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House Committee on Natural Resources
Subcommittee on Oversight and Investigations

Dear Chairman Gosar, Ranking member Stansbury, and members of the subcommittee,

I am a professor of natural resource economics at Yale. For over a decade, I have done research on how to measure the changing value of natural resources, by applying capital theory to them. I was cited multiple times in your briefing memo. In June 2021, I took leave from Yale to serve the country in the Office of Science and Technology Policy. I returned to Yale at the end of January 2023, and this statement should not be interpreted as a statement for OSTP or for Yale.

I believe that nonpartisan, careful accounting for our natural resources elevates the conversation and is a useful tool in economic decisions and in natural resource decisions. This is why I have spent so much of my career working on the methods to measure the changing value of natural resources as assets. In November 2016 I was invited to Kansas to speak at the Governor's Water Conference about a groundwater natural capital account that colleagues and I had built. The farmers at the conference were interested in the account and told me they found it helpful to structure their conversations about how the farmers themselves managed the groundwater in Kansas. They also expressed interest in having a regularly updated account. I offered to work with economists from Kansas to do so, but I did not have the capacity to maintain the account myself at the time. My experience in Kansas convinced me that it is possible to do natural capital accounting in a way that helps local decision makers who are closest to the resource.

Treating natural resources as assets is not a new idea. Teddy Roosevelt famously said, "The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased, and not impaired, in value; and behaves badly if it leaves the land poorer to those who come after it."[1] Roosevelt was advised by leading thinkers of his time: Gifford Pinchot, a founder of American forestry, and Irving Fisher, a founder of American economics. The writings of those two foundational American scholars make it clear that Roosevelt likely took this statement literally. Yet, it is only recently that we have had the data and methods to provide the type of measurements to formally be accountable to the standard Roosevelt called for. And, accounting helps with accountability. Accounting facilitates resource management in the form of wise use, i.e., conservation.

The idea of treating natural resources as assets and accounting for them is well established in economic thought. At least half a dozen Nobel laureate economists have written on the topic. Many prominent American economists went on record in the public comments in favor of the national strategy for natural capital accounts, which they characterized as "well-founded in the rich, well-developed history of thinking and practice on natural capital economics." The National Research Council, The National Bureau of Economic Research, and the Government Accountability Office have all said we need some form of environmental-economic and/or natural capital account. And, for national statistics to be useful they, of course, must be nonpartisan and adhere to high standards.
I was heartened watching the first hearing, because I saw consensus on a common theme: accounting for natural assets is important, and it must be nonpartisan. Chairman Gosar said, "we must take great care so

[1] Roosevelt, T. 1910. Conservation: Speech at Denver before the Colorado Live Stock Association.*in* A. H. Lewis, editor. Compilation of the Messages and Speeches of Theodore Roosevelt.

that our natural capital accounting system will best serve our Nation, rather than serve as a weapon to achieve partisan goals." Representative Stansbury laid out a compelling case for natural capital accounts. Chairman Westerman said, "The idea of valuing our natural assets I don't think is a bad idea, and I think the U.S. is probably behind in that, in creating standards. And my understanding is that some foreign entities, even China, are working on international standards that could be used against us, be used against products produced in America." I believe that the 15-year process is itself a mechanism for nonpartisan development since neither party is likely to control the Presidency for a 15-year run.

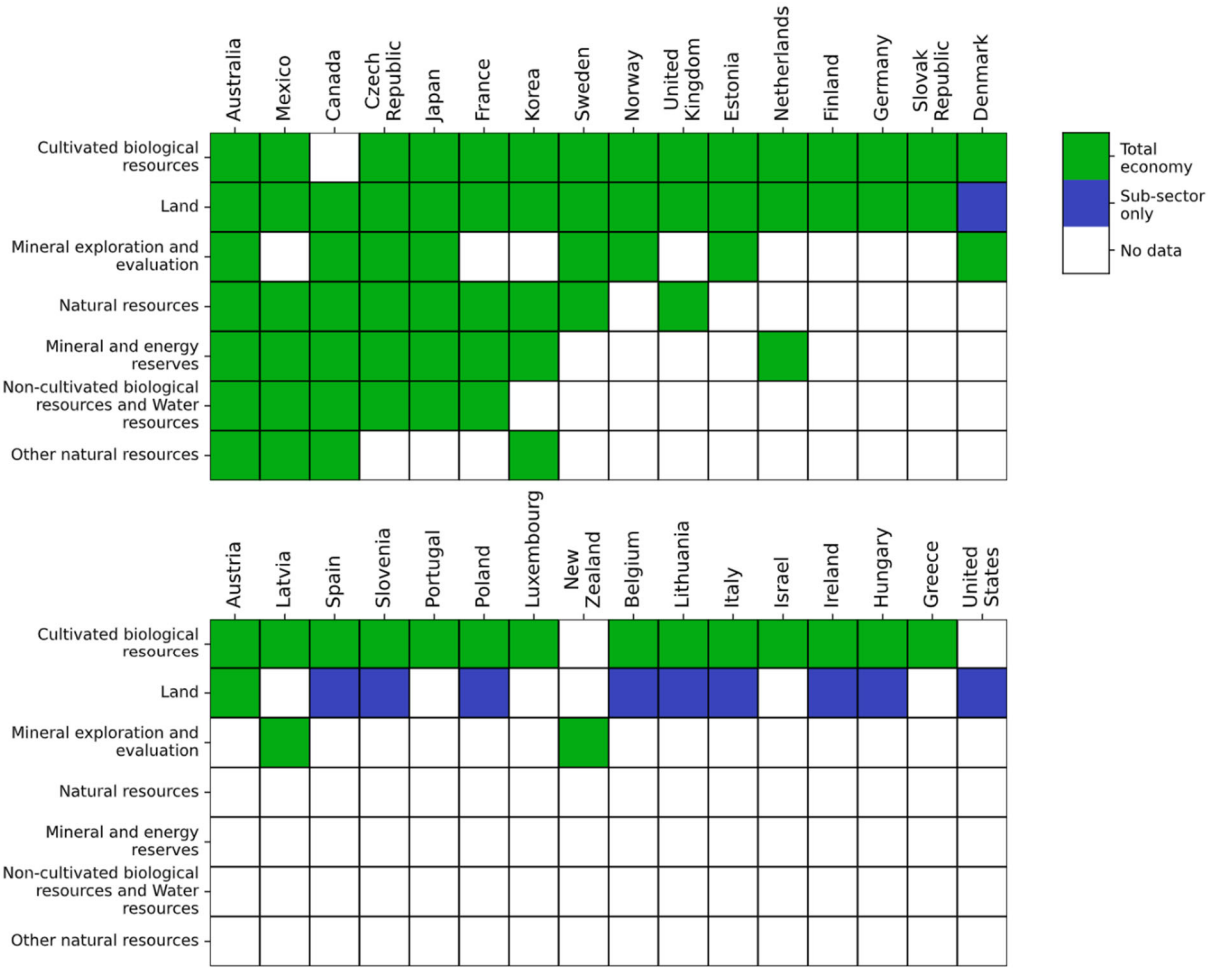
I would like to clarify some relationships related to international accounting standards for national accounts, prior to relaying a story about their development. The System of National Accounts and the System of Environmental Economic Accounting (SEEA) are developed through a process of negotiation among national statistical offices; the role of the UN is merely as a convener and secretariat – the UN Statistics Division does not make statistical policy. Traditionally, the United States has provided international leadership on statistical standards. Other countries have followed the examples that the United States implements. The United States co-led (with the UK) the establishment of the System of National Accounts in the wake of the second World War (the U.S. began work in the wake of the Great Depression). Historians and economists credit this system with helping contain the Soviet Union during the cold war.

Around 2019, I was invited as an expert to advise on the System of Environmental Economic Accounting, which I would characterize as a daughter standard to the System of National Accounts. Many of the people in the conversations that I was involved with around the System of Environmental Economic Accounting were delegates from various national statistical offices. I watched the experts from the U.S. government work to make sure the standards adhered to the high, nonpartisan standards of the U.S. statistical system. I had colleagues from other European countries say things to the effect of, "The U.S. ideas sound nice, but it is hard to back them and convince our governments to adopt the high quality standard because the U.S. is not actually implementing environmental-economic accounting." I saw the penultimate draft, and there are many reasonable features within SEEA. While many of these reasonable features were retained in the final version, I was shocked in 2021 when China's "Gross Ecosystem Product" idea was included in the final standard. It had not been in the draft that I saw. I don't think the "Gross Ecosystem Product" idea is broadly supported by economists. I believe this is why the U.S. national strategy says, "Incorporate the internationally agreed-upon SEEA to guide development of U.S. natural capital accounts and environmental-economic statistics, where the SEEA standards are relevant and robustly developed." I believe the approach in the US strategy is good. It enables the U.S. to lead from within, but being very clear that there are elements of SEEA that are not relevant or robustly developed for use in the United States. The proposed approach will enable the U.S. to steer the future development of SEEA.

Other countries will use an international standard, multilateral development banks will use an international standard, sovereign credit rating agencies will use the data based on the international standard. It appears that either the United States can resume its traditional leadership role of leading on statistical standards, leading by example, or it seems likely China will attempt to step in.

In the first hearing, Chairman Westerman asked about the relationship of U.S. natural capital accounts to other countries. About three months ago, a student and I took data from the OECD – for countries that report to the OECD and looked at which countries report non-financial, non-produced assets (and produced assets called cultivated biological assets, like orchards and plantation forests) on their official national balance sheets. To be clear, this is part of the main System of National Accounts that lead to internationally comparable measures of GDP (not the SEEA Ecosystem Accounts). The categories are the headline categories. Fish and non-plantation forests would be non-cultivated biological assets (assuming

there is a management plan). Chile, Iceland, Colombia, Turkey, and Switzerland also report to the OECD, but report no data. These are official, not experimental or pilot accounts. You can see the U.S. is indeed behind.



A consensus opinion among U.S. economists and statisticians is that the omission of natural resources from our national balance sheet is a shortcoming in the system of national accounting, and it should be rectified. New technologies and increased computing power are now making it possible to fill the hole and address this well recognized problem.

In 1972, Nobel laureates Nordhaus and Tobin pointed out that when something is omitted from the accounts, it is treated as if it is free, and they write, “There are serious consequences of treating as free things which are not really free. This practice gives the wrong signals of the direction of economic growth.”

A common way this shows up is that following a forest fire, some media pundit says, “The fire was good; the rebuilding will boost GDP.” It is technically correct that rebuilding boosts GDP (though usually only for the quarter of, or the quarter immediately after, the disaster). But, uncontrolled forest fires clearly can’t make good economic sense. This happens because GDP is a measure of how much money we spend (though studies show that disasters generally depress GDP starting 3 or more quarters after the disaster, because of the loss of the unaccounted-for capital base). What we should be looking at instead is the change

in the balance sheet. It records the stock of national wealth, rather than the flow of spending. Putting natural assets on the balance sheet will show how failure to manage forest fire reduces national wealth.

High quality economics requires robust economic information about the role of natural assets in supporting economic development through industries such as forestry, fishing, mining, and tourism or helping lower costs elsewhere, like the role of forests in lowering costs for water treatment facilities or the role of clean air in boosting worker productivity and lowering health care costs. Importantly, natural resources do contribute to our economy even when they are not used up in the process. This is similar to the way produced capital, like machines, boost production without being used up (though may require maintenance like ecosystems).

In the first hearing, Chairman Gosar, asked about mining having something to sell, but clean air is not something to sell. I understand why someone would ask that question. First, a land manager who owns land with a mineral resource should record the income from selling a mineral, but should also record the decline in value of the land from selling the resource, because the opportunity to mine certainly capitalizes into land value and that land value is reduced after the mineral is extracted. This is simply how double entry accounting works. Right now, we don't keep track of the decline in land value from separating the land from the mineral, including potential impairments (e.g., tailing piles) that may leave the land less suitable for alternative uses. Second, with respect to air quality, cleaner air reduces health care costs and increases worker productivity (sort of like computers). So, there is something to show for it as far as real financial flows. The challenges of measuring it are not that different from assessing the value of a firm with specialized capital assets that must be repaired from time to time – just as the U.S. has greatly improved air quality over the last 3-4 decades (and for which our national accounts don't give us credit: see Muller 2014, Science). Importantly, the U.S. strategy lays out a plan for separating these processes through developing accounts that adhere to a small number of accounting boundaries. This small number (3 in the strategy) of accounting boundaries will enable people to disagree about what is important, and then see if that disagreement actually matters or if even though they don't agree perfectly, they would ultimately reach a similar decision.

Also to be clear, as I understand it, national economic statistics are almost never directly used for regulatory benefit-cost analysis. I would expect the same to be true of environmental-economic statistics. There seemed to be some mixing of these two, admittedly confusing, topics in the briefing memo. I would expect the statistics to be used in ways similar to the way that our current economic statistics are used.

I am willing to spend some time with Republican and Democratic staffs to have a conversation on technical details of natural capital accounting. I realize there are questions, and I doubt that I can do justice to these technical questions in this letter. I will simply say that the methods are very similar to the way we already account for owner occupied housing, computers, and forms of specialized capital for which there are not large markets. I believe we can do for natural assets as well as we do for many other sectors of the U.S. economy, and we can avoid highly subjective measurements. Moreover, the fact that not all the value of nature can be measured, does not mean that measuring some value is not important. It is important to value the parts that we can and strive to improve over time. That is what we have done over the past 70 or so years of national accounting.

It may well be that a great winner from establishing natural capital accounts is congressional oversight of land and resource management agencies. Imagine being able to ask the head of the US Forest Service, 'how did our forest portfolio perform last year?' Or ask the Administrator of NOAA, 'how did our fish portfolio perform last year?' Once the national strategy is fully implemented, the information to answer these sorts of

questions will be in official U.S. statistics that will enable Congress and the American people to look and see if we are turning over our natural assets "increased, and not impaired, in value."

I believe the implementation details in the national strategy document from OMB, OSTP, and DOC lay the foundation for a data-driven, nonpartisan process for accounting for the changing value of our natural assets as well as the flows of income from those assets.

Sincerely,

Eli Fenichel