



Earth
System
Governance

Earth System Governance

Planetary Health Justice Working Group

Roadmap 2025-2027

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Executive Summary

Earth System Governance (ESG) refers to ‘the interrelated and increasingly integrated system of formal and informal rules, rule-making systems, and actor-networks at all levels of human society (from local to global) that are set up to steer societies towards preventing, mitigating, and adapting to global and local environmental change and, in particular, earth system transformation, within the normative context of sustainable development’¹. The ESG Project was established in 2009 following endorsement by the International Human Dimensions Programme on Global Environmental Change to interrogate multilevel governance approaches given the accelerating pace of global environmental change. The ESG Planetary Health Justice Working Group was established in 2022 to formally embed planetary health into the ESG Project.

Now is a pivotal time for actions that advance planetary health justice. The planetary shifts witnessed in the last century have led experts to declare the arrival of the Anthropocene, a new geological interval that emphasizes the impact of human activity on the Earth’s natural systems². Critically, these changes drive and exacerbate social and health inequities. Recent projections suggest that up to one-third (over 1.8 billion) of the human population will live in ‘unfavourable’ climate conditions by 2100 on a ‘business as usual’ pathway³. The economic and human costs of environmental changes will primarily be borne by future generations, with projections of USD\$84 trillion in economic losses due to climate variability across the 21st Century just for persistent El Niño events⁴. Injustice and inequity are central concerns for these changes, with the most at-risk and least responsible populations disproportionately affected⁵.

In response, much of the global health community has advanced planetary health as a conceptual framework to guide efforts that protect the health and wellbeing of human civilization through the ‘wise stewardship’ of natural systems⁶. Core to a planetary health

¹ Biermann, F., Betsill, M. M., Gupta, J., Kanie, N., Lebel, L., Liverman, D., ... & Zondervan, R. (2010). Earth system governance: a research framework. *International environmental agreements: politics, law and economics*, 10, 277-298.

² Steffen, W., Crutzen, P. J., & McNeill, J. R. (2007). The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature? *Ambio*, 36(8), 614-621. <https://www.jstor.org/stable/25547826>

³ Lenton, T. M., Xu, C., Abrams, J. F., Ghadiali, A., Loriani, S., Sakschewski, B., Zimm, C., Ebi, K. L., Dunn, R. R., Svenning, J.-C., & Scheffer, M. (2023). Quantifying the human cost of global warming. *Nature Sustainability*. <https://doi.org/10.1038/s41893-023-01132-6>

⁴ Callahan, C. W., & Mankin, J. S. (2023). Persistent effect of El Niño on global economic growth. *Science*, 380(6649), 1064-1069. <https://doi.org/10.1126/science.adf2983>

⁵ Intergovernmental Panel on Climate Change (2022). Summary for Policymakers. In H.-O. Pörtner, D. C. Roberts, E. S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Lösschke, V. Möller, & A. Okem (Eds.), *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press.

https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf

⁶ Whitmee, S., Haines, A., Beyrer, C., Boltz, F., Capon, A. G., de Souza Dias, B. F., Ezeh, A., Frumkin, H., Gong, P., Head, P., Horton, R., Mace, G. M., Marten, R., Myers, S. S., Nishtar, S., Osofsky, S. A., Pattanayak, S. K., Pongsiri, M. J., Romanelli, C., . . . Yach, D. (2015). Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health. *The Lancet*, 386(10007), 1973-2028. [https://doi.org/10.1016/s0140-6736\(15\)60901-1](https://doi.org/10.1016/s0140-6736(15)60901-1)

approach is a commitment to urgent, transformative, and transdisciplinary action underpinned by a radical shift in values and practices to align with our increasing understanding of safe and just Earth system boundaries. These boundaries establish parameters for stable planetary conditions and for minimizing human exposure to harm. Extending the concept, there have been calls for planetary health to embody a social movement ‘to support collective public health action at all levels of society – personal, community, national, regional, global, and planetary’⁷.

Indigenous ways of being, knowing and doing have sustained generations of Indigenous populations around the world for millennia. Underpinned by notions of reciprocity, responsibility, and conservation in all planetary relationships⁸, Indigenous ways of practices embody tenets that until recently have been largely overlooked by major governance and value systems, including in contemporary climate and sustainability discourse⁹. The elevation of kin relations – ‘moral bonds connecting humans and non-humans that are modelled after certain ideals of family life and friendship’¹⁰ – is one pathway to enable planetary health justice. Specifically, this would enable broad implementation of a lateral model of health and recognition of our embeddedness of nature. If ‘hierarchies of dominance’ models are in place, planetary crises will continue. It is important for academics not to lose sight of the dysfunction and pathways that we are on. A useful way to deal with that tension is to directly engage with Indigenous communities/practitioners is to allow them to speak for themselves. The [United Nations \(UN\) Permanent Forum on Indigenous Issues](#) (UNPFII) is one avenue with which the Working Group will seek to positively engage and promote a paradigmatic shift that elevates Indigenous knowledges and practices (see **Figure 1** below)¹¹.

The *ESG Planetary Health Justice Working Group Roadmap 2025-2027* (the Roadmap) has been developed to positively and proactively contribute to progressing planetary health justice within the context of ESG. It sets out a plan to elevate Indigenous voices, knowledges and practices across seven progress areas over three years. To achieve planetary health justice, addressing the underlying drivers of ecological harms and injustices is imperative. **Figure 1** below, taken from Fletcher *et al.* (2024), identifies historical non-Indigenous trends, such as population growth, imperialism and extractivism as root causes of planetary health injustice. The seven progress areas

⁷ Horton, R., Beaglehole, R., Bonita, R., Raeburn, J., McKee, M., & Wall, S. (2014). From public to planetary health: a manifesto. *The Lancet*, 383(9920). [https://doi.org/10.1016/s0140-6736\(14\)60409-8](https://doi.org/10.1016/s0140-6736(14)60409-8)

⁸ Redvers, N., Poelina, A., Schultz, C., Kobei, D. M., Githaiga, C., Perdrisat, M., Prince, D., & Blondin, B. s. (2020). Indigenous Natural and First Law in Planetary Health. *Challenges*, 11(2). <https://doi.org/10.3390/challe11020029>

⁹ Redvers, N., Celidwen, Y., Schultz, C., Horn, O., Githaiga, C., Vera, M., Perdrisat, M., Mad Plume, L., Kobei, D., Kain, M. C., Poelina, A., Rojas, J. N., & Blondin, B. s. (2022). The determinants of planetary health: an Indigenous consensus perspective. *The Lancet Planetary Health*, 6(2), e156-e163. [https://doi.org/10.1016/s2542-5196\(21\)00354-5](https://doi.org/10.1016/s2542-5196(21)00354-5)

¹⁰ Whyte, K. (2020). Indigenous environmental justice: Anti-colonial action through kinship. In: Coolsaet, B. (Ed.) *Environmental Justice: Key Issues* (1st edition). London: Routledge. <https://doi.org/10.4324/9780429029585>

¹¹ Fletcher, C., Ripple, W.J., Newsome, T., Barnard, P., Beamer, K., Behl, A., Bowen, J., Cooney, M., Crist, E., et al. (2024), Earth at risk: An urgent call to end the age of destruction and forge a just and sustainable future, *PNAS Nexus*, Volume 3, Issue 4. <https://doi.org/10.1093/pnasnexus/pgae106>

address these drivers of planetary health injustice and align with several actions for a just and sustainable future that are advocated for in Fletcher *et al.* (2024).

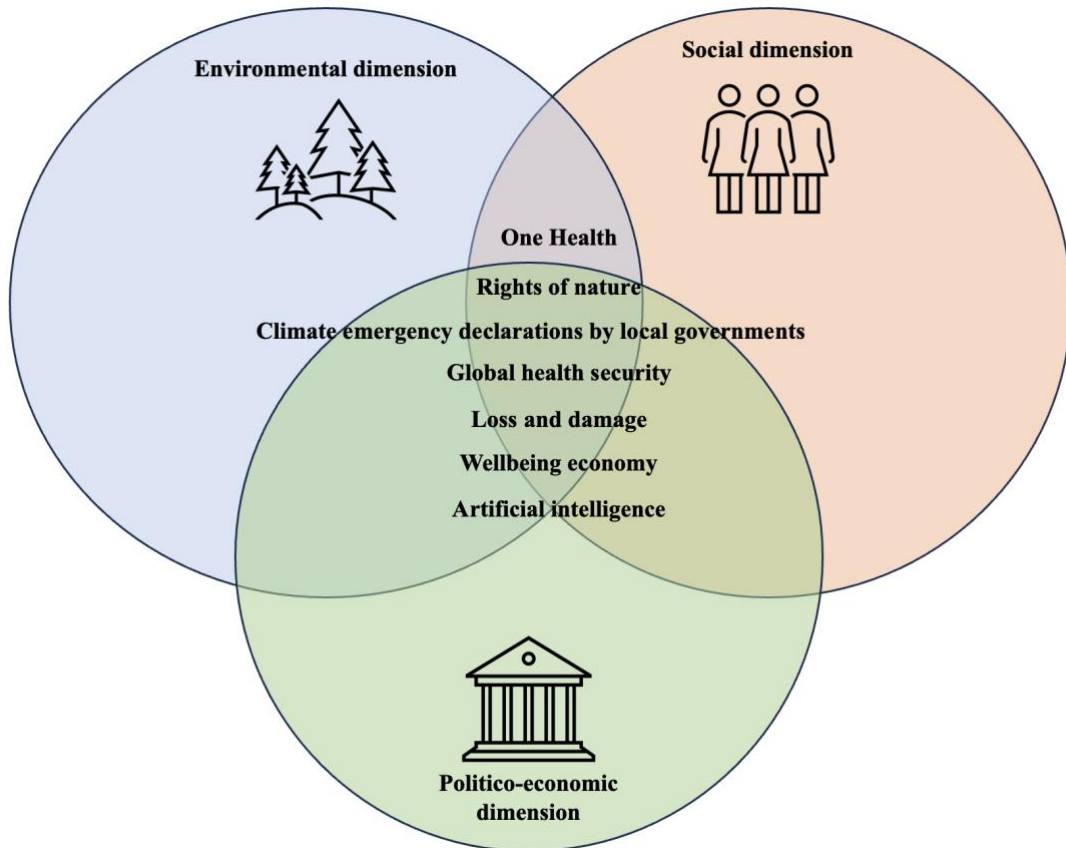
Figure 1. Drivers of planetary health injustices and 14 actions to secure a just and sustainable future¹²



¹² Fletcher, C. *et al.* (2024), Earth at risk: An urgent call to end the age of destruction and forge a just and sustainable future, *PNAS Nexus*, Volume 3, Issue 4, p.14. <https://doi.org/10.1093/pnasnexus/pgae106>

Our progress areas have been selected as areas of interest and expertise among Working Group members and given their synergistic positionality to one another, which we conceptualise using the socioecological model (see **Figure 2** below). Given time and resource constraints, the Working Group will prioritise two of the progress areas for further exploration in 2025 with the remaining areas to be explored in 2026 and beyond.

Figure 2. Intersection between progress areas and the three domains of the socioecological model (politico-economic, social and environmental)



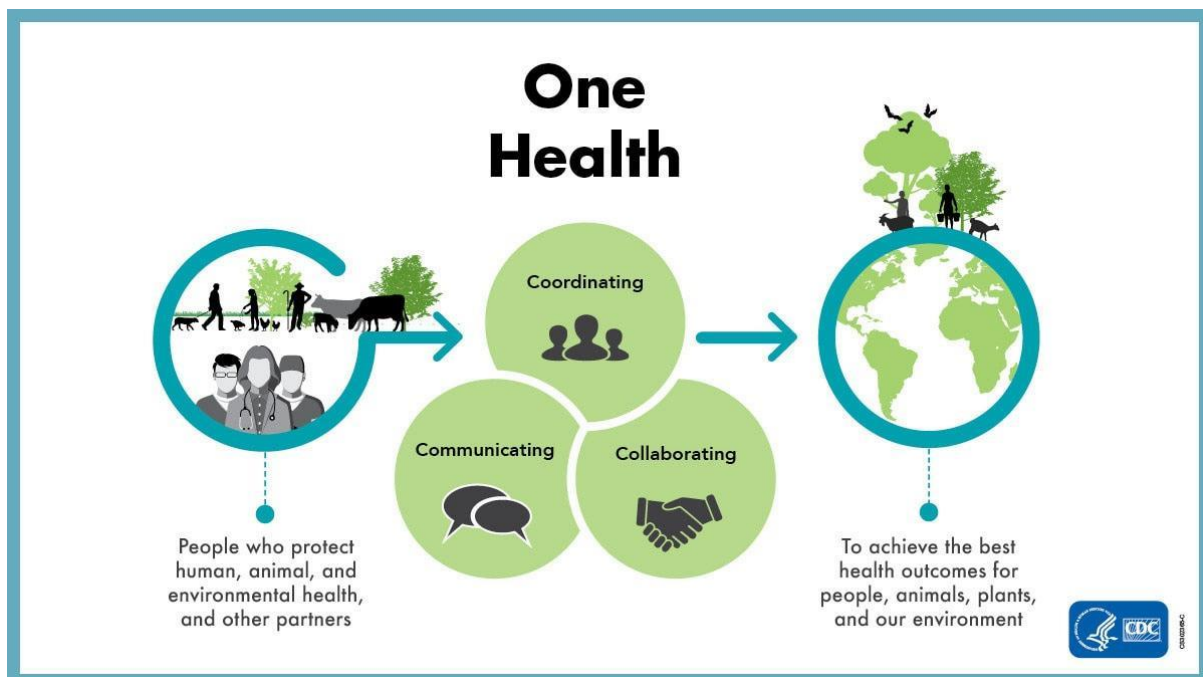
Working Group Progress Areas

Given our interdisciplinary expertise, we have identified seven areas to progress collaboratively from 2025 onwards:

1. One Health as a potential vehicle to achieve planetary health justice

Since the COVID-19 pandemic, we have come to appreciate as a global society that effective efforts to protect humans are being curtailed by our focus on human health alone. We must pursue a multi-governance, multisectoral and transdisciplinary approach to improve health outcomes for all planetary species. One Health research and practice covers a broad spectrum of environmental health issues, with focal points on major global health issues including antimicrobial resistance and vector- and water-borne diseases. The US Centre for Disease Control recognises the critical importance of coordination to successfully achieve a One Health approach (see **Figure 3** below).

Figure 3. Foundational elements for a One Health approach¹³



A robust monitoring and evaluation system is vital to inform well-defined frameworks that improve human and non-human health outcomes. Member States of the World Health Organization have agreed to develop a *Pandemic prevention, preparedness and response accord*, due for finalisation in 2025, which incorporates a One Health approach. As part of this commitment, Member States are strongly encouraged to implement policies and strategies for pandemic prevention, preparedness and response that reflect a One Health approach and promote relevant workforce capacity building programmes. An opportunity exists to monitor the establishment of policies, strategies

¹³ US Centre for Disease Control (2024). About One Health [website]. Accessible at <https://www.cdc.gov/one-health/about/index.html>

and education programmes across jurisdictions to track progress on implementation of a One Health approach. To leverage this opportunity, we pose the following question: *What progress has been made regarding monitoring and evaluation for One Health programming across jurisdictions?*

2. The incorporation of earth systems into constitutional reforms

In 2006, Ecuador became the first country globally to recognise the rights of Nature in its constitution. Since then, we have seen an increasing number of legal provisions regarding the rights of Nature from statutory law to constitutional recognition; these efforts are being monitored and now number over 500 separate examples across governance levels¹⁴. One such example is the formal proposal by several Pacific Island Countries to the International Criminal Court to recognise ecocide as a crime¹⁵. Despite important progress, implementing the rights of Nature relies upon substantial investment, including in appropriate institutional mechanisms¹⁶. There is an opportunity for UN and other multilateral institutions to play a leading role in creating an enabling environment for countries to engage with constitutional reforms that provide for the rights of Nature¹⁷. To better understand and characterise such an environment, we pose the following questions: *What factors encourage governments to pursue constitutional reform for nature? What role, if any, do planetary health considerations play and how likely is it that we will see further governmental action on reforms in other jurisdictions?*

3. The impact of a climate emergency declaration at local government levels on planetary health justice

On the back of a grassroots petition, in 2016, the first local council in Australia declared a climate emergency. The motivation for this declaration was recognition that devastating climate-related impacts were already being experienced under current average global surface temperature rise and that the 1.5 degree Celsius pledge of the international *Paris Agreement* should not be deemed a ‘safe’ goal¹⁸. Since then, there are now over 2,300 jurisdictions globally covering 1 billion citizens that have declared a climate emergency. Local governments in the United Kingdom (~95%), South Korea (~98%), and New Zealand (~71%) are leading the charge. The translation of this declaration into concerted action at local levels warrants further investigation. There

¹⁴ Eco Jurisprudence Monitor (2024). Accessible at <https://ecojurisprudence.org/dashboard/?map-style=political#>

¹⁵ Harvey, F. (2024). Pacific Islands submit court proposal for recognition of ecocide as a crime. *The Guardian*. Accessible at <https://www.theguardian.com/law/article/2024/sep/09/pacific-islands-ecocide-crime-icc-proposal>

¹⁶ O’Donnell, E., Jahan, I., Holley, C., Cano, P. (2024). Ten things you should know about legally recognising the rights of Nature. *Pursuit*. Accessible at <https://pursuit.unimelb.edu.au/articles/ten-things-you-should-know-before-implementing-the-rights-of-nature>

¹⁷ Doncaster, C.P., Bullock, J.M. (2024). Living in harmony with nature is achievable only as a non-ideal vision. *Environmental Science & Policy*, 152, 103658. <https://doi.org/10.1016/j.envsci.2023.103658>

¹⁸ Climate Emergency Declaration (2024). Climate emergency declarations in 2,359 jurisdictions and local governments cover 1 billion citizens [website]. Accessible at <https://climateemergencydeclaration.org/climate-emergency-declarations-cover-15-million-citizens/>

appears to be limited peer-reviewed literature investigating the consideration of climate-related health impacts in local jurisdictions that have declared a climate emergency. An opportunity exists to better understand relationships (if any) between climate emergency declarations and engagement with policies and programs that promote planetary health principles. Accordingly, we pose the following questions: *What impact does declaring a climate emergency have in terms of local government action? Does this influence engagement with, and application of, planetary health at local levels?*

4. Global health security in the context of ESG

Despite decades of study and recommendations to improve pandemic preparedness, and the formation of the *Global Health Security Agenda* in 2014, most national and global institutions remained unprepared for the challenge of a global health emergency. Despite the interconnections, the gap in the ability to achieve good health and well-being has widened between the Global North and the Global South, and among ‘haves’ and ‘have-nots’ in diverse countries around the world. Accordingly, we pose the following questions: *How might governance systems innovate to address the needs for global health security? How might mutual vulnerability to security threats incentivize global health governance that is just and forward-looking?*

5. The role of planetary health justice in non-economic loss and damage assessments

Regarding irreversible climate-related impacts, health is considered a non-economic loss and damage (NELD). In 2013, the UN commissioned a technical paper that reviewed approaches to evaluate NELD¹⁹, although some techniques included were considered controversial. Further, experts have identified several policy gaps regarding NELD including inadequate assessment, monitoring and resourcing, and consequently limited engagement and integration in national climate policies and strategies²⁰. In 2023, a Loss and Damage Fund was operationalised and is governed by the World Bank and has received pledges totalling USD \$661 million²¹. The establishment of the new fund raises numerous questions around governance. Accordingly, we pose the following questions: *How can health be considered under a non-economic framing of loss and damage? How do we measure it, and what does it mean for supporting communities to progress toward planetary health equity?*

¹⁹ United Nations Framework Convention on Climate Change (2013). *Non-economic losses in the context of the work programme on loss and damage: Technical paper*. FCCC/TP/2013/2. Accessible at <https://unfccc.int/resource/docs/2013/tp/02.pdf>

²⁰ Chautard, A. (2024). Non-Economic Loss and Damage (NELD): policy gaps and recommendations [website]. Accessible at <https://www.preventionweb.net/news/non-economic-loss-and-damage-neld-policy-gaps-and-recommendations>

²¹ United Nations Framework Convention on Climate Change (2024). Pledges to the Loss and Damage Fund [website]. Accessible at <https://unfccc.int/process-and-meetings/bodies/funds-and-financial-entities/loss-and-damage-fund-joint-interim-secretariat/pledges-to-the-loss-and-damage-fund>

6. Accelerating the shift in economic paradigms: beyond gross domestic product (GPD) and the wellbeing economy

The disproportionate role of neoliberal economic interests in policy making and governance processes thwart progress on achieving planetary health equity. The prioritisation of more equitable economic structures and enhancing the transparency and openness of governance and policy making is needed, particularly to enable marginalized groups to duly participate²². The concept of a wellbeing economy offers an alternative pathway; it is defined as “an economy designed to serve people and the planet...[that] puts our human and planetary needs at the centre of its activities, ensuring that these needs are equally met, by default”²³. Upcoming international fora, such as the UN Summit of the Future, and even governance bodies like the European Parliament, which hosted the Beyond Growth Conference²⁴ in 2023, are proactively progressing a ‘beyond Gross Domestic Product’ agenda. This presents an opportunity to redefine the scope of success and to shift the dominant economic paradigm. Accordingly, we pose the following question: *What factors inform engagement with, and adoption of, wellbeing economy principles across jurisdictions? What is the role of the concept of planetary health and does it influence the traction of a wellbeing economy among different stakeholders and communities?*

7. Artificial intelligence (AI) in the context of ESG

Many institutions are working at the critical nexus of artificial intelligence and ESG, including scrutiny of ethical implications as the area rapidly evolves. Accordingly, we pose the following questions: *What will ensure humanitarian values are embedded into AI and how do we navigate that new world successfully? What frameworks are being developed, if any, to ensure stability and avoid global breakdown?*

²² Friel, S., Arthur, M., & Frank, N. (2022). Power and the planetary health equity crisis. *Lancet*, 400(10358), 1085-1087. [https://doi.org/10.1016/S0140-6736\(22\)01544-6](https://doi.org/10.1016/S0140-6736(22)01544-6)

²³ Wellbeing Economy Alliance (2024). What is a Wellbeing Economy? [website]. Accessible at <https://weall.org/what-is-wellbeing-economy>

²⁴ <https://www.beyond-growth-2023.eu/>

2025

In 2025, we will:

1. Explore the interrelationships and synergies between identified progress areas
2. Characterise the conceptual and theoretical underpinnings of progress areas in the academic literature
3. Establish research plans for two progress areas and take steps to develop research plans for other progress areas for 2026 and beyond.

1. Explore the interrelationships and synergies between identified progress areas:

Aim: To better understand and map the relationships and interdependencies between the seven progress areas.

Actions:

- Conduct a brief literature review in each research area and identify research themes, mapping connections between them
- Identify contextual factors influence, containing and constraining each research area (for example, sociopolitical context, cultural factors, etc.)
- Compare and review results among the working group, discussing different perceptions of these connections
- Use findings from discussion to refine a positionality document that explains how these research areas are connected and interact with each other

Outcome: Produce a positionality report and mind map.

2. Characterise the conceptual and theoretical underpinnings of progress areas in the academic literature

Aim: To extend our conceptual and theoretical understanding of the progress areas

Actions:

- Brainstorm and identify current gaps in theoretical knowledge base
- Review gaps as a Working Group and discuss ways that these may be filled or defined, including development of hypotheses
- Draft abstracts for academic papers that could deepen our conceptual and theoretical understanding

Outcome: Identify existing gaps in conceptual and theoretical research through co-authored peer-review publications and other outputs.

3. Establish research plans for two progress areas for work in 2026

Aim: To prioritise and advance two progress areas to focus on in 2026

Actions:

- Carry out an online ‘workshop’ to review the positionality mapping and report
- Use this as a basis for discussion to which research areas are most feasible, urgent and where we could have the greatest impact
- Define what we mean by ‘impact’
- Reach consensus on two progress areas
- Use positionality report and mapping as a basis for discussions
- Develop a research action plan for each progress area

Outcome: List of prioritised progress areas, and an action plan detailing research activities for 2026.

See **Figure 4** below for an overview of key activities.

2026 - 2027

2026-2027 represent two years of foundational building and consolidation of current knowledge on, and understandings of, the existing research and practices. We will advance two progress areas in each year (four in total; see **Figure 4** for an overview of key activities).

The research plans developed in 2025 will guide our activities. While these plans will be co-designed, we anticipate two common features we intend to incorporate into research plans for all seven progress areas:

1. **Two-part seminar series:** To build knowledge and capability, the Working Group will organise and deliver a two-part seminar series that facilitates a ‘deep dive’ on a progress area. Over the course of the year, two technical experts will be invited to share an overview of current knowledge and practice.
2. **Monitoring and evaluation:** To track progress on the evolution of a progress area, we will establish a simple monitoring and evaluation (M&E) framework. This will involve developing a search strategy to be run quarterly, alongside a discrete set of quantifiable indicators.

Outcome: Annual 2-3 page review that provides an explanation of the progress area, informed by insights from the seminar series, followed by results from the monitoring and evaluation framework.

2027 planning

In the second half of 2026, we will deliver an online ‘workshop’ to develop research plans for an additional two progress areas that will be implemented in 2027. Learnings from 2025 and 2026 will inform planning. In line with plans for the initial two progress areas, we will continue to deliver a seminar series and establish a M&E framework for each progress area.

In the second half of 2027, we will undertake a review of the Working Group to assess impact and effectiveness. Findings from this review will inform plans for the Working Group for 2028 and beyond.

Figure 4. Overview of key activities in 2025-2027

| Key activities and milestones | Q1 Jan - Mar | Q2 Apr - Jun | Q3 Jul - Sep | Q4 Oct - Dec |
|--|-----------------|-----------------|-----------------|-----------------|
| 2025 | | | | |
| Literature review | X | | | |
| Positionality report and mind map | | X | | |
| 1-2 theoretical peer-reviewed publications | | X | X | |
| 2026 action plan | | | | X |
| 2026 | | | | |
| Progress area #1: Seminar series | X | | X | |
| Progress area #2: Seminar series | | X | | X |
| Progress areas #1 & #2: M&E framework searches | X | X | X | |
| Progress areas #1 & #2 Develop annual reviews | | | | X |
| Online workshop to develop research plans for progress areas #3 and #4 | | | X | |
| 2027 | | | | |
| Progress area #3: Seminar series | X | | X | |
| Progress area #4: Seminar series | | X | | X |
| Progress areas #1, #2, #3, #4: M&E framework searches | X | X | X | |
| Develop annual reviews (x4) | | | | X |
| Working Group review | | | X | |

Next steps: end 2024-beginning 2025

Events/engagement opportunities

The Planetary Health Justice Working Group warmly welcomes input into this Roadmap from members of the Earth System Governance Project, community members impacted by planetary health injustices, as well as experts and practitioners working to address planetary health injustices. A formal opportunity to contribute to the Roadmap will be available at the 2024 ESG Forum, [“Re-imagining Earth System Governance in an Era of Polycrisis”](#) (hybrid delivery between 14-16 October 2024). The Planetary Health Justice Working Group will hold an open meeting on Tuesday 15 October/ Wednesday 16 October²⁵ to highlight Working Group achievements since its establishment in 2023, and to seek input into a draft three-year roadmap that will be released prior to the Forum. Questions on the draft roadmap will be welcomed and ideas on future opportunities will be sought as the Working Group considers priority research endeavours and strategic collaborations with internal ESG segments as well as key external stakeholders.

In addition, the Working Group will collectively deliver a panel event on Sunday 13 October / Monday 14 October²⁶: *Panel: Planetary health and OneHealth – Overcoming conceptual limitations to inform earth system governance in an era of polycrisis*. This event aims to characterise these two concepts and provide tangible examples of their application in current governance processes, exploring synergies, incongruencies and conceptual limitations.

Institutional partnerships and funding opportunities

The Working Group comprises members representing institutions in North America and Australia. Members will **explore opportunities to formalise institutional partnerships** in anticipation of collaborative funding avenues to enable delivery of the Working Group’s research agenda. The Working Group will proactively seek to identify appropriate funding avenues that strongly align with articulated objectives and outcomes in this Roadmap.

The Working Group will continue to use a flexible governance model, with two ‘convenors’ providing secretariat support (organising meetings, agendas, taking minutes, etc.). The Working Group will meet every 6-8 weeks to discuss progress on yearly activities. Funding will remain a standing agenda item, with Working Group members encouraged to share opportunities they identify that may facilitate collaboration or delivery of a research plan output for one of the active progress areas.

²⁵ Tuesday 15 October 10pm (UTC-5); Wednesday 16 October 7.30am (UTC+4.30), 1pm (UTC+10)

²⁶ Sunday 13 October 8pm (UTC-5); Monday 14 October 5.30am (UTC+4.30), 11am (UTC+10)