**How to achieve the rapid change required for the climate and other planetary boundaries in a socially positive manner? Assessing the possible contribution of degrowth, post-growth and related approaches in a European and global perspective**, paper to Euromemo conference, Naples, 27-28 September 2023

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[Please note this paper is incomplete and will be completed later]

*Abstract:*

In the light of the very rapid reduction required of GHG emissions as well as a corresponding pulling back from overshooting several other planetary boundaries, this paper examines the potential contribution of degrowth, post-growth and related approaches to achieving this in a socially beneficial manner. These approaches have received rapidly increasing support in academia (even if from an initially low level) as well as by activists over the last decade in particular, and were taken up by the IPCC for the first time in their latest major report (2022), and in a significant way. The specific critiques of conventional economic growth by these approaches in relation to the major ecological issues addressed here is considered, as well as in reverse, the critiques by others of the approaches' overall viability, especially in areas such as the funding of social welfare systems. The difficult issue of achieving rapid change in relation to climate and other planetary boundaries is considered from the interrelated economic, social and political perspectives, both in relation to the EU and the broader international sphere, with particular attention to EU policies notably the Green Deal as well as the recent international policy approaches of the EU.

## 1. Introduction [to be inserted]

[The issue of rapid change in this context and the approach of the paper]

## 2. Emissions and climate urgency – just how urgent is this and how rapid must change be?[1]

In the latest round of IPCC reports, the extensive report on climate impacts[2] points repeatedly to 1.5° global warming as a level where many aspects of climate damages are likely to enter new and particularly dangerous levels, often affecting all continents, though other temperature levels are also significant and each fraction of a degree can often make a major difference. Tipping points are of particular concern in that report round.

*The consequences of failing to stay below 1.5°*

Current temperatures are 1.2° above the historical norm. Current climate policies of the world's countries are estimated to be heading for heating of 2.7°C[3], despite the Paris and Glasgow agreements to keep temperatures to 1.5°, and with little sign of the major and urgent reductions in emissions required.

The IPCC says the transition to extreme weather - e.g. heatwaves, heavy rain, drought, flooding and wildfires - has already started, but that they project 'further substantial increases in several extreme [weather] event types with a global warming of 1.5ºC'.[4] The consequences of this are seen to be profound, e.g. the 'risks of simultaneous crop failure across worldwide breadbasket regions' are assessed to increase rapidly after 1.5º.[5] They also state that '[a]n additional 350 million people living in urban areas are estimated [to] be exposed to water scarcity from severe droughts at 1.5°C warming',[6] not to mention rural areas.

Biodiversity also comes under even greater pressure then, it says, as '[l]osses in terrestrial and marine biodiversity increase substantially beyond 1.5ºC', listing a number of effects, including 'widespread' death of trees.[7] The latter in turn would have a major effect on the climate due to their crucial role in aborbing CO2 emissions.

The IPCC also addresses the melting of permafrost, which would release large amount of methane and CO2, further enhancing global warming; this has already started, and one important form of such melting is assessed as likely to take off at 1.5º and beyond.

Wildfires with such an intensity that they are far beyond the ability of humans to extinguish/control them. Then quote fm Mance FR article.

*Tipping points and their signficance*

Tipping points are an issue of particular concern with global warming, with rapidly expanding research on the subject. Tipping points have been defined as "a critical threshold at which a tiny perturbation can qualitatively alter the state or development of a system", as has happened numerous times in the earth's history.[8] They are typically irreversible after such a state shift. They also often pass from negative feedback where they have provided stability to the earth's systems, to positive, destabilising, impacts. Further, passing some tipping points can result in increasing the likelihood of others.

Climate tipping points are generally discussed in relation to the effects of rising temperatures; they can be seen as global or, sometimes, regional in their effects.[9] They are typically extremely dangerous and given the great magnitude of their effect, setting them off would be foolish in the extreme. Several major tipping points are assessed to be considered 'likely' to be set off if global temperatures pass 1.5° and beyond. Here we briefly examine the effects of doing so, based mainly on the recent IPCC report (WGII) and related studies.

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[1] Some of this section was included in the Euromemo 2023 report, but is also included here because of its importance to the argument.

[2] IPCC AR6 WG II, *Impact, Adaptation and Vulnerability*, Feb 2022.

[3] Climate Action Tracker, according to *Nature* editorial, 31-8-23, p.922.

[4] p. 16-104

[5] p. 16-105 to -106

[6] p. 6-4

[7] p. 16-110

[8] D. Armstrong Mckay et al, Exceeding 1.5°C global warming could trigger multiple climate tipping points, *Science,* 9-9-22.

[9] ibid.

The danger zone for high risk of the *Amazon forest* drying, becoming denuded and transitioning to savannah - with loss of functioning as climate regulator - starts at 1.5º and becomes likely at 2º, and to some degree has already started. It would also lose most of its function for biodiversity. The consequences would be dramatic for the whole planet.[10]

The IPCC foresees a 0.6m *sea level rise* this century if global heating rises to 1.6°, mainly due to ice melting.[11] At 2º, a 2m-6m rise is anticipated to take place over time, though this would take centuries, with even greater rises at greater temperature increases. As a substantial part of the world's population is in low-lying coastal cities and deltas, some of which are actually sinking to lower elevations, the consequences would be very great.

The collapse of (tropical and sub-tropical) *coral reefs*: this has already started, will rise to 70%-90% at 1.5º, and virtually complete collapse at 2º. This would have a major affect on the food web in the sea around the world, on which many millions depend.[12]

A new large-scale literature review paper on tipping points discusses further tipping points, as well as those covered by the IPCC.[13] Among these are the collapse of a *major ocean-atmosphere circulation mechanism* in the North Atlantic (the Sub-Polar Gyre), which is anticipated likely to take place from 1.8º, but which could start from 1.1º. This would have a global impact, and would cause extreme weather in Europe. The paper also assesses that the *collapse of major ice sheets* - in Greenland (covering 80% of its area) and West Antarctica - would become likely at 1.5º or above. This would lead to a major increase in sea level globally. It also addresses the melting of *permafrost*, which would release large amount of methane and CO2, thus further enhancing global warming. This has already started, and one important form of such melting is assessed as likely to take off at 1.5º and beyond.

*The carbon budget and the time left for action*

The recent IPCC reports also give an updated scientific view of the carbon budget for remaining below 1.5°, i.e. the amount of additional CO2 emissions that can be put into the atmosphere before that temperature is reached.[14] *This is arguably the most important statistic for policy in the whole set of reports, as it indicates how rapidly emissions must be reduced*.

More recently, an international initiative of numerous very experienced scientists in the field have updated the IPCC work and plan to do it on an annual basis, to complement the 5- to 7-yearly cycle of the IPCC report, in order to help policymakers.[15] It is based on methodologies used in the IPCC AR6 report, WGI & WGIII.[16] This updated version is used here. The carbon budget figures given in that article refer to the beginning of 2023;

[10] IPCC, p. 16-119

[11] IPCC, p. 16-118

[12] IPCC SR on 1.5 (2018)º, quoted in Armstrong McKay et al.

[13] D. Armstrong McKay et al.

[14] Summary for Policymakers of WG I report, table SPM.2. The carbon budget is for CO2 emissons, the most long-lasting greenhouse gas by far; it makes assumptions on likely emissions of non-CO2 GHGs.

[15] P. Forster et al, *Indicators of Global Climate Change 2022: annual update of large-scale indicators of the state of the climate system and human influence*, ESSD, 8-6-23. The report has approximately 50 authors.

[16] Forster et al, p. 2297.



if we shift the starting date to the beginning of 2024, and taking account of the additional emissions in between, we can see that the carbon budget for an 83% chance of reaching 1.5º is 60 GtCO2, and for a 50% chance, 210 Gt.[17]

83% likelihood means a 1 in 6 chance of failure to stay below 1.5°; given the extraordinary consequences of passing 1.5º, as outlined above, this is highly dangerous, as is anything other than a tiny risk of failure. Yet governments and companies frequently state that they are going for a far higher chance of failure – 50% – and this has become by far the most frequent objective for emissions reduction. An assessment of risks, of course, needs to take the amount of potential damage into account, and in this case it is astronomical.

Some have used the 67% chance of staying below as an objective, i.e. a 1 in 3 chance of failure, though considerably fewer than those adopting 50%.

While taking a 50% chance would double the time available to reduce emissions, arguably this is highly irresponsible, given the consequences. To try to put this into perspective, would a person cross the road if they knew they had a 50% chance of being knocked down? Yet this is the chance which governments, companies and other bodies have typically been taking on behalf of the public with their stated climate policies, not to mention their typically less ambitious actual policies.

Using the updated figures mentioned here, the carbon budget for an 83% chance of staying below 1.5º, 60 Gt CO2 (from the start of 2024) is equivalent to just 1½ years of current global emissions, i.e if emissions were to continue at their present level, that budget would already be used up by the middle of 2025. If current emissions are reduced in a straight line to zero, this would have to be done in 3 years, i.e. by 2027. For a 67% chance, the corresponding figure for reduction to zero is 6 years, and for a 50% chance, 10 years. (These figures are rounded for simplicity). There is substantial uncertainty around these figures, and these are central estimates, so the time available to stay under 1.5º could be considerably less than these figures indicate.

*This latest revision means that what in the IPCC assessment was a 1-in-6 chance of failing even if emissions are reduced to zero within 9 years, now becomes a 1-in-2-chance of failing.*[18] This obviously means the need for immediate and drastic action of a completely different order to that taking place up to now. The current path of postponing real action to future generations could not be taken.

The EU with its Green Deal policy of 'Fit for 55' considers itself the most advanced regions of the world in combating climate change, repeatedly invoking this. Yet its reduction of 55% in emissions by 2030 does not start from now, but from its peak emissions, in 1990. Taken from 2019, when the Green Deal was first discussed, the original 50% reduction proposal in fact meant only a 37% reduction from the time it was announced, as a previous Euromemo pointed out at the time. The increased EU figure of

[17] Forster et al, Table 7.

[18] The Forster et al (2023) article states that there would be delay of 'a few years' between the time the remaining carbon budget (RCB) is exhausted (for a 50% chance) and the time [when] the 1.5º global warming level is actually reached. (p. 2313). Unfortunately, that is little comfort if it is going to take place anyway.

55% means 42% starting from 2019. These figures are very far indeed from the implications of the latest carbon budget figures given above.
The urgency is extreme. This is rarely evoked, though the UN Secretary General … very recently said that due to all the delays, […] have opened the gates of hell'.[19]

For one thing, the dominant source of greenhouse gas emissions, fossil fuels, have to be phased out urgently, etc. […] For a discussion of phasing out fossil fuels in the context of carbon budgets, including equity across countries in production phaseout pathways, see D. Calverley & K. Anderson (March 2022).[20] See also the Fossil Fuel Non-Proliferation Treaty [ref. and details]. And the Rapid Transion Alliance, especially their report 'How did we do that?', giving historical examples of societies making extremely rapid changes.

Yet, as many have pointed out [ref.] the upcoming COP28 meeting appears to have been captured by the oil industry. [to be elaborated]

*Inequality and emissions as well as other planetary boundaries [to be elaborated]*

As some have argued, either the transformation necessary for the the climate and planetary boundaries will be equitable or will not take place at all. […]

For further on the issue of inequality and emissions: Oxfam has taken a leading role in research addressing inequality and climate, including the respective roles of investments and of consumption in causing emissions, and have collaborated with outside research institutes and individual researchers in this field, including L. Chancel, S. Kartha and D. Kenner.[21]

[…]

*Note:*
For further discussion using this kind of analysis and including equity issues, see, K. Anderson & D. Calverley, 'How alive is 1.5? Part one – a small budget, shrinking fast'.[22] The calculations there correspond exactly with those in this paper for similar items, and taking into account the different starting dates for reductions. The key table with the latest figures mentioned above is given in the annex to this paper, showing the original carbon budget figures and the revisions (from Forster et al, 2023).

[19] A. Goodman & D. Moynihan, Clinging to Hope at the Gates of Climate Hell, Democracy Now! 21-9-23. https://www.democracynow.org/2023/9/21/clinging_to_hope_at_the_gates

[20] 'Phaseout Pathways for Fossil Fuel Production Within Paris-compliant Carbon Budgets', Tyndall Centre, Univ of Manchester, report for the IISD, March 2022. https://research.manchester.ac.uk/en/publications/phaseout-pathways-for-fossil-fuel-production-within-paris-complia

[21] See for example: T. Gore et al, 'Confronting carbon inequality in the European Union: Why the European Green Deal must tackle inequality while cutting emissions', Oxfam briefing 7-12-20; Oxfam, 'Carbon billionaires: The investment emissions of the world's richest people', Oxfam Briefing Paper, November 2022. Also see S. Kartha, E. Kemp-Benedict, T. Gore et al, 'The Carbon Inequality Era: An assessment of the global distribution of consumption emissions among individuals from 1990 to 2015 and beyond', report, Stockholm Environment Institute & Oxfam, 21-9-20.

[22] Climate Uncensored 28-11-22. https://climateuncensored.com/how-alive-is-1-5part-one-a-small-budget-shrinking-fast/



## 3. Degrowth in this context

This paper includes a preliminary attempt to address Degrowth and similar approaches as a means to address critical issues on the climate and other planetary boundaries, and in particular the question of rapid change. It uses some of the recent and arguably most fundamental syntheses of the degrowth literature (M. Schmelzer et al, *The Future is Degrowth*, 2023; N. Fitzpatrick, T. Parrique & I. Cosme, 'Exploring degrowth policy proposals: A systematic mapping with thematic synthesis', 19p, *Journal of Cleaner Production*, June 2022; as well as to some extent N. Barlow et al, *Degrowth & Strategy: How to bring about social-ecological transformation*, 2022, and C. Burkhart, M. Schmelzer & N. Treu, eds, *Degrowth in Movement(s): Exploring Pathways for Transformation*, 2020, for example, as well as some of more sophisticated critical literature, e.g. B. Frankel, *Democracy versus Sustainability*, 2021.

[What degrowth is …, including "less but different" (G. Kallis)] Reducing energy and material throughput but in a just way that is just and actually improves human well-being. […]

Degrowth has expanded rapidly since its recent surge since the early 2000s with the French *décroissance* movement (preceded by A. Gorz' discussion of *décroissance*, 1972), mainly in academia and with activists (Schmelzer et al, 2023). Some estimate of its expansion in academia is indicated by Fitzpatrick et al in their comprehensive assessment of degrowth policy proposals state that 'degrowth literature has grown over five-fold, from ~220 texts in 2014 to 1166 by the end of 2020' (Fitzpatrick et al, 2022, p.2). It has also expanded into different disciplines.

Degrowth is also getting recognition more widely. Degrowth was for the first time included by the IPCC in its latest round of reports, AR6, in the WGIII report (2022). 'Degrowth' is mentioned 26 times in the report, – though this includes references – and chapter 5 in particular is, for the first time, about demand – reducing demand with major equity perspectives around human needs – which is central to the degrowth approach. As T. Parrique puts it, 'The report divides demand-side measures into three kinds: *avoid*, *shift*, and *improve*.[ii] *Avoid* consists in consuming less of something; *shift* means substituting one type of consumption for another; and *improve* is the greening of an existing type of consumption. If we're talking about cutting the carbon footprint of food, I can avoid waste, shift to a vegan diet, and improve my cooking equipment. So, this is the central focus of the chapter: What can we avoid, shift, and improve in our consumption to reduce emissions?'[23] Having said this, degrowth approach goes well beyond that statement.

Some degrowth writers, e.g Schmelzer et al, describe degrowth as the reverse of J. K. Galbraith's "private wealth and public poverty" (1958), proposing instead public wealth and restricted private wealth. They put forward the idea of a maximum and a minimum income.

Degrowth critiques are very strong on the problems of economic growth in the context of the ecological and social damage, both in the rich countries and even more so as caused

[23] T. Parrique, 'Sufficiency means degrowth', Resilience 6-5-22. As Parrique points out, avoid-shift-improve was first used in a policy report in Germany in the early 2000s.

by the rich countries in the Global South. However, they appear to be particularly weak on the politics of actually achieving it. […]. Boris Frankel in his *Democracy Versus Sustainability* (2021), even if it perhaps sometimes somewhat unfair in its criticism, raises some fundamental issues about political feasibility and how the inevitable major and very powerful opposition would be countered.

Schmelzer et al have proposed using Erik Olin Wright's three-part approach for achieving radical change.

Rapid change:
Degrowth writers, like many others, often invoke the idea that there is a need for rapid change when introducing their work. However, none of them examined here, including the syntheses of the work on degrowth, appear to actually address the issue. In the contex of the dangers ahead, this is a major problem. […]

Other issues with degrowth.

Authors supporting degrowth, including I. Gough, *Heat, Greed and Human Need*, 2017.

[…]

## 4. The EU Green Deal

As described in Section 2, the EU's climate emissions goals are far out of line with the requirements for climate safety. The European Commission's president in her State of the Union' speech in September 2023, had very little to say on the EU Green Deal at all, except to say how excellent it is. Yet many of the areas of the Green Deal have had their initiatives either cut back, usually by the Member States, or have not yet been approved in the EU approvals processs, notably the trialogue between Commission, Member States and European Parliament.

A former Shell executive has been appointed by the EU president to be the EU's climate commissioner (following the transfer of F. Timmermans to national politics), including to negotiate on behalf of the EU at COP28.[24] At a COP that is already heavily laden with oil industry representation, including the COP's president, head of the national oil company, and taking place in the UAE where protest is very severely restricted, this is surely heading for complete disaster. The proposal emerging from the COP presidency, advised by the world's largest public relations company, seems to be that the oil industry will continue to produce instead of shut down rapidly, but that its direct emissions from production will be addressed, as opposed to the vastly greater emissions that come from the burning of fossil fuels that are rapidly heating the planet.

…

[24] M. Myers, 'Amid rising climate catastrophes, why is the EU putting an oil man in charge?', Euronews op-ed, Corporate Europe Observatory, 6/9/23. https://corporateeurope.org/en/2023/09/amid-rising-climate-catastrophes-why-eu-putting-oil-man-charge



EU ETS extension to fossil heating and transport are not balanced by anything like fairness to less well-off people, and Y. Saheb, a European IPCC participant in the area, and a specialist in energy and transport poverty, has said that she can guarantee that when this is implemented, people will be out in the streets in large numbers [insert quote]

In Europe as elsewhere, wildfires have become increasing dangerous and damaging with climate change, due to often much higher winds as well as drying out of forests in prolonged dry spells. This can result in fires that become impossible to control. As H. Mance says in a Financial Times article, 'Fires are measured by their intensity: how much energy they emit at their fiercest point. The most powerful firefighting equipment that humans have — Canadair planes that cost roughly $35mn each and drop 30 bathtubs' worth of water at a time — can extinguish fires with an intensity of up to 10,000 kilowatts per metre of fire line. Today's mega-fires are a different order of magnitude, sometimes exceeding 100,000 kilowatts per metre.'25 With the EU having 20 of these planes to come to the assistance of all the fires in Europe. These are given a high profile when fires break out somewhere in Europe, often in different countries at the same time, but are next to useless in these conditions.

[25] H. Mance, 'Extreme wildfires are here to stay. Can human beings really fight them?', *Financial Times* 13-7-23

# Annex: Forster et al, Table 7

**Table 7.** Updated estimates of the remaining carbon budget for 1.5, 1.7 and 2.0 °C, for five levels of likelihood, considering only uncertainty in TCRE.

| Historical cumulative $CO_2$ emissions (1850–2019) AR6 WGI Table SPM.2 | 2390 (±240; *likely* (66 %–100 % probability) range) | | | | | |
|---|---|---|---|---|---|---|
| Remaining carbon budgets Case/update | Base year | Estimated remaining carbon budgets from the beginning of base year ($GtCO_2$) | | | | |
| Likelihood of limiting global warming to temperature limit. | | 17 % | 33 % | 50 % | 67 % | 83 % |
| 1.5 °C from AR6 WGI | 2020 | 900 | 650 | 500 | 400 | 300 |
| + AR6 emulator update | 2020 | 750 | 500 | 400 | 300 | 200 |
| + as above with AR6 scenario update | 2020 | 750 | 500 | 400 | 300 | 200 |
| **+ as above with warming update (2013–2022) (best estimate)** | **2023** | **500** | **300** | **250** | **150** | **100** |
| 1.7 °C from AR6 WGI | 2020 | 1450 | 1050 | 850 | 700 | 550 |
| + AR6 emulator update | 2020 | 1250 | 900 | 700 | 600 | 450 |
| + as above with AR6 scenario update | 2020 | 1300 | 950 | 750 | 600 | 500 |
| **+ as above with warming update (2013–2022) (best estimate)** | **2023** | **1100** | **800** | **600** | **500** | **350** |
| 2 °C from AR6 WGI | 2020 | 2300 | 1700 | 1350 | 1150 | 900 |
| + AR6 emulator update | 2020 | 2050 | 1500 | 1200 | 1000 | 800 |
| + as above with AR6 scenario update | 2020 | 2200 | 1650 | 1300 | 1100 | 900 |
| **+ as above with warming update (2013–2022) (best estimate)** | **2023** | **2000** | **1450** | **1150** | **950** | **800** |

Estimates start from AR6 WGI estimates (first row for each warming level), updated with the latest scenario information from AR6 WGIII (from second row for each warming level), and an update of the anthropogenic historical warming, which is estimated for the 2013–2022 period (third row for each warming level). Estimates are expressed relative to either the start of the year 2020 or 2023. The probability includes only the uncertainty in how the Earth immediately responds to carbon, not long-term committed warming or uncertainty in other emissions. All values are rounded to the nearest 50 $GtCO_2$.