Object: Annex to the Open Letter to the European Commission

"Thriving without economic growth to better rebuild Europe's economy post Covid-19 and to respect our climate commitments"

NB: eco-economic decoupling definition

Relative decoupling refers to a decline in the ecological intensity per unit of economic output. In this situation, resource impacts decline relative to the GDP, which could itself still be rising.

Absolute decoupling refers to a situation in which resource impacts decline in absolute terms. Resource efficiencies must increase at least as fast as economic output does and must continue to improve as the economy grows, if absolute decoupling is to occur[1].

A. The European Green Deal is built upon a false assumption: economic growth can be decoupled from environmental pressures

While the European Green Deal aims at creating "*economic growth decoupled from resource use.*"[2], **the science disagrees with the principle that economic growth can be decoupled from resource use.**

The new European Environmental Agency (EEA) Briefing *Growth Without Economic Growth*[3] explains that even though high-level policies such as the European Green Deal and the UN Sustainable Development Goals propose decoupling economic growth and resource use as a solution, *"scientific debates on the possibility of decoupling date back to the 19th century and there is still no consensus."* (EEA, 2021)

The EEA briefing points out that studies have found no evidence of absolute decoupling between growth and environmental degradation having taken place on a global scale, furthermore they found no evidence that it is likely to happen (Parrique et al., 2019; Hickel and Kallis, 2020; Wiedmann et al., 2020).

As shown in the graph below, global material footprint *(red)* and global GHG emissions *(blue)* increase as does global GDP *(green)*. The material footprint follows very closely the GDP curve, implying that even a relative global decoupling between economic growth and material footprint is not happening. In terms of GHG emissions, even though over the years we can see that economic activities have become less carbon intensive, economic growth remains deeply dependent on GHG emissions. The latter continue to grow alongside the GDP curve:

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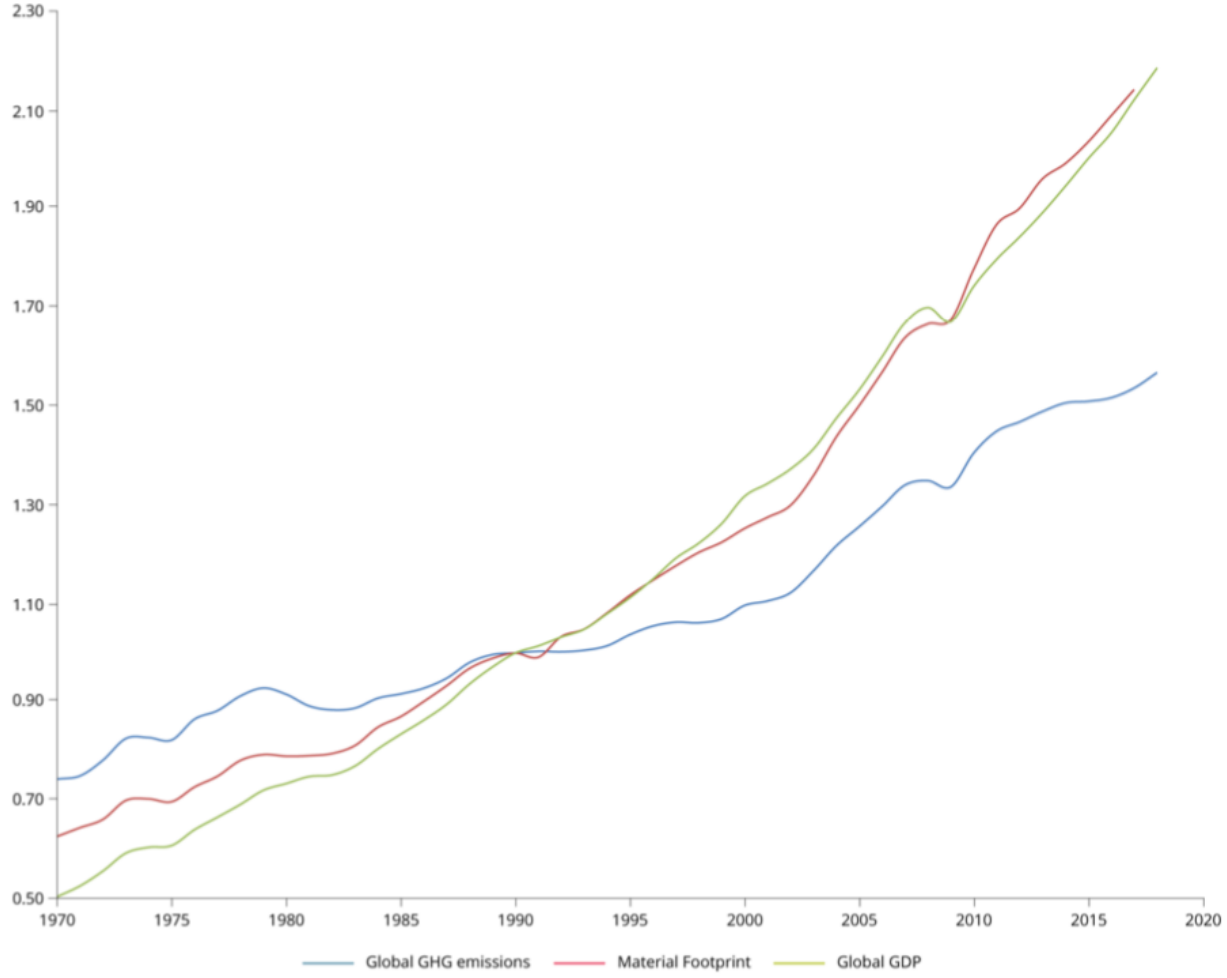
[1] As defined by Tim Jackson in *Prosperity Without Growth,* 2009.

[2] Communication from the Commission - The European Green Deal (2019) European Commission https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1596443911913&uri=CELEX:52019DC0640#document2

[3] Growth without economic growth briefing (2020), European Environmental Agency https://www.eea.europa.eu/themes/sustainability-transitions/drivers-of-change/growth-without-economic-growth

Figure 1. Relative change in main global economic and environmental indicators from 1970 to 2018



EEA, 2021

"While some EU countries achieved a reduction in some forms of pollution between 1995 and the mid-2010s (e.g. acidification, eutrophication, greenhouse gas emissions), the decoupling between growth and environmental footprints (e.g. water, materials, energy and greenhouse gases) associated with EU consumption patterns is often relative and varies between countries (Sanyé-Mengual et al., 2019; NTNU, 2020)." (EEA, 2021)

The European Commission Joint Research Center publication *Assessing the decoupling of economic growth from environmental impacts in the European Union: a consumption-based approach* (2019) by

Sanyé-Mengual et al.[4] concluded that decoupling economic growth from environmental pressures has indeed only been observed in isolated aspects:

> *"Results are aligned with global assessments (Schandl et al., 2016; Wood et al., 2018), which indicated that relative decoupling takes place for some environmental issues while* ***global absolute decoupling is only possible for some aspects (e.g. land use).****"*

The EEA briefing presents two factors that can explain this relative decoupling: *"the financialisation of EU economies and the outsourcing of significant shares of energy-intensive activities to non-EU countries"* (EEA, 2021)[5].

B. The European Commission's methodology is incomplete because it only considers domestic GHG emissions

With regards to greenhouse gas (GHG) emissions, the European Green Deal was presented as both a "*new growth strategy"* and as the EU's strategy to respect the Paris Agreement[6]. Between 1990 and 2017, data indeed indicates a total GHG emissions decrease of 22% in the EU, while the EU's combined GDP grew by 58%. Under these simplistic metrics, the EU has successfully decoupled economic growth from GHG emissions, as claimed in the European Commission Communication *A Clean Planet for All*[7]. **However, this assessment is incomplete if not misleading as it does not consider all the GHG emissions associated with the European economy because it uses a territorial (production-based) approach, instead of a footprint (consumption-based) measurement.**

As a plethora of studies using footprint measurement have shown, the climate credentials of the EU are benefiting from *hidden* or *outsourced* emissions, emitted in third countries, for which our consumption is yet responsible.

- Lindt et al. (2017)[8] concluded that *"whilst emissions produced within the EU's territory declined 13% from 1990 to 2010, its actual footprint, including emissions embodied in imports, increased 8%"* .

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[4] Assessing the decoupling of economic growth from environmental impacts in the European Union: a consumption-based approach (2019), Sanye Mengual, E., Secchi, M., Corrado, S., Beylot, A. and Sala, S., Joint Research Center publication n. JRC114831
https://ec.europa.eu/jrc/en/publication/assessing-decoupling-economic-growth-environmental-impacts-european-union-consumption-based-approach

[5] Growth without economic growth briefing (2020), European Environmental Agency
https://www.eea.europa.eu/themes/sustainability-transitions/drivers-of-change/growth-without-economic-growth

[6] Communication from the Commission - The European Green Deal (2019) European Commission
https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1596443911913&uri=CELEX:52019DC0640#document2

[7] A clean planet for all - Communication (2018), European Commission https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0773&from=EN

[8] Report: Carbon-CAP Findings (2017), van de Lindt et al. https://climatestrategies.org/publication/carbon-cap-final-report/

- Laurent (2012)[9] found that the difference between the gross resource use (measured with a production approach) and net resource use (measured with a consumption approach) was 27.7% for Germany, 24.7% for Italy in 2004, and as high as 43% for France.
- Gavrilova and Vilu (2012)[10] found that the total CO2-equivalent (CO2-eq) emissions associated with consumption in Estonia in 2005 were 18% higher than those associated with production, primarily due to the net import of CO2eq emissions from countries outside of the European Union.
- Looking at 113 countries, Peters et al. (2011)[11] found that the net emission transfers via international trade from low-income to high-income countries has quadrupled between 1990 and 2008.
- Sato (2014)[12] identified a large and growing volume of embodied carbon emissions in international trade, which accounted in 2006 for around one-fourth of global emissions.

Moreover, whereas data on carbon footprint vs. carbon emissions exist for several Member States[13], similar data for the EU cannot be found, which clearly highlights a knowledge gap in the EU. EU institutions as well as EU citizens need to have access to data on their real climate impact and the consequences of international trade for Europe.

C. Respecting the Paris Agreement is incompatible with infinite GDP growth

Haberl et al (2020)[14], after analysing the results of **835 peer-reviewed empirical studies of decoupling** related to final/useful energy, exergy, use of material resources, as well as CO2 and total GHG emissions, concluded that **only two studies had observed *green growth*** (absolute decoupling). Even here, emissions reductions were found to reach nowhere near the scale required to meet the objectives of the Paris Agreement.

> *"Absolute decoupling is found in a footprint-study of GHG for Sweden 2008–2014 (Palm et al, 2019)[15]. Most noteworthy is a study of 18 countries with declining CO2 emissions (both*

[9] *Faut-il décourager le découplage ?* (2012), Laurent, É. Rev. OFCE n° 120, 235–257.
[10] *Production-based and consumption-based national greenhouse gas inventories: An implication for Estonia* (2012), Gavrilova O., Vilu R., Tallinn University of Technology https://rb.gy/ep1tx0
[11] *Growth in emission transfers via international trade from 1990 to 2008.* (2011), Peters, G.P., Minx, J.C., Weber, C.C., Edenhofer, O., 2011. PNAS 108, 8903–8908.
[12] *Embodied Carbon in Trade: A Survey of Empirical Literature*. (2014) Sato, M.,J. Econ. Surv. 28, 831–861. https://doi.org/10.1111/joes.12027
[13] https://www.hautconseilclimat.fr/wp-content/uploads/2020/10/hcc_rapport_empreinte-carbone.pdf
[14] *A systematic review of the evidence on decoupling of GDP, resource use and GHG emissions, part II: synthesizing the insights* (2020), Haberl et al. https://iopscience.iop.org/article/10.1088/1748-9326/ab842a/meta#erlab842abib153
[15] *Environmental pressures from Swedish consumption – A hybrid multi-regional input-output approach* (2020) Palm et al. https://www.sciencedirect.com/science/article/abs/pii/S0959652619312600?via%3Dihub

consumption and production-based). Le Quéré et al (2019)[16] analyzed 18 'peak-and-decline' countries[17] in which CO2 emissions are falling in both territorial and consumption-based system boundaries. The study concludes that emissions in these 18 countries fell by a median −2.4% (25–75 percentile: −1.4% to −2.9%/year) per year over the period 2005–2015."

However, as Le Quéré et al (2018) concluded,

> *"[...] as significant as they have been, the emissions reductions observed and analysed in the 18 countries of the peak-and-decline group* ***fall a long way short of the deep and rapid global decarbonisation of the energy system implied by the Paris Agreement temperature goals***[18]*, especially given the increases in global CO2 emissions in 2017 and 2018, and* ***the slowdown of decarbonisation in Europe since 2014[19]".***

Palm et al. (2019) concluded with similar results for their footprint-study of GHG for Sweden 2008–2014:

> *"**The decrease in greenhouse gas emissions is far from large enough in order to reach the Paris Agreement goals**. This has important policy implications, since it means that more efforts are needed to reduce the environmental pressures from Swedish consumption."*

Jiborn et al. (2020)[20], in an even more recent study using data from the World Input–Output Database (WIOD) for 44 countries (including 20 EU countries) to compare production-based, consumption-based and technology-adjusted carbon emissions, reached the same conclusion:

> *"[...] emission reductions* ***in developed countries are too slow****."*

In addition, decoupling observed so far is mostly linked to decarbonization progress in the public electricity production (-37% between 2019 and 1990) and to the outsourcing of part of our industry (-37% since 1990). Other sectors will be much more difficult to decarbonize – mobility (inc. energy bunkers) for instance (+33% since 1990) through cost-efficient energy substitutions only[21].

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[16] *Drivers of declining CO2 emissions in industrial countries* (2019), Le Quéré et al http://pure.iiasa.ac.at/id/eprint/15783/1/LeQuere_NatureCC_post-print_manuscript.pdf

[17] 16 EU Member States including Sweden, as well as the UK and the USA

[18] *Carbon budgets and energy transition pathways. 7 Environmental Research Letters,* van Vuuren, D. P. et al. doi:10.1088/1748-9326/11/7/075002 (2016)

[19] *Global Carbon Budget,* 2018, Le Quéré, C. et al Earth Syst. Sci. Data 10, 2141-2194, doi:10.5194/essd-10-2141-2018 (2018).

[20] *Consumption versus Technology: Drivers of Global Carbon Emissions 2000–2014* (2020), Jiborn M. et al. https://www.mdpi.com/1996-1073/13/2/339/htm

[21] Transport & Environment from MS reporting to the UNFCCC, EEA 2019 GHG database proxy

Kartensen et al. (2018)[22] analyzed and compared the trends in EU territorial emissions (1990– 2016) and EU consumption-based emissions, and emissions embodied in trade (1990–2014). They determined that economic growth is the main factor driving upwards GHG emissions:

> *"The EU has been reducing territorial and consumption-based emissions, but some of this is arguably good fortune. A Kaya identity decomposition suggests that the* ***weaker EU economy is the dominant immediate factor for the reductions since 2008****, and the Kaya identity[23] decomposition also suggests that* ***a return to stronger economic growth since 2014 has helped push emissions back up again.****"*

D. Respecting our international obligations requires us to move beyond "*business as usual*"

As the aforementioned EEA briefing concludes, *"historically, modern states embraced economic thought that focused on economic growth and conceptualised social* ***and environmental problems as externalities.*** *As a result,* ***growth is culturally, politically and institutionally ingrained****."*

However, if we are to respect the Paris Agreement and meet our climate targets, we must rid ourselves of our addiction to economic growth. As the EEA suggests, only a systemic economic change can ensure the European Green Deal fulfils its ambitions.

> *"An absolute reduction of environmental pressures and impacts would* ***require fundamental transformations to a different type of economy and society instead of incremental efficiency gains within established production and consumption systems****. [...] The European Green Deal and other political initiatives for a sustainable future* ***require not only technological change but also changes in consumption and social practices."*** (EEA, 2021)

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[22] *Trends of the EU's territorial and consumption-based emissions from 1990 to 2016* (2018) Kartensen et al https://link.springer.com/article/10.1007%2Fs10584-018-2296-x

[23] *CO2 emissions = Carbon content of energy × Energy intensity of the economy × Production per person × Population*