

## **GREEN ECONOMY AND THE FEAR OF DEGROWTH: A SURVEY OF DELTA STATE, NIGERIA**

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### **Abstract**

The argument against green growth as a sole strategy for sustainable development has led to a passionate call for global degrowth as the only way to save the planet. Degrowth is a radical economic theory born in the 1970s, which requires societies to abandon the idea that the percentage change in gross domestic product is an accurate indicator of progress, and instead learn to live better while producing less. They argued that the only sustainable growth is degrowth. Degrowth is an ecological necessity, and possibly inevitable; but under what conceivable socio-political conditions could such impressive changes happen? This study investigates the issue of degrowth in the Delta oil-rich state of Nigeria using primary sources of data by employing online surveys to send a questionnaire to respondents to gather

information on the need and perception of a degrowth economy. The findings are negative and sceptical contrary to the degrowth policies of being an effective means of fighting against climate breakdown and biodiversity loss and securing human needs and well-being. Leading researchers in ecological economics have published a strategic policy framework to ensure a just transition to a degrowth economy globally.

**Keywords:** Growth Economy, Degrowth, Decoupling, Sustainable Development, and Environmental well-being.

## 1. INTRODUCTION

There is a growing concern about humanity experiencing climate change, biodiversity loss, and inequality within African countries including all states in Nigeria. To save the situation and improve the challenges confronting humanity, a green economy needs to move away from being a pipeline dream and finally become a reality (Kallis, 2019).

In the 1960s there was public recognition of the global environmental crisis arising from the 'tragedy of the commons', which is the idea that has self-interested individuals, humans will overuse shared resources such as land, fresh water and fish. In the

1970s the first United Nations conference on the subject was held and by the 1980s green political parties and public policies had emerged. This coincided with a demand for a green theory to help explain and understand these political issues. By the 1990s, International Relations had come to recognise the natural environment as an increasingly significant source of questions for the discipline, requiring theoretical as well as practical attention – especially in the wake of mounting evidence that human actions were significantly changing our global climate and presenting security problems as well as ecological ones (Hickel, et al.2022).

The concept of a green economy was first mentioned by the famous economist Pearce, who suggested that the environment and economy necessarily interact (Pearce, 1989). UNEP gives a clear definition of a green economy in the report: a green economy is one that concentrates on human and natural factors, and also can create high-salary jobs (UNEP, 2007). In 2011 UNEP enriches the meaning of 'green' to refer to an economy that is not only efficient but also fair, ensuring a just transition to an economy that is low carbon, resource efficient, and socially inclusive. (UNEP, 2011).

Degrowth is a set of theories that point out the social and ecological harm caused by the pursuit of economic growth at all costs. Degrowth emphasizes the need to reduce global consumption and production and advocates a socially just and ecologically

sustainable society with social and environmental well-being replacing Gross Domestic Product (GDP) as the primary indicator of prosperity.

According to degrowth.info, the Degrowth movement advocates for societies that prioritize social and ecological well-being instead of corporate profits, over-production and excess consumption. This requires radical redistribution, a reduction in the material size of the global economy, and a shift in common values towards care, solidarity and autonomy. Degrowth means transforming societies to ensure environmental justice and a good life for all within planetary boundaries.

Some people worry that proponents of degrowth want to see degrowth universally applied, in all countries. This would be problematic because many poor countries need to increase resource and energy use in order to meet human needs. In reality, proponents of degrowth are clear that it is specifically high-income countries that need to degrow (or, more specifically, countries that exceed per capita fair shares of planetary boundaries by a significant margin; see Hickel, 2019), not the rest of the world. Degrowth is focused on reducing excess resources and energy use, it does not apply to economies that are not characterized by excess resources and energy use.

## **2. THE REVIEW OF RELATED LITERATURE**

### **2.1. Concept of Green Economy and Degrowth**

Green economics is supposed to save us from climate change and environmental catastrophes. There are, however, competing ideas about how to best proceed. Degrowth advocates claim that it is unregulated growth that drove us into this predicament in the first place, therefore we need to reduce our GDP, and production in general, to become more sustainable (Kallis, Kostakis, et al., 2018). Green growth advocates, on the other hand, point to great improvements in air quality in the Western world as a great example that green growth is the most efficient way to save the planet. We can grow the economy while at the same time regulating our way to sustainability.

The concept of degrowth dates back to the 1970s when a group of French intellectuals led by the philosopher Andre Gorz proposed a simple idea: In response to mounting environmental and social problems, they suggested that the only real solution was to produce and consume less — to shrink our economies to cope with the carrying capacity of our planet. The proposal was considered by many at the time to be too radical. But with today's climate crisis, debates around degrowth have been reinvigorated, and many major figures such as Noam Chomsky, Yanis Varoufakis and Anthony Giddens expressed support for the idea.

The emergence of degrowth as an international research area can be traced back to the first international conference organised in Paris in 2008 by the academic collective Research & Degrowth, based at the Autonomous University of Barcelona. At this conference, degrowth was defined as a “voluntary transition towards a just, participatory, and ecologically sustainable society,” and proposed as the process that the wealthiest countries should go through in order to achieve a “right-sizing” of both national economies and the global economy.

## **2.2. Meaning of Degrowth**

Degrowth means primarily the abolition of economic growth as a social objective. This implies a new direction for society, one in which societies will use fewer natural resources and will organise and live differently from today. Ecological economists define degrowth as an equitable downscaling of production and consumption that will reduce society. The costs of growth include bad psychological health, long working hours, congestion, and pollution. GDP may still increase, but in most developed economies welfare indicators have stagnated since the 1970s. Above a certain level, further growth does not increase happiness. This is because once basic material needs are satisfied; extra individual income is devoted increasingly to positional goods. It is, therefore, not growth that improves social well-being in advanced societies, but income equality.

Furthermore, infinite growth appears to be totally at odds with our

scientific knowledge of the finite resource base and the fragile ecology on which we depend for survival. While the global economy is almost five times the size it was half a century ago, it has already been accompanied by the degradation of an estimated 60% of the world's ecosystems. With continuous global growth, most planetary boundaries will sooner or later be surpassed, particularly the carbon concentration in the atmosphere that would cause catastrophic climate change.

The influence of degrowth ideas and practices is spreading across policy fields, as well as the social and physical sciences, to offer valuable ways to address current challenges. The Intergovernmental Panel on Climate Change (IPCC) AR6 WG III *Mitigation Report* (2022) not only warns of an urgent need to change direction from a path involving a 3°C average temperature rise, with severe impacts including on people's food security and heightening risks of flooding, fires and storms. The IPCC report also mentions degrowth on several occasions (247, 525, 784, 2873), criticising GDP as 'a poor metric of human well-being, stating that 'climate policy evaluation requires better grounding in relation to decent living standards' and that 'the degrowth movement, with its focus on sustainability over profitability, has the potential to speed up transformations' (856). Moreover, the report summary (41) acknowledges that: 'Sufficiency policies are a set of measures and daily practices that avoid the demand for energy, materials, land and water, while delivering human

wellbeing for all within planetary boundaries.'

### 2.3. Examples of Degrowth

- **Individuals switching to a less materialistic approach to life.** This involve buying fewer consumer goods and instead seeking to 'make do and mend' the goods you already have.
- **Prohibit planned obsolescence.** A government may pass legislation banning practices such as 'planned obsolescence.' Many mobile phone companies work on the assumption that a phone will need 'upgrading' after 2 or 3 years. They make it hard and expensive to change the battery and provide incentives for customers to trade in their phone and buy a new more expensive model, every few years. This leads to excessive use of precious metals and resources in making new mobile phones. Degrowth strategies would be to force companies to make it easy to stick with the same phone, change the battery and get many more years of active use for consumers.
- **Switch away from private cars.** Rather than use scarce resources to produce cars and fuel, degrowth could involve designing city centres for pedestrians and cyclists. If fewer cars and fuels are produced, it may lead to lower GDP. However, for people who live in the city, they may enjoy

better air quality, more exercise, fewer traffic accidents and feel a better quality of life. It may also lead to a revitalisation of city centres if they become more attractive to walk around. This is an example of how outwardly, we get less 'output' and less GDP but quality of life may increase.

- **Growing own food.** At the moment, we import food from around the world, leading to a high carbon footprint. However, rather than importing food, a society could eat more seasonal food and try to grow more food in back gardens and local farms. This would lead to less choice of food, but locally, seasonally produced food may be more attractive to air-freighted food.
- **Suppression of advertising from public space.** Advertising is an example of a product that doesn't materially increase well-being but often just encourages consumerism and unconscious bias towards well-advertised brands. Reducing advertising in city centres would improve well-being as we would not be bombarded with ads all day.
- **Organic food over non-organic.** Many food items are used with the heavy use of antibiotics and chemicals. These enable greater efficiency but have environmental costs. If we switched to organic food, food output may fall in the short term, but it would have long-term benefits for the

environment and could prevent the deterioration of the topsoil, which is a long-term concern.

- **Making use of empty houses rather than building new ones.** Landlords who hold empty properties could be taxed on land and empty homes, freeing up accommodation for the homeless and avoiding the need to build more. There could also be higher taxes on 'second homes' to free up accommodation.
- **Local initiatives and encouraging volunteers.** Rather than rely on the central government to provide all public services, small communities could replace some federal intervention with local volunteers to

## 2.4. Decoupling

Degrowth theory questions the linchpin of sustainable development: *decoupling*. By this term, environmental economists define the trend by which economic output progressively uses less energy and raw materials because of increases in efficiency. According to this theory, there is no irreconcilable clash between economic growth and environmental preservation: you can have your cake and eat it too. The concept of *decoupling* denotes that it is possible to decouple economic growth, usually measured in GDP growth, from the use of natural resources and greenhouse gas (GHG) emissions. *Absolute decoupling* refers to GDP growth coinciding with a reduction in natural resource use and GHG emissions, while *relative*

decoupling describes an increase in resource use and GHG emission which is lower than the increase in GDP growth (Haberl; Wiedenhofe et al,2020). The degrowth movement heavily critiques this idea and argues that absolute decoupling is only possible for short periods, specific locations or with small mitigation rates, Miklós; Bergh, et al, (2016). Moreover, there is no empirical evidence that decoupling will happen fast enough on a global scale ( EEB, 2022).

## **2.5. Green Growth vs Degrowth**

Is economic growth incompatible with environmental sustainability? Green growth and degrowth proponents have vastly different economic philosophies. They do agree on one thing: the current economic growth model is unable to effectively change the catastrophic course we are on. We are in the middle of an escalating climate change crisis and moving rapidly toward a global, ecological disaster. The disagreements between the two camps—growth or degrowth—lie in how to proceed with the necessary changes.

Political economist Jason Hickel is one of the most prominent and eloquent advocates of degrowth. In a debate between him and green growth advocate Samuel Fankhauser, passionately articulated the case for global degrowth as the only way to save the planet. Hickel argued that GDP growth forever is neither good nor

necessary. Fankhauser claimed the opposite is possible: increased GDP as well as sustainability through green growth. In his book *Less is More: How Degrowth Will save The World* (Penguin), with a foreword by leaders of The Extinction Rebellion, the political economist argues that it is capitalism's inherent demand for perpetual expansion that is the problem. We cannot have infinite growth on a finite planet. This is of course a compelling argument(Hickel, 2020).

Here are Hickel's two main reasons why we need degrowth:

- (1) Because growing the GDP [Gross Domestic Product] means growing energy demand, and this makes the task of switching to renewables significantly more difficult (nearly three times more difficult between now and 2050, which virtually rules out success).
- (2) Because our preoccupation with growth makes it extremely difficult to get the regulations we need to avert ecological breakdown. Politicians resist such measures *precisely because* of the risks they pose to growth.

## **2.6. An Economy beyond GDP**

GDP only measures the speed at which the total economy grows, and that is a very limited measurement. Here are six ways, commonly referenced in the New Economy Movement, to measure growth beyond GDP.

1. We need to measure if the economy meets the basic needs of its people.
2. We need to measure the well-being of the people.
3. We need to measure the sustainability and the carbon footprint of the economy.
4. We need to measure the health of the commons, the source of all our natural resources.
5. We need to have a reasonable standard for economic equality.
6. We need to measure if physical and mental health is improving.

All these indicators will improve the social economy and the well-being economy, but not so much the profit economy and the GDP growth economy.

## 2.7. Solutions for Unchecked Growth

- **Reevaluate:** People who believe in degrowth think that we need to change our values. We have to stop valuing individualism and consumerism above all. Instead, we should focus on cooperation and the humanist meaning of life.
- **Reconceptualize:** This has to do with redefining ideas like poverty, wealth, necessity, and consumption. As a society, we need to adopt a new perspective on scarcity and abundance.
- **Restructure:** We have to orient production towards different

goals, like the protection of the environment and human happiness. We should opt for eco-efficiency and simplicity. As a society, we have to let go of the idea that more is better.

- **Relocate:** Degrowth believes in the importance of a regional economy. Multinational production is harmful. Instead, the focus should be on finding a way for each region to produce enough to meet its needs.
- **Redistribute:** This means becoming more community-minded and making sure that everyone has enough to meet their basic needs. That would require reducing the purchasing power of the big, global consumers and avoiding ostentatious consumption.
- **Reduce:** This is degrowth applied to production and consumption, which includes working hours. It implies decreasing the consumption of medication and predatory tourism.
- **Reuse:** This has to do with increasing the lifespan of different products. We need to change the culture of disposable things.
- **Recycle:** This means appropriately dealing with waste, avoiding products that can't be recycled, and taking responsibility for the trash we produce.

### **3. A RANGE OF POLICY REFORMS ON DEGROWTH TRANSITION**

General agreement over a range of policy reforms that could

facilitate a stable transition in the direction of degrowth is packaged into seven key areas as outlined below:

## **1. Alternative Indicators**

The first common proposal is for the abandonment of GDP as a measurement of progress and its substitution with more holistic indicators of social and ecological well-being. These range from the GPI and ISEW mentioned in article 5 to the Gross National Happiness index utilised in Bhutan or the Thriving Places Index pioneered in Bristol.

## **2. Decoupling Employment and Growth**

The second area of policy focus is employment. In a degrowth transition it is, therefore, necessary to devise new welfare institutions to decouple paid employment from growth (Ball et al. 2013; Kallis 2018). A job guarantee and work-sharing scheme are seen as key strategies for achieving this. A job guarantee is a proposal to make national governments an employer of last resort, effectively reducing unemployment to zero level. Such a proposal holds the potential to foster employment in socially and ecologically beneficial areas such as localised food projects, ecological restoration, care, health and educational services or free software production (D'Alisa et al. 2015). As Jackson (2009) and Kallis et al. (2013) have demonstrated, fewer working hours per worker means more jobs for everyone to share. Not only does work-sharing allow for the creation of employment in the absence of growth, but it is also associated with reductions in carbon

emissions and ecological impact (Knight et al. 2013).

### **3. Decoupling Well-being from Paid Employment**

Just as important as decoupling paid employment from growth is the decoupling of well-being from paid employment. A UBI, expansion of universal social services and reinstating the commons are potential measures for securing a basic level of security and subsistence for all. However, UBI is an income that is guaranteed to all citizens for life. Akin to work-sharing, a UBI facilitates redistribution in favour of the unemployed, people on low incomes and those engaged in the care economy. It is important that a UBI is accompanied by a basic living wage, or guaranteed minimum wage, so as to ensure it does not lead to reduced wages. Admittedly, there are several concerns surrounding the implementation of a UBI (Kallis 2018). Potential mechanisms for financing will be explored in the following policy suggestions.

A potential accompaniment to a UBI is the expansion of universal social services and a reclaiming of the commons. Such an expansion of public services or common goods — which encompass universal access to affordable housing, public transport and food, public healthcare and education as well as access to recreational activities and public spaces — could ensure that everyone has access to the goods and services required for a

good life without needing high salaries. This economic restructuring would reduce private riches whilst generating an abundance of public wealth (see Hickel 2019).

Such a step is fundamental in liberating people from the artificial scarcities — and the concomitant pressures for competitive productivity and consumption — that capitalism produces (Akuno 2019; Hickel 2019). The expansion of public goods and services held in common, and the promise of economic security that they hold, can therefore be seen to be an essential antidote to growth. Again, possible solutions to the concerns over the financing of such services in the absence of growth will be investigated in the following policy recommendations.

#### **4. Fiscal and Monetary Reform**

The fourth policy area of focus for a degrowth transition concerns fiscal and monetary reform. Money issued as debt currently creates a growth dynamic — debts are repaid with interest and interest requires growth. There is therefore likely to be a greater difficulty in repaying debts in an economy without growth. One method for compensating for this difficulty is to restructure and eliminate particular debts through a debt jubilee (Graeber 2011; D'Alisa et al. 2015). This process could be facilitated via citizen-run debt audits, which could determine the legitimacy or illegitimacy of specific debts (D'Alisa et al. 2015). A related proposal is for governments to reclaim the capacity to issue debt-free public money from private banks (see Mellor 2010).

## **5. Taxation Reforms**

The fifth component of the degrowth policy package is taxation reforms. The central characteristic of degrowth economics is that it invereses the logic of growth through a progressive redistribution of income (Hickel, 2020). One mechanism for achieving this is through green tax reform — to begin taxing energy and resource use or ecological damage instead of income (Daly 1996). This shift favours low-carbon enterprises and cooperatives by incentivising the consumption of low-carbon goods over high-carbon ones.

## **6. Investment Policy**

The sixth policy focus of a degrowth transition is on investment policy. A restructured economic investment programme could work to redirect public investments from dirty, polluting infrastructure and activities towards investments that reclaim the commons and green the economy. Such a programme would involve a gradual withdrawal of subsidies from fossil fuel projects, private transport infrastructure, military technology, industrial agriculture and other ecologically harmful sectors (Kallis et al. 2018).

## **7. Emissions and Resource Caps**

While the six areas of policy reform suggested above hold great potential for sustaining and improving social and ecological well-

being without growth, to ensure a reduction in energy and material, they must be accompanied by absolute and diminishing emissions and resource caps. The dominant proposition is to 'cap and share' (Kallis 2018). This involves setting legal caps (based on the most up-to-date scientific evidence on ecological limits) on the total amount of emissions and resources that can be emitted and extracted.

#### **4. DELTA STATE AND THE ECONOMY OF DEGROWTH**

**Delta State is located in the southwestern part of Nigeria which was originally part of Bendel State** with 17,698 square miles of land area. Delta State has an estimated population of 5,663,362 as of 2016, according to the National Population Commission and National Bureau of Statistics. **Warri is the economic hub of the state, while Asaba, in the northeast, is the state capital.** When it comes to oil production, around 35% of Nigeria's crude oil and a sizeable proportion of natural gas come from *Delta State*. Warri North and South, Burutu, Isoko North and South, Ughelli North and South, Okpe, Ethiope East and West, Sapele, and Ndokwa East and West are all Local Government Areas that produce oil.

Warri has the country's second refinery and petrochemical complex which is one of the major sources of income for the state and the Federal government. However, presently, there are 25 local government areas in Delta State. These are the list of the Delta

State Local government.

1. Ethiope East
2. Ethiope West
3. Okpe
4. Sapele
5. Udu
6. Ughelli North
7. Ughelli South
8. Uvwie
9. Aniocha North
10. Aniocha South
11. Ika North East
12. Ika South
13. Ndokwa East
14. Ndokwe West
15. Oshimili North
16. Oshimili South
17. Ukwuani
18. Bomadi
19. Burutu
20. Isoko North

**21.**Isoko South

**22.**Patani

**23.**Warri North

**24.**Warri South

**25.**Warri West.

## **5. METHOD**

The research papers published in journals and conference proceedings were used to prepare this survey. Google search was used to do the search procedure. Keywords such as 'green growth', 'degrowth', 'Delta state' etc. were used to conduct the search. The study employed primary data using online surveys to send a questionnaire to respondents to gather information from them on their view on degrowth. Online surveys are convenient and can be sent by email or can be filled out online. These can be accessed on devices like smartphones, tablets, Ipads and similar devices.

## **6. RESULTS OF RESEARCH INVESTIGATION ON DEGROWTH IN THE OIL-RICH DELTA STATE OF NIGERIA**

**The investigation on the attainability of degrowth in Delta State, Nigeria** was greeted with mixed feelings. A lot of criticism arises when talking about degrowth, both regarding the difficulties of its implementation, and the debate on whether it should be

viewed as a better economic policy. The following responses were gathered:

- Some respondents worried that degrowth implies a negative connotation of lower living standards. We are so used to growth being considered a good thing. Economic growth reduces poverty. For many developing economies like Nigeria, economic growth has enabled many people to be lifted out of poverty.
- Some respondents feel that degrowth may seem a good idea for advanced western economies, but for those in developing economies with widespread poverty, economic growth and higher output make a significant difference to living standards.
- Some respondents worried that people have a strong attachment to cars and may not want to give up this for cycling.
- Some respondents worried that the average Deltans understands the significance of economic growth in the sense that it supports a growing population. The stronger the economy, the more people can make a living and lead independent lives. Economic growth from this perspective is crucial to a free society.
- Some respondents worried that achieving degrowth would be very difficult from an economic and political point of view. In most parts of the world, capitalism has been the dominant system for hundreds of years – a system built on

exploiting natural resources and acquiring their benefits fast and easily.

- Some respondents worried that how would the government suddenly influence every citizen to fundamentally reassess their values – values that have been shaped by consumerism since their birth.
- Some worried that tending to reduce our working hours in the formal economy in exchange for more home production and leisure in the face of poverty means less income, fewer savings, and less investment.
- Some worried that in the next few decades, most of us will be living within the poorly designed urban infrastructure that already exists if degrowth is been adopted as an economic policy.
- Some are worried that businesses will be negatively affected if the entrepreneurs' profits are at risk of a decrease, and the private investments could also decrease, possibly bringing the whole GDP down.
- Some worried that shrinking the economy wouldn't give the world the resources it needs to stop climate change or to lift billions out of poverty.

## 7. CONCLUSION AND RECOMMENDATIONS

Degrowth is a purposeful strategy to stabilize economies and

achieve social and ecological goals, but a just transition to a degrowth economy poses several challenges as observed from the research findings. For Nigeria to successfully move into a degrowth economy, the following recommendations are proffered:

- There should be a proper awareness of the need for a degrowth economy globally through the appropriate channel of communication.
- More research should be carried out on the authenticity of degrowth in developing countries like Nigeria to save the people from the mixed feelings about degrowth economy.

## References

Akuno, K. (2019) *The Green New Deal Must Have a Zero Waste Policy: Disrupting the extractivist logic of capitalism is crucial to addressing climate change*. Available at: (Accessed: 26 April 2019).

Ashley Boyd (2022). Is Degrowth the Economic Solution to Climate Change? Economy & Business November 14, 2022, Available at: <https://utopia.org/guide/is-degrowth-the-economic-solution-to-climate-change/>

Assadourian, E. (2012), "The Path to Degrowth in Overdeveloped Countries", is the second chapter of the Worldwatch Institute's *State of the World* available for free online.

Ball, L. M, Leigh, D. & Loungani, P. (2013) 'Okun's Law: Fit at Fifty?'. *National Bureau of Economic Research*, no. w18668.

Bardi, U. (2008) 'Peak Caviar'. The Oil Drum: Europe. <http://europe.theoildrum.com/node/4367>

Büchs, M. & Koch, M. (2019) 'Challenges for the degrowth transition: The debate about wellbeing'. *Futures*, 105, pp. 155–165

Cattaneo, C. & Gavalda, M. (2010) 'The experience of urban squats in Collserola, Barcelona: What Kind of degrowth?'. *Journal of Cleaner Production*, 18 (6), pp. 581–589.

D'Alisa, G., Demaria, F. & Kallis, G. (2015) *Degrowth: A Vocabulary For A New Era*. London, Routledge.

Daly, H. E. (1996) *Beyond Growth: The Economics of Sustainable Development*. Boston, Beacon Press.

Demaria, Federico; et al. (2013). "What is Degrowth? From an Activist Slogan to a Social Movement" (PDF). *Environmental Values*. 22 (2): 191–215. doi:10.3197/096327113X13581561725194. Archived from the original (PDF) on 2016-05-27.

Fraser, Nancy (2017). *Crisis of Care? On the Social-Reproductive Contradictions of Contemporary Capitalism*. In: Bhattacharya, Tithi. *Social Reproduction Theory: Remapping Class, Recentering Oppression*. London: Pluto Press. pp. 21–36.

Heikkurinen, Pasi (2018). "Degrowth by means of technology? A treatise for an ethos of releasement" (PDF). *Journal of Cleaner Production*. 197: 1654–1665. doi:10.1016/j.jclepro.2016.07.070. S2CID 55830276.

Heinberg, R. (2006) 'Fifty Million Farmers'. Speech delivered at the twenty-sixth annual E.F. Schumacher Lectures. *Schumacher Centre for a New Economics*. Transcript available at: <https://centerforneweconomics.org/publications/fifty-million-farmers/> (Accessed: 10 May 2019).

Hickel, Jason (2020). *Less is More; How Degrowth Will Save the World* (Hardcover ed.). William Heinemann. ISBN 9781785152498. Retrieved 20 January 2021.

Hickel, Jason; Kallis, Giorgos; Jackson, Tim; O'Neill, Daniel W.; Schor, Juliet B.; et al. (December 12, 2022). "Degrowth can work — here's how science can help". *Nature*. 612: 400–403.

*doi:10.1038/d41586-022-04412-x.*

Hickel, Jason; Kallis, Giorgos (2020-06-06). "Is Green Growth Possible?". *New Political Economy*. 25 (4):469–486. *doi:10.1080/13563467.2019.1598964*. ISSN 1356-3467. S2CID 159148524.

Huesemann, Michael H., and Joyce A. Huesemann (2011). *Technofix: Why Technology Won't Save Us or the Environment*, New Society Publishers, Gabriola Island, British Columbia, Canada, ISBN 0865717044, 464 pp.

Jackson, T. (2009) *Prosperity without Growth: Economics for a Finite Planet*. London, Earthscan.

Jack Herring ( 2019). Well-being Without Growth: Degrowth Policy Proposals. Available at: <https://medium.com/the-case-for-degrowth/well-being-without-growth-degrowth-policy-proposals-a76af43f12c2>

Kallis, G. (2018) *In Defense of Degrowth: Opinions and Minifestos*. Barcelona, Uneven Earth Press.

Kallis, G. (2019) *A Green New Deal Must Not Be Tied to Economic Growth*. Available at: <https://truthout.org/articles/a-green-new-deal-must-not-be-tied-to-economic-growth/> (Accessed April 22 2019).

Kallis, G., Kerschner, C., & Martinez-Alier, J. (2012) 'The economics of degrowth'. *Ecological Economics*, 84, pp. 172–180.

Kallis, G., Kostakis, V., Lange, S., Muraca, B., Paulson, S. &

Schmelzer, M. (2018) 'Research On Degrowth'. *Annual Review of Environment and Resources*, 14 (8), pp 4.1–4.26.

Kallis, Giorgos (2011). "In defense of degrowth" (PDF). *Ecological Economics*. 70 (5): 873–880. doi:10.1016/j.ecolecon.2010.12.007.; Kallis, Giorgos (February 2015). "The Degrowth Alternative". Great Transition Initiative.

Kallis, Giorgos; Kerschner, Christian; Martinez-Alier, Joan (2012): The economics of degrowth. *Ecological Economics*, 84, 172–180.

Kallis, Giorgos; Kostakis, Vasilis; Lange, Steffen; et al. (2018-10-17). "Research On Degrowth". *Annual Review of Environment and Resources*. 43 (1): 291–316. doi:10.1146/annurev-environ-102017-025941. ISSN 1543-5938.

Kerschner, Christian (2010). "Economic de-growth vs. steady-state economy" (PDF). *Journal of Cleaner Production*. 18 (6): 544–551. doi:10.1016/j.jclepro.2009.10.019.

Knight, K. W, Rosa, E. A. & Schor, J. B. (2013) 'Could Working Less Reduce Pressures on the Environment? A Cross-National Panel Analysis of OECD Countries, 1970–2007'. *Global Environmental Change*, 23 (4), pp. 691–700.

Koch, Max (2017): The state in the transformation to sustainability in a postgrowth context. In: Beyond the Environmental State? Exploring the Political Prospects of a Sustainability Transformation, <https://ecpr.eu/Events/PaperDetails.aspx?PaperID=34080&EventID=104>

Latouche, S. (2004). Degrowth Economics: Why less should be so much more. *Le Monde Diplomatique*.

Latouche, S. (2009) *Farewell to Growth*. Cambridge, Polity Press.

Levallois, Clément (2010). "Can de-growth be considered a policy option? A historical note on Nicholas Georgescu-Roegen and the Club of Rome". *Ecological Economics*. **69** (11): 2271–2278. doi:10.1016/j.ecolecon.2010.06.020. hdl:1765/20130. ISSN 0921-8009.

Martínez-Alier, Juan; et al. (2010). "Sustainable de-growth: Mapping the context, criticisms and future prospects of an emergent paradigm" (PDF). *Ecological Economics*. **69** (9): 1741–1747. doi:10.1016/j.ecolecon.2010.04.017.

Martínez-Alier, Joan (2012). "Environmental Justice and Economic Degrowth: An Alliance between Two Movements Joan". *Capitalism Nature Socialism*. **23** (1): 51–73. doi:10.1080/10455752.2011.648839. S2CID 54086017.

Mastini, R. (2017). Degrowth: The Case for a New Economic Paradigm

Meadows, D. H. (1998) 'Indicators and Information Systems for Sustainable Development: A Report to the Balaton Group'. *The Sustainability Institute*. Available at: <http://donella.meadows.org/wp-content/userfiles/IndicatorsInformation.pdf> (Accessed 10 May 2019).

O'Neill, D. W. (2012) 'Measuring progress in the degrowth transition to a steady state economy'. *Ecological Economics*, 84, pp. 221–231.

**Peter Morici (2022).** Opinion: Degrowth solutions won't solve global warming. Available at: <https://www.marketwatch.com/story/degrowth-solutions-wont-solve-global-warming-11672197683>

Pollin, R. (2018) 'De-Growth vs a Green New Deal'. *New Left*

*Review*, 112, pp. 5–25.

Schumacher, E. F. (1973). *Small is Beautiful: Economics as if People Mattered*. New York: Perennial Library.

Tejvan Pettinger(2020).Degrowth – definition, examples and criticisms Economic. Help. Available at: <https://www.economicshelp.org/blog/164203/economics/degrowth/>

Theuer, L. and Hopp, J.(2019). Bidding Farewell To Growth: How To Provide Welfare in a Degrowth Society an essay on "Socio-Ecological Economics" published on 15 May 2019

Victor, P. A (2015) 'Growth'. In: D'Alisa, G., Demaria, F. & Kallis, G (eds). *Degrowth: A Vocabulary For A New Era* [Kindle version]. London, Routledge, pp. 377–386.

Victor, P. A. (2008) *Managing Without Growth: Slower by Design, Not Disaster*. Cheltenham, Edward Elgar Publishers.