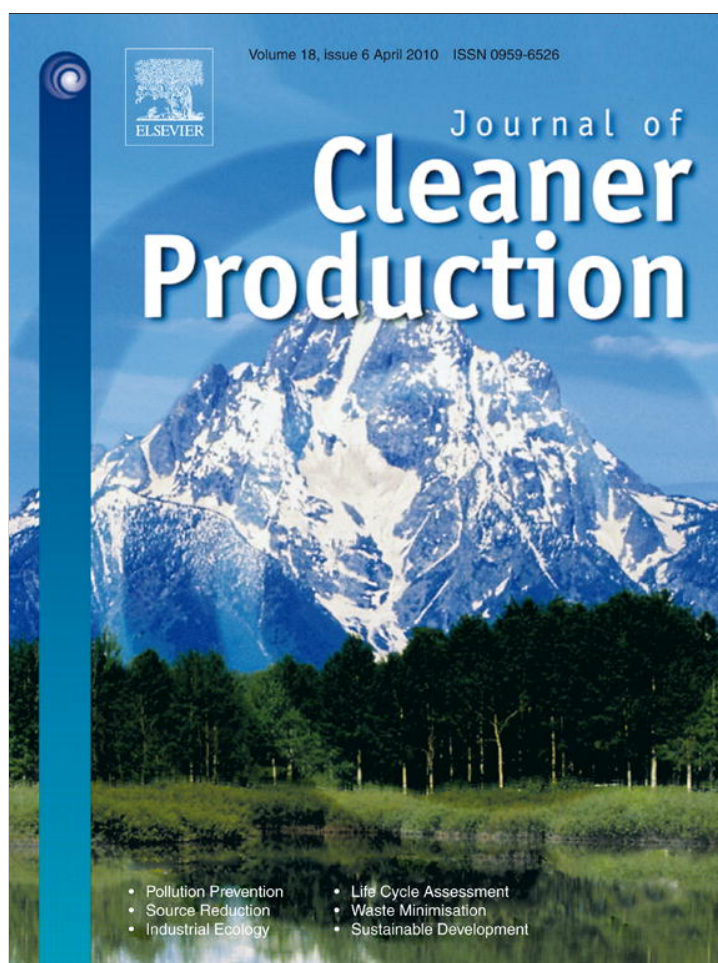


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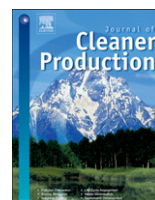
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Crisis or opportunity? Economic degrowth for social equity and ecological sustainability. Introduction to this special issue

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ABSTRACT

This article reviews the burgeoning emerging literature on sustainable degrowth. This is defined as an equitable downscaling of production and consumption that increases human well-being and enhances ecological conditions at the local and global level, in the short and long term. The paradigmatic propositions of degrowth are that economic growth is not sustainable and that human progress without economic growth is possible. Degrowth proponents come from diverse origins. Some are critics of market globalization, new technologies or the imposition of western models of development in the rest of the world. All criticize GDP accounting though they propose often different social and ecological indicators. Degrowth theorists and practitioners support an extension of human relations instead of market relations, demand a deepening of democracy, defend ecosystems, and propose a more equal distribution of wealth. We distinguish between depression, i.e. unplanned degrowth within a growth regime, and sustainable degrowth, a voluntary, smooth and equitable transition to a regime of lower production and consumption. The question we ask is how positive would degrowth be if instead of being imposed by an economic crisis, it would actually be a democratic collective decision, a project with the ambition of getting closer to ecological sustainability and socio-environmental justice worldwide.

Most articles in this issue were originally presented at the April 2008 conference in Paris on Economic Degrowth for Ecological Sustainability and Social Equity. This conference brought the word degrowth and the concepts around it into an international academic setting. Articles of this special issue are summarized in this introductory article. Hueting, d'Alessandro and colleagues, van den Bergh, Kerschner, Spangenberg and Alcott discuss whether current growth patterns are (un)sustainable and offer different perspectives on what degrowth might mean, and whether and under what conditions it might be desirable. Matthey and Hamilton focus on social dynamics and the obstacles and opportunities for voluntary social action towards degrowth. Lietaert and Cattaneo with Gavalda offer a down-to-earth empirical discussion of two practical living experiments: cohousing and squats, highlighting the obstacles for scaling up such alternatives. Finally van Griethuysen explains why growth is an imperative in modern market economies, raising also the question whether degrowth is possible without radical institutional changes.

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1. Introduction

The paradigm of economic growth has dominated politics and policies since 1945. Environmental concerns were introduced later but always subordinated to growth objectives. Expectations of win-win, sustainable growth through technological and efficiency

improvements, have not been fulfilled. The present economic crisis opens up a social opportunity to ask fundamental questions. Managed well, this may be the best, possibly last and only chance to change the economy and lifestyles in a path that will not take societies over climate, biodiversity or social cliffs.

The idea of degrowth (*décroissance* in French) is emerging as a response to the triple environmental, social and economic crisis [1–5] It did not appear out of the blue. The people who defend degrowth come from different philosophical horizons, movements and intellectual sources [7,8]. The first of them is culturalist. It comes from anthropologists criticizing the idea that southern countries need to follow the development model of the US and Europe [3,9,10,11,12].

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Serge Latouche author of the editorial (in this issue) is a prominent defender of this school of thoughts. It is often a critique of what could be called the irruption of the generalized market system, in Karl Polanyi's terms [13]. The second source of degrowth is the quest for democracy, the aspiration to determine our economic and social system, breaking the close link among the political system, the technological system, the education and information system, and short-term economic interests [13–21]. The third source is ecology, defending ecosystems and showing respect for living beings in all of their dimensions [21–24]. The fourth source is linked to what some authors call “the meaning of life” and movements around it emphasizing spirituality, non-violence, art or voluntary simplicity [24–29]. The last source can be called bioeconomics or ecological economics. It deals with the constraints linked to resource depletion and waste disposal [6,29,30,31]. Degrowth is then needed to prevent overloading of source and sink capacities. Bioeconomists in favour of degrowth believe in more equity. In this special issue of the Journal of Cleaner Production, many of the articles are in this tradition of bioeconomics (as Georgescu-Roegen liked to say) or ecological economics (as this transdisciplinary field of study chose to call itself from the late 1980s onwards [32]). However all positions are represented to some degree.

In ecological economics there have been strong voices against economic growth in rich countries and in favour of a steady state of the economy (Herman Daly, already in the 1970s [33]). The discussion on how degrowth of the economy was required in the first instance before reaching a steady state, is new (see Kerschner in this issue). Social movements for degrowth (*décroissance* in French, *decrescita* in Italian), and the writings from the culturalist stream induced ecological economist and others, including industrial ecologists, to join in the first international scientific conference on Economic Degrowth for Ecological Sustainability and Social Equity (<http://events.it-sudparis.eu/degrowthconference/en/>) that witnessed the gathering of 140 multidisciplinary scientists in Paris in April 2008 [1]. In the call for the conference, economic degrowth was explicitly defined as a reduction of the “collective capacity to acquire and use physical resources”. This capacity could be measured financially or in other terms. But it had to be envisioned as a search for equity and sustainability considering environmental limits in today's highly unequal world. It implied that “degrowth had to involve a local and global redistribution”. The problem of the macro-rebound-effect also had to be dealt with: the fact that gains from efficiency are reallocated to new physical consumptions in an expanding economy.

The April 2008 Paris conference was a successful event. For the first time, scientists gathered in an interdisciplinary and international academic setting with representatives of the civil society on the topic of economic degrowth as a possible path for more ecology, more equality or more well-being. It led to the publication of the Paris Degrowth Declaration (in this issue) which calls for economic degrowth if environmental sustainability and social equity are to be achieved. The success of the Paris degrowth conference showed acceptance and understanding of the word degrowth and the importance of the projects it supports. More than 90 academic presentations were made on various topics around degrowth. The first day was on partial visionary perspectives with sessions on background, applications, research areas and sectors. The second day was on wide socio-economic processes for degrowth, dealing with societal values and economic degrowth as a whole, with panels on cultural change, change of institutions and democracy. Most of the articles in this special issue were originally presented at this conference. Research on degrowth is growing, and a second scientific conference will take place in Barcelona in March 2010, organized by the editors of this special issue (<http://www.degrowth.eu>). It is becoming an established field of research.

In this review article we first offer our own definition of what does degrowth include, clearing out some misinterpretations. We then review and connect the latest contributions in the field presented in this special issue, before relating the debate on degrowth, which started as a concern for environmental sustainability, to the context set by the global economic crisis of 2008–09.

2. What is degrowth: definitions and misconceptions

Sustainable degrowth may be defined as an equitable down-scaling of production and consumption that increases human well-being and enhances ecological conditions at the local and global level, in the short and long term. The adjective sustainable does not mean that degrowth should be sustained indefinitely (which would be absurd) but rather that the process of transition/transformation and the end-state should be sustainable in the sense of being environmentally and socially beneficial. The paradigmatic proposition of degrowth is therefore that human progress without economic growth is possible.

The sustainable degrowth transformation should be distinguished from unsustainable degrowth, i.e. economic recession or depression with deterioration of social conditions (e.g. employment, poverty). Sustainable degrowth will involve a decrease in GDP as currently measured, because of a reduction in the large-scale, resource-intensive productive and consumptive activities that constitute a big portion of GDP. However, what happens to GDP is of secondary importance; the goal is the pursuit of well-being, ecological sustainability and social equity. Qualitative differences, typically not captured in GDP, could even permit socio-environmental improvements while GDP falls. Degrowth takes seriously the Easterlin “paradox”, that GDP per capita does not correlate with happiness above certain levels of satisfaction of basic needs [34].

The feminist movement made clear decades ago that GDP does not value what is not in the market, like unpaid domestic work and voluntary work [35]. A society rich in “relational goods and services” would have a lower GDP than an (impossible) society where personal relations would be exclusively mediated by the market. The sustainable degrowth movement insists on the non-chrematistic value of local, reciprocal services, [24,36]. Therefore, GDP should no longer have the dominant position in politics that now has, to the detriment of environmental and social considerations. GDP can go down and nevertheless other dimensions of life can improve.

Sustainable degrowth does not mean across the board degrowth. Certain social qualities, small/medium-scale economic activities (e.g. renewable energies, shared transportation systems), and impoverished groups or regions may still selectively need to grow (see the Degrowth Declaration). However, growth of an enterprise, sector, country or region that externalizes its costs elsewhere is not sustainable. Sustainable degrowth should be accounted at multiple levels.

Sustainable degrowth goes also beyond decoupling material and energy use from growth (also referred to as “dematerialization”), postulating that efficiency improvements alone are not sufficient and might be counterproductive [37,38]. Limits and reductions in the scale of production and consumption are the key to achieving a future of low material use.

Technological and knowledge progress is not to be arrested under sustainable degrowth but redirected from more to better. Denying the imperative of growth is not synonymous with turning back the clock to a fictitious pre-industrial, communal past. Sustainable degrowth is about constructing an alternative sustainable future. Research and technological innovations in a degrowth trajectory would involve innovations for consuming less through lifestyles, political measures and technologies which

embody appropriate and chosen limits, rather than continuous innovation to spur consumption [39].

Finally, degrowth is offered as a social choice, not imposed as an external imperative for environmental or other reasons [40]. Decentralizing and deepening democratic institutions and repoliticizing the economy are prime objectives for the degrowth movement, alongside the reduction of consumption and production; one cannot be considered without the other. Conviviality in Illich's sense [14] and reinforcement of the "commons" are key premises of degrowth (Griethuysen in this issue). Degrowth stripped from its political content, can also be misappropriated for authoritarian ends and justify authoritarian solutions for the imposition of limits on the face of a crisis. Degrowth advocates are careful of the dangers of big and abstract ideas and degrowth is not meant to be a complete theory or a new type of "religion". Degrowth is a multi-dimensional concept and a diversity of interpretations and proposals for practical implementation open for public debate, hopefully changing through democratic means the unsustainable path we are in.

3. The latest contributions to the field

This Special Issue brings together several novel contributions that approach the question of degrowth from a variety of perspectives and foci, theoretical, modelling and empirical. We might divide the contributions into 3 + 1 groups (the last consisting of a single contribution). The first group (Hueting, d'Alessandro and colleagues, van den Bergh, Kerschner, Spangenberg and Alcott) discusses whether current growth patterns are (un)sustainable and offer different perspectives on what degrowth might mean, and whether and under what conditions it might be desirable. The next group, consisting of the contributions of Matthey and Hamilton focus instead on social dynamics and the obstacles and opportunities for voluntary social action towards degrowth. Next, Lietaert and Cattaneo with Gavalda offer a down-to-earth empirical discussion of two practical living experiments, that approximate somewhat the principles of degrowth: cohousing and squats. These highlight potential obstacles for the scaling up of such alternatives within market economies dominated by monetary values and the growth imperative. The final contribution by van Griethuysen explains why growth is an imperative in modern market economies and not just a political choice or ideological lock-in, raising the question whether degrowth is possible without radical institutional changes.

Roefie Hueting's article opens deservedly this Special Issue as he is the author of some of the first books criticizing GDP and growth in the 1970s and 1980s. Hueting defends that environmental sustainability cannot be attained with the increase of production and without a broad acceptance of degrowth of production (excluding restoration and compensation of environmental and social damage). He introduces the environmentally sustainable national income, eSNI, defined as the maximum attainable production level which allows vital environmental functions to remain available for future generations. Rough estimates of eSNI show that world eSNI is at 50% of the world national income, implying that production must be reduced by half in order to reach a sustainable level. Hueting offers a well-reasoned argument why green growth is unlikely and why a dematerialised, renewable-energy based economy will more than likely be one of much lower production and consumption. Finally, Hueting rejects the alleged conflict between employment and environment: for the same level of production more employment is created with (rather than without) environmental protection.

With their model of energy transitions, **Simone D'Alessandro, Tommaso Luzzati and Mario Morroni** offer formal back-up to Hueting's arguments. Their article questions one of the main

assumptions of technological optimists in favour of economic growth (and against degrowth), namely that despite the increasing scarcity of some fossil fuels, positive rates of GDP growth sustained by fossil fuels entail more income available for R&D in renewable energy. D'Alessandro and colleagues model the trade-off between increased investments in renewable sources and the acceleration of exhaustibility of resources. They present a model exploring this contradiction, highlighting the danger of high growth rates. They find that the sustainability window expands by policies which aim at low growth rates, stimulate investment in alternative energy sources and discourage consumption growth.

The idea that low growth is environmentally and socially sustainable and under certain conditions, macro-economically stable, is supported also by the macro-economic models of Peter Victor is his book "Managing Without Growth" [41] discussed by **Jeroen van den Bergh** is his personal note. Van den Bergh (in this issue) agrees with Victor, but emphasises the difference between the growth of social welfare and the growth of GDP. His article summarises the information failure of GDP, and explains why and how it misrepresents welfare. Nonetheless, van den Bergh is also critical of degrowth, because it maintains an emphasis on the scale of the economy, if not GDP *per se*. Rather than pursuing generalized degrowth, van den Bergh argues, we should be agnostic about growth and pursue good social and environmental policies, irrespective of their impact on economic activity. Rather than substituting GDP by another macro, welfare index, van den Bergh calls for goal and policy-specific indicators. Furthermore, van den Bergh questions the feasibility of voluntary simplicity and degrowth from an evolutionary biology point of view. In his view, the altruism and cooperation expected by voluntary degrowth is unrealistic in the face of strong human instincts of greed, selfishness, aggression and competition.

Christian Kerschner in his contribution links degrowth to another important discourse criticizing growth, the Steady-State Economy. Taking as starting point the disagreement between Georgescu-Roegen and Daly in the 1970s, Kerschner elaborates on what became an important outcome of the Paris conference, namely that the concepts of degrowth and steady state are complementary. According to the author, the first one is a transition to the second, which should be described as a desirable if unattainable objective. Degrowth is the path to a steady-state economy for the global North, leaving space for growth in the South.

One objection to both van den Bergh and Kerschner is that by emphasizing the economic interpretation of degrowth, they miss the diversity of debates within the degrowth movement that go beyond questions of scale of the economy to discuss economic democracy, conviviality and the repoliticization of public debate over the ends of an economy. Actually the main criticism towards the steady-state economy is that it might not make us realize the necessity of deep cultural and institutional change. Contrary also to what van den Bergh implies, degrowth writers such as Serge Latouche (in this issue), do not focus on the decline of GDP *per se*, but on redefining welfare and well-being (the "joy of living" according to Georgescu-Roegen). Degrowth scholars would not disagree with van den Bergh on the pursuit of policies and institutional changes that aim to increase welfare/well-being as such. They would add however that in certain cases such policies could include limitations and targeted reduction of harmful extraction, production and consumption activities and downscaling of associated infrastructure capacities. Van den Bergh though has a point in that it remains to be empirically and logically demonstrated that such targeted downscaling it the best.

In his contribution, Kerschner is raising the question of population degrowth, expressing his concern that this is tactically avoided by degrowth scholars because it is a socially controversial

issue. Most writers on degrowth are opposed to Malthus' Malthusianism, and his proposition that improving the situation of the poor is counterproductive because it would lead to increased population and hardship [42]. In our view it would be positive (for humans and other species) if the human population would reach soon the peak at about 8000 million persons and then decline a bit. Such population degrowth to a steady state should be the outcome of bottom-up action and empowerment of women to control their reproductive rights. Authoritarian, state-imposed population control policies, such as the tradable birth quotas suggested by Boulding and Daly (and recalled by Kerschner) are undesirable from a degrowth perspective. Population and economic degrowth are not an imperative to be imposed at all costs, but a collective choice, coevolving with a deepening democratization.

Furthermore, as **Blake Alcott** shows with his contribution, policies to control population or consumption are likely to backfire through rebound effects, i.e. declining resource prices as demand for their use falls, triggering increased use elsewhere or later. Alcott favours the idea of what he calls "left-side strategies" of capping environmental impacts, in reference to the $I = PAT$ equation that Paul Ehrlich and others have used. Lowering any of the 'right-side' factors causes or at least enables the other two to rise or 'rebound'. Rationing, imposing caps or Pigouvian taxation of resources or pollution, on the other hand, necessarily lower impacts and are therefore preferable to population, consumption and technological environmental strategies. Lifestyle and technology changes towards more sufficiency and efficiency would follow the caps as consumers would work to retain the greatest amount of welfare within the limits given. Alcott argues that cap and rationing policies are by definition effective (as environmental goals will be achieved) and simple and straightforward in comparison to multiple sectoral consumption, population or technology policies.

Simple they might be once implemented, but the process of imposing carbon rationing or caps on resource extraction is likely to be far from socially or politically simple. Alcott gives little information on how he sees the socio-political process of implementing such caps. There is a looming danger of eco-authoritarian, expert-based regimes in the name of setting and monitoring such limits. Furthermore, cap and trade systems extend the realm of markets and monetary valuation, a proposal that is against the premise of degrowth of reducing commodification and pulling back the economic sphere to resocialise human relations and values.

Joachim Spangenberg looks precisely at these social and political challenges raised by a degrowth transition, given the need to maintain employment and social stability while decreasing resource use. The number of jobs can only increase if the economy grows faster or degrows slower than per capita productivity and resource consumption can only decrease if the economy grows slower or degrows faster than resource productivity. Spangenberg makes two thought policy-experiments to get out of this conundrum. The first one involves a scenario of capping resource throughput, and the second of capping wealth creation. The latter is capable of meeting environmental objectives, but implies significant social tensions and hardships. Reductions in work time can ease out the transition but Spangenberg warns that this will involve serious investments in the social security system and redistributive taxation in a context of increasing shifts of costs from labour to capital. These are bound to be socially explosive changes (note the current conflict in U.S. over the minor reforms proposed by the Obama administration for social security), unless placed within a political process legitimated by the majority. Reducing working hours and the work-week and a basic income guaranteed for all, are basic proposals coming out of the degrowth community for a smooth transition (aside redefinition of work [14,19]). Their

exploration and political development is bound to be one of the prime areas for degrowth research in the future.

Could society voluntarily endorse consumption degrowth? **Astrid Matthey** uses experimental psychological research to shed light on the potential conditions under which degrowth might be (un)acceptable. She argues that if resource consumption is to be reduced through economic degrowth, individuals in industrialized countries will have to accept a reduction in their consumption levels. In democratic societies, implementing this process requires the consent of a majority of the population. However, as long as people have high reference levels of consumption, lower consumption will induce strong feelings of loss. The acceptance of economic degrowth would be facilitated if individual and social aspirations for material achievements in everyday life were reduced. This is not easy and raises the need for research on the influence that advertising has on aspirations and policies to reduce its scope and effects. Moreover, Matthey argues, the political emphasis on economics and income loss in the crisis of 2008, may lead to a further decrease in the acceptance of degrowth policies in the population.

Matthey however does not examine how fixed or malleable are these aspirations. In fact, human history suggests that we are very adaptable to change, and that aspirations can quickly readjust if external conditions change. An aspiration for increasing material consumption should not be taken for granted, but seen as a specific cultural-historical construct that may easily change. The role of state policies and advertising is crucial in this respect, as in the recent crisis where messages promoting consumption were amplified, struggling to maintain the materialist aspirations without which the market economy was in danger.

Clive Hamilton approaches the same questions as Matthey, but from a sociological point of view. He argues that environmental problems today often originate from the fact that consumption is no longer a means of fulfilling material needs but a method to create a personal identity (and advertising is central here). Over the last four decades there has been a transition from a production to a consumption society with re-localization of production to the South and some countries of the East. Marketing creativity has become key to entrepreneurs' success; product usefulness is not so relevant any more (or even worse, obsolescence is often planned). The logic of market expansion goes hand in hand with what Hamilton refers to as growth fetishism. Environmental appeals to change consumption behaviour implicitly ask people not merely to change their behaviour but to change their sense of personal identity. Green consumerism cannot get us far, Hamilton argues. He finds instead some ground for optimism in the fact that one fifth of the population in the UK and Australia, a class he calls "down-shifters", have voluntarily reduced their income and consumption to spend more time with family and friends. The degrowth message should focus on a positive image of a beyond-materialism future, Hamilton argues, rather than on a doomsday ecological imperative or a scaremongering with the present crisis. This reinforces Matthey's message to escape from a strictly economic focus on the current crisis, as this is likely to backfire against degrowth.

The next two contributions look at particular cases of down-shifters and the alternative living arrangements they work with. **Matthieu Lietaert** introduces the cohousing movement that tries to make life convivial and greener in an urban context. Cohousing are neighbourhood developments that mix private and common dwellings to recreate a sense of community, while preserving a high degree of individual privacy. In that respect, cohousing fits well with the degrowth movement, and it goes beyond theory as this phenomenon is now spreading further in many places in the world. The author shows that sharing of living spaces, vehicles and household appliances is behaviour consistent with practical

degrowth. Sharing takes care of material needs avoiding creating additional material flows. It simultaneously brings more time for family and friends in new spaces where people can interact and build alternatives. Resource use is also likely to decline as a result of economies of scale by sharing.

In their analysis of the experience of squatters in Barcelona, **Claudio Cattaneo and Marc Gavalda** explain how semi-autonomous, small scale, collective, economic systems have been established on the Barcelona hills of Collserola that, *a posteriori*, can be seen as practical experiences in degrowth. The authors are first-hand participants in these projects. Data on money expenditures, energy and time are collected and analyzed. The monetary, energy and material use per person in the communities is far below the standard in the surrounding city, reaching pre-industrial consumption levels, within a collectively agreed lifestyle where working for wages outside the household is discouraged, and where the squatters have no property-income. A low-consumption convivial living with a concomitant increase of perceived well-being is possible, the authors argue. They find the essence of the squatting experiments in the self-management and cooperative processes, rather than in the economic or energy records. Cattaneo and Gavalda criticize a limited understanding of degrowth based only on reducing metabolism in terms of material and energy flows, and argue, echoing other degrowth scholars, that degrowth should be a democratizing process; result of a collective choice for a better living, not an imperative imposed by an external authority.

The policy proposals emerging out of the degrowth literature include both macro-interventions such as impact caps and rations, changes in work-time policies and social security systems (including a basic income) or limits to advertising, as well as small to medium-scale innovations such as shared mobility, shared housing systems or community currencies and alternative credit institutions including time-banks. However, most of the small to medium-scale initiatives are taking place at the fringe of the market economy, often benefiting from access to public good infrastructures. In other cases they are merely offering vital complements, rather than challenging the main system and offering an alternative, by serving specialised user groups which are not accessible (or do not wish to be served) by these infrastructures (e.g. “green consumers”, or young people without access to cheap housing). The key question is whether such initiatives will inevitably remain on the fringe of the economy or whether they provide real alternatives that can be scaled up and provide the building blocks of a future degrowth society. The question of scaling up is both political-institutional and biophysical-economic. For example, would a Barcelona of self-sufficient shared housing units like the squats described by Cattaneo and Gavalda, be sustainable by local resources (and with what changes in the allocation and nature of work)? This highlights an interesting research agenda concerning the metabolic profiles of future (hypothetical) degrowth societies. Such profiles could offer platforms for scenarios and social deliberation over degrowth possibilities and alternatives.

The issue of the feasibility of scaling up such alternatives or implementing degrowth macro-policies is decisively a political-economic one. Political proposals such as impact caps or a steady-state economy, if implemented are likely to reduce profits and accumulation considerably. Are such changes feasible within capitalist market economies? **Pascal van Griethuysen** insists in the fact that private property is a constitutive institution of capitalism, and property expansion is the dominant socio-economic process leading world societies to economic impasse. Property, as guarantee for credit, is functional to financial growth, as in the recent crazy growth in mortgages. The institution of property, and the growth in property, overrides any factor that limits the exploitation of humans and natural resources. Property sets forth a dynamics of growth for

growth's sake (or rather for repaying credit), that is not easy to escape with idealistic calls for degrowth or steady-state economics. Property and credit impose monetary value as the common measuring rod of social choice and dominate all other social or ecological values. What appears to van den Bergh as a “GDP paradox”, i.e. the insistence by politicians and economists on the use of GDP as the main policy indicator, is not a paradox from this perspective. GDP may not measure social welfare, but it measures well what matters for the market economy: profits, wages and land rents in monetary terms. Van Griethuysen concludes with a – yet not fully elaborated – call to restrict the domain of private property and redefine property institutions. But, like Spangenberg, he reminds us that such a change is not likely to be easy since proprietor vested interests hold the power in market economies, and are likely to resist redistributive social change.

4. Crisis or opportunity? Degrowth in the context of the economic crisis of 2008–2009

The Paris Conference took place when the economic crisis of 2008–09 was yet about to start (although our contributors were asked to revise their articles and reflect on the implications of the crisis). As Kallis, Martinez-Alier and Norgaard [43] argue, the crisis is a result of unsustainable growth. Irresponsible borrowing and the cultivation of fake expectations in the housing market were not accidents, but a systemic failure of a system struggling to keep up with growth rates that could not be sustained by its biophysical base (the “real” economy). Furthermore, the crisis marks a failure of “economicism”, the doctrine of mainstream, neo-classical economics which refuses to accept any material reality beyond the beliefs of investors and consumers.

The collapse of the fictitious economy had real impacts. Because of the economic crisis, and despite growth in India, China, Indonesia, the world trend towards increased emissions of carbon dioxide (3 per cent growth in emissions per year up to 2007) has been stopped, and there has been a reduction of three per cent [44]. This is too little compared with the IPCC recommended reduction of over 60 per cent but it shows that more than the Kyoto commitment and more than technological changes, it is economic degrowth that achieves greenhouse gas emission reductions. Similarly, because of the decrease in external demand for exports, the rate of deforestation in the Brazil Amazon has decreased to “only” 7000 sq. km. in the year 2008 [45]. Economic degrowth can be good for the environment. It helped to reach goals that 20 years of talking about sustainable development did not achieve.

Nevertheless, scientists and politicians have not been considering degrowth as an option. The IPCC projections [46] (or the Stern report [47]) never considered that the peak of carbon dioxide emissions could be reached in 2007. Will this be just one peak in cordillera of peaks leading to climate disaster?

The consequences of economic degrowth have been absolute reductions of emissions and extractions, and perhaps to some extent avoidance of outsourcing/delocalization of environmental impacts. In a context of economic degrowth, increased efficiency in resource use is not accompanied by a rebound effect [48]. The rate of substitution of renewable energies (wind, photovoltaic) for other energies may increase more easily when the overall use of energy is stable or declines. It is likely that the reduction of natural resource extraction and CO₂ emissions is larger than the degrowth rate of the economy because in times of economic shrinking it seems (at least in the present crisis) that material and energy intensive industries are heavily affected, leading to an actual decoupling. For instance, the cement output has decreased faster than the overall economy in many countries; in Spain in the first four months of 2009, cement demand dropped by about 45% [49]. If well targeted “green

Keynesianism” rather than “public works Keynesianism” and “car subsidy Keynesianism” had been applied, the dematerialization of the economy could have advanced further in the economic crisis of 2008–09.

All this does not imply that the crisis was a positive development as it involved individual and social hardships. This was not a socially sustainable degrowth process, but recession, i.e. degrowth within a growth-based economy. We should not however assume that degrowth in a European, American and Japanese context implies automatically a social catastrophe. These are economies with income levels (and energy and material consumption) much higher than in the 1930s when the crisis affected the fulfilment of basic needs. An economic crisis hitting a country with over 20,000 euros of income per capita still allows much room for social policies that can smooth the transition, such as work-sharing, redistributive taxation with investment in social security and public goods. The question we ask is how positive would degrowth be if instead of being imposed on us by an economic crisis, it would actually be a democratic collective decision, a project with the ambition of voluntarily getting us closer to ecological sustainability and socio-environmental justice worldwide.

Economists fail to consider scenarios of economic downturn, and they unanimously view a return to economic growth as the desirable objective, not least in order to be able to pay back the increased burden of financial debt by other means than inflation and defaults. In order to preserve the AAA rating of US Treasury Bills, the economy must grow. Even before the 1929 crisis, Frederick Soddy, Nobel Prize winner in chemistry, understood and explained that an economy with excessive debts and expectations of wealth accumulation would create the conditions for undermining economic growth because of its abuse of nature [50]. Hoping to get out of the 2008 crisis by public expenditure, buying private debts and increasing the public debt, the leaders of the global economy seem to believe that we can go back to debt-fuelled growth in order to pay back the great debt accumulated. They forget that further economic growth will increase environmental liabilities and will accelerate resource depletion. Some of the environmental costs might show up in increased economic prices (when reaching peak oil, for instance) that directly undermine economic growth in importing countries. Many other costs (that the economists nakedly call “externalities”) will be shifted to future generations, to other species, and to poor people today, and will not appear in the economic accounts.

In David Korten's book “Agenda for a new Economy” (reviewed by Kallis in this issue), a strong argument is made for re-rooting the economy in real (biophysical and labour) wealth rather than the phantom wealth of finance [51]. Korten calls for transferring the responsibility for issuing money from banks to an independent government agency with public oversight and he argues that Wall Street should be dismantled and decentralised into locally-owned cooperative banks and financial services. Korten's proposals are bold, but set the standard for degrowth-oriented financial reform: large corporations should be broken up to avoid monopolies and corporation charters radically reformed. The basic income tax should be eliminated, and recovered by taxing at 90% high income brackets and non-essential consumption, going back to the reasonable 1950s levels of high to low income salary ratios (15:1). Rather than following Korten's proposals we know that governments chose to pay off banks' debts and maintain the present system at all costs, with promises for tighter regulation. Nothing less than the scope of radical institutional changes in the financial sector suggested by Korten is necessary for an equitable and redistributed degrowth path.

The economic crisis produced proposals for “green Keynesianism” (or a “green New Deal”) to cope with short-term unemployment and also in a long-run perspective of achieving “green

economic growth” that would avoid climate change, resource depletion, and loss of biodiversity. “Green dreams”, we would call this. Hueting and d'Alessandro et al in this issue provide arguments why green growth is an oxymoron. “Dematerialized” activities use materials and overall make a small share of the GDP. The energy and monetary return on energy investment of renewable energy is lower than that of fossil fuels. A transition to renewables and a dematerialised economy will more than likely halt growth. Jackson (2009) – in a book [52] based on his report reviewed by Oliver for this issue – uses back-of-the-envelope calculations to show that if the economy would continue to grow as it did until 2007 and income is equalised around the world, an unrealistic level of 130-fold reduction in carbon intensity will be necessary by 2050 to stay within the maximum safety limits of carbon emissions. There are limits to any greening of the economy given the fact that current levels of energy consumption are well beyond existing source and sink capacities. Green growth does not challenge the type of production: “green bulldozers” will still extract natural resources, “green cars” will still consume energy and generate urban sprawl, and “green trucks and ships” will still transport more goods further. Green growth implies the development of greener industries but not necessarily replacing existing problematic industries. One can have 20 per cent new renewable energy and nevertheless increased coal production if the economy grows enough. In fact, the positive impact of the green goods and services could be cancelled out by increases in production and consumption, as revenues from more eco-efficient technologies are used to consume more elsewhere in growing economies (again the Jevons Paradox or “rebound effect”).

Increased extraction of natural resources by corporations in the pursuit of cheap inputs is destroying local communities and ecosystems at the “commodity frontiers”. Local populations protest increasingly the impacts of ever-expanding commodity and waste frontiers. In order to avoid the increase in environmental liabilities, a better economic system and equitable way of life for the South are needed in parallel with economic downscaling in the global North. There is a need however for viable development alternatives developed by the South and for the South (rather than by northern elite academics for the South), and for policy reforms which will seek disentanglement, i.e. removal of the obstacles that prevent Southern countries from post-development [53].

At first sight, Southern countries have something to lose and little to gain from degrowth in the North because of fewer opportunities for commodity and manufactured exports, and less availability of credits and donations. But, the movements for Environmental Justice and the “environmentalism of the poor” of the South are the main allies of the degrowth movement of the North. These movements complain against disproportionate pollution (at local and global levels, including claims for repayment of the “climate debt”), they complain against waste exports from North to South, they complain against biopiracy, and also against *Raubwirtschaft*, i.e. ecologically unequal exchange, and the destruction of nature and human livelihoods at the “commodity frontiers”. They also complain against the socio-environmental liabilities of transnational companies [54].

The transition to degrowth and later to a steady state (Kerschner, this issue), needs a reform of social institutions (to deal with unemployment), and also a reform of financial institutions to stop the financial floor of the economy from growing without reference to the underlying physical realities. The imaginative selling of derivatives (financial “products”), and the existence of unregulated offshore banking, have taken a knock in public opinion. Sensible proposals are made by moderate political forces to turn banking into a public service. Beyond this, the crisis provides an opportunity for thinking about the economy in physical terms. Taxes at origin on the extraction of resources to finance an environmentally

sustainable society should be introduced. There is need to reduce energy consumption and the use of materials by rich people. Frivolous calls in OECD countries for population growth in order to increase employment that will help pay for old age pensions, are not at all convincing from an ecological point of view, or even from a purely financial point of view as rates of unemployment increase. This is an opportunity for starting a socio-ecological transition or transformation [55,57].

On the contrary, convergence to a European average of 16 tons per person/year (only materials, water not counted here) would multiply Material Flows in the world by three, with the present population. Economies can be characterized by such Material Flows. We may analyze patterns of external trade. While South America exports six times as many tons as it imports, the European Union imports four times as many tons as it exports [56]. We can understand characteristic patterns of social conflicts, for instance mining and oil extraction conflicts, or resistance against tree plantations for paper pulp or agro-fuels, or the international conflict caused by unequal access to the carbon dioxide sinks (oceans) or the temporary “reservoir” (atmosphere). Convergence towards 300 Gigajoules per capita/year would mean to multiply by 5 the present energy in the world economy. If gas and especially coal are used, this would also multiply by 4 or 5 the carbon dioxide produced. The Human Appropriation of Net Primary Production of Biomass (HANPP) is also increasing. Population growth, soil sealing, meat eating, paper production, and agro-fuels increase the HANPP [57]. The higher the HANPP, the less biomass available for other species. Moreover, human populations fight among themselves over the appropriation of biomass [55].

In conclusion, the current crisis is a threat in that it provides a justification for even “more of the same” even if under a green disguise. It offers however also an opportunity in that it shows the limits of economicism, it allows us to expose “growth fetishism” (Hamilton in this issue) as the root of the problem, and opens up some space for green policies (such as investments in renewable energies) which even though they can never realize green growth, they can definitely contribute to a smooth sustainable degrowth.

Crises also open opportunities for alternative discourses. Elaborating and disseminating an alternative discourse is the objective of the Second International Conference on Degrowth in Barcelona (26–29 March 2010), which will receive even more participants and contributions than the first, as the degrowth community is increasing in numbers. Much of the conference will be devoted to working group discussions around practical policy proposals to take us out of the multiple crises we are facing. Our call for degrowth is a hopeful, even a utopian discourse. Should we prefer a business-as-usual without possible future or work towards a degrowth “utopia”? We must at least separate possible from impossible futures and look for an alternative to an optimistic “business-as-usual”. We cannot count on dematerialization after 20 years of limited progress in relative terms and no progress at all in absolute terms. An extension of the institutions of the market economy (through cap and trade systems for carbon dioxide) that facilitate further emissions is not a solution either. To avoid fear-mongering discourses and the danger of authoritarianism in the face of real crises, we need a hopeful utopian discourse. Degrowth is not only a scientific project but part of a broader social movement which works on the hope that we can downscale in an equitable and democratizing manner.

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