Degrowth

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Synopsis: Degrowth is a transitional discourse, an international social movement and a research framework that has emerged in response to the detrimental environmental and social impacts of growth-driven capitalist development and failure of growth-oriented strategies to address climate change and ecosystems collapse. Degrowth proposes a lowering of throughput of energy and matter of affluent economies through a radical re-orientation of economic production and social wealth from material goods to social well-being, ecosystems restoration and substantive democracy. The article gives an overview of degrowth economics, its political imaginary and policy proposals.
Abstract

Degrowth is a social movement and a research framework which advocates for a transition to sustainable and just forms of social organization. It proposes to achieve this double objective by "de-growing" the energy and matter throughput of the global economic system and re-orienting economic activity away from material production toward provisioning to meet the needs of people's well-being by distributing shared wealth using different ways of allocating resources (Kallis, 2018). As a "transitional discourse" envisioning alternative societies built on "ecological integrity and social justice" (Escobar, 2015: p. 1), it approaches the transition from a systems-thinking perspective that combines the values of ecology, justice, well-being and democracy (Demaria et al., 2013) with the theoretical foundations of ecological economics, political ecology, post-development, environmentalism of the poor and limits to growth. The proposals in academic literature cluster on (1) reduction of the environmental impact of human activities, (2) redistribution of income and wealth within and between countries, and (3) transition from a materialistic to a convivial and participatory society (Cosme et al., 2017).

Introducing degrowth

Degrowth emerged as an international movement in the early 2000s from a dissatisfaction with the official responses to climate change and planetary environmental degradation, whose foundations were laid out in the Brundtland Report (1987) and the UN Framework Convention on Climate Change (1992). These works have explicitly wed the climate action of governments to their commitment to free trade and economic growth; these two pillars of the capitalist system of production have, since the onset of the industrial revolution and particularly since
the Great Acceleration after WWII (Steffen et al., 2011) necessitated a growing appropriation and degradation of planetary ecosystems. The contemporary degrowth movement has three pillars, theoretical, activist and political, which are not rigidly integrated into a common framework but there is a continuous interaction between actors and ideas, especially in the international degrowth conferences (Martínez-Alier et al., 2010). Against the ideals of sustainable development, green growth, and green capitalism, degrowth insists that environmental stability and sustainability can only be achieved through a departure from the present growth-oriented global capitalist system.

The term draws its inspiration from The Limits to Growth report to the Club of Rome published in 1971 and was coined a year later in French as "décroissance" by French-German philosopher of political ecology André Gorz, only to be confirmed a couple of years later in the translation of a work by Romanian-American economist Nicholas Georgescu-Roegen, the founding figure of ecological economics. The word "officially" entered into English with the first Degrowth Conference held in Paris in 2008 (Demaria et al., 2013: p. 195). Initially the idea of "décroissance" rallied together the grass-roots activists working on issues such as environmental justice, protection of the environment, opposition to extractivism, and infrastructural and energy projects alongside the practitioners of alternative forms of organization of social production and consumption like permaculture, cooperatives, ethical banks, co-housing, squatting, and recycling, eventually gradually consolidating into an international social movement (Demaria et al., 2013: p. 202-203). Regular international conferences crystallized it also as an activist-led research agenda (Martínez-Alier et al., 2011) and a platform for political advocacy. The research agenda received its provisional manifesto in Degrowth: A Vocabulary for a New Era published in 2014, whereas the political advocacy had its first high-profile international foray with the Post-Growth Conference held at the European Parliament in 2018.
The foundational insight of degrowth is that there cannot be endless growth on a finite planet. While the Earth is not an entirely closed-off system, almost no matter enters the atmosphere, and the incoming solar energy is not readily convertible into work that is able to satisfy human needs. Thus, the regeneration of energy stocks and the recycling of matter available for human use can unfold only at a very slow rate. However, the pattern of continuous economic growth inaugurated by capitalism is based on disregard for the overall limits of planetary stocks and flows, counting on substitution of the depleted sources with hitherto untapped ones and simultaneous displacement of ecological impacts to global economic peripheries.

Over the last century, global material extraction and primary energy consumption have grown roughly tenfold to 70Gt/year (Schaffartzik et al., 2014) and 525eJ/year (Smil, 2016: p. 241) respectively. The world’s ecological footprint currently exceeds the annual bioregenerative capacity of the planet by 70% (Global Footprint Network, 2013). Human use has significantly altered 75% of global ice-free land (Ellis and Ramankutty, 2008), 66% of marine environments (IPBES, 2019), and appropriates around one-third of the net primary production of terrestrial systems (Haberl et al., 2014).

This expanding dynamic of extraction has led to a number of negative impacts on Earth’s biophysical systems resulting in dangerous climate change, biodiversity loss, acidification of oceans, soil degradation, and land-use change, pushing the planetary systems beyond the limited variability that has provided a safe operating space for human societies to thrive over the last 10,000 years of the Holocene (Rockström et al., 2009). The effects of these disruptions are distributed unequally, hitting both the most economically (Diffenbaugh and Burke, 2019) and environmentally disadvantaged populations and countries the hardest. At present, no country stays within its "fairly apportioned global biophysical boundaries" while also meeting the basic needs of its people (O’Neill et al., 2018). From a degrowth viewpoint, in order to bring societies within the planetary boundaries, the pattern of
expanding extraction has to be reversed, and the provisioning systems addressing societal needs must be organized differently.

The patterns of resource-use change throughout history, along with the modes of production and forms of allocation. These patterns define socio-metabolic regimes (Fischer-Kowalski, 2011). The dominant socio-metabolic regime in the contemporary world is defined by a system of industrial production enabled by the high energy intensity of fossil fuels and global free trade. This system is organized around the capitalist separation of workers from the means of subsistence. This separation forces them to work for a wage in order to be able to secure their subsistence by purchasing commodified goods and services in the market, and to work beyond the level that meets their needs in order to generate a surplus. The surplus produced by the workers is appropriated for the owners’ private consumption of capital and, fundamental to sustaining the dynamic of growth, for re-investment into further accumulation of capital. This process of capital accumulation under the conditions of competition is accompanied by an imperative to raise productivity, resulting in growing economic output, i.e. an ever-greater quantity of goods or services produced in a given period of time. This growing economy has a strong historical correlation with the growth of our material footprint and CO2 emissions (1% increase in GDP resulting in 0.6% increase of material footprint (Wiedmann et al., 2015) and 0.5-0.8 increase in emissions (Burke et al., 2015)).

Economic growth at the national level is measured by an increase in the Gross Domestic Product (GDP). Economic policies are drawn up to keep the GDP growing year after year, and GDP growth is a key performance indicator upon which governments stand or fall. The healthy annual growth rate of an advanced economy is considered to be between 2 and 3%, leading to a doubling of economic activity roughly every 24 to 35 years. The drivers behind this expectation of growth are twofold. On the side of system reproduction, capital is borrowed with the expectation that future growth should repay the debt and interest that will, in the
next step, serve as capital for future borrowing. On the side of system justification, the competitive forces of the market tend to reduce wages and create inequalities. In this way growth allows policymakers to promise an increase in wages in the future without needing to redistribute the existing social wealth in the present.

However, researchers on the subject of inequality (Hickel, 2018; Milanović, 2016; Piketty, 2014) have documented that in advanced economies the expected trickle-down effect of wealth has not happened since the 1970s; as wealth has become concentrated at the top, wages have stagnated. Even with the exceptional effect that reduction of absolute poverty in China has had on global poverty, relative poverty in the world has increased since the 1980s (Chen and Ravallion, 2012). Alternative indicators of social progress like the Genuine Progress Indicators (Anielski and Sosklone, 2002) reveal that once the negative social and environmental impacts are accounted for, beyond a certain level growth does not bring an increase in objective and subjective well-being and is environmentally disastrous (Kallis, 2018: ch. 4).

While there are hopes that growth can be maintained by making economic processes green and sustainable, empirically there is no evidence that economic growth can be achieved with simultaneous reduction of greenhouse gas emissions (GHG) and material extraction for a sustainably long-term period on a global level (Hickel and Kallis, 2019). This suggests that if the assessment of the Intergovernmental Panel for Climate Change (IPCC, 2018a) warning against runaway climate change, and the assessment of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2019) warning against the unprecedented decline of Biosystems, are to be taken seriously, human action faces a difficult choice between rapid reduction in throughput or the potential collapse of ecosystems. Without the assumption of near-complete and widespread substitutability of ecosystem services with anthropogenic goods and services, ecosystem collapse would also mean a subsequent economic collapse. Facing this
choice, degrowth offers diagnoses and strategies (Demaria et al., 2013: p. 194) that address the major obstacle to the transformation that is needed in order to make the global social metabolism sustainable: how to keep the rapid reduction in throughput from leading to a widespread and forced reduction in social well-being.

**Degrowth economics: bringing the economy back into the biosphere**

Degrowth is, in principle, agnostic as to whether the planned reduction of throughput will lead to a reduction in economic output. The goal is not economic depression, but long-term sustainability and societal well-being. However, long-term sustainability might not be feasible without an economic slowdown. The reduction in GHG emissions needed to stay within the Paris Agreement limit of a 1.5°C or 2°C increase in average global surface temperature by 2100 compared to pre-industrial levels is achievable only if the world economy rapidly abandons its present pattern of growth driving the expanding use of cheap and polluting sources of energy. The current "business-as-usual" approach with unchecked growth and without rapid and planned decarbonization puts the Earth on a likely pathway of an increase of 4°C or more. The world would have to reduce net emissions to zero by 2050 in order to stay under 1.5°C or by 2070 to stay under 2°C (IPCC, 2018b). The necessary annual reductions in GHG emissions to achieve those targets at a zero-growth rate would be 6.8% and 4% respectively, but at a 2% growth rate they would have to be as high as 8.8% and 6% respectively (Hickel and Kallis, 2019: p. 15).

This is, however, far above the most optimistic predictions, which put GHG emissions reductions at a maximum 4% annually - implying that a reduction for a 2°C increase might be achievable, but only with the rapid deployment of deep decarbonization strategies (transition to 100% renewables, afforestation and soil regeneration, and shift to alternative production processes) and, crucially, a zero-growth rate (Hickel and Kallis, 2019: p. 15). This scenario may still be impossible to
implement, requiring the deployment of negative emissions technologies (Gasser et al., 2015). Most prominent among those is bioenergy generation with carbon capture and storage (BeCCS): the combination of planting crops for energy generation and capturing released carbon dioxide in order to store it underground. This combination of technologies is far from maturity, far from the scale of carbon capture needed, in competition for land with agriculture and biodiversity, and risks, in the case of seismic instability, massive carbon leakages from the underground storages (Anderson and Bows, 2011).

The economics of growth is thus at odds with the biophysical realities of climate change mitigation. It is for this reason that degrowth has taken up the task of challenging the economic orthodoxy which underpins climate change policies. However, this undertaking necessitates that degrowth mounts a critique not only of growth but also of the economic science for which it is axiomatic. Namely, the economic models used in the Intergovernmental Panel on Climate Change (IPCC) integrated assessment scenarios that assume, without exception, continued economic growth. These models are built upon the assumption of market equilibrium and are deterministic in a way that cannot account for uncertainties inherent to disequilibrium processes such as climate change, which can trigger unforeseeable changes in social systems over long periods of time, or in the case of the IPCC scenarios until the end of the 21st century (Spangenberg and Polotzek, 2019: p. 199).

Furthermore, they consider growth in GDP as the optimal outcome of decarbonization scenarios, while scenarios leading to a reduction in GDP are considered negative, displaying a bias against substantial changes in patterns of production and consumption (Spangenberg and Polotzek, 2019: p. 199). The reason why all economic models assume that growth will occur is that the fields of economics and economic policy are dominated by formal approaches which analyze economic processes in terms of market pricing, exchange values, and money, disregarding substantive determinants of economic processes like the metabolic
interactions between society and the environment, politico-institutional structures, and the societal purposes of economic processes (Gerber and Scheidel, 2018).

The dis-embedding of the formal economy from its biophysical, socio-metabolic, and political determinants began historically with the emerging economic science in the 18th century striving to differentiate itself from the political economy and economic history that had dominated its early development. Until the 18th century, economics was no more than a practical art of managing the limited resources of land, estates, and populations. With the work of moral philosophers Adam Smith, David Ricardo, and John Stuart Mill, the definition of political economy gradually shifted away from concerns as to the purposes which guide economic activity to this activity’s underlying laws (Raworth, 2017: ch. 1). With the marginalist revolution of the late 19 century, the discipline completed its boundary-work (Gieryn, 1983), succeeding in differentiating itself from neighboring disciplines through the demarcation of its distinct object of inquiry in the form of markets and its methods of formalization in the form of price theory (Gerber and Scheidel, 2018).

As the capitalist mode of production emerged and spread across Europe, the focus of economic science shifted from the management of resources to the improvement of productivity, markets, and trade. The consolidation of economics thus proceeded apace with the consolidation of capitalism and the modern state.

The economy as the object of political and institutional governance assumed its present contours in the 1930s and 1940s in response to the Great Depression, ending the period of laissez-faire capitalism. The leading economic nations start to reconceive the national economy as a dynamic system of interactions between economic actors, whose value can be estimated by national accounting, measured by the gross national product and directed by policies which are primarily the responsibility of economic experts who are institutionally safeguarded from direct democratic challenges (Mitchell, 2014). The greater institutional regulation of free markets by national governments accomplished in capitalist economies after WWII then
underwent a gradual erosion as international free trade began to intensify, leading to a period of neoliberal globalization during which the global integration of free markets severely limited the capacity of government to plan and direct economic processes and to limit their social and environmental impacts.

During the historical development of economics, substantive concerns of human livelihood and interaction with the environment got pushed into the background. The economy was re-conceptualized, as illustrated by the famous circular flow diagram drawn by Paul Samuelson (Samuelson, 1948: p. 264), as an isolated system where exchange values circulate between households and firms and no resources are taken from nor waste released into the environment (Daly, 2019: p.10; Raworth, 2017: Introduction). This is a reductive and distorted image that ecological economics has taken up the task of setting straight. In his foundational contribution to ecological economics *The Entropy Law and the Economic Process* (1971), Georgescu-Roegen posited that all economic activity is constrained by thermodynamically irreversible increase of entropy: it takes matter and energy from nature in a condition of higher order and availability for transformations – and returns waste and dissipated heat into nature in a condition of higher disorder and reduced availability. The process of degradation is a necessary byproduct of all value creation, it is irreversible, and recycling can happen only at an ever-greater investment of energy resulting in further degradation.

Georgescu-Roegen thus placed the economic system back inside the biosphere. All value produced in an economy crucially depends on nature’s sources of matter and energy, and sinks absorbing waste and dissipated heat. In fact, humans, by drawing on water, food, matter and energy from environments locally and globally, depend for their metabolic reproduction on exosomatic services of nature – maintenance of biological and social structures that compensate for the inevitable losses due to entropy (Ayres and Kneese, 1969). The basic human endosomatic metabolic rate has been expanded in hunter and gatherer societies through the
exosomatic appropriation of food and heat from firewood by a factor of three to four to around 11GJ/capita annually, in agricultural societies through plant cultivation and animal husbandry to 20-80GJ/capita, and in industrial societies primarily through fossil fuel burning to 280GJ/capita (Fischer-Kowalski et al., 2014: p. 21-22). These expanding patterns of appropriation, alongside increasing complexity and necessary reflexivity of the symbolic or social realm (Ostrom, 2009), have characterized the evolving social metabolism of human societies.

The following energy-materials-culture nexus defines the social metabolism of contemporary growth-oriented capitalist societies. The energy-intensive stocks of fossil fuels are used for energy conversions that increase the productivity of human labor in the transformation of growing quantities of matter into products. Products thus embody the matter and energy that went into producing them. Products sold as commodities can be machines destined to be used in a future production process, or goods and services destined to be irreversibly expended in the consumption process needed for continuous social reproduction (Bhattacharya, 2017). Overall, a section of the human population, the class of capitalists that owns the means of production, employs workers but pays them less than the value of the product of their labor, appropriating the surplus that is left once the wages, machinery, raw materials, energy, and other operating costs have been paid. The greater the ratio of appropriated surplus value to wages, the greater the rate of exploitation of labor. Exploitation happens as an intrinsic and systemic feature of the capitalist organization of social production and indirectly reproduction, as capitalist class must keep drawing as much surplus labor as possible due to systemic commitment to market competition. But capitalists are also able to dictate how the social surplus will be produced and to what ends it will be expended, and thus as a class have more economic power in defining the purposes and priorities of the societal process of production and society's continuous reproduction over time.
Market competition between capitalist enterprises creates a structural imperative that a large part of the surplus must be re-invested into even more productive uses by mobilizing more human labor, more socially reproductive labor that goes into sustaining laboring humans, more resources from nature, more cheap and hard labor from poorer economies to extract those resources, and more knowledge and machines that make that labor more productive. This ultimately leads to the creation of even more surplus, thus engendering a pattern of self-perpetuating growth. However, that growing investment towards productive use also requires growing expenditures on non-productive consumption in order to absorb the growing amount of product, resulting in an unstable spiral of overaccumulation and underconsumption that unleashes capitalist crises (Kallis, 2018: ch. 2). These are in turn used to reinforce the political imperative of a return to growth, or the current economic system would collapse. The expanding appropriation of resources from nature is thus coextensive with successfully pursuing the imperative of growth, increasing environmental impact through an expansion of social metabolism and socio-economic insecurity through a spur for greater overall exploitation.

Degrowth’s critique of the economics of growth – and of the broader dominant “culture of growth” (Latouche, 2009), “growthism” (Daly, 2019) and the “growth paradigm” (Kallis, 2018) – builds upon the insight that, ultimately, the decoupling of the economic system from the throughput of matter and energy is impossible (Parrique et al., 2019). The assumption that all social and environmental challenges can eventually be overcome by maintaining continuous growth ignores the fact that economic processes will always have environmental costs, which on a finite planet only get displaced from one ecosystem to another as the global system of production expands from location to location and replaces one technological process with another. Historical evidence at the global level shows that environmental impacts cannot be substantively diminished in a sustainable way while maintaining
economic growth in its present form. Starting from there, degrowth economics pursues the following objectives:

- to re-embed the economy into society, and the society into Earth's systems, (Raworth, 2017),
- to re-conceptualize the economy as "the instituted process of interactions between humans and their environments, involving the use of material means for the satisfaction of human values" (Kallis, 2018: ch. 2),
- to develop policy proposals for the reorganization of the economy and the attendant political system to bring the socio-metabolic processes within the biophysical boundaries,
- to analyze how the growth-oriented capitalist system produces artificial scarcity as coercion to wage labor (Hickel, 2019) and how it "solves" this scarcity through the massive overproduction of material things,
- to analyze how the growth-oriented capitalist system creates dynamics of power, social hierarchies, and oppression through the private appropriation of social surplus (Kallis, 2018: ch. 2), and
- to develop a social system of distribution that would lead to an economy of abundance and human well-being based on sharing.

**Degrowth as a new political imaginary**

Degrowth takes a non-reductivist approach to societal transformation. The transformation that it advocates starts from the understanding that the existing social reality is shaped by an economic system that locks the majority of the world’s population into patterns of production and consumption based upon a premise of economic growth. However, as the economic system has co-evolved with the political system from which it arose, this lock-in is predicated upon a geopolitical order that is founded on, and legitimizes the subjugation and exploitation of social
groups as well as the destruction of non-human nature. Therefore, the societal transformation that degrowth advocates requires a reimagining of the political – a repoliticization of fundamental social questions and antagonisms regarding a common trajectory and alternative visions of the future (D’Alisa, Demaria, et al., 2014). To maintain the cultural complexity of contemporary life with a biophysically less impactful metabolism, a degrowth transition needs concrete proposals on how each of the processes that maintain high throughput (energy supply, technological infrastructure, financial system, agriculture, manufacture etc.) could evolve in the desired direction. This is the non-reductivist aspect of degrowth: positing that the future transition has to be conceived of and developed multidimensionally within the boundaries of the Earth’s biophysical systems and flourishing cultural emancipation (cf. The Doughnut Model, this volume).

Degrowth acts as both a provocation and an opening for a new political imaginary, coming amid the burgeoning realization that the imaginary of endless growth on a finite planet can no longer be sustained. The disavowed environmental impacts of the endless growth have become so severe that they are pushing Earth’s biophysical systems beyond their limited Holocenic variability, presenting a grave threat to the safety and survival of a growing part of the world’s population. Therefore, degrowth insists on an unpopular yet realist position that there is no empirical evidence to believe that throughput can be lowered globally and for the foreseeable future without "de-growing" economic output (Hickel and Kallis, 2019). However, acknowledging that the lowering of economic output might adversely affect the well-being of many and particularly of those who are disadvantaged in unequal societies, and acknowledging that people equally fear the loss of socio-economic security as they fear the impacts of the climate crisis (Clayton et al., 2017), degrowth proposes that societies produce less material output while socializing care for the well-being of all. Such an ideal runs counter to the hegemonic common sense
that the imaginary of growth instils in governments, experts, and general populations.

After the end of socialism in the countries of Eastern Europe, a social system that prioritized equality but not sustainability as it followed the productivist, extractivist, and growth-oriented trajectory of industrial development, there seemed for decades to be no alternative imaginary of what could supplant the present capitalist social system that prioritizes neither equality nor sustainability. This is where degrowth steps in. It is developing grass-root alternatives and proposals (see the next section) that are both concrete to the extent that they are workable in practice and utopian to the extent that they cannot be aligned with a growth-oriented capitalist society. These real utopias guided by the principles of equality, democracy, and sustainability (Wright, 2013) propose pre-figurative practices that show how to organize anything from social production, care provision, financial systems, technology, transport, and transit to the collective and convivial expenditure of social surplus on human self-realization. By inserting these practices into the social reality, degrowth practitioners foster new common senses (D’Alisa and Kallis, 2016) rooted in the material organization of the everyday which responds to the looming ecological crisis and demonstrates, practically, that growth is not necessary for human well-being.

These practices are plural and frequently heterogeneous, as they reflect the plural concerns and heterogeneous conditions that exist within and between capitalist societies. They are not axiomatic deductions from a program of transition, because degrowth does not envision transition as the top-down implementation of a societal model, but as an evolutionary process of change which can build momentum, spread, and become generalized at various social scales and across societies as the present capitalist social formation fails to respond to non-linear disruptions to the environment and to deepening social disparities. However, in this heterogeneity, such practices are the building blocks of a degrowth transition, and
share a set of values and orientations beyond the fundamental assumption that they work toward lowering throughput and increasing collective well-being:

First, they require both the dissolution of the capitalist class division which features private appropriation of surplus and the suspension of capital accumulation (Blauwhof, 2012; Kallis, 2018: ch. 6), because the appropriation of surplus gives the power to direct social development while capital accumulation drives the process of economic growth.

Second, they emphasize collective forms of ownership and management of resources like public goods and commons, where the perspective of utility is commensurate with the collective good and its planetarily defined limits. Commoning – practices of creating sustainable systems of provision and peer governance that produce shareable goods as opposed to private accumulation or autocratic allocation (Bollier and Helfrich, 2019) – social and natural resources would shift the emphasis towards sharing and creating collective abundance through the careful maintenance of those resources.

Third, they are guided by environmental justice concerns, starting with the understanding that affluent societies have benefitted from the processes of conquest, imperialism, and "unequal exchange" (Hornborg, 2014; Moore, 2015), and that their economies continue to disproportionately benefit from the historical and present GHG emissions, material extraction, and appropriation of primary production, which have and continue to undermine the ecological and social integrity of less affluent societies. Degrowth thus demands a radical reduction in resource consumption primarily by affluent societies. However, it also acknowledges that not all of the world’s population can converge upon the resource-hungry organization of life in affluent societies, as that would require bioregenerative capacities several times greater than what Earth can offer, and collectively following the model of Western development would be detrimental to all. Development has wrought devastation across the Global South and, as a result, these societies ought to be given
the opportunity to pursue their own distinct paths of social development based on vernacular forms of sustainable economic organization. However, one pre-condition is that the Global North first abandons the growth-oriented development which forces those societies to integrate themselves into the capitalist world economy, entering alongside them into an alliance of de-development (Latouche, 2009: p.57-58). This would result in a pluriverse - a different way of understanding existence that permits countless groups of people to create their own distinctive but overlapping cultural realities, a recognition of multiple ways of being in the world.

Fourth, use values in capitalist economies are made commensurate and exchangeable through commodification and prices. This dis-embeds social needs from their social and environmental conditions and places them under the dynamic of self-sustaining accumulation with a general disregard for any social or environmental damages. Yet the value of needs and damages cannot be made commensurate without the dynamics of economic power working behind the backs of social actors, and are thus incommensurable (Martinez-Alier, 1990). In a degrowth society, there would be a re-embedding of values within their social and environmental contexts and an institutional and democratic mediation of their production and exchange. (Polanyi, 2001 (1944))

Fifth, as degrowth implies a reorientation from the production of commodities to the provision of relational goods, the focus of a degrowth economy would be on care-work, which tends to disproportionately fall upon women and migrants, in turn requiring a fundamental reorganization of social roles along the principles of gender and racial equality (D’Alisa, Deriu, et al., 2014).

The liberation of the social imaginary from the 20th-century developmental model that degrowth pursues implies an overcoming of the hyper-separation of society from nature (Plumwood, 2005), where expansion to satisfy social needs is seen as mastery over nature that then breaks the boundaries of natural systems; social needs and nature seem to stand in opposition. A degrowth society views
stability and the ability to thrive, both of society and nature, as mutually reinforcing. It thus avoids the conceptually paralyzing trade-off between biophysical boundaries and social thresholds. Excesses and shortfalls exist in all dimensions of current socio-metabolic patterns: cultural, -socio-economic, and biophysical. Understanding this allows us to envision integrated policies to keep the planetary human population within the safe and just operating space defined by known metabolic and cultural constraints of the 21st century (cf. The Doughnut Model, this volume).

**Policy proposals for socially sustainable economic degrowth**

Degrowth's double objective of achieving sustainable and just societies is primarily aimed at affluent societies. It is the affluent societies that should primarily downscale and redistribute, relieving other societies from the competitive pressures and allowing them to pursue their own different paths leading to that same double objective. If pro-environmental downscaling is implemented along with a redistribution toward greater well-being and equality, a substantial part of the population is likely to perceive it as socially acceptable (Ančić and Domazet, 2015). In affluent societies, it is not a higher level of income, but a lower level of inequality which leads to higher life expectancy and better educational attainment (Wilkinson and Pickett, 2011), and lower disparities in power and income lead to greater environmental protection (Boyce et al., 1999; Raworth, 2017: ch. 3). Therefore, a downscaling of the throughput must necessarily be accompanied by a monumental redistribution of resources and power – requiring all-encompassing democratic control.

In order to achieve this reduction in throughput with a parallel increase in well-being, degrowth proposes these policy measures:

1. *Economy and economics:* The economy has to be made substantive by capping resource use based on the limits imposed by the planet's biophysical boundaries,
while human needs have to be democratically planned and equitably allocated to reflect those limits (Gerber and Scheidel, 2018). Sourcing of resources and products should be maximally localized. Economic production should focus on human livelihood and social reproduction, prioritizing relational goods over material goods, and placing sufficiency before efficiency and productivity. Advertising should be reduced and restricted.

Fractional reserve banking, the creation of money by private banks, and debt above what is needed for intergenerational redistribution should be abolished to limit the financial rents that drive the dynamics of growth. Concurrently, the state should take control over the issuing of "public money" (Mellor, 2010) to finance "a basic income or a job guarantee or to subsidize cooperatives, care services, environmental conservation or renewable energy" (Kallis et al., 2014: p. 13).

GDP as a measure should be abolished and replaced with indicators that measure social and environmental integrity through a multidimensional perspective of just and safe operating space (cf. The Doughnut Model, this volume).

2. Employment: Lowering of economic output can lead to unemployment; however, the replacement of energy-rich fossil fuels might require more human labor (Sorman and Giampietro, 2013). Labor should be redirected toward care-work and social reproduction. Working hours should be reduced, work shared (Shor, 2014), and jobs guaranteed to anyone who seeks employment (Unti, 2014).

3. Investment: Investments should be redirected away from unnecessary and harmful activities such as military, fossil fuel, and polluting industries and towards achieving environmental sustainability in agriculture, technology, the built environment and infrastructure, financing public services, and supporting the development of a solidarity economy (Johanisova et al., 2014).

4. Income and taxation: Societies should establish a universal unconditional autonomy allowance (Liegey et al., 2013) and safe and complete access to basic goods such as food, housing, and care to meet the basic needs of all its members,
while also placing a cap on maximum income and taxing wealth to limit disparities. Taxes should shift from taxation of labor to taxation of resources and pollution.

5. Technologies: Green technologies should replace polluting technologies to the degree that is feasible for the level of needs of a degrowth society. Gains in efficiency and productivity should be translated into caps on resources and reduction in working hours to prevent a rebound effect or the expansion of production. Technologies should be developed under open license arrangements and should be manufactured locally, while research and development should be done through a global collaborative effort (Medak, 2018).

6. Restoration of ecosystems: Downscaling the global throughput of energy and matter will not be enough to ensure planetary ecological stability – halting Earth’s sixth mass extinction as well as arresting anthropogenic climate change. Wherever they have been damaged, ecosystems need to be restored in order to effectively counter the destructive mechanisms already unleashed by the global growth imperative. Expanding nature’s protected areas, afforestation, and replacing industrial agriculture with agroecological farming practices, are just some of the methods that can be used to serve this goal. Important as they are in and of themselves, these efforts also have the added benefit of shifting the social imaginary away from the current common sense of homo sapiens as an inherently destructive species, to one that sees humans as inextricably tied to nature and capable of positive interactions with the non-human environment, in terms of fostering diversity and fecundity.

7. Democracy: Degrowth advocates for developing institutions of real democracy that extend and supersede the nominal democratic control that is prevalent in republican nation-states today. One vision of ‘direct democracy’ that is gaining more traction within degrowth scholarship (Kallis, 2018; Vansintjan, 2018) is that of libertarian municipalism and communalism that was developed by Murray Bookchin (2007; 2015). Libertarian municipalism envisions a system of assemblies
within differently scaled local areas, joining in a confederation of free municipalities. The broad consensus is that democratic practices and institutions need to be further developed and deepened from the currently dominant arrangement (Fraser and Jaeggi, 2018) and that economic democracy within workplaces is necessary (Asara, 2015). Since capitalism in all its forms has historically relied on institutional separations between the economic and political spheres (Cattaneo et al., 2012), a key condition for a degrowth transition is to re-embed economic processes within the realm of social needs and political deliberation (Kallis, 2018).

**Conclusion**

The foundational insights of degrowth are threefold: there cannot be infinite growth of energy and matter throughput on a finite planet, economic growth cannot be decoupled from that throughput at the level of the global socio-ecological system, and the limits of planetary capacity to regenerate are already breached. Degrowth is a movement and a research framework which advocates for a societal transformation to reduce and stabilize, or "de-grow", the energy and matter throughput of the global economic system, and to re-orient economic activity toward designing structures of provisioning and peer-governance that address people's shared and individual needs through flourishing of public wealth.

It is critical of the conception of economics and economic policy that disregard substantive determinants of economic processes like the metabolic interactions between society and the environment, politico-institutional structures, and the societal purposes of economic processes. It proposes to cap resource use based on the constraints imposed by Earth's biophysical boundaries, and to democratically plan and equitably allocate distribution of common instruments of human needs satisfaction. Employment should be directed toward care-work and social reproduction, and investment directed towards ecosystems restoration and a
solidarity economy. Economic production should place sufficiency before efficiency and productivity, ensuring sharing-driven provision for well-being. Societies should establish an unconditional autonomy allowance for all members based on the locally generated social surplus. Real democracy, where everyone interested has equal potential to participate in a collective process, should be the basis of decision-making, setting of boundaries, enforcement of rules and resolution of conflicts.
Bibliography


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