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COMMENTARY

Making Nature Count: Reflections on the Dasgupta Review

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Abstract: Earth's biodiversity is the ultimate engine of local and global economies and compromising the renewability of our natural resources will ultimately halt economic growth. Despite this, humankind has continued to exploit natural resources such as fisheries and forests at highly unsustainable rates in the pursuit of flawed development paradigms and simplistic metrics such as gross domestic product (GDP). This has already led to the loss of natural habitats and the decline and extinction of species as well as consequences such as an increase in zoonotic pandemics. *The Economics of Biodiversity*, a recent report by Sir Partha Dasgupta, addresses how the failure of our current institutions has brought us to where we stand and suggests ways by which we may reform our economic thought to mitigate the impacts on biodiversity. The report identifies important first steps: changing the way we measure economic "success", ensuring that the renewal of natural resources keeps supply higher than demand, and restructuring institutional frameworks. These are necessary but potentially insufficient measures—tenure over land and water is likely to be crucial in addressing the challenges of the future. Preserving ecological integrity to allow biodiversity to persist in the face of climate change is essential.

Keywords: Biodiversity; Ecosystem Services; Governance; Resource Management; Sustainability.

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In 2012—a full eight years before the start of the ongoing COVID-19 crisis—award-winning science writer David Quammen warned us of the inevitable occurrence of human pandemics in his book *Spillover*. The research on which this book was based is even older. Indeed, for decades now, scientists have been sounding the alarm about the potential impacts of the loss and degradation of the natural environment. The increasingly intense contact between humans and wildlife, which stems from deforestation, agriculture, and livestock rearing, combined with increased global connectivity, has created perfect conditions for the spread of deadly pandemics. SARS and Ebola pointed to the potential impact of a zoonotic disease. But scientists' warnings fell on deaf ears—governments and globalized economies measure success in a currency that fails to capture the true cost of humanity's impact on Earth. We are living through the result now.

COVID-19 is just the most recent and dramatic manifestation of a larger malaise, which is the subject of an independent review called *The Economics of Biodiversity* (henceforth TEB) (Dasgupta 2021). *TEB* is a comprehensive, lucid, and frightening exploration of the enormous mismatches in the functioning of ecosystems and our current institutions, which are structurally incapable of, or unwilling to, acknowledge that Earth's biodiversity, which is the ultimate engine of economic growth, is ultimately finite. This has led to where we stand today— governments and markets continue to publicize GDP growth and quarterly profits to their citizens and shareholders, while the unsustainable extraction of natural resources has created a climate catastrophe and hastened the sixth-ever mass extinction of biodiversity on our planet. Thankfully, and hearteningly, *TEB* does not descend to the depths of formulating blinkered and counter-productive exercises that seek to place a monetary value on biodiversity (e.g., Alongi 2002). Instead, it provides an empathetic and well laid out treatment of how we have arrived at where we are and of the road ahead.

None of this is new—by their very nature, reviews synthesize existing information and point the way forward based on the best evidence at hand. And the evidence itself has been clear for over half a century, if not more. There is no longer any doubt that a country's gross domestic product (GDP) is an exceptionally poor indicator of economic growth, especially sustainable economic growth. There is nothing new about the climate crisis, except perhaps its current speed (itself an indictment of our failing institutions). In most parts of the world, agricultural practices disregard local climate, food is transported with no concern for climate change, and meat is produced in the most unsustainable manner possible. It is not as if the overexploitation and collapse of many commercial fisheries blindsided

us without warning; this was expected. It is certainly not a profound insight that well-managed landscapes and seascapes are an immediate and necessary bulwark against biodiversity loss and the climate crisis. Dating to Plato (400 BC), or, more recently, to environmentalists such as Aldo Leopold (1949) in the mid-twentieth century, the idea of ecosystem services is not new; and it was formalized in the Millennium Ecosystem Assessment in the early 2000s (Millennium Ecosystem Assessment 2005).

We must focus on the failure of our institutions and the crucial role of civil society and empowered citizenry. Humanity's dominant governance frameworks—which lurch from one election cycle to the next, tending towards centralization and technology-heavy silver-bullet thinking—are woefully inadequate in both their capacity to identify critical and pressing priorities and in their ability and agility to deal with them. The influential (and deeply erroneous) idea that markets could potentially self-regulate to limit environmental degradation is a stark example. How is it that our dominant economic paradigm demands a barrier-free world when it comes to trade, but this thinking does not extend to our ability to address global environmental, health, and other critical human challenges? While we hail the globally integrated marketplace, our collective expertise and insight still operate in silos—a compartmentalization that is encouraged by the very structure of our institutions. We have the knowledge needed to act, but our national and global governance systems fail repeatedly in integrating these diverse strands of knowledge into a basis for necessary action.

Some of this has to do with the sheer scale of the challenges that humanity faces. Both climate change and the biodiversity crisis are problems that need pan-national, global responses. The solutions to our current predicament might lie in a three-pronged approach: First, ensure that demand does not exceed sustainable supply, which means that we must take less from the natural finite stocks of Earth than we put back into it. Two, change the way in which we measure consumption and economic progress by accounting explicitly for the impacts that economic activity has on biodiversity. Finally, the first two can only happen if we radically restructure economic thinking itself.

The first part of this approach is a daunting challenge that spans the entire gamut of demand and supply, from individual choices to societal and cultural priorities to governments and the international community. Much has to do with incentives. At an individual level, if every person aspires for the standards of living of the Global North, it would lead to the unsustainable extraction of our natural capital, as it does today. Avoiding this will need a profound readjustment in the way individuals and societies value certain lifestyles over others. For governments, for instance, it is often

easier to demonstrate purely economic growth than it is to ensure universal health and hygiene. Preventive healthcare has been shown to be far more economical and efficient than curative medicine, but the latter is favoured by industry and economic metric-oriented governments. For the market—and for the technology sector in particular—promising avenues that can mitigate the biodiversity crisis (such as the use of high-yield, genetically modified crops that can help reduce the pressure to cultivate high-biodiversity and high-carbon natural habitats) need better incentives. Other approaches, such as payment for ecosystem services (PES), have gained traction in some parts of the world, but they need governmental and institutional support (Redford and Adams 2009), even though they might have their own pitfalls in implementation (Büscher 2012).

The second approach—changing how we measure economic "success"—has a long pedigree. Simon Kuznets, who created the concept of GDP as we know it in 1934, was himself well aware of its pitfalls: "the welfare of a nation can, therefore, scarcely be inferred from a measurement of national income…" (Kuznets 1934, 7). The use of monetary income as an indicator of individual well-being has also been widely criticized. Finally, how we think of the economy must change. The bedrock of the global economy is biodiversity: agriculture, livestock, fisheries, timber, even fossil fuels. None of these are infinite—economic growth will cease when biodiversity falls below the level at which it can replenish. Our growing cultural distance from the natural world (Kesebir and Kesebir 2017) has accelerated this process. Unfortunately, both development and conservation, particularly exclusionary approaches, only seek to increase this disconnect.

The crux of our predicament, though, is the issue of property rights and systems of ownership of property— "ownership" both literally and in the sense of identity engendered by de facto rights over land, water, and the resources that can be harvested therein. Given that our natural resources are ultimately "commons" shared by all of humanity, we cannot over-emphasize the importance of effective governance of shared resources, from Hardin's original (mis)conception of the tragedy of the commons (Hardin 1968) to Ostrom's principles that emphasize the importance of trust, cooperation, and social capital in the management of common pool resources (Ostrom 1990).

However, the idea that "neither top-down nor bottom-up institutional structures work well" perhaps arises from historical ham-handedness in implementing initiatives at mismatched scales (Dasgupta 2021: 494). For instance, bottom-up approaches, where communities assume stewardship of traditionally managed resources, can be far more effective in protecting biodiversity (from short- to medium-term threats such as overexploitation)

than top-down statist interventions or market-driven outcomes such as privatization (Gaymer *et al.* 2014). Unlike state-mandated initiatives, bottom-up approaches are also far more flexible and responsive to site-specific and highly local socio-economic and cultural mores (Waylen *et al.* 2010). However, we need to centralize policies that deal with threats such as climate change, which operate over far larger spatial and temporal scales.

The centrality of land (and water) ownership and management practices to both the local and global economy, and to effective biodiversity conservation, is now beyond any doubt. One of the key drivers of the success or failure of top-down versus bottom-up conservation approaches at any location is likely to be ownership—both material as well as cultural—over land, water, and other resources (Burivalova *et al.* 2016; Kelkar 2018). We need more creative forms of natural resource ownership and management that can assure tenure to local communities and customary practices while simultaneously ensuring positive environmental and biodiversity outcomes.

However, an issue that *TEB* does not address is the political ecology of biodiversity conservation. While inclusive rights-based conservation has gained traction, earlier exclusionary approaches continue to be in effect in many parts of the world. Moreover, new movements like Nature Needs Half and Half Earth[3] (Wilson 2016) have emerged, and, despite trenchant criticism (Büscher *et al.* 2017), continue to have a following. In addition, biocentric approaches like compassionate conservation[4] (Wallach *et al.* 2018) have also been gaining ground, though they could have negative social and ecological impacts (Oommen *et al.* 2019). While *TEB* rightly talks about empowering communities and engaging citizens, it does not specify the nature of this engagement, which will determine the long-term success of these actions.

[3] The Half Earth movement proposes that half of all land and sea on Earth needs to be protected to preserve biodiversity and the health of the planet. However, it has been heavily criticised on grounds of social justice in that it would disproportionately affect economically weak and politically marginalized communities. Furthermore, it does not address current levels of resource extraction and consumption and offers no path forward for biodiversity in the human half.

[4] Compassionate conservation is the idea that individuals of any species (including non-native invasive species such as feral cats) matter and must not be killed or harmed. It has been argued that this is an animal rights-based approach that is incompatible with the goals of conservation, which are to sustain species and ecosystems. In addition, adopting this approach could have negative consequences for many communities who live in proximity to dangerous animals and preclude opportunities for them to gain from the sustainable harvest of animals.

A crucial ecological issue on which *TEB* could have focused more strongly is habitat connectivity. Climate change has already caused species to move across the globe in response to changing temperatures. Fish are moving to deeper waters and cooler latitudes away from the equator; insects—such as agriculturally important pollinators—are also shifting their geographical ranges rapidly. Increased barriers to the climate change-driven movement of species is highly likely to result in the extinction of large fractions of the biodiversity that humanity depends on for its survival. In addition to protected areas, therefore, connectivity between natural habitats should be an urgent and immediate priority. In the absence of such connectivity, climate change has the potential to disrupt human economies and well-being, not only due to its direct effects such as rising temperatures and changing rainfall patterns, but also due to the catastrophic loss of biodiversity.

Finally, *TEB* does not dwell enough on the nature of knowledge generation, which continues to be dominated by western, white institutions, and has been called out for being systemically racist; meanwhile, within predominantly black, indigenous, and people of colour (BIPOC) countries, it is biased towards the privileged and elite (Chaudhury and Colla 2020; Shanker and Oommen 2021; Trisos *et al.* 2021). This influences the very nature of the questions we ask and therefore the inferences we reach about human–environment interactions and sustainability.

The bottom line is that change is necessary at all levels, from markets to government to society. And if these reforms do not come soon, a pandemic will be the least of humanity's problems.

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