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Editorial

The natural planetary foundation of the Sustainable Development Goals

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The United Nations Sustainable Development Goals (SDGs) comprise an important policy achievement towards identifying shared goals for addressing global challenges such as climate change, social justice, economic development, and biodiversity loss. However, policy coherence for sustainable development ultimately depends on coherence among and between the SDGs – progress toward one goal should not hamper progress toward others – synergies and trade-offs are emerging among the metrics (indicators) used to measure progress towards the various targets of the SDGs [1]. I want to make an argument about the foundational value of 'The Planet' or the world's natural capital and the ecosystem services they generate with respect to the viability of human civilization and our economy.

Our economy, our society, and our very lives depend on the earth and its functioning ecosystems. I would argue that our economic system and the flawed logic and magical thinking of too many economics professors corrupts our minds into not appreciating this value [2]. Attributing a dollar value to nature can raise awareness as to the value of what we have and how much of it we are losing. Social and environmental problems like economic inequality, climate change, land degradation, and species extinction are a serious threat to the nature and future of human civilization. Real scientists know this but have failed to effectively communicate the seriousness of these realities to the public at large [3]. Sadly, these problems are getting worse-not better [4]. It is imperative that we recognize that the SDGs associated with planetary health (SDGs 6,12,13,14,and 15) are foundational and must be prioritized in order for us to chart a path to a just, sustainable, and desirable future. Valuing the natural world can help us solve these problems.

The COVID 19 pandemic has exposed the flawed and challenged nature of the relationship between science and public policy. The ongoing and looming environmental crises will likely be even more challenging. Deep down I think most of us know that we are facing a serious environmental crisis. Describing these myriad problems can distract us from creating solutions. Despair about the

formidable nature of our environmental challenges can be just as debilitating as economic delusions associated with the viability of eternal growth and the sacred wisdom of 'The invisible Hand'. I believe that attributing defensible dollar values to the ecosystem services provided by our world will help us change our economic thinking.

As a young man, I came to believe almost all of these kinds of problems were driven by overpopulation. I ran tables at Earth Day for Zero Population Growth right next to the Planned Parenthood table and learned that empowering women helped address the population problem and solved other problems as well. As my understanding of our social and environmental problems grew, I became increasingly convinced ***not*** that '*It's the economy stupid*' but rather, '*It's the stupid economy*'. Our prevailing neo-liberal, free market, capitalist, economic system demands infinite growth to function, and so far, that growth has come at the expense of other species, non-renewable natural resources, and damage to our environment. We can't grow on like this. We know it is unsustainable. Our value system is broken and we need to attribute a much higher value to the natural world as a commons in order to support not only our economy but our very existence. To wit, we spend over eight billion dollars for costumes and lawn decorations for Halloween [5]. Eight billion dollars for ONE single day. The entire ANNUAL budget for the national park service in the United States is three billion dollars [6]. Most of the Halloween purchases will be in a landfill within a month. This distorted value system is a clear and present threat to achieving the sustainable development goals.

Currently the global market economy is roughly $80 Trillion per year. How could we compare the value of nature to the global economy? My colleagues and I have chosen 'dollars' as a unit for comparison. Here is the analogy: You have a million dollars of principle in a bank account that earns $50000 per year in interest. Natural Capital is the principle, ecosystem services are the time flow of value or annual interest earnings. Consider a small piece of natural capital: Central Park in New York City. Central Park provides myriad ecosystem services that the people of New York would rather have than reduced taxes. How much is that? Well, at a minimum, the value of Central Park as 'Natural Capital' is what you could sell off Central Park as developable real estate for. That number is roughly $500 Billion. $500 Billion as an investment earning 5% per year would produce $25 Billion / year. On a per hectare basis this cocktail napkin calculation 'values' Central Park's ecosystem services at $70 Million per hectare per year [7]. I would also note that this valuation of ecosystem services emanating from Central Park is only for those benefits that the public actually perceives – the public is acutely unaware of myriad ecosystem services benefits provided by Central Park and almost all other ecosystems. This Central Park example is only one of literally thousands of analyses of the dollar value of ecosystem services that have been conducted for a variety of the world's ecosystems (e.g. wetlands, coral reefs, grasslands, tropical forests, etc.). A meta-analysis of these studies, none of which had a per hectare value at anything near the $70 million / hectare per year demonstrated for Central Park, resulted in an estimate of the global value of the world's ecosystem services to be $125 Trillion / year. Recall that the entire global market economy is much less than this at roughly $80 Trillion / year. Sadly, the $125 Trillion would have been $145 Trillion / year had we not lost coral reefs, wetlands, and tropical rainforests since 1995 [8]. These changes to the earth's surface over the last 20 years have resulted in an annual loss of roughly $20 Trillion / year of ecosystem service value. This annual loss of $20 Trillion over the last 20 years is comparable to losing the entire GDP (Gross Domestic Product) of the United States for the same period of time. The GDP of the US has consistently been approximately one fourth of the global economy. These losses are an erosion of our natural capital and they continue to grow as coral reefs die, deserts grow, and wetlands disappear.

The failure of our economic system is a result of both a dogmatic belief in economic theory and a failure of governance. Nonetheless, both of these causes stem from a failure to value nature appropriately. I would argue that we need to design an economy in service to life on earth because without it we won't have an economy or a civilization. A new ecological-economic paradigm would find a humbler place for the market economy (human and built capital) by placing it inside of, and subject to, the rules of human society, which in turn exists inside of, and is subject to, the laws of nature [9]. This is a profound shift from the prevailing political economy, which wrongly believes that free markets produce optimal social and environmental outcomes. To design an economy in service to life we need to make major changes to our broken accounting system. Consider the $5 cup of coffee you may have bought at Starbucks this morning. Our current accounting system likely provided you with a receipt and if you used a credit card the details of this transaction are stored on computers for who knows how long. In the hour you spent buying and drinking this cup of coffee an entire species likely went extinct. You won't get a receipt for that. We probably didn't even name the species.

If you agree with the idea that we need to design a new political-economic system that incentivizes effective stewardship of the planet I encourage you to use this little 'elevator story' with whomever will listen to you. Present a modest proposal to 'Kill All The Bees' [10]. Bees provide the ecosystem service of 'pollination' that most people easily recognize as a non-market benefit of nature. Estimates of the value of 'pollination services' are on the order of $400 Billion per year. Because 'Economic Growth' is the most important societal goal you point out that it is entirely rational from the perspective of a neo-liberal economist to encourage a program to 'Kill All The Bees'. Killing all the bees would be a triple win from an economic perspective: 1) It would create jobs for humans to hand pollinate crops, 2) These jobs would increase economic activity and boost GDP, 3) This increase in GDP would result in greater tax revenue for the government. Be warned, satire is rough business, when you are done with this story most people will step away from you and regard you as crazy or insane. But consider this, What would happen if Bees went extinct? Jobs would be created, GDP would go up, Tax revenues would go up. These three signals would suggest bee extinction is good for the economy [11]. What signals do we have in our political-economic system that would suggest bee extinction is not such a good thing? We need to change.

I think many of us have bought into bad mythology in economic theory that is embodied by the credo that 'Greed is good'. This is captured by a poignant light bulb joke: *How many economists does it take to change a light bulb?* A: *None. The invisible hand will do it for us.* Sorry, there is no invisible hand. The idea of an 'invisible hand' is superstition posing as social science. To quote Stevie Wonder: *When you believe in things that you don't understand then you suffer. Superstition ain't the way.* I think the psychologist light bulb joke is perhaps more optimistic and 'in the solution'. *How many psychologists does it take to change a light bulb? A: One. But that light bulb has to really want to change*. I am absolutely convinced that a more rational and explicit valuation of nature is a vital step forward in designing an economy in service to life that will create a sustainable and desirable future for all of us [12].

References

1. Giannetti B F, Agostinho F, Almeida C M V B, et al. (2020) Insights on the United Nations Sustainable Development Goals scope: Are they aligned with a 'strong'sustainable development? *J Clean Prod* 252: 119574

2. Coscieme L, Sutton P, Mortensen L F, et al. (2019) Overcoming the Myths of Mainstream Economics to Enable a New Wellbeing Economy. *Sustain* 11: 4374.
3. Ripple W J, Wolf C, Newsome T M, et al. (2017) World scientists' warning to humanity: A second notice. BioScience 67: 1026–1028
4. UN Environment (2019). *Global Environment Outlook – GEO-6: Healthy Planet, Healthy People. Nairobi, Kenya*. University Printing House, Cambridge, United Kingdom, 745.
5. McCarthy N. (2019) Available from: https://www.forbes.com/sites/niallmccarthy/2019/10/30/americans-are-expected-to-splurge-88-billion-this-halloween-infographic/#7b2b425a2be1
6. Sutton P C, Duncan S L, Anderson S J. (2019) Valuing our national parks: an ecological economics perspective. *Land* 8: 54.
7. Sutton P C, Anderson S J. (2016) Holistic valuation of urban ecosystem services in New York City's Central Park. *Ecosyst Serv* 19: 87–91.
8. Costanza R, De Groot R, Sutton P, et al. (2014) Changes in the global value of ecosystem services. *Global Environ Change* 26: 152–158.
9. Costanza R, Caniglia E, Fioramonti L, et al. (2018) Towards a Sustainable Wellbeing Economy. *Solut J* 9.
10. Sutton P (2014) Available from: https://theconversation.com/if-dollars-rule-the-world-why-dont-the-bees-get-a-bailout-38384
11. Coscieme L, Mortensen L F, Anderson S, et al. (2020) Going beyond gross domestic product as an indicator to bring coherence to the sustainable development goals. *J Clean Prod* 248: 119232.
12. Lovins LH, Wallis S, Wijkman A, et al. (2018). *A finer future: Creating an economy in service to life.* New Society Publishers.