



**COMMENTS OF THE CENTER FOR CLIMATE AND ENERGY SOLUTIONS,
ENVIRONMENTAL DEFENSE FUND, THE INSTITUTE FOR POLICY INTEGRITY AT NEW
YORK UNIVERSITY SCHOOL OF LAW, SIERRA CLUB, THE TOBIN CENTER FOR
ECONOMIC POLICY AT YALE, AND THE WILDERNESS SOCIETY**

Docket ID (OMB-2022-0009) for “RFI-Natural Capital.”

This document constitutes the comments of the Center for Climate and Energy Solutions (C2ES), Environmental Defense Fund, the Institute for Policy Integrity at New York University School of Law, Sierra Club, the Tobin Center for Economic Policy at Yale, and the Wilderness Society on the request for information on RFI-Natural Capital by the Interagency Policy Working Group on Statistics for Environmental-Economic Decisions (Working Group). C2ES is an independent, nonprofit, nonpartisan organization working to secure a safe and stable climate by accelerating the global transition to net-zero greenhouse gas emissions and a thriving, just, and resilient economy.¹ One of the world’s leading international nonprofit organizations, Environmental Defense Fund creates transformational solutions to the most serious environmental problems. To do so, EDF links science, economics, law, and innovative private-sector partnerships. With more than 3 million members and offices in the United States, China, Mexico, Indonesia and the European Union, EDF’s scientists, economists, attorneys and policy experts are working in 28 countries to turn our solutions into action. The Institute for Policy Integrity at New York University School of Law is a non-partisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy.² Sierra Club is the nation’s oldest and largest grassroots environmental organization. Its mission is to explore, enjoy, and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; to educate and enlist humanity to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives." The Tobin Center for Economic Policy at Yale University supports economics research on matters related to United States Domestic Policy. The Wilderness Society (TWS) is a national non-profit membership organization that works to unite people to protect America’s wild places.

We respectfully submit the following comments on the *National Strategy to Develop Statistics for Environmental-Economic Decisions (National Strategy)*.

¹ The views expressed here by C2ES are those of C2ES alone and do not necessarily reflect the views of members of the C2ES Business Environmental Leadership Council (BELC).

² This document does not purport to represent the views, if any, of New York University School of Law.

We strongly support the *National Strategy*, for the following reasons:

1. Management of the Nation’s natural capital stocks is vital for stewardship of our economy.

The Nation’s economy relies on the productivity of natural capital. Conventional natural resources, like healthy forests and fisheries, provide timber, pulp, and food while supporting rural and coastal economies. The fertility of croplands and health of surrounding ecosystems (e.g., pollinators) sustains agricultural productivity and farmer livelihoods. Mineral wealth provides energy and critical resources. Intact ecosystems support tourism and recreation. Natural capital stocks also provide enormous economic values outside of traditional markets. For example, wetlands provide clean drinking water and flood management; intact ecosystems sustain valuable biodiversity; and clean air is essential for labor productivity, public health and well-being.

Natural capital stocks also provide vital nature-based climate solutions. Forests, rangelands, croplands, wetlands, and coastal mangroves absorb and store carbon, reducing net emissions of greenhouse gases. Healthy and intact natural capital stocks provide a critical source of resilience to the impacts of a changing climate, including flooding, sea-level rise, more intense hurricanes and coastal storm surges, and more extreme precipitation and drought events.

As a result, natural capital stocks—and changes in those stocks, or flows of natural capital—directly affect economic output as well as human health and well-being. The associated economic values are enormous. Estimates from the World Bank, considering only a subset of conventional terrestrial natural resources (minerals, agricultural lands, forests, and protected areas), peg the value of those resources at 3 percent of total national wealth for high-income countries such as the United States—amounting to \$28 trillion in current dollars, or more than one-third of those countries’ combined gross domestic products (GDP).³ Other, less tangible components of natural capital provide significant economic value as well. For example, as the *National Strategy* notes, the estimated economic value of improvements in air quality amounts to 1.5 to 3 percent of annual GDP growth, through reductions in morbidity and mortality associated with cleaner air.⁴

However, while certain forms of economic activity from natural resources (e.g., from mining, logging, fishing, and farming) currently appear in measures of gross domestic product, the value of the natural capital stocks that are necessary to generate and sustain that economic activity is *not* included in national macroeconomic accounts. More broadly, the value of natural capital stocks that yield enormous economic value but are not traded in markets – clean air and water,

³ Lange, Glenn-Marie, Quentin Wodon, and Kevin Carey, eds., *The Changing Wealth of Nations 2018: Building a Sustainable Future* (Washington, DC: World Bank, 2018), <https://doi.org/10.1596/978-1-4648-1046-6>. Note: values converted from 2014 to 2022 dollars using the U.S. Consumer Price Index.

⁴ Muller, Nicholas Z, “Boosting GDP Growth by Accounting for the Environment,” *Science* 6199: 873–874 (2004). <https://doi.org/10.1126/science.1253506>.

diverse ecosystems, and a stable climate – is missing entirely. That absence impedes sound decision-making and impairs the ability of policymakers, as well as companies and civil society, to design and implement policies, make investments, or take other steps to safeguard or augment the natural capital stocks necessary to sustain a healthy and competitive economy.

2. Comprehensive, consistent, and comparable information on natural capital stocks and flows will improve policy and decision-making.

The adage that “you can’t manage what you don’t measure” is apt. Effective capital management will reveal trends in the quantity, quality, and value of capital assets to better inform decision making. Numerous economic analyses (many of which are cited in the *National Strategy*) have demonstrated the availability of the empirical and analytical tools needed to measure and value a wide range of natural capital stocks. However, that information is not being collected in a standardized fashion, but rather being generated piecemeal according to the interests of individual researchers. As a result, it is as if economic policymakers trying to understand conventional economic output were forced to piece together an estimate of GDP solely on the basis of isolated economic reports about economic activity or investment in individual sectors and regions. The *National Strategy* is needed to develop a system of accounts that can provide comprehensive, consistent, and comparable information on natural capital stocks and flows.

Such a system of accounts could serve multiple purposes in informing and improving decision making related to natural resource management and environmental policy across federal, state, and local governments.⁵ Information on changes in natural capital stocks over time could help policymakers in Congress, the Departments of the Interior and Commerce, and agencies such as the Forest Service, Fish and Wildlife Service, and Bureau of Land Management make better decisions about the management of traditional natural resources such as forests, fisheries, and mineral deposits. It could inform Congress and the U.S. Department of Agriculture in developing programs and policies to encourage the deployment of climate-smart agricultural techniques and practices. It could inform Congress, the Environmental Protection Agency, the Department of the Interior, and agencies such as the Army Corps of Engineers on the value of clean water, as well as steps to ensure clean water supplies through the protection of headwater forests, wetlands and other natural ecosystems, and the design and management of natural and human-made infrastructure. It could inform Congress and the Environmental Protection Agency on steps to protect and improve air quality and reduce emissions of harmful pollution. It could inform the Departments of Defense and Transportation, as well as state and local governments across the country, in ensuring that investments in transportation and urban infrastructure, as well as military bases and other critical infrastructure, are resilient to the impacts of climate change. From a macro-economic perspective, it could also inform Congress and executive branch agencies on the long-run prosperity of the economy and its sustainability.

⁵ See also Anne D. Guerry, Stephen Polasky, Jane Lubchenco, and Bhaskar Vira, “Natural capital and ecosystem services informing decisions: From promise to practice,” *Proceedings of the National Academy of Sciences* 112 (24) 7348-7355 (June 15, 2015), <https://doi.org/10.1073/pnas.1503751112>.

A consideration of the impacts of climate change is crucial for policy making beyond the environmental and natural resource spheres as well. Physical risks from climate change pose a significant risk to the American economy and to key aspects of its financial system, as financial regulators have recognized.⁶ A system of natural capital accounts can therefore be a vital aid to macroeconomic policy makers more broadly. Integrating natural capital into a system of national accounts can provide policy makers with better and more timely information relevant to economic stability and potential risks.⁷

Accounting for natural capital stocks and flows is also necessary for a comprehensive and accurate measure of economic productivity, a key driver of economic growth. Productivity is the quantity of economic output produced per unit of input; just as failing to account for the use of physical capital in the manufacture of goods would bias measures of industrial productivity, so failing to account for natural capital can lead to under- or over-estimating true productivity across the economy as a whole.⁸ Analysis by researchers at the Organization of Economic Cooperation and Development (OECD) suggests that “environmentally-adjusted multifactor productivity” accounted for 70 percent of U.S. adjusted GDP growth over the period 1991–2013, and that conventional measures of GDP growth (which do not account for natural capital) understate true growth.⁹ A consistent and comprehensive system of natural capital accounts would therefore provide a more complete measure of the nation’s economic performance. In fact, measuring and valuing the depreciation of natural capital over time is also vital for the accurate measurement of sustainable growth.¹⁰

Information from natural capital accounts could also help private-sector decision makers, ranging from companies in sectors that derive their revenue directly from natural resources (e.g., timber, mining, fishing, etc.), to companies dependent on those resources as primary inputs (e.g., steel, cement, aluminum, etc.), to companies developing new technologies to provide clean water, cut carbon emissions, or provide ecosystem services. Given the physical risk from climate change, and the concomitant risks to the financial system, a system of natural capital accounts

⁶ U.S. Commodity Futures Trading Commission, *Managing Climate Risk in the U.S. Financial System*, Report of the Climate-Related Market Risk Subcommittee, Market Risk Advisory Committee (September 2020); Financial Stability Oversight Council (FSOC), *Report on Climate-Related Financial Risk* (October 2021).

⁷ Matthew Agarwala and Dimitri Zenghelis, *Natural Capital Accounting for Sustainable Macroeconomic Strategies* (United Nations Department of Economics and Statistical Affairs, 2020).

⁸ Nicola Brandt, Paul Schreyer, and Vera Zipperer, “[Productivity measurement with natural capital](#),” *Review of Income and Wealth Series* 63, Supplement 1 (February 2017); <https://doi.org/10.1111/roiw.12247>; Kirk Hamilton, “Expanding Measures of Productivity to Include Natural Capital,” chapter 4 in Lange, et al., eds., *The Changing Wealth of Nations 2018*, op. cit.

⁹ OECD, “[Greening productivity measurement: Environmentally adjusted multifactor productivity growth](#),” Policy Perspectives (September 2016).

¹⁰ Geoffrey M. Heal and Bengt Kriström, *Distribution, Sustainability and Environmental Policy*, in Handbook of Sustainable Development (Edward Elgar Publishing, 2014); Geoffrey M. Heal and Bengt Kriström, *National Income and the Environment*, in Handbook of Environmental Economics, Vol. III (2005).

could also inform private-sector decision makers seeking to invest in physical or natural infrastructure to make their facilities more resilient to climate change.

Finally, over time a system of comprehensive, consistent, and comparable natural capital accounts would provide vital information in assessing progress in meeting the nation's policy goals—and in ensuring accountability.

3. The concept of natural capital accounts has a long and august tradition in economics, and the theoretical and empirical foundations are solid.

The role of natural resources as a “capital stock” that stores value and serves as an input into economic production has deep roots in classical economics and has been given formal treatment since at least the work of Harold Hotelling in the early 1930s, with seminal work by a range of economists including Nobel laureates such as James Tobin, Kenneth Arrow, William Nordhaus, and Joseph Stiglitz.¹¹ Two separate reports by the National Academies of Science, Engineering, and Medicine have recommended that the federal government develop an official system of natural capital accounts.¹²

Beyond theory, empirical methodologies for measuring and valuing natural capital stocks, their services, and changes in them over time are well established. The empirical grounding of this work dates back at least to the 1990s, including the seminal work by Constanza.¹³ Empirical methodologies have improved over the past three decades, as exemplified in the World Bank report discussed above. A demonstrated interest by the U.S. government will likely further propel this work forward.

In addition, we recommend that a consideration of climate change should be central in developing and implementing a strategy to develop a national system of natural capital accounts.

A stable climate is one of the most important elements of the world's, and therefore the nation's, stock of natural capital, and supports all other aspects of natural capital, from clean air and water to

¹¹ See, for example, the literature review in Eli P. Fenichel and Joshua K. Abbott, “Natural Capital: From Metaphor to Measurement,” *Journal of the Association of Environmental and Resource Economists* 1 (1/2) (Spring 2014), <https://doi.org/10.1086/676034>.

¹² National Research Council, *Nature's Numbers: Expanding the National Economic Accounts to Include the Environment* (Washington, DC: The National Academies Press, 1999), <https://doi.org/10.17226/6374>; National Research Council, *Beyond the Market: Designing Nonmarket Accounts for the United States* (Washington, DC: The National Academies Press, 2005), <https://doi.org/10.17226/11181>.

¹³ Robert Constanza et al., *The Value of the World's Ecosystem Services and Natural Capital*, 387 *Nature* 253 (1997), <https://doi.org/10.1038/387253a0>; Robert Constanza et al., *Changes in the Global Value of Ecosystem Services*, 26 *Global Environmental Change* 152 (2014).

biodiversity to ecosystem services.¹⁴ Any system of natural capital accounts should therefore include the climate system as one of the stocks of natural capital being measured and assessed.

While valuation of the current “climate stock” may be challenging, valuation of the *changes* in that stock—which is what matters most for decision making—are straightforward. Net flows of greenhouse gases into the atmosphere (i.e., emissions minus removals) are already measured at the national and subnational levels, and can be multiplied by the government’s estimate of the social cost of greenhouse gases to yield an estimate of the changes in the “stock” of the climate.

¹⁴ For a discussion of the myriad ways that natural capital stocks depend on a stable climate, see McKinsey Global Institute, “[Reduced dividends on natural capital?](#)” (June 2020).