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## **Degrowth: social change beyond the planet's limits**

Mercedes MARTINEZ-IGLESIAS and Ernest GARCIA

University of Valencia

Dept. of Sociology and Social Anthropology

Valencia, Spain

Contact: mercedes.martinez@uv.es

### **Abstract:**

The perception that we have already entered a necessarily transitional phase of overshoot, beyond the planet's limits, has become a central subject, which is growing in quantity and impact, in the literature about the present environmental predicament of humanity. This view believes the collapse of industrial civilization to be possible in the near future and revisits, from this perspective, the fate of different societies in the past. The discussion about the scope and possible social effects of a "degrowth", decline, or way-down is intense. Degrowth ideas have spread to the point of questioning the promises of sustainable development which, after the Rio summit in 1992, dominated the discourse on the possible response to environmental and social problems. The rationale for such a questioning is clear-cut: if population and the economy are truly beyond the limits, then current visions and theories of social change would be deeply perturbed; if the development era is approaching its end, then many sociological theories on current societies will share the same destiny, sustainable development doctrines between them. But visions of degrowth are also plural, with significant frictions drawing potential inner lines of division. The most important one separates those who associate degrowth to a total catastrophic collapse of civilization (the *die-off*, the rapid return to the Olduvai Gorge, to the prehistoric origin of the human species) from those who associate it with the continuity of wellbeing (defending the idea of a more or less prosperous way-down).<sup>1</sup>

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The natural limits to growth have already been surpassed and we are now entering an overshoot phase which may not be but a transition leading to a more or less prolonged period of decline... This description of the status quo, now recognized as extremely plausible, has become the central subject of a great many opinions on the outlook and trends of today's social change. Part of the literature on this subject –more and more abundant and with a

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<sup>1</sup> This paper is an English version, with some minor changes and updates, of a text which has been formerly published in French, in Yves-Marie Abraham, Louis Marion & Hervé Philippe (ed.), *Décroissance versus Développement Durable: Débats pour la Suite du Monde*, Montréal, Écosociété, 2011, pp. 187-203.

growing impact—even considers the possibility of a collapse of industrial civilization in the near future, and revisits, from this perspective, the fate suffered by various societies in the past (Diamond, 2005; Costanza *et al*, 2007).

Until recently, the debate on the scope and possible social effects of the "descent" had largely remained underground, often finding its own space in discussion groups on the Internet rather than in the mass media. Yet, over the first years of the 21<sup>st</sup> century, this debate has become more intense and visible (Evans, 2005), the economic recession taking it to the headlines after 2008.

Degrowth ideas have spread to the point of questioning the promises of sustainable development which, after the Rio summit in 1992, dominated the discourse on the possible response to environmental and social problems. The language used in a recent report by the Sustainable Development Commission of the UK (Jackson, 2009) illustrates the way we are going only too well: growth is openly rejected and the expression "sustainable development" has almost disappeared (except for the name of the institution that sponsors the document).

The controversy is not just between sustainable development and degrowth. In the area of degrowth there are also internal frictions that point to potential dividing lines. The most important one separates those who associate degrowth to a total catastrophic collapse of civilization (the *die-off*, the rapid return to Olduvai Gorge, to the prehistoric origin of the human species) from those who associate it with the continuity of wellbeing (defending the idea of a *prosperous way-down*, a more or less comfortable and rewarding descent for most human beings).

The degrowth dilemma -whether it leads to extinction straightaway or whether it offers an opportunity to improve the lives of the majority- involves complex theoretical distinctions on energy, evolution, determinism and human nature. But ultimately, the factors that will determine whether the era of decline will be benign *or* disastrous, if social change beyond limits will produce a new world *or* will only exacerbate the ongoing degradation of the planet ... these factors will be the social construction of human needs, the ways of satisfying them, the changes that will be introduced by new contexts of relative scarcity, and the unpredictable effects of mitigation and adaptation resulting from the uncertainty of the history... Let us develop a few thoughts about all this.<sup>2</sup>

### **Sustainable development or degrowth?**

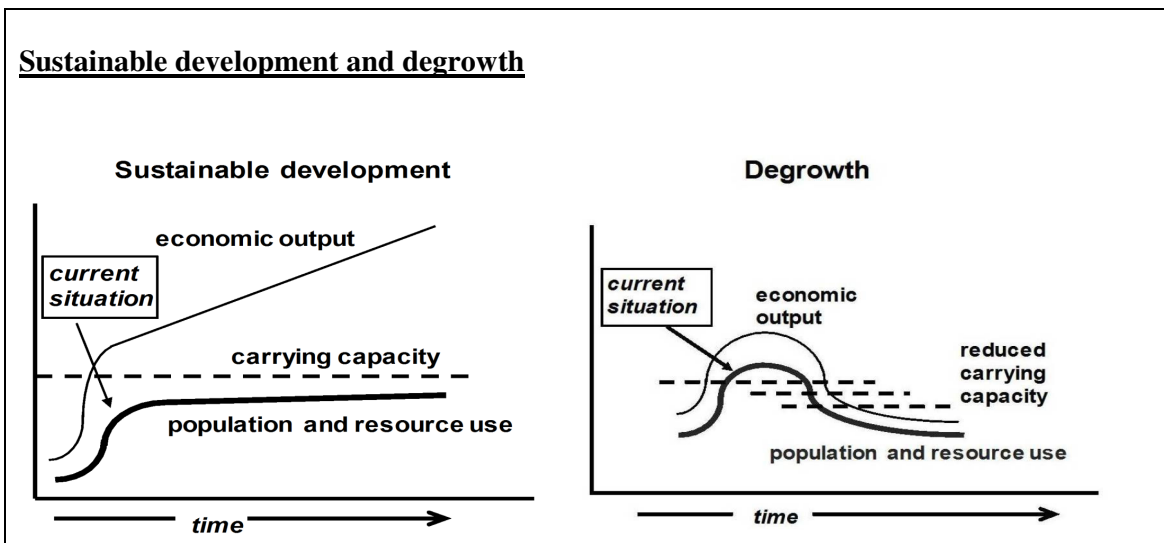
The differences between sustainable development and degrowth can be summarized schematically in the terms of the diagram below. Undoubtedly, the diagram is a simplification but it helps clarify the issue. Proposals for sustainable development require (a) demographic transition to become standard for all humankind, so that it can lead to the stabilization of the world population under ten billion people, just below the carrying capacity of the Earth; they also assume (b) that technological change will largely increase *eco-efficiency* by "decoupling"

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<sup>2</sup> The materials presented here are part of the basic conceptual work of two research projects, *Scientific and Technical Information, Public Participation and the Effects of Sustainability in Social-Ecological Conflicts* (CSO2008-00291), and *Transitions Towards a Post-Carbon Society: Redistributive Impacts and Everyday Life in a Context of Non-Fossil Energies and Climate Change* (CSO2011-24275), both of them funded by the Spanish National R&D Program.

the GDP and the use of resources so that the former increases as the latter stabilizes or declines; and finally (c) this dual transition, demographic and technological, is assumed to be already underway; there is still some time to go -a few decades- to complete it. Conversely, degrowth views consider demographic change to be highly unlikely given the lack of effective controls, the fact that no symptoms of the expected economic dematerialization can be seen, and especially, that time margins have been fully stretched and the carrying capacity of the planet reached (or so nearly reached that nothing can avoid neither the overrun or overshoot nor the resulting collapse).

Sustainable development and degrowth are thus two different answers, related to but deeply distinctive in their concern with the human impact on ecosystems. Both serve the same familiar message of environmentalism, which is almost forty years old: “Beware, if things continue like this, if we do not react in time and deeply enough, the exhausted Earth will slow the population and economic growth and impose a very difficult situation on humankind, perhaps the collapse of civilization, perhaps the extinction of the species”. Above all, it is a warning, an alarm (Boulding, 1995). And, apparently, one that has been heard. Governments now have ministries of the environment; companies, “green” product lines and waste management executives; social and political organizations, dedicated programs and departments; and in opinion polls, people express their concerns. But in fact, so far, the answer to the message could be translated as follows: “All right, we have one more problem, no need to overdo things!” Or more specifically: "Limits, what limits?".



Source: Garcia, 2004

Quite timely, sustainable development –the balance between economy and ecology– operated as a calming conspiracy, a lullaby intended to defer the anguish (“a lovely lullaby”, said Georgescu-Roegen (1993)). Sustainable development was a very strong idea over the last decade of the 20<sup>th</sup> century, one that worked as a selective lens in perceiving social reality. Well-meaning, moderately reformist, “ready-to-wear”... Although elaborated previously, it was formally launched at the Rio Conference in 1992 and quickly became an omnipresent clause in spite of (or rather because of) its characteristic ambiguity. But it wore out just as quickly and now it is clearly a concept on the wane.

Let's think of just one sign, as an example... In early 2006, the IUCN (International Union for Conservation of Nature) launched a debate aiming to review and update the conceptual foundations of its activity. In the opening statement, it formulated the question of whether the idea of sustainable development had still a meaning. The language used –it was a document stemming from the organization which many years before had substantially helped launch the term– is most significant:

"The concept is holistic, attractive, elastic but imprecise. The idea of sustainable development may bring people together but it does not necessarily help them to agree goals. In implying everything sustainable development arguably ends up meaning nothing" (Adams, 2006, 3).

The doubts partly respond to the recognition that the rhetoric use has drifted towards a situation in which the new jargon is just a slight modulation of the *business as usual*, a situation in which sustainable development is synonymous with economic development. End of story. As was the case with more or less illustrious precursors (*social development*, *human development*...), *sustainable* development would not have been more than yet another attempt to support a program of economic expansion in which social and environmental costs, in terms of inequality and ecosystem deterioration, proved huge and irresolvable.

The upward trend towards melancholy is not only the result of rhetoric banalization by politicians, business leaders, academics and stakeholders of all kinds. Most likely, it is due to growing evidences that natural limits have already been outreached, that time has run out for any variant of the promise of development. The melancholy notes come to express more or less the following: "Well, this sustainable development thing may have been a good idea sixty years ago (or two hundred?), but now it's too late and the only thing to do is to prepare for the worst". In such circumstances, even if it stays as a reference, development is not a predetermined goal ("catching-up the advanced societies"), but a process in which the conscious action is oriented by desirable (and variables) states of society, nature, production or the institutions. And the idea of sustainability begins to refer to some criteria of adaptive flexibility, often alluded by means of ecological analogies (resilience, co-evolution) or by means of technological analogies (robustness) (Perrings, 2001; Rammel *et al*, 2004; Anderies *et al*, 2004). The signs, more or less subtle, of this process of linguistic and conceptual replacement are widely visible. In our opinion the recent report of the United Nations Secretary-General's High-level Panel on Global Sustainability (2012) is a very revealing example. Along its pages, the report reiterates sustainable development as a social and political goal; but despite this reiteration, for the report's title has been selected one of the new alternative catchwords.<sup>3</sup>

The loss of legitimacy of the promise that development could be sustainable (together with the disappointment of globalization, the oil wars that marked the beginning of the century, the bursting of the housing and financial bubble, and the start of the economic downturn) is the

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<sup>3</sup> Resilient people and resilient planet, says the report's title, which does not mention sustainable development. In its origin in biology, the concept of resilience has been defined as follows: "Resilience is the magnitude of disturbance that can be tolerated before a socioecological system (SES) moves to a different region of state space controlled by a different set of processes. Resilience has multiple levels of meaning: as a metaphor related to sustainability, as a property of dynamic models, and as a measurable quantity that can be assessed in field studies of SES" (Carpenter *et al*, 2001, 765). An operational concept of resilience has not been fully developed, even in ecology. Their uses as a social and political idea are rather fuzzy, mainly metaphorical. Resilience maintains a family resemblance with sustainability (a resilient system can conserve its organization under conflict and stress, i.e. can sustain itself).

context of the recent outbreak of degrowth ideas, which had remained in the background for several decades as if they were sleeping. The recognition and internationalization of the current ideas on degrowth beyond the Mediterranean countries of Europe, where they started to be reshaped at the beginning of the decade, were shown in the very busy Paris conference in spring 2008 (*Conference on Economic De-Growth for Ecological Sustainability and Social Equity*, 2008) as well as the following ones.<sup>4</sup> And the news continues to spread around the world (Léna and Pinheiro do Nascimento, 2012).

### **No choice beyond the limits: degrowth seems to be inevitable.**

The warning about the threats derived from the degradation of the environment has not been sufficiently listened to. Over the past four decades, taking the matter seriously has been delayed quite a few times, always a little later, always the subject of an uncertain future. But the future is a bit of a nuisance: it comes. And, according to all signs, it is already here. We already live beyond the limits of the planet. The wolf we never saw has entered the fold. In recent years, the pieces of information heading into this direction have become more abundant, more detailed and more mutually consistent. In 1972, the first report to the Club of Rome about the limits to growth announced that the continuation of trends at the time (population and capital growth, use of natural resources, food production, ecosystem degradation and pollution) would result in an overshooting situation by the second decade of the 21<sup>st</sup> century. The revision of the analysis thirty years later shows that the announcement is now a fact, before it even seemed likely (Meadows *et al*, 1972; 2004). In 2008, the global ecological footprint has exceeded the sustainable level by 50%: the world needed half the regenerative capacity of the biosphere in 1961, this capacity was exceeded in the 1980s and since then it has been used up, non-stop (Grooten *et al*, 2012). The end of the oil era is already in the horizon: we use oil five times faster than we discover new oilfields, the difference between the growing demand and the waning addition of new reserves is increasing, and the situation is becoming critical, we are nearing the beginning of an irreversible decline in production (Deffeyes, 2001; Campbell, 2003). For now, there are no energy alternatives that can maintain the forms and dimensions of today's industrial society, let alone its expansive historical trend (and there is no guarantee that such alternatives will ever be discovered or, if they are, that they will be developed on time) (Hoffert *et al*, 2002; McCluney, 2005). The *Millennium Ecosystem Assessment* (2005) concluded that most services of nature are being deteriorated. To complete the picture, one should mention the possibility that climate change has already gone passed an irreversible threshold, in such a way that the unleashing of nonlinear alterations would be totally uncontrollable (Schneider, 2004; Walter and Simms, 2005). But also the fact that the relationship between population, food production and fresh water supply has started to move within extremely narrow margins (Brown, 2009). And in addition, of course, the huge levels of risk associated with a nuclear proliferation out of control, the long-term effects of the chemical broth in which all organisms on Earth bathe, together with certain development lines in genetic engineering and nanotechnology.

There are two very significant features in the buildup of information in recent times about the environmental crisis. The first one is in the fineness and accuracy of data –which represents a qualitative leap in the analysis– often accompanied by a rather sober argument, not wishing to sound the alarm before presenting the reasons and evidences. The second one is a noticeable change of tone: we talk less and less about future threats and increasingly about the situation

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<sup>4</sup> The continuity of this intellectual and social movement has been visible in a series of crowded, animated meetings in Barcelona (2010), Montreal (2012), and soon in Venice (2012), <<http://www.degrowth.eu/>>.

in which we already find ourselves. Alpine glaciers have receded by half over a century, average temperatures have *already* risen throughout the 20<sup>th</sup> century, the functions of nature are *already* deteriorating, and the ecological footprint *already* exceeds the capacity for renewal of ecosystems. In sum, those who argue that we have already entered a phase of overshoot are very likely to be right. And that, accordingly, a collapse of industrial society is now harder to avoid than forty years ago –when the possibility was identified– because the establishment of a balance would now demand a prolonged phase of *de-growth*, of *de-development*.

But, of course, this is nothing more (and nothing less) than a hypothesis. In other words, if the data supporting it or its underlying logic prove to be wrong, it would have to be reviewed or even ruled out. What other way could we go?

We must add something. Despite the uncertainty (as we used to say), despite the possibility of an error in predictions or a technological and/or organizational change so profound that the conditions would be modified, the scope of the threat is so great that it would still justify an anticipative and preventive response inspired by a voluntary and conscious self-limitation criterion. Conversely, within the framework outlined, if we have already entered an overshoot phase or if it is so close that the inertia of social and economic forces makes it already inevitable, if the population and the economy are already beyond limits, the answers can only be adaptive and palliative. In other words, the interesting discussions would no longer be about sustainable development, ecological modernization or reflexive modernization ... but about the possible forms of the collapse, the benign or catastrophic modalities of the economic and population degrowth, about the more or less prosperous or chaotic decline. It is not by chance that the book *Collapse* by Jared Diamond has become one of the most common references in today's approach to the subject.<sup>5</sup>

### **Aren't we forgetting technology?**

An almost obvious objection is that the previous analysis only considered a parameter, and in order to answer the question of the inevitability of degrowth, it should be clarified that: *“degrowth is inevitable if overshooting-related data (ecological footprint, peak oil, etc.) are correct and if there are no basic technical changes”*. Such conditions must be met –correct data and absence of changes- to argue that degrowth is already inevitable within a relatively short deadline.

First of all, we believe that the best available data on the link between the physical dimension of society and the planet's ability to recover (“sustainability”), on the unavoidable dissipation of irreplaceable resources, on the condition of ecosystems, and on the flexibility when dealing with mistakes correction point to a situation of overshooting. [But, as already said, this is nothing more (and nothing less) than a hypothesis].

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<sup>5</sup> Diamond's book continues a historiographical tradition that goes back to the 18th century, with the first modern studies of the decline and fall of the Roman Empire. It offers an interpretation of the causes why some societies of the past came into decline until its virtual disappearance (the Mayans, Easter Island...). The peculiarity of Diamond's thesis is the great importance attached to the environmental causes of the collapse of these societies, a line of research which had been opened in the last period by authors such as J. Tainter (1990) and some environmental historians. Diamond's book has been perceived by some anthropologists as a naturalist attack to the "predominance of cultural factors" (McAnany and Yoffee, 2010).

And what about technology? Only the analysis of the state of the planet allows us to say that, without substantial changes in the technological matrix, the overshooting can be but transitional and that it will eventually give way to a phase of downward adjustment, i.e. degrowth. The longer we take to start this downward adjustment, the higher the costs of degrowth, even with the possibility of a collapse of civilization.

Technological options cause us to enter a terribly uncertain territory in a crucial way (Huesemann and Huesemann, 2008). Energy sources are a good example. Every civilization is characterized by a set of technical recipes implemented by a viable technology, i.e. a technique for producing useful energy that sustains all other economic processes (Georgescu-Roegen, 1984). In the current situation, we can only be reasonably sure about two things in this respect: the first one is that we are at the beginning of the end of the historical cycle of fossil fuels; and the second one is that in energy issues, nobody has a clear idea about what comes next. Contrary to what is commonly thought, a new energy matrix (a new viable or Promethean technology, in the words of Georgescu-Roegen (1982)) has been an extremely rare invention in human history that may have only occurred twice (with the control of fire and with the thermal machines studied by Alain Gras (2003; 2007)). Therefore there is no guarantee that a new viable technology is about to show up. It is not a likely, predictable event. One can believe in it or not, that's all. As noted by most of the philosophy of science of the 20<sup>th</sup> century, discovery is not programmable. Will a technological miracle come to our rescue and temporarily heal our wounded pride as dominant species? Perhaps... Nobody knows, nobody can know.

In any case, in the terminal phase of growth, palliative technological care is at best provisional. The application of technology to problems related to resource depletion, pollution or food shortages –generated by an exponential growth in a finite, complex system– only shift or extend the limits to population and capital expansion temporarily. This is a lesson we often forget (Garcia, 2007). It is important to add that this lesson is independent from the type of technologies considered, and even from the possibility of a positive drift of innovation. (A historical example is in order. Among the many subtle adjustments that the First Report to the Club of Rome introduced into its forecast was the possibility of a significant increase in eco-efficiency, together with the prediction of a significant disconnection between economic growth and the demand for materials. *Factor 4 had already been introduced in 1972 models!* But the result was always the collapse due to food shortages then, though delayed in time and at a much higher demographic and economic level.)

In any case, the social issues related to the response to overshoot are inherently uncertain. No one can say exactly which of the many possible social responses will become a fact (Meadows *et al*, 1972, 113). Nobody can predict accurately what will be the technological trajectory. Some basic environmental variables are not controllable. A half-turn towards degrowth could be imminent due to peak oil, a sudden nonlinear change in the systems that regulate our climate, or a combination of these and other triggers. However, the uncertainty inherent to the history implies that one cannot dismiss the possibility of this deadline being extended.

“We shall emphasize just one more time that none of these computer outputs is a prediction. We would not expect the real world to behave like the world model in any of the graphs we have shown, especially in the collapse modes. The model contains dynamic statements about only the physical aspects of man's activities. It assumes that social variables--income distribution, attitudes about family size,

choices among goods, services, and food--will continue to follow the same patterns they have followed throughout the world in recent history. These patterns, and the human value they represent, were all established in the growth phase of our civilization. They would certainly be greatly revised as population and income began to decrease. Since we find it difficult to imagine what new forms of human societal behavior might emerge and how quickly they would emerge under collapse conditions, we have not attempted to model such social changes. What validity our model has holds up only to the point in each output graph at which growth comes to an end and collapse begins” (Pestel, n/d, 4).

The beginning of the decline of the industrial era may be delayed as a result of technological changes (or maybe organizational or cultural ones?). It is impossible to tell because the relationship between a society and its environment always occurs through mediations that cannot be predicted before-hand.

### **Degrowth: a disaster and/or an opportunity?**

It makes sense, then, to assume that the technological miracle will not happen (which is perfectly possible) and to consider the implications of such absence for social change. In this discussion, two basic views about the significance of degrowth are about to be configured: *degrowth as extinction and degrowth as a transition towards a human-scale society*.

The belief that the ascending historical cycle of the use of fossil fuels comes to an end, together with justified skepticism as to the existence of abundant, inexpensive energy alternatives, is at the basis of the forecast that a collapse of the human population on Earth cannot be delayed much longer than a few years. Some versions (Price, 1995) also argue that the collapse will mean the end of civilization –and not only a transition to a lower sustainable scale– because the survivors, should there be any, will not be able to maintain the complex association of cultural traits modern humans are so proud of. Post-collapse societies will have to live simpler lives, like the subsistence hunters and farmers of the past. Price adds that, in his view, not only civilization will be dragged by a downward spiral but the species is also unlikely to survive much longer without fossil energy. Other versions (Duncan, 1993; 2001; 2006) add technological mediation: The "Olduvai theory", proposed by this author, suggests that industrial civilization will have a lifetime of no more than a century, from 1930 to 2030 approximately. In his demonstration, he uses a key indicator, namely the energy share available per person. For Duncan, the sign of the decline will be the repeated occurrence of major power outages and the weakening of the electricity supply prior to the final collapse of the network.

Another aspect of deterministic reasoning (biological determinism, in this case) is usually added at this point. For example, the thesis that evolution causes any population of organisms to multiply itself non-stop until the resources that make this expansion possible are depleted (Morrison, 1999). A particularly harsh version of the combination of these two lines of argumentation has recently been offered by the hypothesis of the thermo/gene collision (Hanson, 2007). This term refers to the crossing between the laws of thermodynamics (which explain the steady decrease in the mass of resources) and genetic impulses (always more and more demanding). A situation characterized by overpopulation and the drop in the supply of resources necessarily leads to a catastrophic disorganization.



In contrast, the postulate of human freedom, of the construction of the course of history through collective conscious choices, is the basis of views that consider degrowth an opportunity to arrange for the adaptation of human societies on a sustainable scale. A book published by Howard and Elisabeth Odum (2001) argues, for example, that ecosystems and civilizations share a four-phase cycle (growth, climax, decline and slow recovery of resources prior to a new upward phase). They believe industrial society is now reaching its climax and, consequently, the fall is imminent and inevitable. They then argue that the application of appropriate principles to a situation of limited resources (small scale, efficiency and cooperation) could reduce the impact of the decline and make it compatible with maintaining a sufficient level of wellbeing.

Kunstler (2005; 2012) and Heinberg (2004; 2007; 2011) see peak oil as the start signal of a long crisis basically characterized by chronic and general contraction, particularly as an opportunity to change directions towards the small, slow and local, and as a transition from competition to cooperation and from unlimited growth to self-limitation. If we were to combine the adaptation to a declining energy supply (*powerdown*) and the development of relocated structures of social organization, this path could lead, after the descent, to a less populated, less energy-consuming society, one benefitting from a wellbeing more focused on artistic satisfaction and less on consumerism, one organized in a more friendly way, open to deeper spiritual experiences and distributed into small communities where people would have more control over their lives.

The view of degrowth as an opportunity has even resulted in some explicitly programmatic versions. This is the case with those which are or have been related with the *Institut d'Études Économiques et Sociales pour la Décroissance Soutenable* (Latouche, 2006; 2011; Besset, 2005; Colectivo Revista Silence, 2006; Ariès, 2007; Mylondo, 2007; Cheynet, 2008). It is also that of other approaches with a "family resemblance" with those of degrowth, although they might often avoid using this word; like the protocol for oil depletion promoted by the Post-Carbon Institute (Heinberg, 2006) or a number of initiatives by the *Transition* movement (Hopkins, 2008).

Of course, opportunity is not synonymous with certainty and does not represent any sort of security. Those who argue that the prospect of degrowth could open avenues toward desirable social reorganization usually add that this is only one of the possible patterns. It is even probable that wrong decisions may lead to a process of economic regression and growing social conflict. The "positive" views of degrowth fluctuate between hope for a "leaner" but better society and the fear of a downturn of civilization. A novel by Kunstler (2008) illustrates well these fluctuations of the soul.

Ultimately, the discourses of degrowth respond to the belief that the adaptation of societies to a situation of scarcity and restrictions in accessing resources (a situation that becomes inescapable once the carrying capacity has been surpassed) involves the intensification of many conflicts and is therefore a path filled with threats. Even those who see degrowth as an opportunity to put into practice the *small is beautiful* principle share the thesis that this opportunity is inseparably linked to many uncertainties and risks. (Of course, we could add that, in a way, degrowth comes to prove that we have not yet reached the "end of the history").

"Human life is now being lived in an era of deepening *carrying capacity deficit*. All of the familiar aspects of human societal life are under compelling pressure to

change in this new era when the load increasingly exceeds the carrying capacities of many local regions—and of a finite planet. Social disorganization, friction, demoralization, and conflict will escalate” (Catton, 2008, 475).

To understand the previous statement, we must wonder about the relationship between degrowth and another concept stemming from the same context and identical concerns: the *collapse*. In the most general terms, the discussion deals with the forms, scope and consequences of a *descent* of industrial civilization, and therefore a collapse. The first step – for a discussion trying to break free from the dramatic connotations of the word– is to determine its significance as a usable concept by social science. It should be noted that in this sense, the word "collapse" does not necessarily mean a catastrophic fall towards a chaotic disorganization of society but rather a shift to a human condition of lesser complexity:

"A complex society that has collapsed is suddenly smaller, simpler, less stratified, and less socially differentiated. Specialization decreases and there is less centralized control. The flow of information drops, people trade and interact less, and there is overall lower coordination among individuals and groups. Economic activity drops to a commensurate level, while the arts and literature experience such a quantitative decline that a dark age often ensues” (Tainter 1990, 193).

From one standpoint, this description of collapse is not very different from the old environmentalist programme: reduce, stop, democratize, decentralize (Roszak, 1993, 312). Does the slogan *small is beautiful* mean anything but that? (Schumacher, 1973). From this perspective, the collapse can be both a result and a goal. The most significant issue does not so much lie in the result but in the costs to reach it. In other words: if by collapse we understand –in line with Tainter– a relatively rapid transition to a lower level of complexity, then both society at a "human scale" and chaotic disorganization would be an alternative way-out –both of them theoretically possible– from a situation of overshoot.

The study of the collapse from a point of view that some might call "technical" – considering in detail both conceptual nuances and experiments on a small geographical scale (Gowdy, 2005; Rees, 2007; Orlove, 2005; Bunce *et al*, 2009) – helps lay the foundations for an approach that tries to break free from reductionist determinism (which seeks to deduct specific historical trajectories from the laws of biophysical nature) as well as from ideological voluntarism (which considers that the restrictions imposed on social dynamics by the depletion of natural resources or the damage to basic functions of ecosystems can be overcome through the adoption of "reasonable" or "politically just" measures affecting more or less important aspects of socio-economic organization).

### **On the desirability of degrowth, but also on the always difficult relationship between utopia and sociology**

We could summarize everything that has been said in two propositions: (a) degrowth is inevitable; (b) the future is not written, and degrowth can then be organized and be more or less prosperous or chaotic, more or less radically regressive. This dilemma poses the question of the conditions for an orderly degrowth.

Let’s rule out the possibility of an orderly descent imposed in an authoritarian way on populations by a despotic power aware of the magnitude of the ecological crisis. This scenario

has been invoked quite a few times, but nobody has ever offered an acceptable answer to the old objection of political theory: *quis custodiat ipsos custodes?*

When one considers developments more or less compatible with democracy, the important question is then that of the conditions which would render degrowth desirable (desirable at least for the majority).

Obviously, the issue of degrowth desirability has a general normative aspect. All problems would be more easily resolved if both population and physical scale were smaller. Degrowth would then be desirable because it would minimize the costs of the transition: the only alternative to organized, voluntary, closer-in-time and less costly degrowth would be a chaotic degrowth imposed by nature, certainly more distant time-wise but definitely more expensive.

Other normative dimensions of degrowth have been described and explored for quite a long time. We can find them, for example, –explained in great detail– in the analyses of Ivan Illich (1978) on the processes by means of which the institutions of modernity spread themselves, always encompassing more and more dimensions of social life, until they reach the threshold and become counterproductive. They had been linked to the basic categories of political thought in the texts of Gorz (1977; 1998; 2007) about the conditions for the development of a sphere of social existence free from heteronomy. It is not by chance that these two authors are frequently referred to in current texts by degrowth supporters; and similar considerations could be made about other contributions from the 1970s.

However, no one can know if the views of the future and the normative criteria proposed within the framework of degrowth –with their current formulations or in accordance with other more or less affine formulations– will get to embody in collective behaviours leading to deep social transformations. Gorz believed it was possible to design a way out of productivist society under the impulse of mass social movements focused on radical transformation, although he thought it would be difficult and unlikely for social awareness to evolve in this direction. As for Illich, he may be understood in the sense that, even if the counter-productivity of the institutions of industrial society can be shown, in parallel, given their greedy nature, the social trajectories that could be generated outside these institutions are radically unpredictable: nobody could anticipate them or describe them in advance apart from a few very general principles (conviviality, etc.).

What social sciences can contribute (in their *critical* dimension) is not more not less than this: the data and arguments which show the counter-productivity and unsustainability of the structures and institutions of growth. In their *positive* dimension, they can explore the connection between life forms related to development and the "genuine" needs and aspirations of populations, thus contributing to dismiss merely voluntaristic illusions and to reduce the presence of unnecessary sanctimonious speeches. They can also –and there is much work to be done in this respect– facilitate the analysis of local experiences, often at a small geographic scale (Sempere *et al*, 2007). They are events of initiative and civic organization, movements, etc., expressing in an embryonic manner the will to live otherwise, more in accordance with criteria of sufficiency and rejection of excess (or repudiation of extravagance, in the words of Georgescu-Roegen (1971)). What could survive from these experiences in a globalized context of degrowth? What are their opportunities to generalize, to become universal? The answer to these questions is highly uncertain... (For example: There are many interesting examples of processes that have managed to improve people's lives without resorting to the dynamics of globalized development, both in communities in the third world and in regions

undergoing economic depression or a chronic crisis in industrialized areas. Very often, these more or less successful experiences have existed putting one foot in the world of development and the other one on the outside: by channeling the community's own energies and combining them, perhaps, with international aid funds... It is difficult to know to what an extent these experiments can survive in a common context of degrowth and how they should evolve to achieve it. But this does not prevent the study of their current forms from teaching us valuable lessons about society's possible future trajectories.) Moreover, it is clear that it would be good to redirect local case studies –which, for the vast majority, have been developed with the sole objective of handling the small political effects of statutory participation and governance– with a view to inserting them into much wider sociological frameworks, those typical of a structural eco-sociology. Only such reorientation would identify, in local conflicts, the significant dimensions for processes of social change of a wider reach, like those involved in the debate on degrowth (Martinez-Iglesias *et al*, 2008).

It is necessary to consider all this to be able to assess the information provided by all the views on social change beyond the limits of growth that are starting to spring up. They are not valuable for what they announce about the future (*Who knows!*); their value basically lies in the fact that they help us to think (and eventually take action) outside the growth dogma, and to open the door to decolonized imagination (to quote Latouche (2005)). The different perspectives about degrowth and its effects are giving rise to great interest in their ability to open up new cultural horizons, rather than for their accuracy or predictive power. It seems evident that all attempts to predict *in detail* how post-fossil societies will be like, to foresee the ways to travel by post-carbon social change, are doomed to be proved wrong by facts (against all temptations of determinist social evolutionism, see Juan, 2006). From this viewpoint, the current proliferation of proposals in this respect reminds us of the features (and surely the fate) of the 19<sup>th</sup> century discourse about the socialism of the future. One could rightly speak about a coming new wave of utopian thought.

Not surprising at all. After all, utopian thought could be described as a search for “complete societies”, a search free from the “heavy load of immediate politics and practices of the really-existing world” (Redclift, 2009, 382). And undoubtedly post-carbon or low-carbon society will have very different material and institutional structures from those that exist at present (just think about energy production, transport or urban planning, if you don't want your imagination to go wild). Degrowth and other alternative positions are not the only ones in seeking to reconcile sociology and utopia; this aspiration could be shared by whichever conscious reading of the reality we live today.

## **Conclusion**

As a conclusion, we shall summarize the argument as *six theses on degrowth and sustainable development*:

- 1) The possibility of a sustainable development (i.e. of a continual expansion of the socio-economic model in force without exceeding the carrying capacity of the planet and without aggravating poverty and social inequality) seems more problematic because too much time has been wasted before developing a response that could live up to the problem.

- 2) It is in this context that a degrowth approach has been reformulated, aimed at adjusting the population and the physical scale of the economy to sustainable dimensions (below those of today), and aimed at finding solutions to social problems outside the development.
- 3) If the limits of the planet have indeed been exceeded, then degrowth is no longer a voluntary choice. That is, it is not just an idea with which we may or may not agree based on our philosophical or political preferences, but an inevitable course of social change imposed by the laws of nature.
- 4) Any technological intervention or any readjustment of social organization could do but temporarily adjourn degrowth, without ever succeeding to avoid it.
- 5) The prospect of degrowth, like all major historical changes, opens up a number of bifurcations and multiple avenues: some of these roads may lead to the abyss; other, to a practicable –and even desirable– reorganization of social existence.
- 6) These roads of post-development cannot be positively described, but only imagined by spirits who have dropped, more or less completely, the growth paradigm. They can also be read in some existing local experiences that express, in more or less embryonic forms, the social articulation lines that could respond to other structures of needs. This is a field where, yet again, sociological imagination and utopian thought come together.

## References

- Adams, W.M., 2006, 'The Future of Sustainability: Re-thinking Environment and Development in the Twenty-first Century'. IUCN/The World Conservation Union, Report of the IUCN Renowned Thinkers Meeting, 29-31 January, <[www.iucn.org](http://www.iucn.org)>.
- Anderies, J. M.; Janssen, M. A. and Ostrom, E., 2004, 'A framework to analyze the robustness of socialecological systems from an institutional perspective'. *Ecology and Society* 9 (1),18, <<http://www.ecologyandsociety.org/vol9/iss1/art18>>.
- Ariès, P., 2007, *La décroissance: Un nouveau projet politique*. Lyon: Golias.
- Besset, J.P., 2005, *Comment ne plus être progressiste sans devenir réactionnaire*. Paris: Fayard.
- Boulding, K. E., 1995, 'The limits to societal growth'. In Boulding, E. and Boulding, K.E., *The Future: Images and Processes*. London: Sage, 26-39.
- Brown, L.R., 2009, 'Could Food Shortages Bring Down Civilization?'. *Scientific American Magazine*, May, <<http://www.scientificamerican.com/article.cfm?id=civilization-food-shortages>> [05/05/2009].
- Bunce, M; Mee, L.; Rodwell, L.D. and Gibb, R., 2009, 'Collapse and recovery in a remote small island: A tale of adaptive cycles or downward spirals?'. *Global Environmental Change*, 19 (2), 213–226.

- Campbell, C.J., 2003, *The Essence of Oil and Gas Depletion: Collected Papers and Excerpts*. Brentwood: MultiScience Publishing Co.
- Carpenter, S.; Walker, B.; Anderies, J.M. and Abel, N., 2001, 'From metaphor to measurement: Resilience of what to what?'. *Ecosystems*, 4 (8), 765-781.
- Catton, W.R., 2008, 'A retrospective view of my development as an environmental sociologist'. *Organization and Environment*, 21 (4), 471-477.
- Cheyne V., 2008, *Le Choc de la décroissance*. Paris: Seuil.
- Colectivo Revista Silence, 2006, *Objetivo decrecimiento*. Barcelona: Leqtor.
- Conference on Economic De-Growth for Ecological Sustainability and Social Equity (2008). Paris, 18-19 April, <<http://events.it-sudparis.eu/degrowthconference/themes/>>
- Costanza, R.; Graumlich, L.J. and Steffen, W., 2007, *Sustainability or Collapse?: An Integrated History and Future of People on Earth*. Cambridge (MA): The MIT Press.
- Deffeyes, K.S., 2001, *Hubbert's Peak: The Impending World Oil Shortage*. Princeton (NJ): Princeton University Press.
- Diamond, J., 2005, *Collapse: How Societies Choose to Fail or Survive*. London: Allen Lane.
- Duncan, R.C., 1993, 'The life-expectancy of industrial civilization: The decline to global equilibrium'. *Population and Environment*, 14 (4), 325-357.
- Duncan, R.C., 2001, 'World energy production, population growth, and the road to the Olduvai Gorge'. *Population and Environment*, 22 (5), 503-522.
- Duncan, R.C., 2006, 'The Olduvai theory: Energy, population, and industrial civilization'. *The Social Contract*, 16 (2) winter 2005-6, <<http://www.hubbertpeak.com/duncan/OlduvaiTheorySocialContract.pdf>>.
- Evans, D., 2005, 'A risk of total collapse: We would be foolish to take for granted the permanence of our fragile global civilisation'. *The Guardian*, Wednesday December 21.
- Garcia, E., 2004, *Medio ambiente y sociedad: La civilización industrial y los límites del planeta*. Madrid: Alianza Editorial.
- Garcia, E., 2006, 'Del pico del petróleo a las visiones de una sociedad post-fosilista'. *Mientras Tanto*, n. 98, 25-49.
- Garcia, E., 2007, 'La technologie et les dilemmes de la décroissance'. *Entropia-Revue d'Étude Théorique et Politique de la Décroissance*, n. 3, 142-155.
- Georgescu-Roegen, N., 1971, *The Entropy Law and the Economic Process*. Cambridge: Harvard University Press.
- Georgescu-Roegen, N., 1982, 'La dégradation entropique et la destinée prométhéenne de la

technologie humaine'. *Economie Appliquée*, XXXV (1-2), 1-26.

Georgescu-Roegen, N., 1984, 'Feasible recipes versus viable technologies'. *Atlantic Economic Journal*, XII (1), 21-31.

Georgescu-Roegen, N., 1993, 'Looking back'. In *European Association for Bioeconomic Studies, Entropy and bioeconomics. First International Conference of the EABS. Proceedings.* Milano: Nagard, 11-21.

Gorz, A., 1977, *Écologie et Politique*. Paris: Galilée.

Gorz, A., 1998, *Misérias del presente, riqueza de lo posible*. Buenos Aires: Paidós.

Gorz, A., 2007, 'Crise mondiale, décroissance et sortie du capitalisme'. *Entropia - Revue d'étude théorique et politique de la décroissance*, n° 2.

Gowdy, J., 2005, 'Sustainability and collapse: What can economics bring to the debate?'. *Global Environmental Change*, 15, 181-183.

Gras, A., 2003, *Fragilité de la puissance: Se libérer de l'emprise technologique*. Paris: Fayard.

Gras, A., 2007, *Le choix du feu: aux origines de la crise climatique*. Paris: Fayard.

Grooten, M. *et al*, 2012, *Living Planet Report 2012: Biodiversity, Biocapacity and Better Choices*. Gland (Switzerland): WWF International/Zoological Society of London/Global Footprint Network.

Hanson, J., 2007, 'Thermo/gene collision: On human nature, energy, and collapse'. *The Social Contract*, 17 ( spring issue) <<http://www.thesocialcontract.com>> [12/02/2007].

Heinberg, R., 2004, *Powerdown: Options and Actions for a Post-Carbon World*. Gabriola Island: New Society.

Heinberg, R., 2006, *The Oil Depletion Protocol: A Plan to Avert Oil Wars, Terrorism and Economic Collapse*. Gabriola Island: New Society.

Heinberg, R., 2007, *Peak Everything: Waking Up to the Century of Declines*. Gabriola Island: New Society.

Heinberg, R., 2011, *The End of Growth: Adapting to Our New Economic Reality*. Gabriola Island: New Society.

Hoffert, M.I. et al, 2002, 'Advanced technology paths to global climate stability: Energy for a greenhouse planet'. *Science*, 298 (november), 981-987.

Hopkins, R., 2008, *The Transition Handbook: From oil dependency to local resilience*. White River Jct (VT): Chelsea Green.

Huesemann, M.H. and Huesemann, J.A., 2008, 'Will progress in science and technology avert or accelerate global collapse? A critical analysis and policy recommendations'. *Environment, Development and Sustainability*, 10 (6), 787-825.

Illich, I., 1978, *La convivencialidad*. Barcelona: Barral.

Jackson, T., 2009, *Prosperity without growth?: The transition to a sustainable economy*. U.K.: Sustainable Development Commission, <[http://www.sd-commission.org.uk/publications/downloads/prosperity\\_without\\_growth\\_report.pdf](http://www.sd-commission.org.uk/publications/downloads/prosperity_without_growth_report.pdf)>

Juan, S., 2006, *Critique de la déraison évolutionniste: Animalisation de l'homme et processus de "civilisation"*. Paris: L'Harmattan.

Korten, D., 2006, *The Great Turning: From Empire to Earth Community*. San Francisco: Berrett-Koehler.

Kunstler, J.H., 2005, *The Long Emergency: Surviving the Converging Catastrophes of the Twenty-first Century*. New York: Atlantic Monthly Press.

Kunstler, J.H., 2008, *World Made by Hand*. New York: Atlantic Monthly Press.

Kunstler, J.H., 2012, *Too Much Magic: Wishful Thinking, Technology, and the Fate of the Nation*. New York: Atlantic Monthly Press.

Latouche, S., 2005, *Décoloniser l'imaginaire*. Lyon: Parangon.

Latouche, S., 2006, *Le pari de la décroissance*. Paris: Fayard.

Latouche, S., 2011, *Vers une société d'abondance frugal: Contresens et controverses sur la décroissance*. Paris, Fayard.

Léna, P. and Pinheiro do Nascimento, E. (ed.), 2012, *Enfrentando os limites do crescimento: Sustentabilidade, decrescimento e prosperidade*. Rio de Janeiro: Garamond.

Martinez-Iglesias, M.; Lerma Montero, I. and Garcia, E., 2008, 'Políticas de medio ambiente y participación ciudadana'. *Ciriec-España, Revista De Economía Pública, Social y Cooperativa*, n. 61, 179-201.

McAnany, P.A. and Yoffee, N. (ed.), 2010, *Questioning Collapse: Human Resilience, Ecological Vulnerability, and the Aftermath of Empire*. New York: Cambridge University Press.

McCluney, R., 2005, 'Renewable energy limits'. In McKillop, A. and Newman, S., *The final energy crisis*. London: Pluto, 153-176.

Meadows, D.H.; Meadows, D.L.; Randers, J. and Behrens, W.W., 1972, *Los límites del crecimiento: Informe al Club de Roma sobre el predicamento de la humanidad*. México: Fondo de Cultura Económica.



- Meadows, D.; Randers, J. and Meadows, D., 2004, *Limits to Growth: The 30-year Update*. White River Junction (VT): Chelsea Green.
- Millennium Ecosystem Assessment, 2005, *Ecosystems and Human Well-being: Synthesis*. Washington: Island Press.
- Morrison, R., 1999, *The Spirit in the Gene: Humanity's Proud Illusion and the Laws of Nature*. Ithaca (NY): Cornell University Press.
- Myllöndö, B. (dir.), 2007, *Pour une politique de décroissance*. Lyon: Golias.
- Odum, H.T. and Odum, E.C., 2001, *A Prosperous Way Down: Principles and Policies*. Boulder: University Press of Colorado.
- Orlove, B., 2005, 'Human adaptation to climate change: a review of three historical cases and some general perspectives'. *Environmental Science & Policy*, 8, 589–600, (doi:10.1016/j.envsci.2005.06.009).
- Perrings, C., 2001, 'Resilience and sustainability'. In Folmer, H.; Landis Gabel, H.; Gerking, S. and Rose, A. (ed.), *Frontiers of environmental economics*. Cheltenham (UK): Edward Elgar, 319-341.
- Pestel, E. (n/d): *The Limits to Growth: A Report to The Club of Rome (1972)* by Donella H. Meadows, Dennis I. Meadows, Jorgen Randers, William W. Behrens III. Abstract established by Eduard Pestel. <<http://www.clubofrome.org/docs/limits.rtf> > [17/05/2012].
- Price, D., 1995, 'Energy and human evolution'. *Population and Environment*, 16 (4), 301-319.
- Rammel, C.; Hinterberger, F. and Bechtold, U., 2004, *Governing sustainable development: a co-evolutionary perspective on transitions and change*". GoSD Working Paper n° 1, <<http://www.gosd.net>>.
- Redclift, M., 2009, 'The environment and carbon dependence: Landscapes of sustainability and materiality'. *Current Sociology*, 57 (3), 369–388.
- Rees, W.E., 2007, 'Globalización y sostenibilidad: ¿conflicto o convergencia?'. Madrid, Centro de Investigación para la Paz (CIP-Ecosocial), <[http://www.fuhem.es/cip-ecosocial/grupo\\_articulos.aspx?c=60](http://www.fuhem.es/cip-ecosocial/grupo_articulos.aspx?c=60)> [07/05/2009].
- Roszak, T., 1993, *The Voice of the Earth: An Exploration of Ecopsychology*. London: Bantam.
- Schneider, S.H., 2004, 'Abrupt non-linear climate change, irreversibility and surprise'. *Global Environmental Change*, 14 (3), 245-258.
- Schumacher, E.F., 1973, *Small is beautiful*. London: Abacus.
- Sempere, J; Martínez-Iglesias, M. and García, E., 2007, 'Ciencia, movimientos ciudadanos y conflictos socioecológicos'. *Cuadernos Bakeaz*, n. 79, 1-17.

Tainter, J., 1990, *The Collapse of Complex Societies*. Cambridge: Cambridge University Press.

Tainter, J., 1996, 'Complexity, problem solving, and sustainable societies'. In Costanza, R. (ed.), *Getting down to earth: Practical applications of ecological economics*. Washington: Island Press, 61-76.

United Nations Secretary-General's High-level Panel on Global Sustainability, 2012, *Resilient People, Resilient Planet: A Future Worth Choosing*. New York: United Nations.

Walter, J. and Simms, A., 2005, *The end of development? Global warming, disasters and the great reversal of human progress*. London: New Economics Foundation.