PMAC PRINCE MAHIDOL AWARD CONFERENCE 2023

PL 1

LIVING WITHIN LIMITS – A REMEDY FOR CLIMATE CHANGE, BIODIVERSITY LOSS, POLLUTION AND HEALTH?

| BACKGROUND

The triple planetary crisis, three interconnected crises – climate change, biodiversity loss, and pollution – are putting global well-being at risk. Climate crisis has been identified as the biggest health threat of the 21st century, with the potential to reverse years of improvements in global health. It is also undermining opportunities to reduce poverty and improve the quality of lives globally.

The most recent Intergovernmental Panel on Climate Change (IPCC)[1] report warns of a "code red for humanity" and estimates that our planet will hit the critical increase of 1.5°C within the next 20 years, with irrevocable impacts. In September 2021, ahead of the COP26 climate conference in Glasgow, 233 health journals simultaneously called on governments to take urgent action to tackle the "catastrophic harm to health" from climate change.[2] But negotiations at the COP26 failed to reach global agreements on reducing emissions by half and raising the climate finance needed to keep below the 1.5°C threshold.

The UN predicts that currently we are on route to reach a 2.5°C warming by 2100,[3] but a recent article by McKay et al[4] paints a yet more alarming picture. Their updated analysis suggests that even if we stay within the Paris Agreement's range of limiting global warming to 1.5°C we are not safe. The article argues that current global warming of 1.1°C already lies within the lower end of five climate tipping points and further warming, which may be within the Paris Agreement's range, could trigger multiple climate tipping points. Going beyond these planetary boundaries could 'tip' the Earth system over the stable environmental state with severe consequences that could be catastrophic to human welfare.[5]

The adverse impact of changing environmental conditions is already felt through the scale and/or the reproduction of many water-, air-, food-, and vector-borne pathogens. Climate crisis has also caused more frequent and extreme whether events across every corner of the planet, and pollution has negatively impacted water and security, contributing to human morbidity and mortality and to the disruption of health service delivery1. Crudely put, addressing, and acting at the nexus of climate change, biodiversity loss, and pollution would reduce the risk of current and new health threats, create a more promising and healthy future for coming generations and assure that the most vulnerable groups are not left behind.

The next decade is therefore crucial; we must cut global greenhouse gas emissions by half to avoid catastrophic impacts to human societies and the natural systems upon which we depend. The main driving force of greenhouse gas emissions, along with other forms of air pollution, is the burning of fossil fuels (coal, oil, and natural gas) mainly for electricity and transportation.[6] The energy sector in itself is responsible for almost three-quarters of the emissions that pushed global average temperatures 1.1 °C higher since the pre-industrial age.[7] Yet, at the same time 750 million people — 10% of the global population — still lack access to reliable electricity. Over 2 billion people still primarily depend on biomass fuels for their energy needs, and consequentially suffer adverse health effects from indoor air pollution.[8]

It is evident that addressing the triple interconnected crises and its implication for health requires swift actions and a systemic change, as well as innovative solutions from all levels of society. Adaptation and mitigation, need to work this simultaneously. Please go to Haines and Frumkin for further reading.[9]

While acknowledgement of the health–environment nexus is growing, and political leaders have signaled an interest in shifting global activities toward integrated and inter-disciplinary approaches, action has been slow to follow[10]. The potentially long timeframes and the complexity, both the problems and the solutions, can prevent political actors to engage with intersectoral action, especially when intersectoral action also means challenging commercial interests.[11] But we cannot wait, we must act now to avoid catastrophic impacts. Our challenge is to ensure that everyone has an opportunity to thrive while respecting the limits of the Earth's resources.

Assuming that climate change, biodiversity loss and pollution and their impact on health are discussed during the opening session, during Plenary 1 we propose the introduction of Kate Raworth's Doughnut of social and planetary boundaries. The model is proposed as a framework to guide the conference as a whole and the session's discussions, and to call for actions for future sustainability for human and planetary health with a focus on **more regenerative and distributive policies**.

The Doughnut model[12] is built on Johan Rockström's nine planetary boundaries[13] and "consists of two concentric rings: a social foundation, to ensure that no one is left falling short on life's essentials, and an ecological ceiling, to ensure that humanity does not collectively overshoot the planetary boundaries that protect Earth's life-supporting systems. Between these two sets of boundaries lies a doughnut-shaped space that is both ecologically safe and socially just: a space in which humanity can thrive."[14]

At PMAC 2023, the essence of the Doughnut lies in a strong **foundation of human health and well-being** that no one should fall below, and an **ecological ceiling** of planetary pressure that we should not go beyond.

Moving into the Doughnut's safe and just space is 'the challenge of our century', and the session will reflect on this by considering the approaches proposed by the Doughnut Economics. The starting point of the Doughnut Economics is to move from considering a continuous GDP growth as the measure of progress and focus instead on collective wellbeing and thriving within our planet's limits.

This approach does not propose specific policies and/or actions, rather it promotes a way of thinking and encourages to consider approaches that can disrupt and turn the current divisive economies into more distributive ones. Simultaneously the model "recognizes that economies, societies, and the rest of the living world, are complex, interdependent systems that are best understood through the lens of systems thinking."[15]

Health initiatives are also carried out against a backdrop of a political landscape, where decisions are often made outside of the global health system, but they impact and often undermine efforts of global health initiatives. Countering this requires improved global governance, but also the acknowledgement and the identification of the specific policy environments and the power dynamics in which we operate.[16],8

The relationship between health, climate change, environment and biodiversity are complex, and there is an urgent need to understand these complexities to create ways and policies of mitigation and adaption to their direct and indirect relations. There are salient opportunities for maximizing health co-benefits by addressing interlinkages and common grounds of social and planetary dimensions for future human- and planet sustainability, creating multi-level conversations and actions to accelerate progress towards the 2030 Agenda.

[1] IPCC, 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate. Cambridge University Press. In Press

[2] https://www.bmj.com/content/374/bmj.n2177

[3] https://www.wri.org/insights/cop26-key-outcomes-un-climate-talks-glasgow

[4] McKay et al., Exceeding 1.5°C global warming could trigger multiple climate tipping points. Science 377, 1171 (2022)

[5] Rockström J. et al., A safe operating space for humanity. Nature, Vol 461:24;2009.

[6] F Perera and K Nadeau; Climate Change, Fossil-Fuel Pollution, and Children's Health, N Engl J Med 2022;386:2303-14. DOI: 10.1056/NEJMra2117706

[7] International Energy Agency: World Energy Outlook 2021. Accessed at: World Energy Outlook 2021 (windows.net)

[8] P Wilkinson, K R Smith, M Joffe, and A Haines; Energy and Health 1: A global perspective on energy: health effects and injustices. Lancet 2007; 370: 965–78; DOI:10.1016/S0140-6736(07)61252-5

[9] Haines A and Frumkin H; Planetary Health: Safeguarding Human Health and the Environment in the Anthropocene. Cambridge University Press, 2021.

[10] Dasandi N, Cai W, Friberg P, et al. The inclusion of health in major global reports on climate change and biodiversity. BMJ Global Health 2022;7:e008731. doi:10.1136/ bmjgh-2022-008731

[11] Buse K. et al., Tackling the politics of intersectoral action for the health of people and planet. BMJ 2022;376: e068124 | doi: 10.1136/bmj-2021-068124.

[12] Raworth K, A Doughnut for the Anthropocene: humanity's compass in the 21st century. The Lancet Planetary Health. 1 (2): e48–e49.

[13] Rockström J. et al., A safe operating space for humanity. Nature, Vol 461:24;2009.

[14] https://doughnuteconomics.org/about-doughnut-economics

[15] https://doughnuteconomics.org/about-doughnut-economics

[16] https://www.thelancet.com/commissions/global-governance-for-health

| OBJECTIVES

1. To spur awareness and increase political motivation to planetary stewardship by addressing the Triple Planetary Crisis (climate change, biodiversity loss and pollution) through the lens of human health.

2. To stimulate intersectoral and interdisciplinary collaboration and build coalition among health, environment, and climate change actors. The need for coherent global governance.

3. To improve knowledge on the nexus and embrace an active role in the knowledge-to-action (KTA) sphere. Identify common strategies and synergies for tackling the triple crisis and their impact on health.

Proposed Discussion Questions/Topics:

What are the tipping points? How can humanity move into the Doughnut's safe and just space (building a strong social foundation, including human health and wellbeing while respecting ecological ceiling of planetary pressure)? What are the opportunities to stimulate paradigm shifts needed for improved human and planetary health? What are innovative solutions/measures to bridge climate/environment and health professionals in order to tip the scale in climate/environmental policy? What are successful examples of multi-stakeholder or public private sector partnerships to tackle and scale up climate resilient health systems?

Panelist

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Professor Alexandre Antonelli is the Director of Science at the Royal Botanic Gardens, Kew. He is also Professor in Biodiversity and Systematics at the University of Gothenburg and Visiting Professor at the Department of Plant Science at the University of Oxford. He was the founder and first Director of the Gothenburg Global Biodiversity Centre, established during his time as Scientific Curator of the Gothenburg Botanical Garden.

Antonelli's passion is nature, and his mission mirrors that of RBG Kew's: to understand and protect biodiversity for the well-being of people and the future of all life on Earth. To this end, he studies the distribution, evolution, threats and sustainable uses of species and develops methods to speed up scientific discovery and innovation. His research focuses on the tropics, where most species occur and the threats are most acute. Most recently he has been particularly interested in the application of machine learning techniques for biodiversity research and conservation.

He has published over 180 peer-reviewed scientific articles and book chapters and his work has been cited over 12,000 times. He was named on the Web of Science/Clarivate 2020 and 2021 'Highly Cited Researchers' list, which identifies pioneering researchers in the top 1% of their field.