Chapter 13
The Illusion of a Sustainable Capitalism

The preceding 12 chapters have sought to offer an overall picture of the multiple crises that—together, through interacting dynamics—are propelling us toward socio-environmental collapse. It is from this background that we begin the second part of this book. We will develop the book’s two central theses, laid out in the Introduction and repeated here. First thesis, the illusion that capitalism can become environmentally sustainable is the most misleading idea in contemporary political, social, and economic thought. Second thesis, this first illusion is nourished by a second and a third one. The second illusion, discussed in Chap. 14, is the tenacious belief—at one time reasonable but now definitely fallacious—that the more material and energetic surplus we are able to produce, the safer will be our existence. These two illusions are grounded in a third one, discussed in Chap. 15—the anthropocentric illusion.

That capitalism is incapable of reversing the tendency toward global environmental collapse—the thesis of this chapter—is something that should not be considered a thesis, but an elementary fact of reality, given the evidence for it. This fact is even admitted by an authority on global capitalism, Pascal Lamy. In an interview held in 2007, the former director general of Crédit Lyonnais and former director general of WTO stated1:

Capitalism cannot satisfy us. It is a means that must remain in the service of human development. Not an end in itself. A single example: if we do not vigorously question the dynamic of capitalism, do you believe we will succeed in mastering climate change? (…) You have, moreover, events that come to corroborate the least bearable aspects of the model: either its intrinsic dysfunctions, such as the subprime crisis, or the phenomena that capitalism and its value system don’t allow us to deal with—the most obvious of those being global warming.

In the same year (2007), a similar verdict was issued: “Climate change is a result of the greatest market failure the world has seen.” This sentence is not from an

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1See Pascal Lamy, “Capitalism Cannot Satisfy Us”. Interview granted to Daniel Fortin and Mathieu Magnaudeix. Challenges, 6/XII/2007.
anti-capitalist manifesto, but from the *Stern Review. The Economics of Climate Change* authored by Lord Nicholas Stern, former president of the British Academy, former Chief Economist and Senior Vice-President of the World Bank, second permanent secretary to Her Majesty Treasury, and professor at the London School of Economics and the Collège de France. If there is someone who no longer has illusions about the compatibility between capitalism and any concept of environmental sustainability, it is Yvo de Boer, former Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC), who resigned after the failure of the 15th Convention of the Parties (COP15) in Copenhagen in 2009. A diplomat well versed in the intricacies of international climate negotiations and professionally attached to the weight of words, he clarified his position in 2013 in an interview with *Bloomberg Business*: “The only way that a 2015 agreement can achieve a 2°C goal is to shut down the whole global economy” (Jung et al. 2015). Not too long ago, this statement could summarize the content of this chapter. Today, meeting the 2 °C target no longer depends on a deal. It has become a socio-physical impossibility, as discussed in Chap. 7. What is now on the agenda is to divert ourselves from our current trajectory which is leading us to an average global warming of over 2 °C in the second quarter of the century and over 3 °C probably in the third quarter of the century. We will repeat: any average global warming above 3 °C is considered “catastrophic” (Xu and Ramanathan 2017), as it will lead to low latitudes becoming uninhabitable during the summer, the frequent flooding of urban infrastructure in coastal cities, and drastic decreases in agricultural productivity. It will also probably trigger even greater warming (>5 °C) which will have unfathomable impacts.

To minimize the destruction to the Earth system resulting from the predatory dynamics of global capitalism, regulatory frameworks have been implemented on a “deregulated” capitalism. The adjective is in quotation marks to underline its redundancy. In other words, would an economy operating within ecological frameworks still be capitalist? One might ask a more modest question: would an economy still be capitalist if it is capable of functioning under the ten key recommendations for a Global Action Plan proposed in 2014 by Lord Nicholas Stern and Felipe Calderón in their report, *Better Growth Better Climate*? The first part of this book presents ample evidence that capitalism is incompatible with the adoption of these ten proposals, each of which equates to an admission of capitalism’s congenital environmental unsustainability:

1. “Accelerate low-carbon transformation by integrating climate into core economic decision-making processes.” In their investment decisions, corporations will not consider the impact of global warming whenever that impact conflicts with the raison d’être of the investment: the expectation of profitability in the shortest time possible. As long as the investment decision is an inalienable legal prerogative of those in charge of companies (private or state-controlled) and as long as this decision does not emanate from a democratic authority that is guided by science, this first recommendation will be ignored. This is a trivial observation based on overwhelming historical experience, and it is quite puzzling that it would still be necessary to mention it in the twenty-first century.
“Enter into a strong, lasting and equitable international climate agreement.” This second recommendation brings to mind Antonio Gramsci’s famous adage: “History teaches, but it has no pupils.” Stern and Calderón should remember, in fact, a lesson that has been relentlessly repeated for over 40 years. The first international resolution to reduce GHG emissions dates back to June 1979 (Rich 2018; Klein 2018; Mecklin 2018). In 1988, in Toronto, the World Conference on the Changing Atmosphere took place. More than 340 participants from 46 countries attended it. The same virtuous resolution was promoted here, but this time the goals were well quantified. Participants agreed that there should be a 20% cut in global CO₂ emissions by 2005 and, eventually, a 50% cut. Since then, international meetings and protocols have followed monotonously; their central theme has been the reduction of GHG emissions. And yet, since 1990, CO₂ emissions have increased by over 63%, as is well known. This pattern is repeated even after the Paris Agreement. The simplest and irrefutable proof of this is that by 2018 global CO₂ emissions were already 4.7% higher than in 2015. There is nothing ambitious about the Paris Agreement, it is not legally binding, and it remains ignored by the world of high finance. A report released in March 2020 by Rainforest Action Network, BankTrack, Indigenous Environmental Network, Oil Change International, Reclaim France, and Sierra Club, and endorsed by over 160 organizations around the world, showed that 35 global banks from Canada, China, Europe, Japan, and the United States have together funneled USD 2.7 trillion into fossil fuels in the 4 years since the Paris Agreement was adopted (2016–2019). “The massive scale at which global banks continue to pump billions of dollars into fossil fuels is flatly incompatible with a livable future,” said rightfully Alison Kirsch (Corbet 2019). The Guardian, together with two think tanks (InfluenceMap and ProxyInsight), has revealed that, since the Paris Agreement, the world’s three largest money managers (BlackRock, Vanguard, and State Street) have built a combined USD 300 billion fossil fuel investment portfolio (Greenfield 2019). Furthermore, the Paris Agreement has not been ratified by many OPEC countries, has been abandoned by the United States, and pledges to reduce GHG emissions and to transfer resources to the poorest countries are not being observed by the signatory countries. Germany did not reach its goal of a 40% CO₂ emission reduction (from its 1990 level) by 2020. France’s 2015–2018 carbon budget has not been met either. During this period, its annual emissions decreased by only 1.1%, much less than planned. Brazil, the world’s seventh largest GHG emitter, saw an 8.9% increase in emissions in 2016 (compared to 2015), despite the worst economic recession in its recent history. It is true that these emissions decreased by 2.3% in 2017 (2071 GtCO₂), compared to 2016 (2119 GtCO₂), but the surge in fires and the acceleration of deforestation in the Amazon and other Brazilian biomes in 2019 should completely reverse this very modest advance. Brazil’s current president, Jair Bolsonaro, one of the most heinous promoters of ecocide of our time, probably does not even know what commitments Brazil took on in the Paris Agreement. In September 2019, Antonio Guterres coordinated a high-level UN meeting with the goal of increasing the ambitions of the Paris Agreement.
Agreement. All major economies of the planet failed to answer. The complete failure of the COP25 in Madrid to cope with the climate emergency has once again shown that James Hansen was right when he declared in 2015: “Promises like Paris don’t mean much, it’s wishful thinking. It’s a hoax that governments have played on us since the 1990s.” What still needs to be understood in order to conclude that the Paris Agreement is doomed to the same pathetic fate as the Kyoto Protocol?

(3) “Phase out subsidies for fossil fuels and agricultural inputs, and incentives for urban sprawl.” In 2009, the G20 issued a solemn statement: “We pledge to phase out fossil fuel subsidies.” In 2015, the G20 countries spent US$ 452 billion on direct subsidies to fossil fuels (Bast et al. 2015), and there was no mention of this in the Paris Agreement. An IMF working paper (Coady et al. 2019) provides estimates of direct and indirect fossil fuel subsidies (defined as the gap between existing and efficient prices for 191 countries): “Globally, subsidies remained large at $4.7 trillion (6.3% of global GDP) in 2015 and are projected at $5.2 trillion (6.5% of GDP) in 2017.” The Climate Accountability Institute keeps reporting on the responsibility of the big polluters. As already pointed out in the Introduction, 63% of global emissions occurring between 1751 and 2010 originated from the activities of 90 corporations in the fossil fuel and cement industries. Just 100 corporations have been responsible for 71% of global emissions since 1988, and just 20 of them are directly linked to more than 33% of all GHG emissions since the beginning of the Industrial Revolution. These corporations are not paying the huge costs imposed on our societies by the burning of fossil fuels. We are. As stated by Lord Nicholas Stern, the IMF estimate “shatters the myth that fossil fuels are cheap” (Carrington 2015). In 2016, G7 leaders again urged all countries to phase out fossil fuel subsidies by 2025. Three years later, no significant step has been taken in this direction. And this has not happened for the same reason as always, one that everyone is aware of: seven out of the top ten corporations in the world by revenue (according to the 2018 Fortune Global 500 list) are fossil fuel industries or are umbilically linked to them. Together, the revenues of these seven corporations amount to almost two trillion dollars. Not only do they control states, but the two largest of them—Sinopec Group and China National Petroleum—are state-owned enterprises and are an essential part of the Chinese state’s power strategies.

(4) “Introduce strong, predictable carbon prices as part of good fiscal reform and good business practice.” With their unwavering faith in the market, economists continue to believe in the carbon pricing myth, as if the energy transition—at the required scale and speed—could be induced through pricing mechanisms. Actually, in 2019, more than 25 national or subnational carbon tax systems have already been implemented or are scheduled to be implemented around the world. So far, there has been no observed impact of these initiatives on fossil fuel consumption. And even as carbon tax systems become more widespread and more aggressive, the market will always be able to adapt to them without significantly reducing fossil fuel consumption, simply because these
fuels are not commodities like any other. As seen in Chap. 5 (Fig. 5.1), the huge variations in oil price between 1990 and 2019 had very little impact on the almost constant increase in oil consumption.

(5) “Substantially reduce capital costs for low-carbon infrastructure investments.” These costs have been reduced without influencing the growth of fossil fuel consumption, as seen above. All projections indicate that there will be no significant reduction in gas, oil, and coal consumption in the discernible future.

(6) “Scale up innovation in key low-carbon and climate resilient technologies, tripling public investment in clean energy R&D and removing barriers to entrepreneurship and creativity.” With the exception, perhaps, of China and India, there is no global expectation of tripling the allocation of resources for such research. Instead, we see a slight reduction in these investments on a global scale between 2011 and 2017, as shown in Fig. 13.1.

(7) “Make connected and compact cities the preferred form of urban development, by encouraging better managed urban growth and prioritising investments in efficient and safe mass transit systems.” As seen in Chap. 9, urban sprawl and chaos increase with the proliferation of carmakers, fossil and cement industries, intensive agriculture, urban solid waste, and other unprocessed waste, particularly in so-called “developing” countries where gigantic conurbations tend to be concentrated.

(8) “Stop deforestation of natural forests by 2030.” As the Global Forest Watch and several other indicators show, deforestation continues to accelerate in
tropical and boreal forests on a global scale (see Chap. 2). Deforestation of tropical forests will cease simply because by 2030, as seen in Chap. 2, many of them will have been wiped out.

(9) “Restore at least 500 million hectares of lost or degraded forests and agricultural lands by 2030.” Reforestation has been limited to little more than planting a few—usually exotic—species, ones that are considered inputs for industries. In addition, soils continue to be degraded and will remain so, as long as we maintain the two paradigms on which agribusiness is based on: (a) a commodity agriculture that is toxic-intensive and strongly export-oriented, with food self-sufficiency decreasing in a growing number of countries, and (b) a diet based on carnivorism, which is evidently unsustainable.

(10) “Accelerate the shift away from polluting coal-fired power generation, phasing out new unabated coal plants in developed economies immediately and in middle-income countries by 2025.” As seen in Chap. 6, coal consumption rose again in 2017 after reaching a plateau and even a slight decrease over the previous 3 years. There are no signs of a significant, much less accelerated, decrease in the burning of coal for power generation on a global scale. Moreover, if the opening of hundreds of thousands of hydraulic fracturing oil and gas wells in more than 20 US states since 2005 has led to a reduction in coal use, it has not resulted in lower atmospheric GHG emissions. In Chap. 5, we refer to the work of Jeff Tollefson and colleagues (“Methane leaks erode green credentials of natural gas”) published in 2013 in Nature. The results of this study have been confirmed by successive observations and measurements. The most recent of these is a study published in April 2016 by the Environment America Research and Policy Center, according to which, in 2014 alone, at least 5.3 billion pounds of methane have leaked from fracking wells (for gas extraction) in the United States. This is equivalent to the average emissions of 22 coal-fired thermoelectric plants in that year (Ridlington et al. 2016).

Obviously, evoking historical evidence would not be enough to demonstrate the structural unsustainability of capitalism, since such a system could change, as Lord Nicholas Stern and Felipe Calderón might argue, this being the very raison d’être of their document. It turns out, though, that globalized capitalism cannot change. More than a lesson from history, it is the logic of accumulation that can demonstrate the unfeasibility of the ten recommendations proposed in this document. The regulatory frameworks that the authors dream of are not within the aims of global capitalism and will never occupy a central position in its agenda. This chapter, thus, examines the two impossibilities of implementing regulatory frameworks capable of containing the tendency toward collapse within the realm of globalized capitalism:

(1) The self-regulation of economic agents induced by the presence of mechanisms that emanate from the market itself

(2) Regulation induced not only by market mechanisms but by agreements negotiated between businesses, the state, and civil society
13.1   The Capitalist Market Is Not Homeostatic

The idea of self-regulation does not apply to capitalism. It is not ruled by the principle of homeostasis, pertaining to the dynamics of optimizing the internal stability of an organism or system. Maurice Brown (1988) notes that this idea goes back to Adam Smith’s “faith in the homeostatic properties of a perfectly competitive market economy.” Even today, the belief that capitalism is self-regulating has the value of a maxim, being accepted by many scholars. An example of the use of this analogy comparing the mechanisms of the capitalist market to that of a living organism is found in Eduardo Giannetti (2013):

[The market] “has a functioning logic equipped with surprising properties from the standpoint of productive and allocative efficiency. It is a homeostatic system governed by negative feedback. Every time the system becomes disturbed, it seeks to return to equilibrium.”

The analogy between the market mechanism and that of a homeostatic system is a mistake. Since Claude Bernard’s idea of milieu intérieur or the internal environment (Canguilhem 1968/1983) and Walter Cannon’s notion of homeostasis, we know that any influence disturbing the balance (deficits or excesses) of the vital functions in an organism or organic system triggers regulatory and compensatory activities that seek to neutralize this influence, resulting in the recovery of balance or, more precisely, in a new balance (allostasis). The maintenance of this efficient stability of the internal environment in its constant exchanges with the external environment is what guides the activity of every organism. Even though it is dependent on the external environment, even though it is, therefore, an “open” system, all the energies of an organism are ultimately centripetal: they are directed toward the survival, security, and reinforcement of the organism’s centrality and stability, in short, of its own identity.

Now, regarding the basic functioning of the capitalist market, not only does it not work by negative feedback, but it is even opposed to the mechanism of homeostasis. This is because the fundamental force that drives the market is not the law of supply and demand, which operates within the scope of commodity circulation, but the law of capital accumulation, which operates within the scope of commodity production and is, by definition, expansive. The market can even force a cyclical crisis and less production, but expansion is the basic rule of the return on capital, in other words, of the physiology of capitalism.

This leads us to the second misconception of ascribing the attributes of homeostasis to the market: once it reaches its ideal size, every organism ceases to grow and goes onto the phase in which conservative adaptations prevail. This phenomenon does not occur in the capitalist market, which is driven by centrifugal forces (imposed by capital accumulation) toward unlimited growth. The ideal size of the

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2 See Claude Bernard, *Introduction à l’étude de la medicine expérimentale*” (1865): “La science antique n’a pu concevoir que le milieu extérieur; mais il faut, pour fonder la science biologique expérimentale, concevoir de plus un *milieu intérieur*. Je crois avoir le premier exprimé clairement cette idée”. Cited by Georges Canguilhem, (1968/1983, p. 148).
capitalist market is, by definition, one that is infinite. Unlike an organism, if the capitalist market stops growing, it becomes unbalanced. If the age of capitalist growth is coming to an end, this is not due to a homeostatic virtue of the market, but to something extraneous to it: the physical limits of the biosphere’s resilience. Since the 1970s, Ivan Illich (2003) has noticed that:

Being open, human equilibrium is liable to change due to flexible but finite parameters; if men can change, they do so within certain limits. On the contrary, the dynamic of the industrial system underlies its instability: it is organized toward indefinite growth and an unlimited creation of new needs that quickly become mandatory in the industrial framework.

Another argument of Giannetti found in the same essay is, however, absolutely correct: “the pricing system, notwithstanding all of its surprising merits and properties, has one serious flaw: it does not give the right signs regarding the use of environmental resources.” In this respect, André Lara Resende (2013) is adamant:

Regarding the physical limits of the planet or the destruction of the environment caused by human action, relying on the market price system [...] makes no sense. Any student in a basic microeconomics course should know this.

13.1.1 The Inversion of Taxis

The only pricing operated by the market is that of the relationship between economic costs and profit rate. Capitalism cannot price its action on ecosystems because ecosystems are broader in space and time than the investment/profit cycle. In Energy and Economic Myths (1975), Nicholas Georgescu-Roegen essentially states the same thing: “the phenomenal domain covered by ecology is broader than that covered by economics.” In this way, he continues, “economics will have to merge into ecology.” Herman Daly (1990) formulates this thesis equally elegantly: “in its physical dimensions the economy is an open subsystem of the earth ecosystem, which is finite, nongrowing, and materially closed.” In capitalism, the world is upside down: the physical environment is conceived of as a raw material, that is, as an open subsystem of the economic system; there is a reversal of taxis which results in an equally inverted hierarchy of the world, one that is incompatible with its sustainability. Therefore, the ability to subordinate economic goals to the environmental imperative is not within the sphere of capitalism.

13.2 Milton Friedman and Corporate Mentality

There is no moral judgment here. Capitalism is unsustainable not because corporate leaders are bad or unscrupulous men. It would be absurd to suppose that corporate owners, shareholders, and CEOs are people who lack a moral compass. Nothing allows us to affirm that there is less moral sense in business circles than there is in
any other civil society environment, for example, in trade unions and universities and in religious, artistic, or sports groups. The problem is that, no matter how much they want to improve the ethical conduct of their corporations, managers cannot afford to subordinate their corporate goals to the environmental imperative.

To demonstrate this impossibility, we must start with a trivial example: money loses purchasing power due to inflation and has varying rates of purchasing power or profitability due to unequal market opportunities. To avoid depreciation or its use in disadvantageous conditions, every owner of a certain sum of money must choose the best exchange option in each moment. This applies to both the worker seeking to exchange his salary for as many goods as possible and the investor who chooses the most promising transactions or funds. In light of this elementary market reality, corporations must present the comparative advantages of one investment opportunity over others to their current or future investors and shareholders. If British Petroleum, for example, forgoes a potentially profitable investment because of its environmental impact, investors will have two alternatives: they will replace that decision-maker if they have the power to do so; or, if not, they will redirect their investments to other corporations or even other sectors of the economy that are more likely to be profitable.

Both those who offer and those who raise funds in the market are subordinate to this relentless rationality. It explains why corporations cannot self-regulate around variables other than profit maximization. They have minimal leeway to adopt what Seev Hirsch (2011) calls “enlightened self-interest,” as this most often entails sacrificing investment opportunities, raising costs, losing competitiveness, or limiting profits in the short term. Both critics and supporters of capitalism agree on this. In 1876, Friedrich Engels wrote (as cited by Magdoff 2011):

As individual capitalists are engaged in production and exchange for the sake of the immediate profit, only the nearest, most immediate results must first be taken into account. As long as the individual manufacturer or merchant sells a manufactured or purchased commodity with the usual coveted profit, he is satisfied and does not concern himself with what afterwards becomes of the commodity and its purchasers. The same thing applies to the natural effects of the same actions.

This passage could have been undersigned by Milton Friedman (1912–2006), winner of the Nobel Prize for economics in 1976, adviser to Ronald Reagan, professor at the Chicago School of Economics, and, according to The Economist, “the most influential economist of the second half of the 20th century.” Friedman justly classifies as immoral any initiative of a corporation manager aimed at mitigating environmental impacts if such initiative entails a decrease in profit. Asked in 2004 whether John Browne, then President of British Petroleum, had the right to take environmental measures that would divert BP from its optimal profit, Friedman replied (quoted in Magdoff and Bellamy Foster 2011):

No... He can do it with his own money. [But] if he pursues those environmental interests in such a way as to run the corporation less effectively for its stockholders, then I think he’s being immoral. He’s an employee of the stockholders, however elevated his position may appear to be. As such, he has a very strong moral responsibility to them.
Friedman’s answer is irrefutably logical. It defines a corporation’s “moral responsibility” as the commitment of its governing bodies to its shareholders. This logic and conception of moral responsibility were defended by the *New Individualist Review*, on whose editorial board Friedman served. For the same reason, Rex Tillerson, chief executive officer of ExxonMobil (2006–2017) and the US Secretary of State (from February 2017 to March 2018), was applauded in May 2015 at the ExxonMobil Corporation’s annual meeting of shareholders in Dallas by justifying his refusal to host climate change specialists and set greenhouse gas emission limits: “We choose not to lose money on purpose.” Incidentally, a proposal at this meeting to set GHG emission limits obtained less than 10% of the votes (Koenig 2015). This same moral responsibility toward shareholders is illustrated in another case analyzed by *The Economist* in a 2012 report on rising global obesity levels: in 2010, a PepsiCo leader gave up making her products healthier, as shareholders started becoming outraged. And rightly so, Friedman would say, since shareholders only put their resources and trust in PepsiCo because it promised them the best expected market return. Frederic Ghys and Hanna Hinkkanen (2013) showed why “socially responsible investments” (SRI) are “just marketing,” as they do not really differ from traditional portfolios. According to a financial investment expert, quoted in their report: “the bank would transgress its financial role as an asset manager when including environmental and social considerations in investment decisions for clients who had not directly requested it.”

We know that in order to maintain a reasonable chance of not exceeding a global average warming of 2 °C above the pre-industrial period, we have a carbon budget of approximately 600 GtCO₂ (Anderson 2015; Figueres et al. 2017). According to Friedman’s logic, for corporations to be a moral entity, in other words, to keep their stock prices high, thereby honoring their contracts and commitments to their shareholders, they must continue burning the coal, oil, and gas reserves controlled by them and by the state-owned corporations that live off the sale of these fuels. In an open letter to Christiana Figueres (UNFCCC Executive Secretary), written by Cameron Fenton (director of the Canadian Youth Climate Coalition) and signed by over 160 people and NGOs (2012), we read:

All together, the global oil, coal and gas industries are planning to burn over five times that amount, roughly 2,795 Gigatonnes of carbon. Indeed, their share prices depend on exploiting these reserves. (...) Their business plan is incompatible with our survival. Frighteningly, there are also states, parties to the convention [UNFCCC], with the same plan.

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3 Founded by Ralph Raico, the *New Individualist Review: A Journal of Classical Liberal Thought* was published between 1961 and 1968. In the Introduction to its reprint, in 1981, Friedman declared that his articles “remain timely and relevant.” See M. Friedman, “Introduction”. In *New Individualist Review*, Indianapolis, Liberty Press, 1981, pp. ix-xiv.
13.3 Three Aspects of the Impossibility of a Sustainable Capitalism

The logic of the impossibility of a sustainable capitalism is concretely proven in numerous aspects of its *modus operandi*. Let us isolate three aspects of this impossibility.

But before that, it is best to start by giving voice not to pure and staunch liberals like Milton Friedman, but to those who believe that capitalism has nothing to fear from environmental regulation. Many of them reject a defensive stance and put themselves on the offensive, claiming that environmental sustainability and increased profits are not only compatible but reciprocally strengthen each other in a virtuous circle.

If I am not mistaken, the advocates of this thesis prefer the following argument: adopting innovative solutions to increase the efficiency of the input/product or product/waste ratio and improve environmental safety in the production process increases the company’s competitiveness (as opposed to reducing it) because it is a value-generating process, be it in terms of risk management, brand image, and, finally, effective financial results. If this is true, then taking the lead and being at the forefront of economic processes with lower environmental impact and risk will ensure a better profitability than the average profit rate. I hope to not underestimate the literature on the business and sustainability binomial by saying that it limits itself to elaborating variations on this theme while offering several case studies on the direct relationship between sustainability and profitability. There are a growing number of economists and NGOs committed to encouraging companies to embrace this belief. They naturally render a tremendous service to society and to the companies themselves through their work. However, their success is limited by the three aspects that render an environmentally sustainable capitalism impossible, as stated in the title of this section.

(1) Decoupling and Circular Economy

Decoupling is the hope that eco-efficient technologies and production processes in industrialized countries with mature economies will enable the miracle of increased production and consumption with less pressure (or at least no corresponding increase in pressure) on ecosystems (Jöstrom and Östblom 2010). It is true that a greater efficiency in the production process may allow for relative decoupling, meaning that it enables a reduction in pressure per product or per unit of GDP. But it does not decrease this pressure in absolute terms, since the number of products does not cease to increase on a global scale. The mechanism known as the “Jevons paradox” or rebound effect describes how increasing demand for energy or natural resources always tends to offset the eco-efficiency gain of technological innovation. Thus, although energy efficiency per product has doubled or even tripled since 1950, this gain is offset by the expansion of production at a greater rate than the eco-efficiency gain.
The actions of institutions and business foundations that advocate for an eco-efficient and circular economy based on reverse engineering, recycling, reuse, and remanufacturing are certainly positive. We know, however, that there is no circular economy. No economy, let alone a global economy trapped in the paradigm of expansion, can evade the second law of thermodynamics, whose relationship with economics has been analyzed by Nicholas Georgescu-Roegen since the 1970s (1971, 1975 and 1995). Here we must state the obvious: even though the surplus energy supplied by oil and other fossil fuels in relation to the energy invested to obtain them is declining (for this declining EROI, see Chap. 5, Sect. 5.5), low-carbon renewable energies are not yet, and may never be, as efficient as oil. This means that the energy transition, while urgent and imperative, will further distance us from a circular economy. According to calculations by Dominique Guyonnet, “to provide one Kw/h of electricity through land-based wind energy requires about 10 times more reinforced concrete and steel and 20 times more copper and aluminum than a coal-fired thermal power plant” (Madeline 2016). The only way, therefore, to lessen the environmental impact of capitalism is to reduce, in absolute terms, the consumption of energy and goods by the richest 10% or 20% of the planet. This is incompatible with capitalism’s basic mechanism of expansive functioning and with the worldview that it sells to society.

(2) The Law of Resources Pyramid

The increasing scarcity of certain inputs and the need to secure their large-scale and low-cost supply nullify the potential benefits of various green initiatives taken on by companies. These cannot, in fact, evade the law of the resources pyramid, described by Richard Heinberg (2007):

The capstone [of the pyramid] represents the easily and cheaply extracted portion of the resource; the next layer is the portion of the resource base that can be extracted with more difficulty and expense, and with worse environmental impacts; while the remaining bulk of the pyramid represents resources unlikely to be extracted under any realistic pricing scenario.

This law of the resources pyramid can be stated in an even simpler form: in capitalism, the logic of capital accumulation and surplus, together with the growing scarcity of finite natural resources, necessarily exacerbates the negative environmental impact of economic activity.

(3) The Impossibility of Internalizing the Environmental Cost

What makes it specifically impossible for corporations to submit themselves to the environmental imperative is the impossibility of “internalizing” the costs of increasing environmental damage that they bring about. Methodologies to “price” nature are now multiplying. But whatever the methodology (always based on the assumption that the value of nature is reducible to a market price), the result is the same: it is impossible for corporations to internalize their environmental cost.
because the total value generated by their activity is often less than the monetary expression of the value of the natural heritage that was destroyed by that activity. A report was prepared for The Economics of Ecosystems and Biodiversity (TEEB), titled Natural Capital at Risk. The top 100 externalities of business (2013) show that:

The estimated cost of land use, water consumption, GHG emissions, air pollution, land and water pollution and waste for the world’s primary sectors amounts to almost US$7.3 trillion. The analysis takes account of impacts under standard operating practices, but excludes the cost of, and risk from, low-probability, high-impact catastrophic events. (...) This equates to 13% of global economic output in 2009. Risk to business overall would be higher if all upstream sector impacts were included.

13.4 Regulation by a Mixed Mechanism

Let us now examine the second general impossibility of sustainable capitalism mentioned in the beginning of this chapter: sustainability achieved through regulatory frameworks negotiated between organized sectors of civil society, on the one hand, and states and corporations, or state–corporations, on the other. Here we touch on the punctus dolens of all the problems discussed in this chapter and even in this book: the impossibility, at least up to now, of this second route stems from the lack of parity between the two parties, a necessary condition for an effective negotiation.

There is still a huge gap between science and societies’ perception of reality. The latter continue to consider the issue of climate change and the decline of biodiversity as non-priority issues in their list of concerns and expectations. But this is changing very quickly. Increasingly aware of the bankrupt planet being bequeathed to them by the values and paradigms of globalized capitalism, society as a whole, led by youth, is beginning to mobilize around the idea of an alternative paradigm, characterized by the subordination of the economy to ecology. Their movements have been gaining much more momentum and global reach than had been foreseen until recently by even the most optimistic. It is true that, up to now, their protests and claims have not slowed GHG emissions, nor the decline in biodiversity, nor the pollution of soils, water, and air. But history, it never hurts to repeat, is unpredictable, and a sudden paradigm shift in civilization, capable of overcoming the imperative of economic growth and anthropocentrism, may be closer than ever before. In any case, the possibility of mitigating the ongoing collapse is dependent on the strengthening of these socio-environmental movements, society’s greater awareness of the extreme severity of the current situation, and the ability to impose on state–corporations’ policies that are congruent with the current state of urgency.

On the concept of the economic value of nature and its measurement, as proposed, among others, by Pavan Sukhdev, see The Economics of Ecosystems and Biodiversity in Business and Enterprise and his videos available on YouTube.
13.4.1 The State and the Financial System

We must recognize that, on the other side of the battlefield, the constituted powers are increasingly united in defending themselves. We should not expect from the state initiatives that might lead corporations toward activities with low environmental impact. We saw in the Introduction that there appears to be a true transformation toward a new type of state that is the partner, creditor, and debtor of corporations: the state–corporation. Contrary to the 1929 crisis, which led to the New Deal in the United States and to a new role of the state in the international stage, the financial crisis unleashed in 2008 displayed the impotence of the state and the loss of its identity. Rather than regulating financial activity, governments embarked on the most comprehensive bailout operation of banks. Since September 2008, the bulk of US and European financial resources has been used to bail out the banking system and “calm the markets.” As a July 2011 document from the US Government Accountability Office (GAO) shows, from December 1, 2007, to July 21, 2010, the Federal Reserve Bank (FED) had, through various emergency programs and other assistance provided directly to institutions facing liquidity strains, given out loans that amounted to US$ 1139 trillion. The momentum of the crisis has led banks to, more than ever, take control of the state and raid their resources. According to a GAO report on conflict of interest, requested by Senator Bernie Sanders and published by him on June 12, 2012:

During the financial crisis, at least 18 former and current directors from Federal Reserve Banks worked in banks and corporations that collectively received over US$4 trillion in low-interest loans from the Federal Reserve.

According to information reported by Bloomberg, as of March 2009, the Federal Reserve had pledged US$ 7.7 trillion in guarantees and credit limits to the North American financial system (Ivry et al. 2011). As shown in Table 8 of the GAO Report to Congressional Addressees cited above, between December 1, 2007, and July 21, 2010, funds from FED emergency programs were mobilized by 21 US and European banks in the form of not term-adjusted transactions, with an aggregate value of US$ 16.115 trillion. As George Monbiot asked in 2011, “Why is it so easy to save the banks, but so hard to save the biosphere?” The question has an unambiguous answer: because saving banks and other corporations have become a primary function of states. According to Moody’s Bank Ratings 2012, which assessed 7 banks in Germany in June 2012 and an additional 17 in July 2012 (plus seven in

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5 “Report to Congressional Addressees. Opportunities exist to Strengthen Policies and Processes for Managing Emergency Assistance”, July 2011, GAO-11-696. United States Government Accountability Office. I thank Dr. Orice Williams Brown, director of GAO’s Financial Markets and Community Investment, for kindly sharing this document with me. http://www.gao.gov/products/ GAO-11-696.

6 US Senator Bernard Sanders (I-Vt.), Washington, D.C., 12/VI/2012, “Jamie Dimon Is Not Alone”. http://www.sanders.senate.gov/imo/media/doc/061212DimonIsNotAlone.pdf
The Netherlands), even the richest banks in Europe cannot manage their losses alone and cannot strategically survive without the state’s safety net.

### 13.4.2 The Obsolescence of the Statesman

There is no longer any place in the state for the classic figure of the statesman. Voters complain about the increasing corruption of parties, the loss of values and principles, and politicians’ venal attachment to state benefits. They also complain about managerial incompetence, disloyalty, or lack of leadership of heads of state who betray their ideological profiles and break the promises that galvanized their electoral victories. It has become common to compare yesterday’s politicians with their successors in a way that is always disadvantageous to the latter: De Gaulle with Hollande or Macron, Churchill with Cameron or Boris Johnson, Franklin D. Roosevelt with Obama or Trump, Adenauer with Merkel, De Gasperi with Berlusconi, Renzi, or Giuseppe Conte, etc. But it would be absurd to suppose that societies have lost the ability to produce personalities equal to the great statesmen who led Western democracies at critical moments in their history. What has been lost is the power of the state as the quintessential place of power and of political representation.

### 13.4.3 Threats to the Democratic Tradition of Political Representation

The idea that political leaders are provisional bearers of a mandate granted to them by the governed, the idea, in short, of political representation, a cornerstone of the democratic tradition born in Athens and expanded by universal suffrage in the contemporary age, obviously continues to be the only legitimate form of power that the state can exercise and must always be furthered. Nevertheless, this legitimacy is critically endangered in our time. By deterritorializing power and shifting strategic decisions to the anonymous boards of corporations (whereby states and their resources are activated to finance and execute these decisions), the globalization of capitalism produces, along with the chronic indebtedness of national states, a progressive transformation in the historical meaning of state political power. With statesmen being unable to set the conduct for and impose boundaries on corporations, popular mandates are increasingly becoming the loci of spectacular ritualizations of power, and its dignitaries are increasingly masters in the art of gesticulation. The meaning of the term “representation” exercised by the representatives of popular votes is, thus, increasingly understood in its pantomimic sense.
13.4.4 State Indebtedness

The international financial network controls states, mainly through their debts. Total government debt reached US$ 59 trillion in 2016 and exceeded US$ 65 trillion in 2018, up from US$ 37 trillion just a decade ago (Cox 2019). This debt has ballooned since the 2008 financial crisis, reaching levels never seen before in peacetime (Stubbington 2019). The dramatic leaps in public debt over the past decade, in both advanced and (so-called) emerging economies, are described in Fig. 13.2, according to data from the Bank for International Settlements (BIS).

Based on data from 2016 to 2017, of the 153 nations listed by the IMF or the CIA World Factbook, 102 now have public debts that exceed 50% of their GDP, 32 have public debts that exceed 80% of their GDP, and 16 countries, including the United States, Japan, and Italy, have debts that exceed 100% of their GDP: “the world’s major economies have debts on average of more than 70% of GDP, the highest level of the past 150 years, except for a spike around the second world war” (Stubbington 2019). François Morin (2015) shows how 28 large banks, resulting from successive merges spurred by globalization and the deregulation of the Reagan-Thatcher era, have a total balance of US$ 50.3 trillion. These major banks have been labelled global systemically important banks (G-SIBs) by the Financial Stability Board (FSB), created in 2009 during the G20 summit in London. According to François Morin, they have fraudulently colluded into an oligopoly that he equates to a worldwide hydra (De Filippis 2015):

Public debt plagues every major country. The private and toxic debts were massively transferred to states during the last financial crisis. This public over-indebtedness, linked exclusively to the crisis and to these banks, explains—while completely denying the causes of the crisis—the policies of rigor and austerity applied everywhere. [...] States are not only disciplined by markets but, above all, they are hostage to the world hydra.

Corporations manage European public debt through a vicious cycle: (1) Prohibited by their regulations and by the Lisbon Treaty from buying government bonds directly from insolvent states, the European Central Bank (ECB) should buy them

| Region   | Location | 2018  | 2008  |
|----------|----------|-------|-------|
| Advanced | U.S.     | $19.5T| $9.0T |
|          | Eurozone | $12.9T| $10.1T|
|          | Other    | $16.1T| $10.4T|
| Emerging | China    | $6.2T | $1.2T |
|          | Other    | $7.6T | $4.4T |

Fig. 13.2 Government debt in advanced and emerging economies (trillions of dollars) in 2008 and 2018. (Source: Jeff Cox, “Global debt is up 50% over the past decade, but S&P still says next crisis won’t be as bad.” CNBC, 12/III/2019, based on data from the Bank for International Settlements)
from banks in the secondary market, thus improving the balance sheet of these banks and avoiding the next systemic banking crisis. In addition, the ECB gives loans to banks at rates of 1% to 1.5%, obtaining “junk” bonds or high-risk government bonds as a guarantee.7 (2) Recapitalized, banks lend “new” money to defaulting states so that they (3) avoid default and repay their creditors. (4) In this way, banks can continue to finance states at higher interest rates, since the state is poorly rated by credit rating agencies. To be able to pay off their debts, states (5) sacrifice their investments and public services for the imperative of reducing the budget deficit and public debt. The so-called austerity measures (6) weaken the economy and lower revenue, which (7) pushes states into default, completing the vicious cycle and taking it to the next level.

“Those in insolvency have to sell everything they have to pay their creditors,” said Joseph Schlamann, one of the leaders of the CDU, the party that leads Angela Merkel’s coalition in Germany. This diktat led Greece to sell the island of Oxia in the Ionian Sea to Shaykh Hamad bin Khalifa al-Thani, the emir of Qatar, who bought it for a paltry sum of five million euros. Other Greek islands (out of a total of six thousand), such as Dolicha, were also put on sale. The natural, territorial, and cultural heritage of Mediterranean Europe is considered by creditors to be little more than a bankrupt estate. This type of negligence of Mediterranean civilizational heritage gave rise to bitter assessments done by Salvatore Settis (2002) and Silvia Dell’Orso (2002), this time on the Italian state’s abandonment of its responsibilities toward the nation’s extraordinary cultural memory. Formerly, the state guaranteed citizens the enjoyment of their heritage and devotion to their monuments through museums and the educational system. Having custody over and conserving this memory, the state was the nexus between the generations, and, through research, it also promoted the critical historical revision of this heritage.8 Today, even when it does not simply sell this natural, territorial, or cultural heritage, the state–corporation denatures it by conceiving it as an input for tourism to be managed according to the industry’s profitability motives.

7 Between May 2010 and March 2011, the ECB bought 66 billion euros from bankers and other investors. In August 2011 alone, the ECB bought a further 36 billion euros (always in the secondary market and at a much higher price than the one traded in that market) of government bonds from Greece, Ireland, Portugal, Spain, and Italy. Not satisfied with this rescue operation, banks took the opportunity to buy more junk bonds in the secondary market at a rate of 42.5% of their face value on August 8, 2011 (and even lower later on), and to resell them to the ECB at 80% of this value. Eric Toussaint, “La BCE, fidèle serviteur des intérêts privés.” Interview granted to CADTM, 16/IX/2011

8 In “The Use and Abuse of History for Life.” (1874), Nietzsche discusses the three meanings of history necessary for the man who lives in his own time: as a being that is active and has aspirations (monumental history), as a being that preserves and venerates (antiquarian history), and as a being that suffers and has a need for liberation (critical history). Precisely between the years of Nietzsche and the twentieth century, the social democratic state was the guarantor of these “uses” (Nutzen) of history that Nietzsche refers to.
13.4.5  Tax Evasion, the Huge “Black Hole”

The impoverishment of states comes, above all, from tax evasion. In 2000, an article published in the newspaper *Libération* estimated that approximately six trillion euros worth of resources were diverted to 65 tax havens, with an increase of 12% per year over the previous 3 years (1997–1999). According to a July 2012 report by economists from the Tax Justice Network (TJN):

At least $21 trillion of unreported private financial wealth was owned by wealthy individuals via tax havens at the end of 2010. This sum is equivalent to the size of the United States and Japanese economies combined. There may be as much as $32 trillion of hidden financial assets held offshore by high net worth individuals (HNWIs), according to our report *The Price of Offshore Revisited* which is thought to be the most detailed and rigorous study ever made of financial assets held in offshore financial centres and secrecy structures. We consider these numbers to be conservative. This is only financial wealth and excludes a welter of real estate, yachts and other non-financial assets owned via offshore structures. (…) The number of the global super rich who have amassed a $21 trillion offshore fortune is fewer than 10 million people. Of these, less than 100,000 people worldwide own $9.8 trillion of wealth held offshore. (…) This at a time when governments around the world are starved for resources.

In 2008, Edouard Chambost, an expert on the subject, stated that “55% of international trade or 35% of financial flows pass through tax havens.” Gabriel Zucman (*2014*) of the London School of Economics estimates that states lose US$ 190 billion every year to tax evasion. What the tax havens and financial opacity show is the impotence of the states and, at the same time, its complicity in relation to the power of corporations. According to Thomas Piketty (*2016*):

Unfortunately, in this area there is a huge gap between the triumphant declarations of governments and the reality of what they actually do. (…) The truth is that almost nothing has been done since the crisis in 2008. In some ways, things have even got worse. (…)

Thus, another vicious cycle, complementary to the one described above, is set up between corporations, investors, and big fortunes. These (1) divert a considerable portion of the taxes that are due to tax havens, and, through the banks that receive these funds, (2) they provide loans to states at high interest rates. Such interest (3) further puts states at the mercy of creditors. From *de jure* creditors of corporations, states become their chronic debtors, which, finally, (4) fuels the ideology that social democracy is unfeasible because it generates leviathan states that are deficit-prone and wasteful.

And, as if this vicious cycle was not enough, part of the state’s revenue is directed to subsidize or finance—through the public treasury, public “development” banks, and tax exemptions—agribusiness, the auto industry, big mining and fossil fuel projects, the military–industrial complex, and other segments with a high concentration of corporate capital that have a deadly environmental impact. The current deterioration of states’ financial health is comparable only to the situation at the end

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9 Quoted in *La Tribune*, 16/X/2008, p. 38
of World War II, when public finances had been destroyed. The difference, however, is that the destruction of the biosphere eliminates the prospect of a new cycle of economic growth, like the one that occurred in 1947–1973.

### 13.4.6 What to Expect from States?

In this context, what efforts can we still expect from states regarding the environmental regulation of corporate activity? Can the Brazilian state be expected—even before the election of Jair Bolsonaro—to implement an active energy transition policy and/or a policy to protect the country’s forests? What to expect from the United States with its debt of US$ 16 trillion in December 2012 which then jumped to US$ 19 trillion in February 2016 and is expected to exceed US$ 23 trillion by 2020? In 2018, Trump signed a US$ 1.2 trillion plan to revise the entire US nuclear arsenal and authorized a new nuclear warhead for the first time in 34 years (Hennigan 2018). To sustain the country’s military–industrial corporate complex, one of the most polluting and environmentally unsustainable, its “defense” budget must be the third item in the national budget. Dwight Eisenhower had already warned about this in his famous farewell address to the nation in 1961:

> This conjunction of an immense military establishment and a large arms industry is new in the American experience. The total influence—economic, political, even spiritual—is felt in every city, every Statehouse, every office of the Federal government. We recognize the imperative need for this development. Yet, we must not fail to comprehend its grave implications.

What Eisenhower called in 1961 the military–industrial complex has completely taken over the United States and is now best known as the military–industrial–congressional complex (MICC). The civil and military arms industry lobby maintains control over Congress, with the latter approving funds that are not even required by the military, such as financing the production of Abrams battle tanks which the army says it does not want, since the current fleet of 2400 units is only about 3 years old (Lardner 2013). Similarly, in France, although the Centre International de Recherche sur le Cancer (CIRC) has been claiming since 1988 that diesel is carcinogenic, the French government, followed by Germany, continues to subsidize some models of diesel engines, making France the country with the highest percentage (61%) of diesel-powered vehicles in the world. In conclusion, can we expect states to impose efficient environmental controls on the network of corporations that control them? Notwithstanding timid advances, the answer is essentially a negative one.
13.5 A Super-entity. The Greatest Level of Inequality in Human History

When comparing corporate vs. government revenues, it becomes very clear that corporate power is greater than that of states. According to the 2017 Fortune Global 500, revenues of the world’s 500 largest corporations amounted to US$ 28 trillion, the equivalent of 37% of the world’s GDP in 2015. As revealed by the NGO Global Justice Now (2016), “69 of the world’s top economic entities are corporations rather than countries in 2015,” and 10 of top 28 economic entities are corporations. “When looking at the top 200 economic entities, the figures are even more extreme, with 153 being corporations.”

Nick Dearden, director of Global Justice Now, declared: “The vast wealth and power of corporations is at the heart of so many of the world’s problems – like inequality and climate change. The drive for short-term profits today seems to trump basic human rights for millions of people on the planet.”

Even more important than the power of an isolated corporation is the obscure and highly concentrated power within the corporate network itself. This network is controlled by a caste that is barely visible and that is impervious to the pressures of governing parties and societies. Their investment decisions define the destinies of the world economy and, therefore, of humanity. This is what research on the architecture of the international ownership network, conducted by Stefania Vitali, James B. Glattfelder, and Stefano Battiston (2011) from the Eidgenössische Technische Hochschule (ETH) in Zurich, has shown. Based on a list of 43,060 transnational corporations (TNCs), taken from a sample of about 30 million economic actors in 194 countries contained in the Orbis 2007 database, the authors discovered that “nearly 4/10 of the control over the economic value of TNCs in the world is held, via a complicated web of ownership relations, by a group of 147 TNCs in the core, which has almost full control over itself.” These 147 conglomerates occupy the center of a tentacular power structure, as these authors further elaborate:

We find that transnational corporations form a giant bow-tie structure and that a large portion of control flows to a small tightly-knit core of financial institutions. This core can be seen as an economic “super-entity” that raises new important issues both for researchers and policy makers. (…) About 3/4 of the ownership of firms in the core remains in the hands of firms of the core itself. In other words, this is a tightly-knit group of corporations that cumulatively hold the majority share of each other.

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10 See Global Justice Now, “Corporations vs governments revenues: 2015 data.” http://www.globaljustice.org.uk/sites/default/files/files/resources/corporations_vs_governments_final.pdf.

11 “10 biggest corporations make more money than most countries in the world combined.” Global Justice Now, 12/IX/2016
13.5.1 An Emerging Subspecies of Homo sapiens: The UHNWI

The concentration of so much economic power in the hands of a numerically insignificant caste is unprecedented in human history. By combining data from the Crédit Suisse Global Wealth Report pyramid (already presented in the Introduction, see Fig. 1.1) with the Wealth-X and UBS World Ultra Wealth Report 2014 and the two Oxfam International reports (2014 and 2015), we can examine this trend in more detail. As seen in the Introduction, in 2017, at the top of the global wealth pyramid, 0.7% of adults, or 36 million individuals, owned 45.9% of the world’s wealth (US$ 128.7 trillion). Penetrating into the vertex of this global asset pyramid, we see that in this group of 36 million (with assets worth over US$ 1 million), there are 211,275 billionaires—the ultra-high net-worth individuals (UHNWI)—corresponding to 0.004% of adult humanity. Their assets alone total US$ 29.7 trillion, assets that, moreover, increased by 7% in 2014 compared to the previous year (64% of UHNWI are in North America and Europe, while 22% are in Asia).

Now, with the aid of a magnifying lens provided by two listings (from Forbes Magazine and the Bloomberg Billionaires Index), we will move up to examine the most exclusive stratum of this UHNWI club. In 2013, Forbes Magazine listed 1426 billionaires amassing US$ 5.4 trillion, which is equivalent to the GDP of Japan (the world’s third largest GDP). Forbes Magazine 2018 lists 2208 billionaires with US$ 9.1 trillion, an 18% increase in wealth compared to the previous annual survey. The Bloomberg Billionaires Index contains an even more stratospheric list: the world’s 300 richest individuals had a wealth of US$ 3.7 trillion in December 31, 2013. These 300 people became even richer throughout 2013, adding another US$ 524 billion to their net worth. From the top of this nanopyramid, situated at the extreme end of the Crédit Suisse pyramid, Table 13.1 allows us to contemplate the general picture of human inequality in the current phase of capitalism.

Table 13.1 The nanopyramid at the extreme end of the global wealth pyramid

| Number of UHNWI | Assets owned by each UHNWI          |
|-----------------|-------------------------------------|
| 98,700          | More than 50 million dollars        |
| 33,900          | More than 100 million dollars       |
| 3100            | More than 500 million dollars       |
| 2208            | More than 1 billion dollars         |
| 300             | More than 12 billion dollars        |
| 85              | More than 20 billion dollars        |
| 20              | More than 60 billion dollars        |

Sources: The Crédit Suisse Global Wealth Report 2013; Wealth-X and UBS World Ultra Wealth Report 2014; Fuentes-Nieva, Galasso (2014, p. 3), in Oxfam International, Working for the few (2014); Oxfam International, Wealth: Having It All and Wanting More (2015); and Forbes Magazine 2018
In 2014, Oxfam showed that the 85 richest individuals on the planet had a combined wealth of more than US$ 1.7 trillion, which is equivalent to the wealth held by 3.5 billion people, the poorest half of humanity. The concentration of these assets continues to grow at a staggering rate, as shown in the Table 13.2 which shows the declining number of individuals whose combined wealth equals that of the bottom 3.6 billion people (the poorest half of humanity which is becoming increasingly poorer).

According to the Oxfam report, *An Economy for the 1%* (2016),

The wealth of the richest 62 people has risen by 45% in the five years since 2010 – that’s an increase of more than half a trillion dollars ($542bn), to $1.76 trillion. Meanwhile, the wealth of the bottom half fell by just over a trillion dollars in the same period – a drop of 38%.

Oxfam’s 2015 report stated that in 2014, the richest 1% owned 48% of global wealth, leaving just 52% to be shared between the other 99% of adults on the planet:

Almost all of that 52% is owned by those included in the richest 20%, leaving just 5.5% for the remaining 80% of people in the world. If this trend continues of an increasing wealth share to the richest, the top 1% will have more wealth than the remaining 99% of people in just two years.

This prognosis was confirmed in the following year. The 2016 report (*An Economy for the 1%*) states that “the global inequality crisis is reaching new extremes. The richest 1% now have more wealth than the rest of the world combined.” Bill Gates’s fortune, estimated at US$ 78.5 billion (*Bloomberg*), is greater than the GDP of 66% of the world’s countries. In present-day Russia, 110 people own 35% of the country’s wealth.12 Another way to understand this extreme concentration of wealth is to look at the large financial holding companies. Seven of the largest US financial holding companies (JPMorgan Chase, Bank of America, Citigroup, Wells Fargo, Goldman Sachs, MetLife, and Morgan Stanley) have more than US$ 10 trillion in consolidated assets, representing 70.1% of all financial assets in the country (Avraham et al. 2012).13 Also according to Oxfam, among the countries for which data is available, Brazil is the one with the greatest concentration of wealth in the hands of the richest 1%. Six billionaires in the country hold assets equivalent to that of the poorest half of the Brazilian people, who saw their share of national wealth further reduced from 2.7% to 2% (Oxfam 2017).

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12 “Band of brothers”. *The Economist*, 22–28/XI/2014, p. 77. Review of Karen Dawisha, *Putin’s Kleptocracy: Who owns Russia?* New York, 2014

13 See also Mark Thoma, “How To (Maybe) End Too Big to Fail.” *The Economist’s View*, 25/II/2013
This emerging subspecies—the 0.004% of the human species known by the acronym UHNWI—owns the planet. Their economic and political power is greater than that of those who have a popular mandate in national governments. Their domination is also ideological, since economic policies are formulated—and evaluated by most opinion leaders—to benefit the business strategies of this caste. Its power surpasses—in scale, reach, and depth and in a way that is transversal and tentacular—everything that the most powerful rulers in the history of pre-capitalist societies could ever have conceived of or had reason to desire. Additionally, the power of these corporations is infinitely disproportionate to their social function of job creation. In 2009, the 100 largest among them employed 13.5 million people, that is, only 0.4% of the world’s economically active population, estimated by the International Labour Organization at 3.210 billion potential workers. Who in such circumstances can still uphold the historical validity of the so-called Kuznets curve? As is well known, Simon Kuznets (1962) claimed, in the 1950s, that as an economy develops, market forces first increase and then decrease economic inequality. In reality, all the actions of this plutocratic super-entity are guided toward a single motto: defend and increase their wealth. Their interests are, therefore, incompatible with the conservation of the biophysical parameters that still support life on our planet.

### 13.6 “Degrowth Is Not Symmetrical to Growth”

Since the 1960s, evidence of the incompatibility between capitalism and the biophysical parameters that enable life on Earth has been recognized by experts from various disciplines. Some Marxist scholars (or those in close dialogue with Marx) belonging to two generations, from Murray Bookchin (1921–2006) and André Gorz (1923–2007) to a range of post-1960s scholars, such as John Bellamy Foster, Fred Magdoff, Brett Clark, Richard York, David Harvey, Michael Löwy, and Enrico Leff, clearly understand that the current historical situation is essentially characterized by an opposition between capitalism and conservation of the biosphere. In the preface to a book that is emblematic of this position (*The Ecological Rift. Capitalism’s War on the Earth, 2010*), John Bellamy Foster, Brett Clark, and Richard York write14: “a deep chasm has opened up in the metabolic relation between human beings and nature—a metabolism that is the basis of life itself. The source of this unparalleled crisis is the capitalist society in which we live.”

But capitalism is perceived as an environmentally unsustainable socioeconomic system also by those for whom Marx is not a central intellectual reference. Pascal Lamy and Yvo de Boer were already mentioned above. For them there is an unmistakable causal link between capitalism and the exacerbation of environmental crises. In fact, there are a number of non-Marxist thinkers who subscribe to this

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14 See also Foster, “Capitalism and Degrowth: An Impossibility Theorem”. *Monthly Review*, 62, 8, 2011.
evidence. Two generations of pioneer thinkers, born between the beginning of the century and the interwar period, have laid the foundation for the understanding that capitalist accumulation is disrupting the climate system, depleting the planet’s mineral, water, and biological resources, and provoking multiple disruptions in ecosystems and a collapse of biodiversity. We will point out the names of great economists, such as Kenneth E. Boulding, Nicholas Georgescu-Roegen, and Herman Daly; geographers like René Dumont (1973); key philosophers on ecology, such as Michel Serres and Arne Naess; theistic philosophers, such as Hans Jonas and Jacques Ellul; biologists, such as Rachel Carson and Paul and Anne Ehrlich (Tobias 2013); or a Christian-educated polymath and ecologist, Ivan Illich. Inspired by the writings of these thinkers who shaped the critical ecological thinking of the second half of the twentieth century, studies on socio-environmental crises are growing today. These studies share an awareness that the imperative of economic growth is increasingly threatening the maintenance of an organized society. Included here are authors of diverse ideological backgrounds and range of expertise, from Claude Lévi-Strauss, Edgar Morin (2007), Cornelius Castoriadis, and Richard Heinberg to Vittorio Hölsle, Serge Latouche, and Hervé Kempf, who has a book suggestively titled, Pour Sauver la Planète, Sortez du Capitalisme [To Save the Planet, Leave Capitalism] (2009). In A User’s Guide to the Crisis of Civilization: And How to Save It (2010), Nafeez Mosaddek Ahmed hit the bull’s eye: “Global crises cannot be solved solely by such minor or even major policy reforms – but only by drastic reconfiguration of the system itself.” More recently, Hicham-Stéphane Afeissa (2007, 2012) has been working extensively on an overview of deep ecological thinking in philosophy, especially in the twentieth century.

13.6.1 The Idea of Managed Degrowth

The idea of managed degrowth, which implicitly or explicitly unites the names mentioned above, appears to be the most significant proposal today, perhaps the only one, that would be effective in creating a viable society. Any decreased human impact on the Earth system obviously requires abandoning the meat-based food system and the fossil fuel-based energy system. Moreover, the idea of degrowth rests on three assumptions, which, if not properly understood, would make degrowth seem absurd.

The first assumption is that economic downturn, far from being an option, is an inexorable trend. Precisely because we are depleting the planet’s biodiversity and destabilizing the environmental coordinates that have prevailed in the Holocene, global economic growth rates are already declining when compared to the 1945–1973 average, as Gail Tverberg has shown (see Introduction, Sect. 1.7. The Phoenix that Turned into a Chicken). According to the World Bank, in the 2013–2017 period, the average growth of the global economy was 2.5%; this is a 0.9% decrease
This tendency toward declining growth is inescapable. The current pandemic (SARS-CoV-2) will only accelerate this process of decline, as the economy will find it increasingly difficult to recover from its next crises. Conscious that the developmental illusion is pushing the services rendered by the biosphere toward collapse, supporters of degrowth realize that a managed degrowth would be the only way to prevent economic and socio-environmental collapse, one that will be more brutal and deadly the longer it is denied or underestimated.

The second assumption is that administered degrowth is essentially anti-capitalist. The idea of degrowth within the framework of capitalism was rightly defined by John Bellamy Foster (2011) as an impossibility theorem. Finally, the third assumption is that managed degrowth is not simply about a quantitative reduction in GDP. First of all, it means qualitatively redefining the objectives of the economic system which should be about adapting human societies to the limits of the biosphere and of natural resources. Obviously, this adaptation implies investments in places and in countries that lack basic infrastructure and, in general, an economic growth that is crucial for the transition to energy and transport systems that have a lower environmental impact. But these are localized investments that are oriented toward reducing environmental impacts (sanitary infrastructure, abandoning the use of firewood, public transportation, etc.); it is never about growth for the sake of growth.

Serge Latouche devoted almost all of his work to the question of degrowth (2004, 2006, 2007, 2012 and 2014). He explains (2014) the link between degrowth and overcoming capitalism: “The degrowth movement is revolutionary and anti-capitalist (and even anti-utilitarian) and its program is fundamentally a political one.” Degrowth, as the same author insists, is the project of building an alternative to the current growth society: “this alternative has nothing to do with recession and crisis … There is nothing worse than a growth society without growth. […] Degrowth is not symmetrical to growth.” The most poignant formulation on the incompatibility between capitalism and sustainability comes from the theories of two economists, developed before the emergence of the concepts of sustainability and decay: (1) the theory by Nicholas Georgescu-Roegen in 1971 on the increasing generation of entropy from economic activity and, a fortiori, from an economy based on the paradigm of expansion and (2) the theory, developed in 1966 by Kenneth E. Boulding in The Economics of the Coming Spaceship Earth, on the need to overcome an open economy (cowboy economy) toward a closed economy (spaceman economy).

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15 World Bank, Global Economic Prospects. Broad-Based Upturn, but for How Long? January, 2018, p. xv

16 Here is the meaning of the cowboy economy and spaceman economy metaphors: “For the sake of picturesqueness, I am tempted to call the open economy the ‘cowboy economy,’ the cowboy being symbolic of the illimitable plains and also associated with reckless, exploitative, romantic, and violent behavior, which is characteristic of open societies. The closed economy of the future might similarly be called the ‘spaceman’ economy, in which the earth has become a single spaceship,
will return to this last theory in the next chapter. For now, it suffices to cite a central passage from this text in which Boulding shows that for the capitalist economy, production and consumption are seen as a commodity whereas in the economy toward which we should aspire—the closed economy or spaceman economy—what matters is minimizing throughput, namely, the rate of transformation (operated in the economic system) of raw materials into products and pollution. This means minimizing both production and consumption, which clearly conflicts with the capitalist view of the economic process:

The difference between the two types of economy becomes most apparent in the attitude towards consumption. In the cowboy economy, consumption is regarded as a good thing and production likewise; and the success of the economy is measured by the amount of the throughput from the “factors of production,” a part of which, at any rate, is extracted from the reservoirs of raw materials and noneconomic objects, and another part of which is output into the reservoirs of pollution. If there are infinite reservoirs from which material can be obtained and into which effluvia can be deposited, then the throughput is at least a plausible measure of the success of the economy. (…) By contrast, in the spaceman economy, throughput is by no means a desideratum, and is indeed to be regarded as something to be minimized rather than maximized. The essential measure of the success of the economy is not production and consumption at all, but the nature, extent, quality, and complexity of the total capital stock, including in this the state of the human bodies and minds included in the system. In the spaceman economy, what we are primarily concerned with is stock maintenance, and any technological change which results in the maintenance of a given total stock with a lessened throughput (that is, less production and consumption) is clearly a gain. This idea that both production and consumption are bad things rather than good things is very strange to economists, who have been obsessed with the income-flow concepts to the exclusion, almost, of capital-stock concepts.

The fundamental unsustainability of capitalism is demonstrated not only through the arguments of Georgescu-Roegen and Boulding but also by Herman Daly’s impossibility theorem (1990). He claims that the impossibility—obvious, but not necessarily accepted in its consequences—of an economy based on the expanded reproduction of capital in a limited environment occupies a position in economic theory that is equivalent to the fundamental impossibilities of physics:

Impossibility statements are the very foundation of science. It is impossible to: travel faster than the speed of light; create or destroy matter-energy; build a perpetual motion machine, etc. By respecting impossibility theorems we avoid wasting resources on projects that are bound to fail. Therefore economists should be very interested in impossibility theorems, especially the one to be demonstrated here, namely that it is impossible for the world economy to grow its way out of poverty and environmental degradation. In other words, sustainable growth is impossible.

without unlimited reservoirs of anything, either for extraction or for pollution, and in which, therefore, man must find his place in a cyclical ecological system.”
13.7 Conclusion

What delays a broader acceptance of this set of reflections are not arguments in favor of capitalism, but the mantra of the absence of alternatives to it. Such is the hypnotic power of this mantra that even the scholars most aware of the links between environmental crisis and economic activity cling to the absurd idea of a “sustainable capitalism,” an expression that Herman Daly aptly called “a bad oxymoron—self-contradictory as prose, and unevocative as poetry.” It turns out that it is possible, and more than ever necessary, to overcome the idea that the failure of socialism has left society with no other alternative but to surrender to capitalism. Human thinking is not binary, and the unfeasibility of the socialist experience in the twentieth century does not ipso facto imply the viability of capitalism.

The 2012 OECD report, *Looking to 2060: Long-term global growth prospects*, published by Asa Johansson and colleagues (2012), states that: “the long-term scenario provides a relatively benign long-term outlook for the global economy.” But in order for this scenario to prove itself benign, the report mentions, at the end of the Introduction, the factors that are being ignored in its forecast: “Indeed, a number of other factors are also ignored, including the possibility of disorderly debt defaults, trade disruptions and possible bottlenecks to growth due to an unsustainable use of natural resources and services from the environment.” OECD economists still live in an enchanted kingdom in which economic forecasts can afford to ignore “possible [environmental] bottlenecks.” These bottlenecks must indeed be ignored because recognizing them, not as “possible” but as inevitable, would compel these economists to review the assumption—now frankly absurd—on which their knowledge is based, namely, that the environment is a relatively abundant and stable factor of production, a fact and not a problem, therefore, for economic forecasts.

In short, capitalism is not an environmentally sustainable socioeconomic system if the establishment of regulatory frameworks capable of bringing it back to sustainability is left to the market. This is because the market is, at best, able to optimize the short-term cost–benefit relationship in the allocation of resources, but not the conservation of these resources. As Kim Stanley Robinson’s formula rightly sums up: Adam Smith’s “invisible hand never picks up the check” (as cited by Naomi Oreskes, in Conway, Oreskes 2014, p. 93).

Capitalism could perhaps approach sustainability if its regulation was driven by a mixed mechanism in which the state and civil society were strong enough to offset the power of the global corporate network with its four strongest binding points: Big Oil, Big Mining, Big Food, and Big Bank. This is no longer the case because the state–corporations of our days have no interest in confronting the corporate network, and if they did, they would no longer have the means to do so. Therefore, the immense task—of replacing the power of this global network with another model of society capable of combining local economy with an effective global and democratic political governance—lies on the shoulders of civil society, on its social, labor, and political organizations. Whether we will be able to accomplish this task is still an open question. It presupposes, first of all, awakening from the illusion that
capitalism can become sustainable and renouncing our fascination with consumerism and with the age-old psychological constant: more surplus = more safety, to be discussed in the next chapter.

References

AFEISSA, Hicham-Stéphane (ed.), Éthique de l’environnement. Nature, valeur, respect. Paris, Vrin, 2007.
———, Portraits de philosophes en écologistes. Paris, Éditions Dehors, 2012.
AHMED, Nafeez Mosaddek. A User’s Guide to the Crisis of Civilization: And How to Save it. Pluto Press, 2010.
AVRAHAM, D., SELVAGGI, P. & VICKERY, J., “A Structural View of U.S. Bank Holding Companies”. FRBNY Economic Policy Review, July 2012.
BAST, Elizabeth et al., Empty promises. G20 subsidies to oil, gas and coal production. Oil Change International. November 2015.
BELLAMY FOSTER, John; CLARK, Brett & YORK, Richard, The ecological rift. Capitalism’s war on the Earth. New York, Monthly Review Press, 2010
BOULDING, Kenneth E., “The economics of the coming Spaceship Earth” (1966), In Jarrett, H. (ed.), Environmental Quality in a Growing Economy, pp. 3–14. Baltimore, Resources for the Future. Johns Hopkins University Press, 1966.
BROWN, Maurice, Adam Smith’s Economics: Its Place in the Development of Economic Thought. London, Routledge, 1988.
CANGUILHEM, Georges, Écrits sur la médecine. Paris, PUF, 1989.
———, “Théorie et technique de l’expérimentation chez Claude Bernard”. Études d’Histoire et de Philosophie des Sciences (1968). Paris: Vrin, 1983.
CARRINGTON, Damian, “Fossil fuels subsidised by $10m a minute”. The Guardian, 18/V/2015.
COADY, David et al., “Global Fossil Fuel Subsidies Remain Large: An Update Based on Country-Level Estimates”. IMF Working Paper, May 2019.
CONWAY, Eric M. & ORESKES, Naomi, The Collapse of Western Civilization. A View from the Future. Columbia University Press, 2014.
CORBET, Jessica, “Green Groups Call Out Big Banks for Pouring Billions Into Fossil Fuel Industry”. Common Dreams, 20/III/2019.
DALY, Herman E. “Sustainable Growth. An Impossibility Theorem” (1990). In: DALY, Herman E. & TOWNSEND, Kenneth (eds.). Valuing the Earth: Economics, Ecology, Ethics. Cambridge (Mass.), MIT Press, 1993, pp. 267–285.
DELL’ORSO, Silvia. Altro che musei. La questione dei beni culturali in Italia. Rome/Bari, Laterza, 2002.
DE FILIPPIS, Vittorio, “François Morin: L’oligopole bancaire s’est transformé en hydre dévastatrice pour l’économie mondiale”. Libération, 22/VII/2015.
DUMONT, René, L’Utopie ou la mort! Paris, Seuil, 1973.
GEORGESCU-ROEGEN, Nicholas. The Entropy Law and the Economic Process. Havard University Press, 1971.
———, “Energy and Economic Myths”. Southern Economic Journal, 41, January 1975, pp. 347–381.
———. La Décroissance (1979). Paris, Sang de la Terre, 1995.
GHYS, Frederic & HINKKANEN, Hanna, “Searching for Socially Responsible Investments. Mission Impossible?”. The Guardian, 2/VII/2013.
GIANNETTI, Eduardo, “A crise ambiental e a economia de mercado”. In Novo Contrato Social. Propostas para esta geração e para as futuras. Instituto Ethos, 2013, pp. 69–75.
References 361

GREENFIELD, Patrick, “World’s top three asset managers oversee $300bn fossil fuel investments”. *The Guardian*, 12/X/2019.

HEINBERG, Richard, *Peak Everything: Waking Up to the Century of Declines*. Gabriola Island, New Society Publishers, 2007.

HENNIGAN, W. J., “Donald Trump Is Playing a Dangerous Game of Nuclear Poker”. *Time*, 1/II/2018.

HIRSCH, S., “Making globalization moral?” *Transnational Corporations*, 20, 3, 2011, pp. 87–93.

ILLICH, Ivan. *La convivialité. Oeuvres completes*, vol. I. Paris, 2003, pp. 451–580.

IVRY, B., KEOUN, B. & KUNTZ, P., “Secret Fed Loans Gave Banks $13 Billion Undisclosed to Congress”. *Bloomberg*, 27/XI/2011.

JÖSTROM, M. & ÖSTBLOM, G. “Decoupling waste generation from economic growth – A CGE analysis of the Swedish case”. *Ecological Economics*, 69, 7, 15/V/2010, pp. 1545–1552.

JUNG, Alexander et al., “Warming world: is capitalism destroying our planet”. *Spiegel Online International*, 25/II/2015.

KLEIN, Naomi, “Capitalism killed our climate momentum, not ‘human nature’”. *The Intercept*, 3/VIII/2018.

KOENIG, David, “Exxon Shareholders to Vote on Climate Change, Fracking”. *ABC News*, 27/V/2015.

LARDNER, Richard, “Army says no to more tanks, but Congress insists”. *Associated Press*, 29/IV/2013

LATOUCHE, Serge. *Survivre au développermment. De la décolonisation de l’imaginaire économique à la construction d’une société alternative*. Paris, Mille et Une Nuits, 2004.

———. *Le pari de la décroissance*. Paris, Fayard, 2006.

———. *Petit traité de la décroissance sereine*. Paris, Fayard, 2007.

———. *Bon pour la casse*. Paris, Les liens qui libèrent, 2012.

———. *Itinérance. Du tiers-mondisme à la décroissance* (2014). *L’economia è una menzogna*. Turin, 2014.

MADELINE, Béatrice, « La ruée vers les métaux ». *Le Monde*, 12/IX/2016.

MAGDOFF, Fred. “Ecological Civilization”. *Monthly Review*, 62, 8, 2011.

MAGDOFF, Fred & BELLAMY FOSTER, John. *What Every Environmentalist Needs to Know About Capitalism*. New York, Monthly Review Press, 2011.

MECKLIN, John, “Losing Earth” lost sight of some climate change villains, but not the scope of the problem, *The Bulletin of Atomic Scientists*, 6/VIII/2018.

MORIN, Edgar. *Vers l’abîme?*. Paris, Éditions de l’Herne, 2007

MORIN, François. *L’hydre mondiale. L’oligopole bancaire*. Montreal, Lux éditeur, 2015.

OXFAM, *Working for the few*, London, 2014

———, *Wealth: Having it all and wanting more*, London, 2015.

———, *A distância que nos une. Um retrato da desigualdade brasileira*. Oxfam Brasil, 2017.

———, “Panama Papers: Act now. Don’t wait for another crisis”. *The Guardian*, 10/IV/2016.

RICH, Nathaniel, ‘Losing Earth: The decade we almost stopped climate change”, *The New York Times*, 1/VII/2018.

RESENDE, André Lara. *Os limites do possível. A economia além da conjuntura*. São Paulo, 2013.

RIDDLINGTON, Elizabeth, NORMAN, Kim & RICHARDSON, Rachel, “Fracking by the Numbers. The Damage to Our Water, Land and Climate from a Decade of Dirty Drilling”. Environment America Research & Policy Center, 2016.

SETTIS, Salvatore. *Italia S.p.A. L’assalto al patrimonio culturale*. Turin, Einaudi, 2002.

STERN, Nicholas & CALDERÓN, Felipe, *Better Growth Better Climate. The New Climate Economy Report. The Synthesis Report*, 2014.

STUBBINGTON, Tommy, “Global debt surges to highest level in peacetime”. *Financial Times*, 25/IX/2019.

TOBIAS, Michael C., “The Ehrlich Factor: A Brief History of the Fate of Humanity, With Dr. Paul R. Ehrlich”. *Bloomberg*, 2013.
VITALI, S., GLATTFELDER, J.B. & BATTISTON, S., “The Network of Global Corporate Control”. Eidgenössische Technische Hochschule Zürich (ETH), *PLoS ONE*, 26/X/2011.

XU, Yangyang & RAMANATHAN, Veerabhadran, “Well below 2°C: Mitigation strategies for avoiding dangerous to catastrophic climate changes”. *PNAS*, 14/IX/2017

ZUCMAN, Gabriel, “Taxing across Borders: Tracking Personal Wealth and Corporate Profits”. *Journal of Economic Perspectives*, 28, 4, 2014, pp. 121–148.