (2021). “Y’a toujours à penser, à trouver mieux”. Moments effondristes et activisme du quotidien face à la catastrophe écologique. *Revista Sociedade e Estado*, 36(2), 545-562.
- Blanchard, E., Boubli, Z., & Lemaistre, C. (2021). La Covid au prisme des minorités vulnérables. *EspacesTemps.Net*. <https://www.espacestemp.net/en/articles/la-covid-au-prisme-des-minorites-vulnerables/>
- Bloomfield, B. P. (1986). *Modelling the World: The Social Constructions of Systems Analysts* (1st Edition). Blackwell Pub.
- Boisson, A., & Holbecq, A.-J. (2019). *Face à l'effondrement, si j'étais maire ? Comment citoyens et élus peuvent préparer la résilience*. Albin Michel.
- Bostrom, N. (2002). Existential risks: Analyzing human extinction scenarios and related hazards. *Journal of Evolution and Technology*, 9. <https://ora.ox.ac.uk/objects/uuid:827452c3-fcba-41b8-86b0-407293e6617c>
- Carton, H., (2013). *Une approche critique du concept de résilience*, in A. Sinaï (ed.), *Penser la décroissance*, Paris, Presses de Sciences-Po, p. 159 sq.
- Cassegård, C., & Thörn, H. (2018). Toward a postapocalyptic environmentalism? Responses to loss and visions of the future in climate activism. *Environment and Planning E: Nature and Space*, 1(4), 561–578. <https://doi.org/10.1177/2514848618793331>

Cassely, J.-L., & Fourquet, J. (2020). La France: Patrie de la collapsologie? *Fondation Jean-Jaurès-Ifop*.

Chamel, J. (2019) Faire le deuil d'un monde qui meurt, *Terrain*, n° 71, pp. 68-85.

Charbonnier, P. (2019). Splendeurs et misères de la collapsologie. *Revue du Crieur*, N° 13(2), 88–95.

Chateauraynaud, F., & Debaz, J. (2017). *Aux bords de l'irréversible: Sociologie pragmatique des transformations*. Éditions Pétra.

Chateauraynaud, F., & Lehtonen, M. (2013). *Arguing the future. Debates on energy in Europe: Programmes, scenarios and prophecies*. Text for IPA conference, Vienna, 3 5 July 2013.

Citton, Y., & Rasmi, J. (2020). *Génération collapsonautes—Naviguer par temps d'effondrements* (Illustrated édition). Le Seuil.

Cochet, Y. (2021). *Devant l'effondrement: Essai de collapsologie*. Les Liens Qui Libèrent.

Cravatte, J. (2018). L'effondrement, parlons-en... – Les limites de la “collapsologie”. *Barricades*. <https://www.barricade.be/publications/analyses-etudes/effondrement-parlons-limites-collapsologie>

Darleux, C. M. (2019). *Plutôt couler en beauté que flotter sans grâce: Réflexions sur l'effondrement*. Libertalia. Diamond, J. (2013). *Collapse: How Societies Choose to Fail or Survive*. Penguin UK.

Dolichva, T., & Kench, H. (2016). *Defying Doomsday*. Twelfth Planet Press.

Engélibert, J.-P. (2019). *Fabuler la fin du monde: La puissance critique des fictions d'apocalypse*. La Découverte.

Ferguson, N. (2010). Complexity and Collapse: Empires on the Edge of Chaos. *Foreign Affairs*, 89(2), 18–32.

Garçon, L., & Navarro, A. (2012). La Société des territorialistes ou la géographie italienne en mouvement. *Tracés. Revue de Sciences humaines*, 22, 139–151. <https://doi.org/10.4000/traces.5465>

Giorgio, P. S. (2013). *Survive-The Economic Collapse*. Washington Summit Publishers.

Hallock, J. L., Wu, W., Hall, C. A. S., & Jefferson, M. (2014). Forecasting the limits to the availability and diversity of global conventional oil supply: Validation. *Energy*, 64, 130–153. <https://doi.org/10.1016/j.energy.2013.10.075>

Harvey, D. (2007). *A Brief History of Neoliberalism*. Oxford University Press.

- Herrero, D. (2017). Post-Apocalypse Literature in the Age of Unrelenting Borders and Refugee Crises: Merlinda Bobis and Australian Fiction. *Interventions*, 19(7), 948–961. <https://doi.org/10.1080/1369801X.2017.1401949>
- Jones, C. (2021). Getting Past Cassandra: 21 C Slaughter. *Futures*.
- Jorion, P. (2017). *Le dernier qui s'en va éteint la lumière: Essai sur l'extinction*. Fayard/Pluriel.
- Kareiva, P., & Carranza, V. (2018). Existential risk due to ecosystem collapse: Nature strikes back. *Futures*, 102, 39–50.
- Kenis, A., & Mathijs, E. (2014). (De)politicising the local: The case of the Transition Towns movement in Flanders (Belgium). *Journal of Rural Studies*, 34, 172–183.
- Kleres, J., & Wettergren, Å. (2017). Fear, hope, anger, and guilt in climate activism. *Social Movement Studies*, 16(5), 507–519.
- Knappett, C., Rivers, R., & Evans, T. (2011). The Theran eruption and Minoan palatial collapse: New interpretations gained from modelling the maritime network. *Antiquity*, 85(329), 1008–1023.
- Kuecker, G. D. (2020). The Perfect Storm's Pandemic-driven Soft Collapse. *International Journal of Environmental, Cultural, Economic & Social Sustainability: Annual Review*, 16(1).
- Magnaghi, A. (2005). *The Urban Village: A Charter for Democracy and Local Self-Sustainable Development*. Zed Books.
- Mallet, L. (2020). Les perspectives françaises de décroissance énergétique au regard du positionnement des associations environnementales, Master's thesis in sciences & politics of the environment, Institut d'Etudes Politiques de Paris/Sorbonne Université.
- Malm, A. (2021). *How to Blow Up a Pipeline*. Verso Books.
- Matisons, M. R., & Ross, A. R. (2015). Against deep green resistance. *Institute for Anarchist Studies*.
- Meadows, D. H., Randers, J., Randers, J., & Meadows, D. L. (2004). *The Limits to Growth: The 30-year Update*. Chelsea Green Publishing Company.
- de Moor, J. (2021). Postapocalyptic narratives in climate activism: their place and impact in five European cities. *Environmental Politics*, <https://doi.org/10.1080/09644016.2021.1959123>.
- Moynihan, T. (2020). Existential risk and human extinction: An intellectual history. *Futures*, 116, 102495.
- Nikolova, B. (2021). The Science Fiction-Futures Studies Dialogue: Some Avenues for Further Exchange. *Journal of Futures Studies*, 25(3), 93–98.



- Oreskes, N., & Conway, E. M. (2014). *The Collapse of Western Civilization—A View from the Future*. Columbia University Press.
- Orlov, D. (2011). *Reinventing Collapse: The Soviet Experience and American Prospects-Revised & Updated*. New Society Publishers.
- Orlov, D. (2013). *The Five Stages of Collapse: Survivors' Toolkit*. New Society Publishers.
- Pablo Servigne. (2021, December 15). In *Wikipedia*.  
[https://fr.wikipedia.org/wiki/Pablo\\_Servigne](https://fr.wikipedia.org/wiki/Pablo_Servigne)
- Parkkinen, M. (2021). Engagements with uncertain futures—Analysing survivalist preparedness. *Futures*, 133, 102822.
- Randers, J. (2008). Global collapse—Fact or fiction? *Futures*, 40(10), 853–864.  
<https://doi.org/10.1016/j.futures.2008.07.042>
- Rumin, A. (2021). Quand la Gironde se prépare à la résilience, 90°, n° 1, p. 33-37.
- Rumpala, Y. (2021). Science fiction, reconfigured social theory and the Anthropocene Age: Exploring and thinking about planetary futures through fictional imaginaries. *Global Discourse: An Interdisciplinary Journal of Current Affairs*, 11(1–2), 245–266.
- Salerno, G. (2018). L'effondrement de la société industrielle, et après ? *Futuribles*, N° 427(6), 61–81.
- Schwartz, G. M., & Nichols, J. J. (2010). *After Collapse: The Regeneration of Complex Societies*. University of Arizona Press.
- Semal, L. (2019). *Face à l'effondrement: Se mobiliser à l'ombre de la catastrophe*. Presses Universitaires de France.
- Servigne, P., & Stevens, R. (2015). *Comment tout peut s'effondrer. Petit manuel de collapsologie à l'usage des générations présentes: Petit manuel de collapsologie à l'usage des générations présentes*. Média Diffusion.
- Servigne, P., & Stevens, R. (2020). *How Everything Can Collapse: A Manual for our Times*. Wiley.
- Servigne, P., Stevens, R., & Chapelle, G. (2018). *Une autre fin du monde est possible*. Seuil.
- Sinai, A., Carton, H., Stevens, R., & Servigne, P., (2015). *Petit traité de résilience locale*, Paris, Charles Léopold Mayer.
- Sinai, A., Cochet, Y., Thévard, B., Gay, C., & Landriève, S. (2020). *Le Grand Paris après l'effondrement: Pistes pour une Ile-de-France biorégionale* (1er édition). Wildproject.
- Slaughter, R. A. (2020). Farewell alternative futures? *Futures*, 121, 102496.

- Spratt, D., & Dunlop, I. (2019). *Existential climate-related security risk: A scenario approach*. <https://apo.org.au/node/239741>
- Stiglitz, J. (2002, October 1). *The Roaring Nineties*. The Atlantic. <https://www.theatlantic.com/magazine/archive/2002/10/the-roaring-nineties/302604/>
- Swyngedouw, E. (2010). Apocalypse forever? *Theory, Culture & Society*, 27(2–3), 213–232.
- Swyngedouw, E. (2013). Apocalypse Now! Fear and Doomsday Pleasures. *Capitalism Nature Socialism*, 24(1), 9–18. <https://doi.org/10.1080/10455752.2012.759252>
- Tainter, J. (1988). *The Collapse of Complex Societies*. Cambridge University Press.
- Tasset, C. (2019). Les « effondrés anonymes » ? S’associer autour d’un constat de dépassement des limites planétaires. *La Pensee ecologique*, N° 3(1), 53–62.
- Taylor, D. M., & Taylor, G. M. (2007). The collapse and transformation of our world. *Journal of Futures Studies*, 11(3), 29–46.
- Tonn, B., & Tonn, J. (2009). A literary human extinction scenario. *Futures*, 41(10), 760–765. <https://doi.org/10.1016/j.futures.2009.07.002>
- Torres, P. (2019). Existential risks: A philosophical analysis. *Inquiry*, 0(0), 1–26. <https://doi.org/10.1080/0020174X.2019.1658626>
- Turner, G. (2014). Is global collapse imminent? An updated comparison of the Limits to Growth with historical data. *MSSI Research Paper*, 4, 21.
- Turner, G. M. (2012). On the Cusp of Global Collapse? Updated Comparison of The Limits to Growth with Historical Data. *GAIA – Ecological Perspectives for Science and Society*, 21(2), 116–124. <https://doi.org/10.14512/gaia.21.2.10>
- Vieille Blanchard, E. (2010). Modelling the Future: An Overview of the ‘Limits to Growth’ Debate. *Centaurus*, 52(2), 91–116. <https://doi.org/10.1111/j.1600-0498.2010.00173.x>
- Waitzkin, H. (2021). COVID-19 as Cause versus Trigger for the Collapse of Capitalism. *International Journal of Health Services*, 51(2), 203–205. <https://doi.org/10.1177/0020731420977711>
- Wosnitza, J. (2018). *Pourquoi tout va s’effondrer*. Les Liens qui Libèrent.