

Incorporating Natural Capital into Decision-Making

Background

Current global economic, political, and social systems are not well-suited to meet the sustainable development challenge of eradicating poverty while protecting the environment for future generations. A majority of the world's population now lives in urban areas, and human connections to nature are becoming less evident, though no less important. A fundamental asymmetry at the heart of current economic systems rewards the short-term production of goods and consumption of resources and fails to reward the stewardship of natural capital assets such as habitats, species, and the interactions among them. These assets are essential for sustaining human well-being in the long term. Correcting this asymmetry requires a new way of thinking about natural capital.



About the Researchers

This Research Brief is based on a paper from the June 16, 2015 *Special Feature of Proceedings of the National Academy of Sciences* entitled "Natural Capital and Ecosystem Services Informing Decisions: From Promise to Practice." PNAS 112 (24) 7348-7355 (doi:10.1073/pnas.1503751112). The paper, led by Stanford University's Anne Guerry and co-authored by 22 experts from around the world, introduces the Special Feature. Edited by Oregon State University ecologist Jane Lubchenco and University of Minnesota economist Steve Polasky, the Special Feature focuses on integrating natural capital into decision-making.

Anne Guerry, a researcher with the Stanford Woods Institute for the Environment, is Lead Scientist and Chief Strategy Officer for the Natural Capital Project.



The Natural Capital Project is a joint venture of Woods, The Nature Conservancy, the University of Minnesota's Institute on the Environment, and the World Wildlife Fund.

This new thinking considers how to capture and integrate the value of natural capital into decision-making and policy development at all levels.

The United Nations is developing its next generation of development goals. This effort is an encouraging attempt to recognize and prioritize the interconnections among economic, social and environmental spheres. But achieving these goals will require alterations of current practices and policies. Conservation and economic development have long been considered in separate spheres. Now, sustainable development requires explicit recognition that social and economic development are part of, and dependent upon, a healthy biosphere.

This introductory brief on integrating natural capital into decision-making is intended to provide policy makers with an overview of the primary barriers to integration, examples of where natural capital consideration is already proving to have positive outcomes, and suggested pathways forward where valuing natural capital can have the greatest impact.

Overcoming Barriers

A major limitation of the current framing of natural capital is its perceived isolation from other forms of capital and the mainstream of economic and social activity. This isolation relegates considerations of natural capital and ecosystem services to ministries of the environment rather than ministries of finance, agriculture, and industry; to corporate sustainability departments rather than corporate boardrooms; and to rural poor populations rather than to the urban populations who drive resource use.

Placing natural capital into a broader decision-making context can help effect large-scale transformations in policies, practices, and investments. Considerations of natural capital are relevant not only to natural resource

and conservation, but also to health, agriculture, energy policy, water security, infrastructure, urban development, finance, and national security.

Natural capital is degraded and the services we derive from ecosystems are diminished as a result of market failures and a lack of incentives from our governing, regulating and financial institutions to conserve and value them.

Advances in mainstreaming natural capital into decisions will likely come from:

- **Further increasing awareness of the interdependence of nature and people:** though significant progress has been made in this realm in the past 10 years, a lack of awareness of the connection between nature and people likely contributes to environmental issues consistently ranking below a host of other public concerns
- **Continuing to advance science and create accessible tools** is necessary for analysis and to empower those with the desire and capacity to use ecosystem service understanding to assess and demonstrate values, identify beneficiaries, highlight differences in ecosystem service production and





delivery, and explore trade-offs

- **Improving scientific understanding of ecosystem resilience** and adaptive system dynamics including the feedbacks among services and the potential for climate change and other major disruptions to affect natural capital and the future provision of ecosystem services
- **Integrating monetary valuation with qualitative and quantitative work on cultural ecosystem services** will not only significantly advance the current understanding of ecosystem services and their diverse values, but also will increase the likelihood that ecosystem service information resonates with decision-makers and their stakeholders
- **Integrating behavioral economics, psychology, and resilience theory** to help provide critical insights into how people make decisions and to better understand how to design policy and management interventions to achieve desired results

- **Understanding impacts of policy and management** is critical for the further advancement of ecosystem services informing decisions, but monitoring data are currently inadequate in many parts of the world requiring creativity on the part of analysts to make clever use of whatever data exist

Most importantly, advances in mainstreaming natural capital into decisions will come from reforms in policies and institutions to offer incentives for the sustainable use of natural capital. Current systems reward the production of marketed commodities, but not the provision of non-marketed natural capital or ecosystem services. This shift could be brought about through payments for ecosystem services (PES), environmental taxes, cap-and-trade strategies, environmental regulation, and product certifications.

Success Stories: Incorporating natural capital into policy and management

Understanding of ecosystem services is growing as is indicated by the increased integration of natural capital values into policy and planning by governments at national scales, and by international organizations, businesses, and NGOs. Although there is undoubtedly progress to be made on implementation beyond individual cases, ecosystem service and natural capital understanding are making their way into real decisions.

Belize: The government of Belize used natural capital information to craft an integrated coastal management plan that protects key habitats like mangroves, seagrasses, and corals, which protect the shoreline and sustain fisheries. The plan improves expected coastal protection by 25 percent over a previous version, more than doubles revenue from lobster fishing, and allows for careful development and increased tourism revenue.

China: China is in a period of intense policy innovation to achieve sustainable development by harmonizing economic development with nature, and transforming itself into the “ecological civilization of the 21st century.” A major new policy involves zoning the country to protect and restore the most vital natural capital assets—

spanning 28 percent of the nation's land area, and likely to increase soon to 49 percent— that are crucial contributors to flood mitigation, sandstorm control, water resources, soil fertility, climate stability, and biodiversity. China is paying over 200 million people to perform restoration and conservation activities to achieve this dream and to secure human well-being.

Costa Rica: Costa Rica is a notable early pioneer whose national program on payments for ecosystem services was the world's first and dates back to the mid-1990s. The program has produced a moderate increase in farm forest cover—from a mean of 11 to 17 percent in the area under PES contract over eight years.

Latin America: Countries across Latin America are taking the lead in developing water funds for ample clean water supplies. More than forty are under development in Latin America alone. By design, these funds collect revenue from downstream water consumers to pay upstream communities to alter their land management to improve water quality and quantity. These funds improve the efficiency of investments three- to six-fold.

United Kingdom: The UK has conducted the first national-scale assessment of the status and trends of its ecosystems and the ways in which people depend upon and impact them. In direct response to its national ecosystem assessment, the UK set up a Natural Capital Committee. In an example of progress toward mainstreaming, this committee reports to the UK Government Economic Affairs Committee, not the UK Environment Department.

Conclusions

A core challenge to truly integrating natural capital into decision-making is to change economic incentive structures to reward the sustainable use and provision of natural capital and ecosystem services.

The United Nations is now working on the successors to its Millennium Development Goals. These next-generation Sustainable Development Goals are intended to better integrate the three pillars of sustainable development: social, economic, and environmental. Science is actively

contributing to the development of these goals, but the true test will be in their implementation. Actionable, easy-to-communicate goals, targets, and indicators, which include connections between human well-being and ecosystem services, will be needed.

Some early success stories show that decision-makers can go beyond the promise to the practice of making decisions informed by natural capital. A powerful strategy for doing so includes:

1. Developing an evidence base that demonstrates natural capital information improves outcomes for people and nature;
2. Working closely with government, business, and society leaders to develop the knowledge, tools and practices necessary to integrate natural capital into everyday decision-making, and
3. Reforming institutions to develop policy and practices that align private short-term goals with societal long-term goals.

Areas where natural capital consideration could greatly benefit the decision-making process include: securing water for cities, national and coastal development planning, fishery management and ocean conservation, corporate supply chain, and infrastructure investment. Refining and replicating these approaches to bring them into the mainstream can spur innovation and action on natural capital concerns that may drive deep, systemic change for sustainability.

Contact Us

Mail

Stanford Woods Institute for the Environment
Jerry Yang & Akiko Yamazaki Environment & Energy Building
MC 4205 / 473 Via Ortega, Stanford, CA 94305

Phone

650.736.8668

Fax

650.725.3402

Email

environment@stanford.edu

Online

woods.stanford.edu