

**UNDERSTANDING PLANETARY HEALTH:
A SCIENTIFIC FIELD & SOCIAL MOVEMENT**

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Abstract

As planetary health thinking has become a dominant scientific paradigm, epidemiologists who seek to inaugurate it as a field claim its revolutionizing awareness for “the health of human civilization and the state of the natural systems on which it depends” in an anthropogenic era (Whitmee, 2015). However, the concept’s recent institutionalization as the Planetary Health Alliance (“PHA”) places it within the legacy of the Rockefeller Foundation (“RF”), which has played a critical role in Global Health, further complicates any understanding of the field's distinction in governance practices and authorizing narratives. While philanthropy has historically enabled investments in international and global health, the medical and financial procedures involved play a significant role in the practice and politics of what it means to think and act on a planetary health scale. By assembling a critical genealogy of planetary health, I interrogate the gaps between its emergent reality and its moral, political, and medical aspirations. Drawing from scholarly literature on nuclear fallout and antimalarial DDT pesticide in the United States and Global South, I engage with the geopolitics, historical events, and fundamental actors that shaped the emergence of planetary health. Using ethnographic methods, I also set RF’s promotional language and PHA’s infrastructures in conversation with the current challenges shared by field experts to tease out the paradoxical dimensions of planetary health’s historical entanglements with the RF. These findings are relevant for policymakers, medical experts, and the general public interested in the influence of biomedicine, philanthropic aid, and geopolitics on human and environmental health problems at a global-scale.

Keywords: DDT, Nuclear Fallout, Planetary Health Alliance, The Rockefeller Foundation, Global Health, Rockefeller-Lancet Commission on Planetary Health, Philanthrocapitalism

Introduction

One morning, a Kenyan farmer wakes up to discover a group of exotic caterpillars preying on their maize crops. After spraying pesticides to get rid of them, the pests return a few days later since the farmer cannot afford to continue using pesticides, leaving the farmer with low yields and a loss of surplus intended to pay for their children's school fees. Another farmer, after applying inorganic fertilizer on their maize crop, discovers months later that their land has been heavily depleted of crops and lacking in nutrients, making it impossible to provide for their family's meals. Climate change has led to devastating consequences for farmers across the country who wake up to find their maize crops covered in mold due to the lack of a drying period. For those who cannot afford storage crop tools and appliances to prevent it, this marks the end of their livelihoods. As a result, the impacted communities' increased criticism and scrutiny of philanthropic organizations' involvement in Africa's agriculture. By September 2022, the Alliance for Food Sovereignty in Africa ("AFSA") a coalition of African civil society, faith groups and agricultural leaders officially demanded that the Rockefeller and Gates Foundations cease their investments in the Alliance for a Green Revolution in Africa (AFSA, 2022).

AFSA's call followed the Alliance for a Green Revolution in Africa ("AGRA") recent 5-year evaluation, which highlighted what smallholder, sub-Saharan African farmers have been experiencing since its inception in 2006: worsening productivity, income, and food security crises (AGRA, 2022). The report confirmed how AGRA's focus on increasing farmers' access to foreign, modern fertilizers had led to environmental costs, such as declining crop diversity, degraded soils, and a reduction in the production of climate-resilient indigenous crops over the five years studied. In addition, many farmers are now left reliant on foreign, economic loans to afford record-high fertilizer prices in recent years, while paradoxically, a few wealthy primarily

male large-scale farmers reap benefits from adopting AGRA's scientific recommendation (Brzezinski, 2022; Wise & IATP, 2022). Thus, AFSA representatives demand for donors to understand that "Africa is not a monoculture," nor will their communities "speak with a single voice, certainly not that of the Green Revolution forum," but instead look to work with government leaders and donors who value and support the "diversity of the continent's landscapes, cultures, and food traditions" (Sigei, 2022). To which Konde, AGRA's Vice President responded, "We have been carrying out value for money assessments and every \$1 we have spent has produced close to \$10. The questions we should be asking are: did the African farmers get access to information and technology?" (Sigei, 2022).

The current food and energy crises in Africa are part of a larger series of environmental and human health crises that have occurred since the mid-20th century. Given the United States' political and economic power status, the Rockefeller Foundation, as a philanthropic institution, has played a critical role in environmental actions that have propelled planetary health thinking at a global scale. Despite the negative evaluation and the civil call made to defund AGRA, the initiative was instead rebranded and backed by these powerful philanthropic institutions. A spokesperson for the RF stated that "even successful programs come with lessons we can take into our future work," which includes their most recent involvement to develop a Planetary Health Alliance (PHA) consortium with the mission to "promote, mobilize, and lead an inclusive, transdisciplinary field of planetary health" (Brzezinski, 2022; Planetary Health Alliance, 2023). However, Green revolution models in India, Mexico, and the Philippines, led by the RF in the 20th century, resulted in the erasure of local food systems and practices, as well as established a high dependency on costly and foreign inputs that propelled suicidal rates in farmers and the ultimate degradation of ecological systems. This raises critical questions such as,

how has historical influence of Western scientific and biomedical concepts impacted our understanding of planetary health, and what implications does this have for addressing current and future environmental crises? Why is the Rockefeller Foundation at the center of planetary health and where do the perspectives and needs of the communities fall within the field's decision making-process? What are the conditions of possibility for its dominance?

In this thesis, I construct a critical genealogy of the early events in governance, philanthropy, science and academia that led to planetary health thinking within the fields of epidemiology and political economy, which were critical to its emergence. To analyze the shift towards planetary health thinking in both environmental and human health, I examine the social actors, processes, and dynamics that led to planetary health thinking in scientific and academic efforts. The post-World War II era in the United States saw a series of crises within medical, scientific, and public awareness of environmental degradation that raised concerns about protecting the nation and its people's well-being. While scholars and epidemiologists grappled with planetary health thinking, their works subsequently competed with national security measures that focused on external, geopolitical attacks, as well as propaganda for scientific and public health strategies that supported military and intelligence priorities. However, United States' measures towards environmental and human health concerns have had political and economic implications on a global scale, largely due to the Rockefeller Foundation's philanthropic legacy in public health, agricultural governance, and education.

In this study, I aim to evaluate the current intentions and underlying factors driving the development of the planetary health field by examining PHA as an institutional embodiment of planetary health. Although planetary health has evolved towards a global transdisciplinary field, there has been little discussion on the level of influence the RF has as the primary donor in

promoting, funding, and applying this field internationally. Instead, most mass-mediated conversations have focused on differentiating planetary health from other fields and concepts, such as Global Health and One Health. To investigate the implications that the RF brings to national and international universities and organizations tackling planetary health issues, I utilized scholarly literature and critiques on the RF's antimalarial and agricultural campaigns. To evaluate potential differences between historical practices and current planetary health thinking, I also conducted ethnographic interviews with professionals and organizations involved in planetary health-related projects, and analyzed official online material produced by the PHA. Ultimately, I assessed the field's current standing, gaps, and limitations through the research and portrayals shared in the interviews and institutional material produced for the field.

Research Questions

The emergence of planetary health fits into broader histories of human-caused climate change and disruptions of ecological systems associated with the Anthropocene. Still, its history as an emerging field of research and action has received less attention. Because planetary health is grounded on transnational agricultural, public health, and political economy activity, this project examines how planetary scale thinking about human and environmental health emerged historically. Specifically, how did industrialization and nuclear proliferation in the US condition the possibility of planetary health thinking? How does the concept of planetary health position itself epidemiologically, politically, and economically? How do professionals and institutions position themselves and their activities vis a vis centers of power to engage planetary health? Are there any differences in how planetary health was portrayed in the past to how it stands today?

The work of the epidemiologist Tony McMichael, along the interconnected level of emerging diseases and greater concerns surrounding environmental degradation ultimately led to

recent funding commitments made by The Rockefeller Foundation for a new disciplinary field, separate from Global Health, under the Planetary Health Alliance consortium. This development raises a new set of questions: How does PHA's involvement in the promotion and action of planetary health relate to centers of powers? What conceptual and institutional legacies have historically shaped the Rockefeller Foundation and the fields of International Health and Global Health? In relation to the political economics involved, what are the political dis/incentives that have shaped the field's emergence? Additionally, the project explores what PHA's most recent academic, outreach, and research endeavors reveal about the institutionalization of planetary health. Specifically, I investigate the role that The Rockefeller Foundation, decision-making processes, and governance practices have in defining "planetary health" and its consequential limitations. Under the PHA, what type of governance structures and decision-making processes surround the institutionalized form of planetary health, and what do their budget and tangible efforts show beyond their mission statement?

This project also aims to identify the main actors and agents involved in the interpretation of planetary health and their claims for planetary health thinking from both historical records and current interviews from field experts with affiliations to PHA. Planetary Health Alliance's first official book publication on the subject, *Planetary Health: Protecting Nature to Protect Ourselves* (2020), points to epidemiologist Anthony J. McMichael as one of the key actors in the development of a planetary health field for recognizing the risks of climate health and environmental degradation impacting ecological systems and population health. However, the newly emerging field of Planetary Health promotes the need for multidisciplinary work to solve crucial planetary health issues, demanding the alteration of conventional practices in research by

bringing together an interdisciplinary group of experts not limited to medicine, ecology, policy, and economy to address planetary health issues.

Regarding this angle, I aim to address the following questions: Who are the main actors or agents involved in the interpretation of planetary health and what claims are they making? What narratives do they uphold, how are they constructed, and to what effect in the field of medicine or political economy? Specifically looking at the field of epidemiology, which scientific strategies and practices do epidemiologists foreground as necessary for planetary health research and action? Do practices and institutional structures grappling with planetary health allow experts beyond the medical field to partake in the action?

Historical Context

The Green Revolution, a period of technology transfer initiatives for increasing crop yields and agricultural production, spearheaded by the RF marks a crucial point where Western technology, geopolitical factors, philanthropy, and colonial influences intersected and shaped the trajectory of planetary health thinking. By 1941 and 1958, the RF embarked on uncharted territory in agricultural assistance, launching a Green Revolution in Mexico and India, respectively (Perkins, 1990, p. 7). The development of a Green Revolution model in Mexico was facilitated due to the RF's direction and the modest financial support they had provided since 1910 for public health campaigns tackling hookworm and yellow fever (Stapleton, 1998). However, the institutional thinking behind these efforts embodied colonialism by centering on scientific agriculture to support their larger civilizing mission of spreading Western ideals through "philanthropy, education, science, and religion" funded from Rockefeller's monopoly on US oil production, while disregarding the ecological implications of their initiatives and the social settings they were entering (Fosdick, 2017, p. 15). From the start, the RF rejected funding

extension development programs that could have built community development in these countries through existing agricultural knowledge from local expertise.

Instead, the RF prided itself on its commitment to building a scientific infrastructure to improve essential food crop yields by using hybrid seeds, chemical fertilizers, and pesticides, being the first institution to undertake such efforts (Perkins, 1990, p. 7). The RF leadership believed that Western knowledge could overcome the poverty of these communities, which reflected a 'white savior complex' within its mission to "promote the well-being and to advance the civilization of the peoples of the United States...in the acquisition and dissemination of knowledge" (Fosdick, 2017, p. 15). They referred to these communities as "enslaved by centuries of tradition and not truly free to try new methods or to exploit their own ingenuity" and thus incapable of innovation and problem-solving (Perkins, 1990, p. 12). Furthermore, RF's agricultural programs, particularly their maize improvement program in India, exposed a need for understanding and prioritization of sustainability and equity that would become the grounds for emerging planetary health thinking. The technical success of increasing crop yields from these Green Revolution models paradoxically raises awareness of the importance of ecological implications and social considerations in planetary health action by underlying the need and prioritization these did not have in RF's agricultural decisions.

The RF launched the second part of the Green Revolution in India specifically to address rising concerns of overpopulation while unknowingly revealing the interconnectedness of human and environmental health in its short and long-term outcomes, core to thinking in planetary health scales. Critics at the time argued that the RF's International Health Division's ("IHD") public health efforts, such as combating emergent diseases like hookworm, were unethical as they could increase populations from the Global South without them having means to feed more

people (Perkins, 1990, p. 9). However, the low yields in Indian agriculture and chronic malnourishment were not from overpopulation. Instead, they were deeply rooted in social complexities and ineffective land ownership reforms that failed to bring social justice to lower caste members who had less access to food and faced unequal land distribution from higher caste members (Perkins, 1990, p. 14). The RF's population theory, adopted from Willits, head of the RF's Social Science Division, ultimately stereotyped and obscured the complexity of agricultural struggles, poverty, high fertility rates, and political unrest these communities face into a simplified "population/resources = well-being" formulation (Perkins, 1990, p. 14). Despite the Green Revolution tripling the average productivity of Indian land then, poverty and food insecurity persist to this day as the benefits of increased production primarily go to those who control crop production and land rather than the impacted communities.

The lack of sustainability considerations in the Green Revolution programs resulted in severe and ongoing environmental and public health consequences for the communities they aimed to serve. India, in particular, has suffered significant losses, with reports indicating the loss of 1 lakh indigenous rice varieties due to the increased use of fast-growing hybrid crops from RF's models (John, 2021, p. 3). Additionally, India now holds the highest global freshwater demand, with 91% used in agriculture and the water-intensive crops introduced by the Green Revolution constituting almost 50% of India's dietary water footprint (John, 2021, p. 2). Now there are water depletion regions like Punjab, a central wheat-and rice-cultivating area where communities in these regions are at risk of facing water scarcity in a few years (John, 2021, p. 2). The lack of awareness about the deleterious effects of pesticides has also had dire consequences for farmers, given that they used them without personal protective gear, increasing their chances of developing life-threatening illnesses like cancer. Women, who comprise 50% of India's

agricultural force, are the most directly exposed to these toxins, making them and their children highly vulnerable.

Dichlorodiphenyltrichloroethane ("DDT"), an essential pesticide in the Green Revolution to control crop-threatening pests, was later implemented to combat malaria, a mosquito-transmitted disease, and household pests of great importance to the US. Notably, the RF's development of a Green Revolution and the countries involved were, paradoxically, the origin of public and ecological health concerns that would soon advance planetary health thinking within the US. The use of DDT pesticides both contributed to and hindered planetary health thinking by merging ecological and public health concerns in the fight against pests, as US military and corporate imperatives surrounding malaria and foreign agricultural efforts became obstacles to long-term environmental and health considerations. Rachel Carson's *Silent Spring* book publication generated a US national movement against the indiscriminate use of DDT, placing her ecological expertise and academic endeavors of communicating scientific studies through fictional stories as a threat to the national security measures surrounding DDT's use (Kinkela, 2011). Carson's argument in *Silent Spring* focused on the dangerous and pervasive threats posed by pesticides like DDT, which she believed were persistent and harmful to the health and connection between the human and non-human worlds. On the other hand, US chemical and agricultural corporations' promoted DDT as a necessary tool to combat communism by providing malarial protection to American soldiers at war, protecting national interests not limited to household pest control, and expanding democratic principles through foreign agricultural interventions (Kinkela, 2011; Stapleton, 1998, pp. 150-151).

Carson argued for a national ecological threat, stating that "every human being is now subjected to contact with dangerous chemicals, from the moment of conception until death"

(Kinkella, 2011, p. 110). Carson further argued that the eradication principles of DDT ultimately rupture a symbiotic relationship between man and the natural world critical to the long-term health of the human world (Kinkella, 2011). This principle became relevant in medicine as experts considered ecological public health frameworks relevant to planetary health thinking within epidemiology. However, to discredit Carson's work, the chemical industries alluded to her ecological work as a simple "soft" feminine pursuit in contrast to the inherent masculinity of Cold War technology and "hard" fields such as chemistry (Kinkela, 2011, p. 118). So not only did Rachel Carson's publication spark a national debate over the use of DDT pesticides, it revealed the complex intersection of US military and corporate interests with planetary health thinking, which would play a fundamental role in the scientific community's efforts to promote planetary health.

Researchers during the US Cold War nuclear programs spawned the first image of a Nuclear Winter that embodied planetary health thinking and ushered in a new era of governance, empowering earth scientists and medical professionals to promote planetary health thinking internationally. In the US, earth scientists also began to address citizens' concerns about the new nuclear production agents causing biological damage within US testing sites and beyond national scales (Masco, 2014). The attention they were receiving from US citizens and the international community, similar to Carson, had made the US government consider them a real threat to the greater propaganda of nuclear development as a critical national security measure from external threats. However, the multidisciplinary team known as "TTAPS," an abbreviation of each of the five members' initials, developed a transnational Nuclear Winter theory that would effectively propel planetary health thinking from the confines of the US government's national security rhetoric to receive international attention (Masco, 2014, p. 92).

The Nuclear Winter theory predicts the potential impact a hundred nuclear war detonations within a few weeks would have on the Earth's biosphere. A single image of a "soot-blackened planet" (Figure 1) and temporal sequences illustrating the rise of "low light levels and high doses of ionizing and ultraviolet radiation" (Figure 2) highlighted the need to end nuclear development to prevent global climate catastrophe, radiation exposure, and other nuclear-driven crises (Masco, 2014, pp. 96-99). While previous efforts by ecologists like Carson and other earth scientists addressing environmental and health degradation struggled with national security rhetoric surrounding DDT, TTAPS' depoliticized approach paved the way for planetary health promotion by prioritizing the health of human populations and ecosystems over geopolitical and national politics surrounding nuclear proliferation. This shift towards species-level governance, that is thinking about non-human species and the planet as important entities to health, was strengthened by medical professionals such as the cardiologist Bernard Lown who advocated for nuclear disarmament, forewarning that "nuclear war, not cardiac arrest, would pose the greatest threat to human health" (Myers, 2020, p. 26). Soon he became a leading figure for the Physicians for Social Responsibility ("PSR") and the International Physicians for the Prevention of Nuclear War ("IPPNW"). Organizations like these ultimately bridged the responsibilities of medical physicians to an international policy as the Nuclear Winter theory propelled them toward planetary health thinking within global health approaches.

The late 20th-century emergence of Global Health led to the development of a planetary health discipline, with critical epidemiologists like Tony McMichael leading its promotion and establishing its public health framework. The interconnectedness of new global disease threats, such as HIV/AIDS, resulted in the creation of a Global Health field, shifting the focus to "the interaction of global, national, and local forces, processes, and conditions in political, economic,

social, and epidemiologic domains" (Birn, 2009, p. 6). Global Health departed from the earlier international health efforts influenced mainly by colonialism, Cold War politics, and economic development under the RF's IHD (Birn, 2014, p. 9). Despite the World Health Organization's ("WHO") authority, the rise of neoliberalism saw a shift in the funding in the realm of public health that began to depend on private foundations and multinational corporations, bringing the RF closer to centers of power in global health initiatives (Packard, 2016, pp. 277-278).

In 2015, the Rockefeller Foundation partnered with The Lancet to establish Planetary Health as a new health discipline under the direction of the Rockefeller Foundation-Lancet Commission on Planetary Health ("the Commission"). Judith Rodin, the RF's president, announced the institution's involvement with the Health and Ecosystems: Analysis of Linkages ("HEAL") initiative, having spent "\$200 million over the last five years" on this initiative (Peralta, 2016). RF and Harvard's School of Public Health transformed HEAL into the Planetary Health Alliance, a consortium of universities, NGOs, research institutes, and governmental entities worldwide, that produced its first report that same year to address failures in the field's understanding and implementation (Whitmee, 2015). In 2017, the Rockefeller Foundation and the University of Oxford established The Rockefeller Foundation Economic Council on Planetary Health ("the Council"), aiming to "develop recommendations and a decision-making framework that balances economic development with ecosystem protection" (Green Policy Platform). More recently, the Planetary Health Alliance has taken additional steps to mobilize planetary health thinking and action, organizing annual meetings, developing a Regional Hub Network, and drafting a São Paulo Declaration on Planetary Health in 2021. However, the effectiveness of these efforts in advancing a single, institutionalized field across multiple

regional needs and understandings of planetary health should be evaluated in light of RF's environmental and public health legacy.

The emergence of the Global Health field laid the groundwork for a planetary health field to be led explicitly by medical epidemiologists at the start of the 21st century. Dr. Tony McMichael significantly promoted planetary health thinking through influential literature, published articles, and mainstream conversations relevant to ecology, public health, and epidemiology. In one of his essays, McMichael points to how many epidemiologists have retreated from large-scale aspirations to focus on narrow, 'downstream' efforts to argue that modern epidemiology needs to embrace ecological thinking within public health (Butler, 2015, p. 20). Only then can public health interventions consist of multiple rather than single interventions that effectively address the complex interactions within future public health concerns. His engagement with institutional figures like Richard Horton, editor of *The Lancet* medical journal, led to critical conversations about planetary health as a necessary supplement to global health efforts and a series of articles published on the topic (Myers, 2020, p. 29). Throughout his career, Dr. McMichael highlighted the importance of addressing the preservation and rehabilitation of ecological systems and species alongside human health concerns.

Literature Review

This study aims to provide an understanding of the evolution of planetary health thinking to the Planetary Health Alliance, an interdisciplinary field and social movement in the 21st century. While planetary health merges human health with the condition of our natural environment, this project aims to examine how historical events, as well as PHA's visionary and institutional roots influence the transnational application of this newly emergent planetary health field worldwide. A critical parallel analysis of the ideas and foundations involved in the

evolution of planetary health thinking is necessary to reveal if the underlying objectives within the field's efforts in academia and scientific research align with the historical understandings of planetary health.

This literature review focuses on the critical players, theories, and events that made planetary health relevant to the public, particularly its traction among public health and science professionals. It also examines the financial and geopolitical factors that institutionalized Planetary Health as a conceptual successor of Global and International Health. Scholars have argued that globalization and capitalistic motives continue to drive public health efforts within medical-focused fields due to the Rockefeller Foundation's influence on global health governance, including financial procedures, scholarly exchanges, and international arrangements (Birn, 2006). The governance and actions of Global Health have also been influential in the development of planetary health as a disciplinary field, from the power dynamics behind funding priorities and decision-making to the leadership and academic influences in the transmission of the scientific knowledge the field produces. Evaluating how a few central institutions and actors delegate collaboration, communication, and the global application of planetary health principles will reveal the significant implications that global health governance has on the modern evolution of planetary health.

Building the Framework of Planetary Health

The emerging field of planetary health provides an interdisciplinary approach to addressing many health impacts felt in the Anthropocene from the perspective of widely recognized experts. What we know to be Planetary Health lately under the Planetary Health Alliance did not fundamentally emerge from medical researchers such as Haines, McMichael, and others for the first time. Instead, it is rooted fundamentally in knowledge from Indigenous

people in Australia and their pursuit of maintaining a sacred relationship with Earth and its inhabitants. Via laws of the natural world passed down from ancestral stories, known as the Natural or First Law, “a comprehensive ethical framework that defines the codes of conduct necessary for maintaining a peaceful, thriving, and co-operative society grounded in love and reciprocity” in order to continue “respectful and reciprocal relations between and within First Nations and between the human and non-human family” (Redvers, 2020). These communities established values that grounded their societies to the land with no clear separation between the health of the planet and the health of oneself and that of their community and ecosystem at large, becoming more intentional of life decisions that lead towards living in harmony with all. Their protocols are rooted in living a sustainable life that embodies The Haudenosaunee Peoples' Seven Generation Principle, "any decision taken today should consider the impact of those decisions on the next seven generations that come after us" (Redvers, 2020). Therefore the most recently introduced concept of "Planetary boundaries", a framework central to the Planetary Health meant to define the safe operating space where humanity can take place to avoid human-induced environmental change, is not new but more of a modern interpretation of what has always been old knowledge and life practice by Indigenous communities.

However, Indigenous groups' emotional and centuries-old knowledgeable connection to natural systems has been an overlooked lens that calls for discourses on Planetary Health to acquire cultural competency, critical consciousness, and a greater appreciation of marginalized voices behind the framework (Prescott, 2019). In addition, greater awareness of the role of advocates of environmental stewardship, such as the Friends of Earth groups, and professionals' health perspectives from ecologists to early medical scholars led to early adopters of planetary health concepts and terminology we currently utilize (Prescott, 2019). In the 1990s, a progressive

nursing journal introduced a planetary health perspective to holistic medicine while challenging its associates to consider themselves either "part of the solution or part of the problem" (Prescott, 2019). Such actions from advocates like the nurse Christina Stohl aided in embracing a "broader ecologically-informed perspective on health" that would eventually influence biomedicine (Prescott, 2019).

Epidemiologists' concerns about increasing environmental degradations post World War II to the end of the 20th century brought interested institutions like the Rockefeller Foundation, Wellcome, and The Lancet journal to advance contemporary academic discourses towards planetary health and propel it as a novel concept on route to medical discourse (Myers, 2020). They were assembling Planetary Health from genealogies of contemporary intellectual amalgams such as systems ecology and planetary boundaries and established fields like global health. That it so battles to distinguish itself from global health is critical because Planetary Health seems to offer an internal critique of colonialism and limitless economic growth (Myers, 2020). It is a critique that has carried over to health governance more generally as Planetary Health has also come to the forefront of multiple central institutions that significantly influence the development of global health initiatives.

Planetary Health Politics & Governance: Foundations, Organizations, and Communities

Under Horton's oversight, *The Lancet* journal committed to developing a series of Planetary Health-centered scientific journals. A partnership with the Rockefeller Foundation was made to secure funding and institutional support to promote planetary health as a new health discipline that expands "the boundaries of our existing global health frameworks" (Myers, 2020). The social realities created through the images or metaphors of bureaucratic organizations present a foundation for understanding the potential of such institutions used as instruments of

domination (Morgan, 1986). The Rockefeller Foundation's involvement in global health has historically had a decisive role in global health agendas through indirect and direct ways of producing knowledge and dispatching results (Birn, 2014). However, the images or metaphors these organizations build over time can strengthen or limit an institution's growth (Morgan, 1986). Based on promotional material and official documentation I argue that the PHA can be seen as either a hive mind-like organization with a central control center to receive and disseminate information or a political system based on alliances and coalitions, each with respective drawbacks.

A significant historical and sociological aspect of analyzing the field of Planetary Health is its funding, which Seltenrich (2018) introduces to the field's understanding. The social entrepreneurial mission of 1990s billionaires in "saving the world" has mounted to "philanthrocapitalism," with Rockefeller as one of its primary models (Birn, 2014). The Rockefeller Foundation derives its economic power from rising inequality in social and environmental costs of increasing highly damaging commodities like oil and gas to determine through autonomous donor decisions the necessary policies and actions for solving social issues. However, philanthrocapitalism's interest in serving donors' business and investment interests can ultimately impact the scientists' intellectual independence and growth in such fields (Birn, 2014). Scholars have proposed three critical frames nested as complex thinking, justice-oriented ethics, and transformative pathways for innovative governance that adequately promotes planetary health (Öxdemir 2019). Combined they entail recognizing the complexity and interconnectivity of the natural, social, and economic factors within planetary health. As well as recognizing the inequities that are degrading for planetary health's greater aims and reshaping the systems and structures hindering planetary health efforts.

Transnational Implications of the Field: Collaboration, Communication, and Applications

Scholars point to how Planetary Health is moving towards being able to play an active and deliberate role in shaping policy and decision-making processes that consequently impact higher education and interrupt disciplinary siloing (Seltenrich, 2018). The newly established Rockefeller Foundation-Lancet Commission on Planetary Health outlined health professionals as influential in the promotion of the field, mandating health research communities to "forge links with the full range of relevant disciplines in the natural, physical, and social sciences" (Whitmee, 2015). They also point for governments to incorporate Planetary Health into their national policy discourses and provide the field with "responsibility for integrated monitoring and communication of trends in health, socio economic development, and natural systems" to mobilize the planetary health framework effectively (Whitmee, 2015).

However, how the Commission dismisses the Indigenous roots of the planetary health framework in the report draws on scholars who firmly believe that Indigenous philosophies are a necessary political corrective to understand our current ecological crisis and its roots in colonialism (Davis, 2017). Thus, the field's participation and implementation within local governments continue to be studied and modified via grassroots implementations that engage civil society, "promoting public discourse, participation, and transparency of data and systems models"(Whitmee, 2015). Looking at the frameworks developed for planetary health field's decision-making processes, governance structures, and transnational commitments will be especially crucial to examine within this discussion.

Regardless, climate change and similar complex concepts within planetary health will require a new kind of geopolitics that can operate in and above the nation-state level to consider species-level effects on earth systems (Masco, 2017). Also, scholars raise awareness of the

danger that underlies the field's communication of environmental crises and their consequent actions because of the rising American capitalist driven "crisis in crisis" stabilization phenomena and political modality. Masco claims a "crisis in crisis" is where "repeated failure as well as totalizing external danger [is experienced] without generating the need for structural change" while failing in "engaging the multiple temporalities at stake in a world of interlocking technological, financial, military, and ecological systems" (Masco, 2017). Looking specifically at the Planetary Boundaries framework developed by the Rockefeller-Lancet Commission on Planetary Health ("The Commission"), I argue how their focus on boundaries with unknown limits grounds a public fear and presses a reliance on technological solutions that are particularly drawn to exert agricultural and public health efforts similar to the RF's in the 20th century. Instead of neglecting the social and political dimensions of planetary health and crises in general, Marco (2017) argues for mobilizing greater efforts that build bottom-up, equitable solutions to the most pressing environmental and human health concerns we are currently experiencing and may face soon.

Research Methods

In order to understand the epidemiological, political, and economic factors critical to the emergence of planetary health thinking, this paper follows the historical events and actions surrounding the Rockefeller Foundation, the field of Global Health, US Cold War Nuclear Projects, the epidemiologist Tony McMichael, and the Planetary Health Alliance. The scientific research, funding structures, and collaborations affiliated to them are critical to analyzing how the United States came to envision an idea of planetary health alongside the rise of technological advancements, neoliberalism, public health efforts, and post World War II nuclear developments in the 20th century. Pairing these historical findings with recent statements from The Rockefeller

Foundation Economic Council on Planetary Health and the Planetary Health Alliance presents a linear understanding of the political and economic power dynamics behind planetary health's institutionalization in the 21st century. Assembling archival evidence of the promoted frameworks, funding allocations, collaborations, and governance structures of these recent institutions' alongside essential scientific, public, and geopolitical events in history, I construct a critical genealogy of planetary health.

Analysis of Primary Source Documentation from Institutions & Affiliated Individuals

In order to understand the influential events that were critical within epidemiological and earth science as well as philanthropic institutions to engage in planetary health thinking, I have developed a two-part analytical archive. The first part is primarily historical in nature and includes bureaucratic infrastructures such as RF's first antimalarial campaigns and scientific findings surrounding World War II post-war nuclear affluence. In addition, as part of the scholarship on these bureaucratic infrastructures and their actions, I follow academic conversations critical to the development of a planetary health field. These institutional, scholarly, and empirical efforts are analyzed to understand the environmental, medical, geopolitical, and philanthropic engagements involved with planetary health thinking. The second part of this analytical archive is centered on bureaucratic infrastructures institutionalizing a planetary health field and includes a collection of mission statements, press releases, relevant statements, figures, and promotional material from websites and official documentation. Together, these enable a critical analysis of the political, scientific, and bureaucratic power dynamics that have shaped planetary health as a field.

As part of my historical analysis, I examined publications and personal contributions from Tony McMichael outlined in the book *Health of People, Places and Planet* that

fundamentally establishes where epidemiologists stood concerning planetary health. In my analysis of US Cold War nuclear development, I drew upon Joe Masco's scholarship on national security in *Theater of Operations* given the critical role played by scientists' creation of a Nuclear Winter theory that ultimately depoliticized and constructed an image of planetary health. In addition, I followed political and ecological debates surrounding Rachel Carson's *Silent Spring* publication and historical accounts of the Rockefeller Foundation and their philanthropic endeavors. I specifically followed RFs legacy on Global Health through scholarly reception towards the field of global health from works such as Packard's *A History of Global Health* and various published articles on the topic of DDT pesticide use in public health campaigns and the Green revolution model. These sources add a critical lens on the Rockefeller Foundation and its current involvement in the development of the field of planetary health to analyze whether it is similarly grounded in motivation, governance processes, and power dynamics present within global health.

As part of the bureaucratic section of this archive, I specifically examine the role RF's and PHA have in commitments made within the planetary health field. This involves collecting online and website material, as well as official documentation from the Rockefeller Foundation Economic Council on Planetary Health and the Rockefeller-Lancet Commission on Planetary Health. In my analysis, I also examine the Planetary Health Alliance's São Paulo Declaration and Regional Hub Network, drawing on official documentation, website content, and published articles that outline the aims of these initiatives. Through this examination, I identify the fundamental principles guiding the decision-making and governance of the field from these declarations, official reports, and institutional efforts taken to this day.

Fieldwork from Afar : Planetary Health Alliance

Interviewing various health experts affiliated with the Planetary Health Alliance from both the Global North and South provides an informed insider's perspective on the underlying, asymmetrical power structures behind the most current practices of research and health governance involved in PHA's development of a planetary health field. I conducted a total of five interviews over Zoom, ranging from 35 minutes to an hour. The interviews were presented in a semi-structured manner to allow for a more individualized understanding of each participant's interest, involvement, and understanding of planetary health in their work and collaborations. The interviewees identified key concepts and challenges behind the academic, scientific, and political factors mobilizing planetary health thinking in the 21st century. These interviews were critical to ground the relevance of the PHA and the RF in the most recent conceptualization of planetary health under written commitments outlined in the São Paulo Declaration and promotional efforts, like the development of a Regional Hub Network.

The interviewees are professional scientists and researchers in planetary health-related work and affiliated with the Planetary Health Alliance. They are essential participants in the field through academic publications, research field efforts, and hold leadership positions that advance planetary health-relevant work within academic centers and organizations independent from PHA. Once the participants agreed to participate through email or WhatsApp, a consent form provided information on the research aims and the understanding that their responses are recorded for transcription purposes only. Once the interviews were uploaded to UChicago Box, specific identifying information was removed and the interviewees' names replaced with pseudonyms that are gender neutral and do not reflect their personal identity in order to secure their confidentiality. Their pseudonyms were posed as first names for simple tracking in the final report. Interviews were transcribed and analyzed on the Otter.ai software platform using

inductive and deductive coding with theoretical frameworks and themes to identify critical references emerging from the interviews.

Argument/Analysis

The Rockefeller-Lancet Commission has narrowed the focus of the planetary health field to a technologically-driven 'crisis imaginary' societal narrative dominated by a perpetual fear of the unknown and desire for control. Within this narrative approach, planetary health is built to overlook the multifaceted socio-ecological factors underlying global challenges and reinforces a homogeneous view of these issues, prioritizing Western structures and solutions. As a result, our ability to address these concerns in a meaningful and equitable manner is limited. PHA's definition of planetary health and language around the Planetary Boundary ("PB") framework meant to outline humanity's safe operational space reveals this 'crisis imaginary' at work to influence their planetary health thinking. In 2015, PHA defined *planetary health* as "the health of human civilization and the state of the natural systems on which it depends" (Whitmee, 2015). In recent years, PHA changed planetary health's definition to "a solutions-oriented, transdisciplinary field and social movement focused on analyzing and addressing the impacts of human disruptions to Earth's natural systems on human health and all life on Earth" which can be a source of confusion, as noted by Logan, one of my interviewees who is a current field researcher and research center director (Planetary Health Alliance). Logan also preferred the earlier definition, given how the latest definition from PHA is "narrowed, reduced, and technicalized." In addition, Logan believes that because planetary health is also "interfacing with other concepts, approaches, frameworks such as OneHealth," PHA has not indeed been "intentional and proactive in trying to bridge those divides or differences," which doesn't help to clarify some of the confusion with planetary health's definition. So they find themselves trying to

"educate people, funders, [their] superiors, other organizations" that remain uncertain about the mission of planetary health to reach their understanding of "why it's needed, why we need to build these infrastructures." The Commission argues, however, that "uncertainty is the rule, rather than the exception, when thinking about planetary health" and, therefore, decision-making must shift towards a PB framework, a form of global coordination that considers delineated boundaries with significant consequences if crossed (Whitmee, 2015, p. 1979).

The PB framework, illustrated in Figure 3, comprises nine concepts, each with a corresponding threshold that defines safe operating spaces and high-risk zones. Three of these processes are represented in gray, indicating unquantified boundaries, while an area between two red circles denoting a "zone of uncertainty" is how the Commission employs to encourage reliance on top-down, risk-management solutions as part of the planetary health decision-making process. PHA's commitment to advancing planetary health innovation through "curating and synthesizing" scientific evidence also reflects the Western construct of a 'crisis imaginary' emerging within the field (Masco, 2017). The Commission prioritizes technological approaches and efficiency over local needs as the new governance system operates at the level of entire species under these planetary boundaries. However, despite the PB framework's emphasis on maintaining Earth's functions, philanthropic efforts made by the RF have historically and recently contributed to an increase in these threshold levels.

For instance, concerning land-system changes, the Commission proposes to increase fertilizer use in sub-Saharan Africa to reduce other countries' pollution but falls short of providing adequate support for subsistence farmers as they are left to "rely on forest products to cope with any agricultural shocks" as illustrated in the introduction (Whitmee, 2015, pp. 1998-1999). Maize, AGRA's most heavily supported crop, has reportedly failed to achieve yield

growth in half of the focus countries, according to the most recent AGRA's report. Even in cases where yields rose, they did not translate into rising incomes for farmers and, instead, negatively impacted local environmental conditions because of foreign farming practices and fertilizers (AGRA, 2022). The Commission's recommendations based on data-driven risk management decisions have not only failed to eradicate poverty, they have also caused environmental degradation (Whitmee, 2015, p. 2008). As evident in the PB framework, the Rockefeller-Lancet Commission's lack of consideration for hyperlocal, cultural and economic dynamics ultimately homogenizes and diminishes critical voices and perspectives necessary for planetary health thinking.

Incorporating Indigenous knowledge and socio-ecological perspectives beyond biomedical and economic lenses in the decision-making process is crucial to shifting the planetary health field away from philanthrocapitalism and towards more equitable, holistic approaches. The Commission's introduction of the PB framework as a modern concept overlooks its roots in Indigenous traditional knowledge (TK) systems. Indigenous TK is a holistic understanding of the interconnectedness between humans, nature, and the universe, which encompasses collective knowledge, practices, innovations, and beliefs. It is inclusive of environmental, nonhuman species, spiritual, and community elements and is defined by the application of this knowledge in relation to all beings that share the world (Redvers, 2020). By including Indigenous knowledge, decision-makers can consider a wider range of factors that affect the environment and species' well-being, such as cultural practices, traditional medicines, and interpersonal relationships with the natural world. Moreover, Indigenous TK shifts the planetary health framework away from being reliant on narrow biomedical and economic

perspectives held by enforced power structures that prioritizes market-based solutions over community-based approaches.

Moreover, during one of my interviews, Rowan, a current field scientist in Africa, emphasized the importance of including diverse perspectives in decision-making by emphasizing the role of gender in local communities' decisions in the Global South. Rowan explained, "Women are the key people when it comes to domestic water use. They fetch the water and use the water. I mean anything related to water is more of the women than men because they know what it takes to walk for water, to carry it on their heads and bring it back and not the man." Yet, Rowan also noted that "when it comes to decision making, certain sociocultural factors may not allow women to speak, so at that point it is the man who is making the decisions about water, even though it is not the man who is the person who uses the water." However, to effectively collaborate between Indigenous knowledge and Western science, planetary health must depart from the philanthrocapitalist system and short-term, biomedical solutions that treat the environment merely as a resource for human benefit and well-being (Birn, 2014).

The RF's creation of an Economic Council on Planetary Health, which has adopted a 'Natural Capital Approach' as the most effective decision-making tool for the field, embodies philanthrocapitalism's influence on planetary health metrics and actions. The Natural Capital approach, illustrated in Figure 4, aims to quantify natural capital (e.g., air, water), natural processes (e.g., nutrient cycling), ecosystem services (e.g., trees and crops), and well-being-related goods and services (e.g., wild species, physical and mental health) into measurable units and metrics translated into economic values. Translating them, according to the Council, renders these diverse sets of factors "compatible with standard economic decision-making" and allows "government and business decision-makers to understand the costs and benefits of alternative

investments" (Bateman, 2018, pp. 10-11). The Council contends that any deviation from conventional economic decision-making would maintain the current state where health and environmental metrics are solely to assess predetermined budgets. They indicate that economic incentives will persist in environmental and human health decisions unless a comprehensive approach is embraced, which incorporates a wide range of perspectives and disciplines beyond mere economic values.

The Council's proposal to incorporate a combination of services that generate "human, social, manufactured, and other capital within economic production" into the value of ecosystem services aligns with the principles of philanthrocapitalism by prioritizing economic values and investment within the field of planetary health (Bateman, 2018, p. 10; Birn, 2014). The Natural Capital approach, with governmental bodies and businesses as the primary beneficiaries, maintains a power dynamic where they hold significant control over investment decisions in planetary health. This control considerably impacts the direction of research and initiatives, ultimately guiding which areas of planetary health receive funding and attention. For instance, according to Riley, a humanitarian, activist, and public health researcher highlights how most research focuses on the "mechanical relationship of the human with our planet earth, with our home," where it most often explores what is "external from the human, like, let's look at the rates of this carbon dioxide and how it impacts lung capacity" but "doesn't feel like it is about our home." Thus Riley calls for work to be increased on topics like mental health, both quantitative and qualitative work as a body of evidence that introduces a "person-centered approach that considers all the layers of society and the emotional feelings around the understanding that it is our home" into future, large-scale planetary health interventions. This perspective emphasizes the idea that the environment is not just a resource for human exploitation, but rather a complex

system that humans and species are deeply embedded in and intimately connected to that ultimately plays a fundamental role in both human and the planet's well-being at the same time. Therefore, more effective interventions must take into account the deep emotional and personal connections when guiding future planetary health interventions.

Therefore, to effectively shift the field towards incorporating Indigenous knowledge and addressing the root causes of planetary health problems, it is necessary to move beyond the Western medical and philanthrocapitalist foundations that have historically guided Global Health and shaped PHA's inception (Birn, 2014). Riley points to this by noting how currently "planetary health is a medicalized field" where "the transdisciplinary parts of it sort of get inserted inside of the medical model," which "is not a true social-ecological viewpoint by not extracting, specifically the person and the society relationships" from the aided communities. However, this shift to a more inclusive, socio-ecological approaches within the field entails incorporating a more comprehensive range of expertise and initiatives into its decision-making framework and addressing the systemic barriers within the field's funding structures and governance. In order to move beyond this limited approach and incorporate Indigenous knowledge and more comprehensive socio-ecological approaches, it is necessary to address the systemic barriers that perpetuate the dominance of these Western foundations in the field of planetary health. This includes governance structures that may exclude voices from marginalized communities or limit opportunities for interdisciplinary collaboration as well as addressing funding structures that prioritize certain types of interventions and research over others.

Dr. Samuel Myers, Senior Research Scientist at Harvard's School of Public Health and Director of PHA, emphasizes that a core mission of PHA is to achieve what they call the "Great Transition," where social action is "expected to involve fundamental changes in human values,

assumptions, cultures, worldviews, and power relations...that influence societal norms and institutions governing behavior" (Myers, 2020, p. 483). Specifically, the Great Transition movement aims for planetary health governance to move towards "listening to, integrating, and amplifying voices in every community from Indigenous Peoples, faith traditions, artists, entrepreneurs, to scientists" (Myers, 2021, p. 2). It represents a bold and transformative vision for the future of planetary health that calls for collaboration and partnership across sectors, disciplines, and communities, to create sustainable and just solutions.

The São Paulo Declaration also outlines actions and commitments necessary for achieving the Great Transition under the planetary health field. Its emphasis on achieving this through the actions of "governments, the private sector, civil society, and the general public" across "all geographies, cultures, sectors, disciplines, and generations" can be seen as an attempt to speak with one voice and represent everyone, everywhere (Myers, 2021, p.2). This kind of universalizing language has been criticized in the context of the Anthropocene, a term proposed to geologically date significant human impact on Earth's ecosystems, and other critiques of environmentalism, as it can perpetuate power imbalances and ignore the diversity in perspectives and experiences from various communities and cultures (Davis, 2017). By speaking on behalf of "everyone" and advocating for a one-size-fits-all approach to planetary health governance, the São Paulo Declaration risks perpetuating these power imbalances and erasing the diverse perspectives and knowledge systems that exist in marginalized communities. But even more specifically, it relates to Davis' argument of the Anthropocene term because the Declaration's vagueness and universality similarly poses a violent move that erases the long histories of human-environmental relations that exist outside of the West and Eurocentric worldview.

The absence of the RF's endorsement of the São Paulo Declaration is particularly notable as well, given the Declaration's emphasis on achieving the Great Transition. Even though the São Paulo Declaration includes a section specifically for "Funders," the current president of the Rockefeller Foundation, Dr. Rajiv J. Shah, and the foundation itself are not among the approximately 300 signatories who have endorsed the São Paulo Declaration (Planetary Health Alliance). While the foundation has provided funding to support the work of the Planetary Health Alliance, their endorsement of the São Paulo Declaration would need to be separate and distinct, so the absence of their endorsement indicates a lack of commitment to the specific actions and allegiance outlined in the São Paulo Declaration. While the Great Transition movement represents an important and necessary vision, the established interests visible in funding mechanisms, governing systems of power, as well as lack of representation in leadership and decision making process are critical obstacles.

Rowan noted that "Every field plays a role in planetary health. The local authorities, the governmental authorities, the politicians, the researchers, the community, and even the children are important. You cannot do planetary health without involving everybody."

Alternatively, two interviewees alluded to a paradoxical relationship emerging within PH's governance structure that becomes particularly crucial to discuss here. Logan emphasized that at the leadership level, "PHA will need more diversity since the majority of the leadership comes from Harvard-affiliated individuals with some advisers from other parts of the world, but I think it needs to do a better job in inputting more voice and ideas." Riley noted how they believe that "this field is being built from the Ivory Tower and has been built in the Global North for post industrial countries." They further elaborate that it "is being led, its leaders are all physicians," highlighting a lack of representation from other disciplines and communities. As part of their

commitment to achieving a Great Transition in planetary health, it is therefore essential to analyze the specific actions and commitments made by RF and PHA towards the development of a Regional Hubs Network, as well as their institutional efforts aligning with the objectives in the São Paulo Declaration on Planetary Health.

PHA's Regional Hubs Network aims to "promote and support local research, education, policy, outreach, and on-the-ground interventions" and expects to expand "intra-and inter-regional collaboration" and participation in future PHA initiatives (Planetary Health Alliance). Affiliation with PHA comes with a few benefits, as mentioned by the interviewees, such as funding for one member of each hub to attend their annual conference, guidance on developing strategic statements, mission, vision, core values, and other technical support as stipulated on their website. Here, PHA's structure exhibits characteristics of a centralized "brain metaphor" type of organization focusing on knowledge management and learning in planetary health governance (Morgan, 1986). Nonetheless, the decentralization for individual hubs to establish their "own governance structure, strategy, and membership" has posed many challenges, as per the accounts provided by interviewees.

Logan stated, "I will be frank, in saying that they should be looking for funding sources and trying to share them with the regional hubs because that will expand our capacity to actually run the hub. Right now it's all volunteer and some financial support can actually go a long way." It is no simple feat to run, recruit members, and retain the momentum of a hub, a lack of funding limits the organization's ability to achieve its goals, as it may need more human and material resources to support its initiatives. Logan also mentioned how "the regional hubs within themselves are not even mature yet" in order to be able to collaborate, with some in the early stages of "conducting a landscape analysis of who is doing what." Moreover, Logan said this

situation is "quite frustrating because climate change is already happening right, and we need to act faster." However, they find themselves in academia's "competition for scarce resources" with other fields, needing to "defend why your field is more important than others" despite having a transdisciplinary nature where everybody can be part of it but lacking funding to establish research centers. This statement alludes to the negative consequences of relying solely on funding based on quantitative measures of success. It may reduce focus on critical organizational performance elements, such as collaboration, education, and innovation (Morgan, 1986). The challenges encountered by the Regional Hub Network underscore how PHA must assist beyond its role as a centralized node of knowledge for planetary health governance. For instance, a hub's recruitment and retention of individuals and communities are fundamental to someday achieving a globally inclusive, participatory planetary health governance. PHA recognizing and addressing the actual limitations of RF's funding and institutional mechanisms beyond the objectives stated in the São Paulo Declaration is imperative in this regard as well.

The structures and power dynamics in RF's funding and PHA's São Paulo Declaration paradoxically demand a fundamental shift in planetary health's governance that addresses the barriers to collaboration and inclusion of every field that aren't conducive to facilitating the kind of transformation being promoted. In recognizing the crucial role of funding in planetary health governance, the São Paulo Declaration emphasizes the need for funders to prioritize the needs and perspectives of communities most affected by planetary health challenges such as climate change refugees and small-scale farmers. The São Paulo Declaration, therefore, includes the call for funders to "co-design calls for grants based on the needs of end-user stakeholders. Break down systemic barriers for accessing capital by prioritizing funding that reaches those who are representative of their communities" (Myers, 2021, p.5). Both Riley and Logan, as

aforementioned, criticized the Planetary Health Alliance for being too closely tied to private, Ivy League academic institutions both domestically and internationally, leading to concerns about the inclusivity of diverse perspectives and voices that is further reflective in their funding.

However, despite the PHA's commitments outlined in the São Paulo Declaration, its current funding and granting mechanisms for planetary health initiatives perpetuate exclusionary practices resembling a 21st-century iteration of colonialism within planetary health governance. An analysis of the funding allocation for planetary health initiatives under the Rockefeller Foundation reveals a disproportionate amount of funding going towards higher educational institutions in the US and UK. According to the RF website, there are a total of 17 grants amounting to approximately \$15,592,872 listed for 'Planetary Health' initiatives, with 53% (\$8,250,201) of the funds granted to higher education institutions within the US and UK, while the remaining distributed among UN initiatives and US-based consulting, global health, and media institutions (The Rockefeller Foundation). This information suggests that funding for planetary health initiatives may be skewed towards established academic institutions in the Global North, perpetuating existing power imbalances. The RF, as a wealthy and powerful organization, holds significant control over the direction of funding and initiatives in the field of planetary health. This control allows the RF to prioritize certain types of interventions and research over others, and to influence the governance structures that shape the field. This power dynamic within their funding preferences and leadership boards is reminiscent of the colonial era, where powerful nations exerted control over colonized nations and societies, shaping their institutions and economies to serve the interest of the colonizers.

A concerted effort must prioritize the needs and perspectives of communities most affected by planetary health challenges. This means actively working towards diversifying

leadership, governance, and decision-making structures, as the São Paulo Declaration calls for. As mentioned by Riley, this effort must include addressing deeper, lesser-seen mechanisms of exclusion within grants: "there are grant numbers that are specified to some of the largest grants you can get. And generally people with terminal degrees, so PhD, MD, are eligible. They also have to be senior researchers, people who have been doing research for a while, and those are often white men". This brings us back to the challenge Rachel Carson faced when addressing the long-term consequences of DDT. Given the significance of environmental factors in local health problems, as noted by Rowan who states, "many of our local, developing country health problems, a lot of it, is linked to environmental issues," it is clear that managing our environments while incorporating ideas from the local communities that grapple with them more closely can have a significant impact on reducing the burden of disease. Riley further highlights the importance of prioritizing the needs and perspectives of communities most affected within funding allocations, "they need to find ways to give low and middle income countries and universities, low resource universities, seed funding to start developing and expanding their programs to truly target the places where most planetary health problems are." Despite many efforts by the PHA, such as creating Regional Hubs and the São Paulo Declaration, a significant lack of diversity in leadership and voices can perpetuate an environment of conflict and division as groups of individuals compete for power and resources.

Moreover, there still needs to be more representation of expertise, women, and people of color in leadership within alliances that manage the power dynamics of planetary health governance. This exclusion reveals which groups have the least power to influence regulatory decisions within the field while serving as a barrier to effectively addressing planetary health issues on a global scale. The São Paulo Declaration emphasizes setting alliances among different

groups of actors and grounds the PHA and its affiliates as a political system with power struggles, alliances, and coalitions among individuals or groups, focusing on managing power dynamics (Morgan, 1986). However, this structure has led individuals to engage beyond their field expertise and into political environments to succeed. As noted by Logan, "it's in the government. It's in the United Nations system. It's in the university, you know, these are the spaces for planetary health action." They recognize how balancing these two responsibilities has become a challenge for many leading regional hubs and similar innovative initiatives. Logan notes how "you can spend all your time being involved in alliance creation, but then you're not battling the real issues. The real battlefield is outside and that's where 99% if not 99.99% of my energies are dedicated to but also are being required. It's also like, you know, where are your energies much more needed? Is it running an alliance or addressing the planetary health challenges head on?"

Economist Gareth Morgan, professor at Saïd Business School and internationally distinguished author of books such as *Images of Organization*, has claimed that a political system could lead to conflict and division as individuals and groups compete for power and resources. Given how power relations are embedded within social and economic structures, the most potent actors will have more influence over decisions that impact their profits. At the same time, marginalized communities lack the power to influence these decisions that impact their well-being (Foucault, 2008). Money and power are key factors that shape exposure and vulnerability vis a vis planetary health. For example, the activities of large corporations and industries such as fossil fuels and mining often contribute to environmental degradation, climate change, and other planetary health issues, which in turn can disproportionately impact marginalized communities who lack the financial and political power to protect themselves.

In conclusion, one of the key challenges in the governance of planetary health is the ongoing influence of neo-colonial dynamics that perpetuate power imbalances and marginalizes the perspectives and voices of communities most affected by environmental and health issues. This is particularly evident, for example, in how the PHA has been criticized for its Western-centric approach where organizations and experts from the Global North exert influence over the governance of planetary health and focus on technocratic solutions as they exclude Indigenous knowledge systems and community perspectives. Addressing these challenges requires a concerted effort to prioritize the needs and perspectives of communities most affected, diversify leadership, and recognize funding inequities and technocratic power dynamics that perpetuate neo-colonialism in planetary health. Only by taking these steps can we effectively address the urgent planetary health issues facing our world today. By doing so, we can create a more inclusive and equitable approach that benefits everyone, not just those in positions of power and with privileges.

Conclusion

During the post-World War II period in the United States, the concept of planetary health emerged as a response to concerns surrounding nuclear fallout and DDT pesticide use. These early efforts laid the groundwork for the planetary health field, which emphasizes the interconnectedness of human and environmental health and the importance of addressing global challenges through a transdisciplinary approach. The Rockefeller Foundation has played a significant role in the development of this field not only by funding PHA but also by marshaling public health, geopolitics, and the private sector to planetary health challenges such as malaria and agricultural productivity. These efforts have significant implications for establishing

planetary health decision-making and governance processes, as well as for comprehending the direct contributions the RF has made to institutionalize a planetary health field under the PHA.

This paper makes a new intervention by drawing on previous scholarship and literature to reveal the significance of the RF, public health, and geopolitical interventions in planetary health thinking and institutionalizing it as a distinct field. Given the historical and recent critiques of the RF both within and beyond the field of global health, it is imperative to critically analyze its actions in public health and environmental affairs to assess whether its current strategies align with these critiques, particularly in its efforts to establish a disciplinary field of planetary health. The origins of the RF's financial resources, stemming from its monopoly on US oil production, and its reliance on DDT pesticides for antimalarial initiatives and agricultural practices led to extensive degradation of species and ecosystems. The RF highlights a fundamental contradiction to planetary health thinking and exposes the colonial and Western scientific paradigms that planetary health must grapple with today. RF's historical reliance on DDT pesticides and oil production contributed to extensive degradation of species, ecosystems, and communities, perpetuating the legacy of colonialism around the world. This legacy continues to influence the governance of planetary health today as Western, technocratic solutions dominate the field without making space for the knowledge and perspectives of Indigenous and Global South communities.

Although the RF's Planetary Health Alliance and affiliated institutions are undergoing significant development, field experts' official statements and documented evidence reveal limited financial and institutional support for the Regional Hubs Network, with a prioritization of Western institutions, businesses, and governance bodies in decision-making processes. The Rockefeller-Lancet Commission's current focus on technological approaches based on Western

practices homogenizes complex socio-ecological issues. Indigenous knowledge and diverse perspectives beyond biomedical and economic lenses in decision-making frameworks move away from these approaches, promoting more equitable, holistic, and long-term solutions. Despite the commitments outlined in the Sao Paulo Declaration, the RF's current funding and granting mechanisms perpetuate exclusionary practices similar to 21st century colonialism by hindering diversity in regions and sectors' role in governance or decision-making within the institutionalized concept of planetary health. Specifically, the RF's funding and granting mechanisms hinder diversity in regions and sectors' role in governance or decision-making within the institutionalized concept of planetary health that marginalizes the knowledge and perspectives of communities outside of the Western scientific paradigm.

The RF's involvement in the recent decision to remove "Green revolution" from AGRA's initiative name demonstrates an acknowledgement of the multifaceted degradation that has resulted from their agricultural models. However, the continuation of the initiative under a new name and five-year plan with a focus on commercial seeds instead of synthetic fertilizers shows the persistence of institutional power for technocentric, Western approaches that contribute both power imbalances, systemic barriers, and ultimately planetary health crises. Instead of prioritizing sustainable, region-based solutions and the integration of local expertise demanded by African civil society, RF's funding commitment has prioritized corporate profit, in this case for foreign agrochemical and agribusiness firms involved, over effectively addressing the continent's reported rise in poverty and food scarcity. Just as a diverse group of farmers sow seeds from their hands, each with their unique backgrounds and perspectives, we must also work

together to weed out the dark roots of philanthrocapitalism and Western hegemony, to reveal a planet that nourishes all and reflects the vibrant diversity of our world.

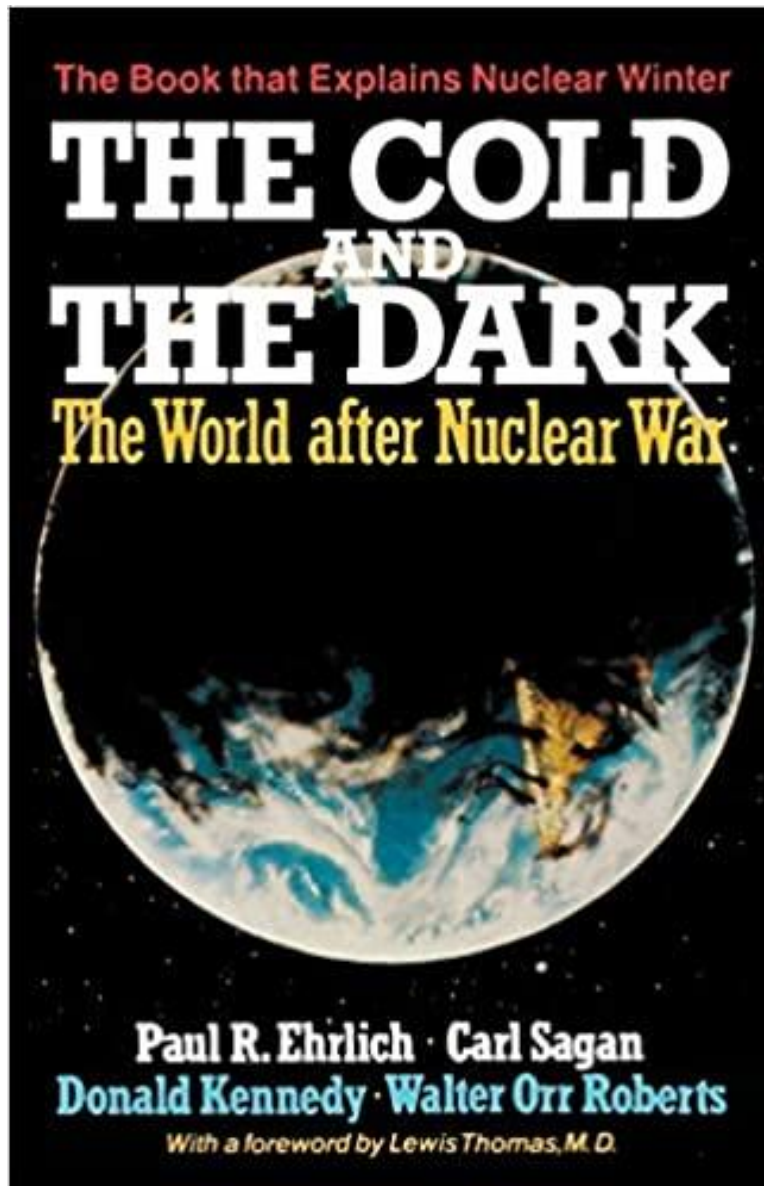
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Appendix



**Figure 1: A soot-covered world after nuclear war,
The Cold and the Dark (Ehrlich et al. 1984)**
Image courtesy of Amazon



**Figure 2: First of the temporal sequence by Jon Lomberg
The Cold and the Dark (Ehrlich et al. 1984)**
Image courtesy of fineartamerica

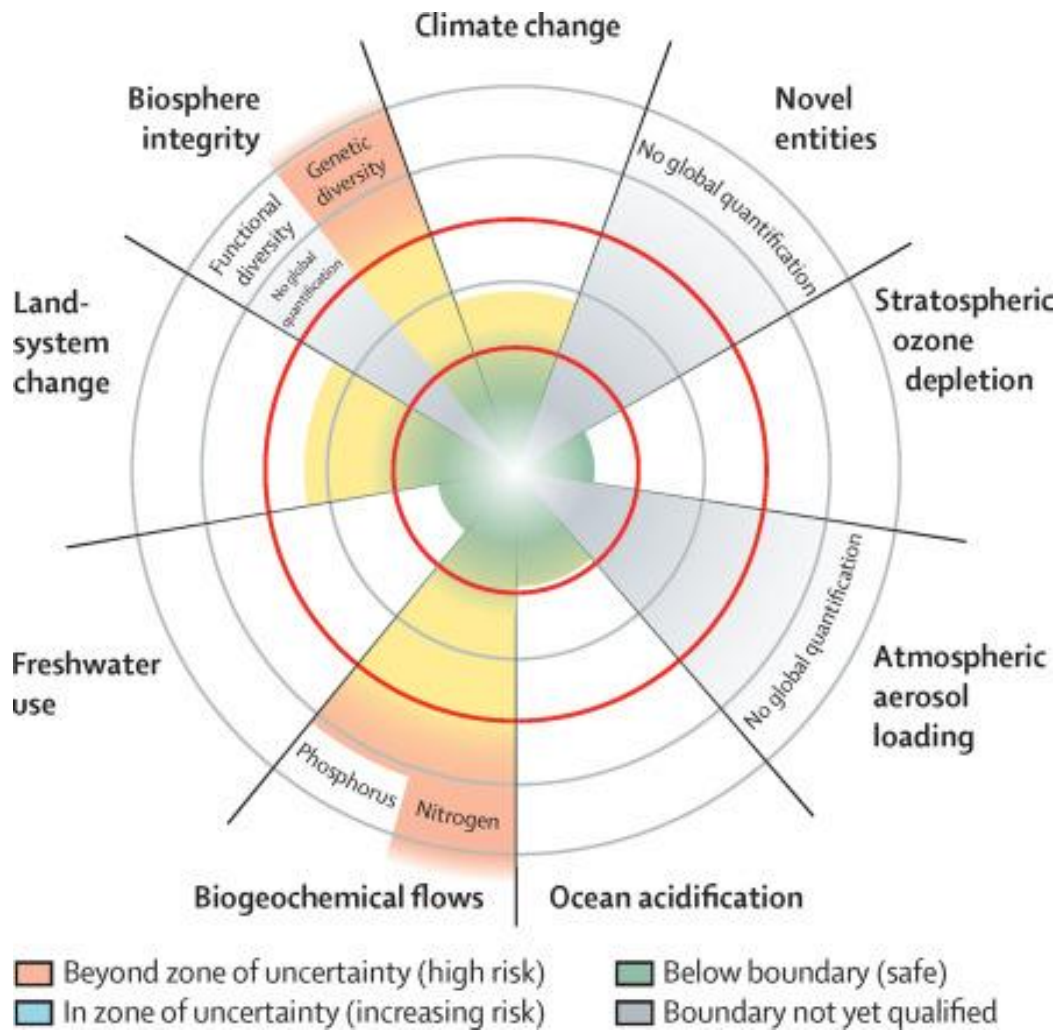


Figure 3: The Planetary Boundaries Framework
(Whitmee et al. 2015)

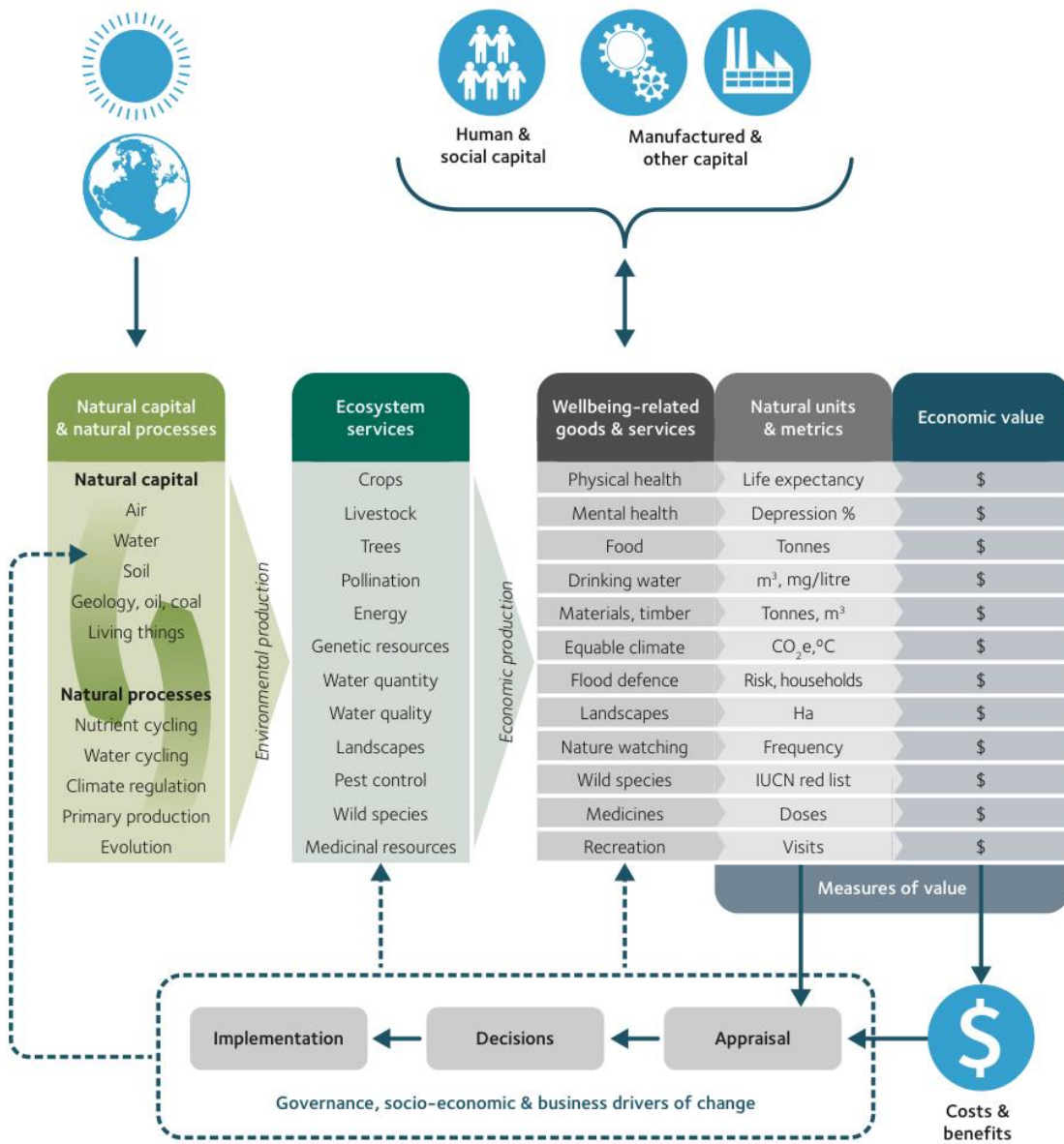


Figure 4: The Natural Capital Approach
(Bateman et al. 2018)