

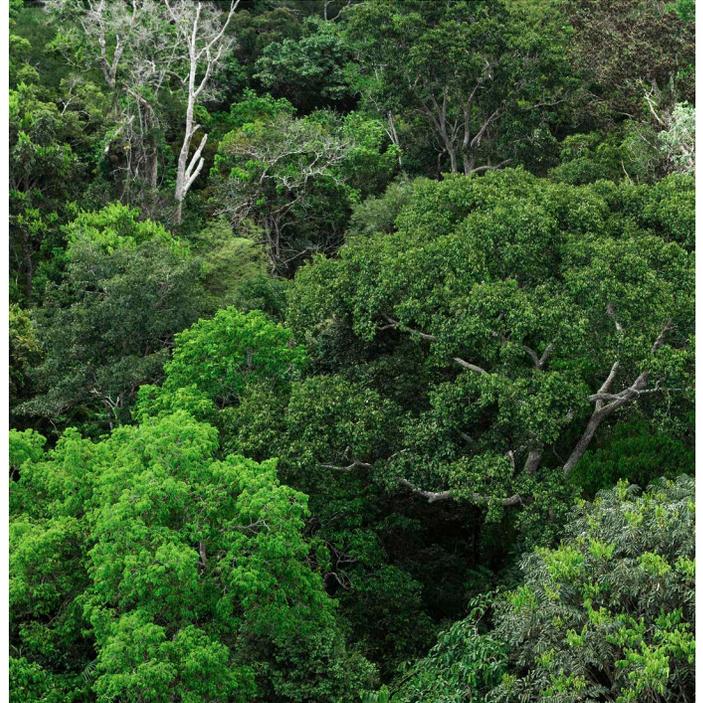
HOW THE SCIENTIFIC AND TECHNICAL ADVISORY PANEL SUPPORTS THE GLOBAL ENVIRONMENT FACILITY

Submission to the GEF 25th Anniversary Article Series

Over the past two decades, the Scientific and Technical Advisory Panel (STAP) has supported the Global Environment Facility (GEF) in delivering its mission "...to assist in the protection of the global environment", and promote "environmentally sound and sustainable economic development." The Panel is supported by a Secretariat which is hosted by the United Nations Environment Programme (UNEP). STAP's goal is to assist the GEF partnership in delivering on its mission by leveraging knowledge and science on the global environment and sustainability. STAP advises the GEF on ways to advance a better understanding of the global environment and development, and how to address them. STAP provides a forum for integrating expertise on science and technology, and functions as an important conduit between the GEF and the global science and policy communities. STAP works in close collaboration with the diverse GEF network of countries, GEF Agencies, Conventions, the GEF Secretariat, and its Independent Evaluation Office. Seven prominent scientists, supported by a Secretariat, work together across natural, social and physical sciences as an interdisciplinary team to deliver this mandate.

STAP influences the GEF's work at three distinct levels: **(1) program and strategy** – assisting the GEF define its thematic areas of work in each funding cycle based on an assessment of trends and pressing social and environmental concerns influencing the sustainability of the planet and its people; **(2) projects** – advising on ways to strengthen GEF interventions by tapping into science and technologies appropriate for the project; **(3) policies** – advising how to tackle changes to the Earth system – for example, complex social-ecological systems threatened by global change.

These concerns relate directly to the Earth system framework based on the nine planetary boundaries identified by the Stockholm Resilience Centre, and of significant relevance to the GEF's efforts in safeguarding the global commons. Some examples of how STAP is assisting the GEF improve the health of ecosystems and the well-being of people that depend on its services, include:



(1) Assessing for resilience, adaptation and transformation.

The planet and people living on it are facing rapid change that is poorly understood. To assist the GEF in better learning from its interventions, STAP and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) of Australia developed the Resilience, Adaptation Pathways, and Transformation Assessment (RAPTA) Framework. This approach offers a new dimension to project planning and development – one which explicitly considers rapid social, physical and environmental change in an uncertain world – leading to projects which deliver better results, more reliably and consistently.

(2) Understanding the nitrogen cycle. The Earth's nitrogen cycle, a key planetary boundary, has been dramatically altered by humans, and is impacting the biosphere and oceans. Through a review of the evidence of coastal hypoxia for the GEF, STAP concluded that "the growing problem of coastal hypoxia requires accelerated GEF attention." STAP proposed "to establish principles for supporting priority systems in

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which to test management responses to permanent and seasonal hypoxic systems.” To improve understanding of the nitrogen cycle, test practices and management policies across scales (global, regional and local), STAP recommended that the GEF develop a research project to address this challenge. The project is currently being implemented by UNEP and is executed through the UK Natural Environment Research Council (NERC), and its Centre for Ecology & Hydrology (CEH).

(3) Addressing the global challenge of marine plastic pollution. STAP was among the first global entities to define marine plastic debris as a global environmental issue. This finding was based on the global occurrence of plastic in the ocean, and the transboundary nature of plastic debris sources and impacts - including impacts on marine organisms and biodiversity, and social and economic impacts on developing countries. STAP emphasized that the root cause of plastic debris entering the sea from the land lies within unsustainable consumption and production patterns that encourage a single use of most plastic products. This work led to the

Convention on Biological Diversity (CBD), at its 13th meeting, adopting practical guidance on preventing and mitigating the impacts of marine debris on marine biodiversity.

(4) Climate change impacts on natural resources management. Under the direction of former STAP Chair, Thomas Lovejoy STAP commissioned an assessment by UNEP-WCMC of the potential impacts of climate change to GEF projects on biodiversity, sustainable land and forest management, and international water management. This assessment led to a GEF project focused on understanding the effects of climate change in a highly biologically diverse site in Mexico. The outcomes of this project will be influential in defining future GEF actions on biodiversity conservation and climate resilience.

In her vision statement, [the GEF CEO, Naoko Ishii,] stated that it is “time for transformational change” to guide the GEF towards greater impact. STAP is deeply committed to Dr. Ishii’s vision and her goal that the “GEF is and must remain an innovator”. GEF has a long history of supporting innovation in technology, institutions, policies, business models and practices. STAP believes that the GEF’s global value proposition and comparative advantage lies in its convening power and ability to mobilize its extensive partnership network and finance for innovation in support of environmentally sustainable development across multiple domains, countries and regions.

For the future, STAP will continue to strengthen the GEF’s function as a leader in generating and disseminating knowledge that is of great importance to meeting its mission. By leveraging the best scientific knowledge and building iterative learning from project design through to implementation, STAP can assist the GEF generate an evidence base about what works and under what conditions. GEF support for applied research addressing interconnected global challenges of climate change, food, energy, land-use change, chemicals and waste should play a prominent part in sustaining the GEF’s mission to support innovation, and carrying its recipient countries forward towards transformational change in environmentally sustainable development.

The Scientific and Technical Advisory Panel (STAP) comprises seven expert advisors supported by a Secretariat, who are together responsible for connecting the Global Environment Facility to the most up to date, authoritative and globally representative science. <http://www.stapgef.org>

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