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Pattanayak, SK; Haines, A (2017) Implementation of policies to protect planetary health. *The lancet Planetary health*, 1 (7). e255-e256. ISSN 2542-5196 DOI: [https://doi.org/10.1016/S2542-5196\(17\)30115-8](https://doi.org/10.1016/S2542-5196(17)30115-8)

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DOI: [10.1016/S2542-5196\(17\)30115-8](https://doi.org/10.1016/S2542-5196(17)30115-8)

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## Implementation of policies to protect planetary health



Extensive evidence exists that human health and civilisation depends on flourishing natural systems.<sup>1</sup> The Rockefeller–Lancet Commission on planetary health summarised how climate change, biodiversity loss, freshwater depletion, and air and water pollution threaten to reverse advances in human health and increase health inequities worldwide.<sup>2</sup> For example, increasing carbon dioxide concentrations and declines in animal pollinators will exacerbate micronutrient deficiencies and risks of non-communicable disease.<sup>3</sup> These examples reinforce the growing concerns that environmental degradation could cause rapid and irreversible damage to the natural systems underpinning human civilisation in ways that cannot be effectively addressed by biomedical advances alone. The Sustainable Development Goals now provide an important opportunity to confront these challenges. Because planetary health efforts integrate sustainable development, environmental conservation, and health equity, they can provide an overarching framework for developing policies for and monitoring progress towards the achievement of the Sustainable Development Goals.<sup>4</sup>

The planetary health Commission identified conceptual, research, and implementation challenges to planetary health. Despite some progress (eg, growth in renewable energy generation), barriers to the implementation of planetary health policies remain formidable and often neglected by the research community. For example, reversal of the Clean Energy legislation in the USA shows that even when the evidence for appropriate policies is strong, they can be undermined. Barriers to implementation range from organised denialism to insufficient demand by decision makers for improved knowledge. Implementation also lags far behind our understanding of potential solutions because it is rarely integrated with research and design of interventions at the outset. The potential contribution of implementation research is frequently overlooked and chronically and woefully underfunded.<sup>5</sup> In contrast to the growing scholarship on defining of the problems and potential policy solutions, research on how to ensure appropriate policies are implemented at scale is scarce. Evidence-based innovations and interventions might fail to fulfil their potential because the chosen implementation strategy is untested, unsuitable, or incomplete.<sup>6</sup> Unfortunately, because scientific research

on policy implementation is insufficient, we have learnt little about why innovations and interventions fail.

One plausible reason for the inadequate progress is that evidence from high-income settings cannot be directly transposed to low-income or middle-income settings where barriers and facilitators are different. This inability to transpose evidence occurs because implementation challenges are less about puzzles in engineering, epidemiology, and environmental science, and more about the incentives, barriers, and institutions on the ground. Furthermore, implementation barriers for planetary health are very different from those encountered when biomedical and health-care interventions are implemented. In the case of planetary health, more complex causal chains in time and space are implicated with multiple stakeholders. Consider four perspectives. First, compared with John Snow's conclusion that disablement of the handle of the public water pump on Broad Street could arrest the cholera outbreak in London, contemporary planetary health problems are more challenging. For example, an array of factors are responsible for pollinator loss, including land-use change, pesticide use, and climate change. Implementation of policies to protect pollinators would involve addressing of these multiple drivers of change.<sup>7</sup> Second, successful implementation requires effective institutions, incentives, and governance. Therefore, we should better understand how governance and institutions (political science), markets and their failures (economics), and culture, attitudes, and beliefs (sociology, anthropology, and psychology) help to reduce, for example, the loss of pollinators.<sup>8</sup> Third, because environmental damage has been widespread and rapid, the response should also be at scale. This response is not merely to exploit scale economies, but to involve multiple actors (ie, farmers, supply chain, and consumers) and sectors (ie, energy, agriculture, education, health, infrastructure, and finance), which involves considerable coordination and transaction costs. Last, scale up brings the challenge of policy implementation in diverse contexts. From a demand or beneficiary perspective, implementation should be tailored to local preferences for the interventions to be suitable. From a supply or provider viewpoint, simple, one-size fits-all solutions will not work. This challenge again calls for capacity for discretion and innovation

at much finer scales (ie, community and region) than conventional problems in health services.

Planetary health researchers should consider environmental, socioeconomic, behavioural, and institutional issues in the design of research, delivery, and training programmes. Researchers should collaborate with practitioners and policymakers to seek common ground and develop the preconditions for successful implementation, including tools to identify what to deploy, where, and when. For example, a specific planetary health intervention could be hypothesised to work best in settings where environmental degradation or disease incidence is high. Such hypotheses could be further conditioned by asserting that, to support implementation of interventions in such settings, one or more features of governance are needed: high-level political commitment (eg, institutional mandate, regulations, and budgets); involvement of empowered communities (eg, constituencies who hold governments accountable through public disclosure and participation); local resources and responsibilities; and balance between private and public sectors (eg, business models that attract customers by committing to sustainable development) supported by government regulation or incentives.<sup>9</sup>

Planetary health researchers can draw on insights from policy research and implementation science, which provide overlapping but distinct approaches to address the gaps between evidence, policy, and practice. This scholarship will have four features. First, viewed through this practice-based-evidence lens,<sup>10</sup> needs should drive research agenda (and thus, the method choice) and reflect genuine collaboration between researchers, policymakers, and practitioners. Second, educational and research institutions should build capacity in implementation research, especially in developing countries, and encourage journals to publish research on implementation. Such capacity building and thus journal publications could happen, for example, through the creation of centres of excellence in planetary health that support: knowledge co-creation with users; transdisciplinary research and training of practitioners and users; and science-based communication with local communities and resources to support effective decision making.<sup>11</sup> Third, by definition, this research and training will require transdisciplinary teams to use appropriate methods focused on the context of the problem and not the discipline per se. Thus, for example, randomised controlled designs will often be infeasible or inappropriate to test planetary

health interventions and implementation strategies, and pluralistic evaluative approaches will often be needed (eg, quasi-experiments and comparative case study research). Last, implementation should consider political trends including the rise in nationalism and the decline in assistance of overseas development. Scholars and practitioners will have to collaborate with philanthropic and private sector players to study implementation plans that are financially sustainable, including creative double dividend options (eg, tax pollutants and use revenue to reduce income taxes or fund health services).<sup>12</sup>

Implementation research is a vital but neglected contributor to the safeguarding of health in the Anthropocene and deserves increased priority, funds, and attention.

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This Comment was conceived and drafted while SKP was in academic residence at the Bellagio Center, Italy. We declare no competing interests.

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We wish to acknowledge the help of Lauren Masatsugu.

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