Report of the Chair of the Scientific and Technical Advisory Panel to the 66th GEF Council Meeting

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STAP SCIENTIFIC AND TECHNICAL ADVISORY PANEL

An independent group of scientists that advises the Global Environment Facility

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Table of Contents

1. Introduction

This report provides an update on the work of the Scientific and Technical Advisory Panel (STAP) to the Global Environment Facility (GEF) since the 64th GEF Council meeting in June.

2. STAP activities

7th GEF Assembly, Vancouver, Canada

STAP Science Day

STAP organized a Science Day event at the Assembly on 22 August 2023. The event featured a Youth Leaders Learning Exchange, which provided an opportunity for youth to share their experiences and inspire other youth leaders. It also included a half-day on Indigenous and Local Knowledge, which focused on how such knowledge can help the GEF to deliver greater global environmental benefits, with panel discussions on the Arctic and the North, and the Amazon.

The key message from, Carlos Manuel Rodríguez (GEF CEO) was the need for a whole-of-government and whole-of-society approach to meet environmental and societal goals. He encouraged participants "to think outside the box" to address the triple planetary crises of climate change, pollution, and biodiversity loss. He said, "I don't think that we will be successful thinking that doing the same thing and just bringing more money onto the table."

Source: IISD

Source: IISD

In her talk, Dr Rosina Bierbaum (STAP chair) outlined the triple planetary crises and the need for nature-based solutions, emphasizing the importance of prioritizing the three pillars of sustainability equally (social, economic, and environmental). She also stressed the need for GEF projects to be based on a systems-thinking approach and to take account of behavioral change explicitly, to pursue policy coherence, and to engage communities and stakeholders (including youth, women, Indigenous Peoples, and other marginalized groups) in decision-making.

Dr Rashid Sumaila, Killam Professor and Canada Research Chair at the University of British Columbia, delivered the first keynote address on "Three things to save the oceans". He explained the concept of fish as a renewable resource, noting the need for a new approach to their management based on economic analysis from his research. He framed the current approach to ocean management noting that "from the ocean good things come, and to the ocean, bad things go" and stressed the need to change our mindset from taking "everything, everywhere, all at once" to "not everything, not everywhere, not all at once," which emphasizes the sustainable and fair use of ocean resources.

The second keynote address was delivered by Dr Eduardo Brondizio, Distinguished Professor of Anthropology at Indiana University Bloomington, on "Indigenous Peoples and local communities at the crossroad of global environmental governance." He noted that achieving the ambitious goals and targets in the post-2020 Global Biodiversity Framework and on climate change would not be possible without the lands and territories recognized, sustained, protected, and restored involving Indigenous Peoples and local communities. He also emphasized the need for a more integrated approach to find, accelerate, and implement synergies between biodiversity, food security, climate change, and pollution.


Source: IISD


Source: IISD

Panelists in the Youth Leaders Learning Exchange session emphasized the need to proactively increase dialogue with youth, including through their preferred media (e.g., TikTok, Instagram), and invest in them (e.g., by providing better access to funding) to ensure that they are part of the solutions and decision-making processes. During the Indigenous and Local Knowledge session, panelists stressed the importance of integrating Indigenous knowledge, citizen science, and Western science for the co-production of knowledge and the need for Indigenous Peoples to be guaranteed a seat in local and international decision-making processes and involved in the co-management of resources.

A summary of the event and key takeaways is available here.

Further STAP engagement at the Assembly

Dr. Rosina Bierbaum also moderated a Plenary session - Solutions for a Healthy Planet: Integrated Responses to Global Environmental Degradation, participated in the announcement of Inclusive Assembly Challenge Program winners, and reported on emerging issues on behalf of STAP at the closing Plenary.

STAP participated in the following roundtables:

- Closing the nature funding gap/achieving policy coherence - Dr Mark Stafford Smith
- Promoting sustainability and resilience in cities - Dr Sunday Leonard
- Bridging the science and policy nexus for a healthy planet, health people - Dr Blake Ratner
- Transforming food systems - Dr Mark Stafford Smith
- Learning for results and impact - Dr John Donaldson
- GEF's future with new agreements and emerging themes - Dr Blake Ratner
- Building climate resilience and adapting to new realities - Dr Edward Carr.

STAP also participated in several side events: Enhancing monitoring, transparency, and decision-making in the era of big data and earth observation (Dr Ngonidzashe Chirinda); Climate and health/science, industry, and society climate collaborative (Dr Miriam Diamond); The fifth industrial revolution and the digital to environmental dividend (Dr Sunday Leonard); Multistakeholder panel on science and plastic pollution (Dr

Miriam Diamond; Harvesting synergies between the GEF focal areas – examples from the chemicals and waste cluster BRS/Minamata (Dr Miriam Diamond); Nutrition sensitivity in environmental programming for a healthy planet, healthy people (Dr Ngonidzashe Chirinda); Transitioning to a circular economy and zero waste society through integrated chemical and waste management (Dr Miriam Diamond); Science for conservation (Dr John Donaldson); Food Systems impact program information session (Dr Mark Stafford Smith); Transparency for raising NDC ambitions and transforming the agri-food systems (Dr Ngonidzashe Chirinda); and Knowledge for conservation (Dr John Donaldson).

GEF Risk Appetite Working Group

STAP panel members and staff participated in this working group with GEFSEC and Council members over the last several months to develop a risk appetite statement and framework. The outcome GEF/C.66/13 is presented for approval at this Council meeting.

GEF Secretariat learning mission to Indonesia

Dr. Mark Stafford Smith participated in a learning mission in Indonesia to identify lessons from the Good Growth Partnership (GGP) that could help the implementation of the Food Systems Land Use and Restoration (FOLUR) Impact Program and the design of the Food Systems Integrated Program (FS-IP). The mission included site visits to West Kalimantan and a workshop that brought experts together to discuss lessons on integration. Discussions focused on how supply chain partnerships can work together to achieve sustainability, how the partnership engagements with the GGP and FOLUR can inform integration, and how the knowledge generated knowledge can inform the Food Security IP.

Climate Change Adaptation Programming and Strategy Workshops

Dr. Stafford Smith also gave briefings on the "Role of STAP at 3 workshops in late September and early October: GEF Asian Least Developed Countries (LDCs) workshop in Seam Reap, Cambodia; GEF Pacific Least Developed Countries (LDCs) workshop in Honiara, Solomon Islands; and GEF Anglophone African Least Developed Countries (LDCs) workshop in Addis Ababa, Ethiopia

GEF Introductory Webinar

Dr. Sunday Leonard gave a presentation on STAP's role and recent advisory documents during GEF's Introductory Webinar in November.

Achieving durable global environmental benefits in fragile and conflict-affected situations

STAP co-organized a November webinar with the GEF Secretariat to share best practices and lessons learned on designing and implementing projects in fragile and conflict-affected situations (FCS) to achieve durable environmental benefits. The workshop brought together representatives from the GEF Secretariat, GEF agencies, the GEF IEO, STAP, and external practitioners with experience in developing and evaluating projects in fragile and conflict situations.

GEF work program

STAP reviewed 42 GEF Trust Fund projects and programs, 4 multi-trust fund projects, 15 LDCF projects, and 2 SCCF projects for the current work program cycle. The STAP Chair will present STAP's observations from screening the work program during her Council presentation.

STAP future work

STAP has started thinking about GEF-9 and will prepare its initial perspective before the replenishment process begins. STAP will host a workshop with the science and practitioner community in the coming months to capture new ideas and emerging trends that will be important for GEF to consider in GEF-9. STAP will also continue to work with the GEF Secretariat on follow-up actions on knowledge management, policy coherence, and risk appetite.

3. STAP reports

3.1. Blended finance

The global demands for sustainable development finance mean that public funding needs to be augmented with private capital through blended finance, where this can be shown to be compatible with delivering sustainability objectives (for the GEF, this means delivering global environmental benefits). Generally, blended finance instruments use public (or philanthropic) funds to reduce the perceived or actual risks to the private sector achieving commercial returns from its investments in activities that will lead to GEBs. This is often because investments in GEBs take longer to materialize or have higher uncertainty than the market is used to.

Blended finance instruments enable substantial private sector finance to be leveraged for every dollar of public finance. The GEF has increasingly used this modality in its non-grant instrument (NGI) program and has successfully leveraged more private finance than in its conventional GEF Trust Fund projects.

While blended finance instruments have been explored for decades in projects focusing on energy technologies to reduce greenhouse gas emissions, it is only relatively recently that these instruments have been applied to nature-positive-related environmental outcomes, such as reducing land degradation, enhancing biodiversity, and other outcomes that are core to the GEF's mandate. Blended finance will be very important in the new Global Biodiversity Framework Fund.

A review of the latest academic and practitioner literature shows that blended finance for nature-positive-related outcomes is less mature and understood than for energy technologies to reduce greenhouse gas emissions. From this review and observing GEF's blended finance projects, STAP concluded that the pathways to impact (GEBs) in blended finance projects are generally more complex and that entities outside the GEF partnership have greater responsibility for their execution to a much greater extent than in conventional GEF Trust Fund projects. These characteristics can help to scale up impacts but do require an extra priority on a clear articulation of the environmental impact logic, and for quick learning to ensure that the intended GEBs are achieved in an area of rapid innovation.

The STAP blended finance note highlights the potential for a more systematic classification of types of GEBs and the contexts in which they are created, to help guide which types are most likely to be amenable to different blended finance instruments. STAP sees the need for ensuring that there is a strong element of learning about which structures and investment types work to deliver durable GEBs in what contexts so that the GEF obtains, collates, and disseminates rapid learning from innovations in blended finance instruments.

The note identifies four issues to frame an agenda for further investigation:

1. Improve guidance regarding which types of GEB interventions in which contexts are best served by particular blended finance instruments.
2. Improve advice about the detailed design of a selected blended finance instrument to ensure that it fits the intended GEB interventions and their context.
3. Develop advice on theories of change for GEB impacts in blended finance projects that identify underlying assumptions to be measured and tested.
4. Expand GEF blended finance to encourage learning and the use of existing lessons related to Issues 1-3.

STAP will explore these issues further to help strengthen the effectiveness of GEF blended finance projects in the coming year.

3.2. Environmental security

Many places facing the most significant environmental problems also confront challenges related to conflict and or state fragility, so-called fragile and conflict-affected situations (FCS). According to the GEF Independent Evaluation Office (IEO), many GEF projects are in fragile and conflict situations, and this has

affected project effectiveness, efficiency, and sustainability.[1] The GEF partnership has paid greater attention to FCS over the past decade, and the GEF Secretariat intends to develop more tailored guidance for conflict-sensitive programming. GEF Agencies are keenly aware of these challenges, and many have developed policies, strategies, guidance, and tools to support FCS-specific project and program planning, implementation, monitoring, and evaluation.[2]

STAP's brief on "Environmental security: achieving durable outcomes in fragile and conflict-affected situations" summarizes and builds upon insights from a workshop[3] convened by STAP and the GEF Secretariat on November 27, 2023, to consider how best to incorporate available guidance into GEF practice to increase the likelihood of enduring environmental outcomes in FCS. The brief illustrates how the framework and recommendations in STAP's paper on Environmental Security: dimensions and priorities can be put into practice. These dimensions include the GEF explicitly addressing environmental security in project and program design, assessing conflict risk routinely among investment risks beyond the scope of GEF intervention, evaluating the relationships between environmental change and vulnerability within GEF interventions, and contributing to conflict prevention through environmental cooperation.

The brief presents how GEF agencies can increase the likelihood of achieving durable GEBs when operating in FCS, focusing on six specific entry points in the GEF project and program design templates:

Context analysis. Projects in FCS highlight the need for systems thinking in design and implementation to untangle the complexity in FCS and thereby identify and manage the root causes through focused interventions while anticipating feedback, enhancing synergies, managing trade-offs, and building resilience.[4]

Future narratives. Developing several short narratives that incorporate FCS issues can help understand how different scenarios could affect desired outcomes, including achieving durable GEBs. For example, are conflict dynamics drivers of environmental degradation and a limiting factor to achieving GEBs? Providing an explicit account of the baseline scenario and possible future trends in fragility and conflict, with other drivers (e.g., economic, and demographic trends, climate change, etc.,), can help project developers consider the interaction between drivers, and develop interventions that are robust to different plausible futures.

Outcome targets. Delivery of co-benefits for local stakeholders, e.g., improved food security and better livelihoods, is essential for the durability of GEBs. These local environmental and socioeconomic co-benefits – may also be part of securing the targeted environmental outcomes.

Theory of change. In the FCS context, a theory of change (ToC) can identify the links between conflict risk and environmental outcomes and help to articulate the connections and the barriers to, and enablers of, the stated outcomes. A good ToC provides the "bridge" between analysis and programming, allowing project developers to ensure that proposed interventions are relevant and appropriate to the FCS and result in GEBs.

Risk assessment. In FCS, the risk profile may change significantly between initial project identification and eventual implementation. The assumptions underlying project risk ratings need to be explicit so they can be readily confirmed or revised as the context evolves. Mitigation strategies should also include periodic review mechanisms and contingency plans.

[1] GEF IEO 2020. Evaluation of GEF Support in Fragile and Conflict-Affected Situations. Washington, DC.
[2] GEF Gap analysis of GEF-funded activity and engagement in fragility, conflict, and violence-affected States. 2024. See GEF/C.66/09
[3] STAP, in collaboration with the GEF Secretariat, co-organized a workshop to share best practices on how to design and implement projects in fragile and conflict-affected situations to achieve durable environmental benefits. The discussions at the workshop informed the STAP brief on "Environmental security."
[4] Bierbaum, R. et al. 2018. Integration: to solve complex environmental problems. Scientific and Technical Advisory Panel to the Global Environment Facility. Washington, DC.

Stakeholder engagement. Effective stakeholder engagement is essential from the outset to address each of the preceding five points.[5] This is particularly important in FCS, where the risk of disrupting sensitive stakeholder relationships is higher, and changing circumstances may require more frequent review and validation of the theory of change.

The brief also outlines important opportunities at the systemic level to strengthen GEF engagement in FCS and increase the likelihood of enduring GEBs. These include communicating risk appetite and its implications for FCS, supporting flexible and adaptive management in implementation, and enabling learning and exchange through leveraging existing platforms and technical assistance.

3.3. Agrivoltaics

The STAP advisory paper on agrivoltaics (AV) provides background information on an emerging innovative and effective solution for addressing issues of land competition between food and energy. AV systems combine solar photovoltaics (PV) systems with agricultural production by using the same area of land for producing solar energy and agricultural products, creating synergies between renewable energy and agricultural production. AV has been applied as part of crop production, livestock grazing, ecosystem protection, habitat restoration, and aquaculture. Its deployment has grown significantly in recent years[6] in Japan, China, South Korea, Germany, Italy, France, and India.

A review of scientific studies shows that the possible benefits of AV systems include efficient renewable energy production with reduced greenhouse gas emissions, enhanced food production and land-use efficiency, better water use efficiency, restoration of degraded lands, conservation of terrestrial biodiversity, and climate change adaptation and resilience. Implementing AV systems can also help diversify livelihood opportunities, increase revenue streams, and achieve sustainable development goals. However, AV may have some tradeoffs. For example, some crops (e.g., wheat, corn, rice, tomatoes, and peppers) have shown mixed results (i.e., lower, equal, or higher yield) depending on the growing season and local climate. Additionally, AV systems could negatively impact soil quality if poorly installed.

Although AV systems present an opportunity to achieve environmental and socioeconomic objectives, there are barriers to adoption and scaling that need to be overcome. The primary barrier is the high initial investment cost, which is usually beyond the reach of local farmers, especially in the Global South. AV systems are generally more expensive to construct than conventional ground-mounted solar PV systems due to increased costs associated with the unique installation requirements and higher permitting, labor, and site investigation costs. Other barriers to AV systems adoption and scaling are the lack of technical capacity; economic and structural factors, such as the dominance of smallholder agriculture in the Global South, which makes obtaining loans difficult; a lack of supportive policies and regulations; and sociocultural factors, such as industry and societal apprehension due to inadequate awareness and concerns about compatibility with current practices.

STAP's mapping of AV benefits (Figure 1) shows that it could help deliver GEBs in biodiversity conservation, climate change mitigation, land degradation, and international waters. AV could also contribute to achieving the objectives of the adaptation funds.[7] However, AV systems need to be implemented using a circular economy approach to avoid possible chemical pollution during PV panel end-of-life disposal.

[5] Ratner, B.D. and Stafford Smith, M. 2020. Multi-stakeholder dialogue for transformational change. A STAP Advisory Document. Scientific and Technical Advisory Panel to the Global Environment Facility. Washington, DC.
[6] Energy generation through AV has grown from 5 megawatts of peak energy in 2012 to 14 gigawatts in 2021.
[7] That is the Least Developed Countries Fund (LDCF) and Special Climate Change Fund (SCCF)

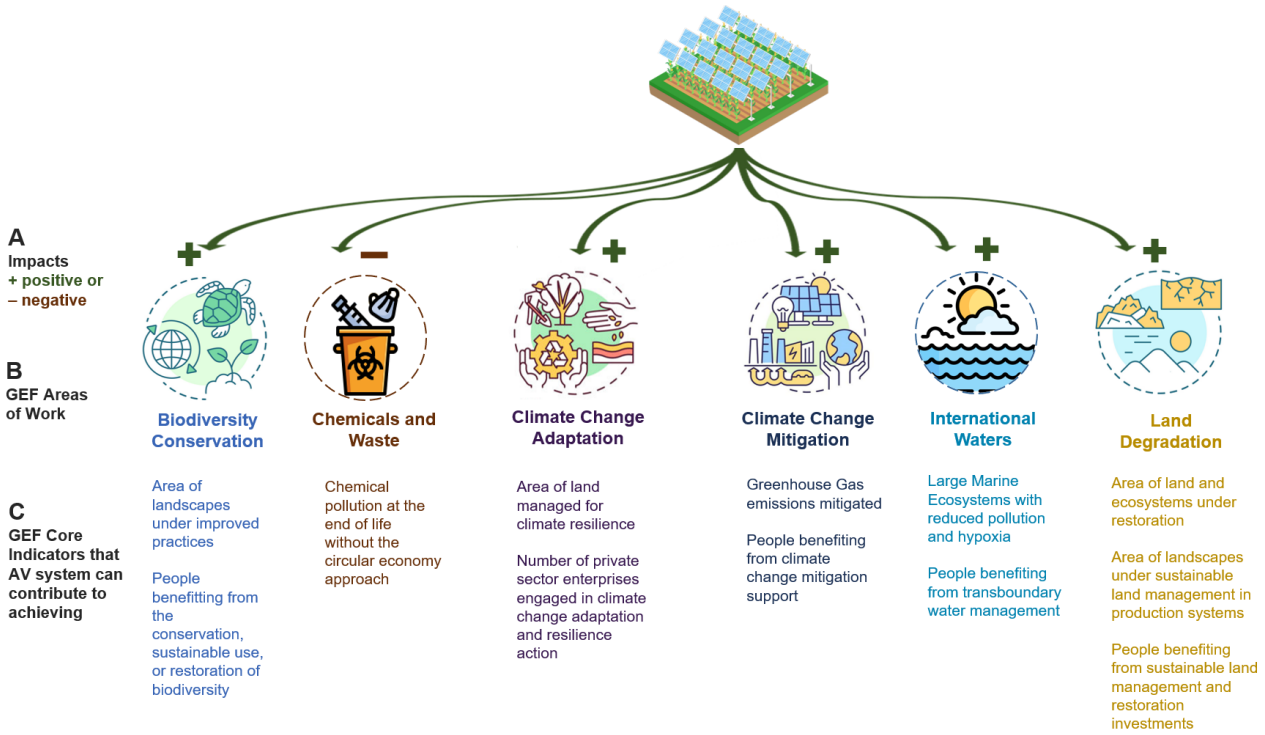

Figure 1: AV systems can contribute to the GEF-8 results measurement framework*—impacts (A) of implementing AV systems on GEF work areas (B). Implementing an AV system can contribute positively (+) to all focal areas except chemicals and waste (-). Specific GEF-8 core indicators that AV systems can contribute to are noted (C).*

The adoption and scaling of AV systems, especially in the Global South, will require enablers, such as adopting an integrated approach that brings relevant government ministries (e.g., agriculture, energy, water, and finance), multiple levels of government (e.g., national, state/province and local), and other actors and stakeholders (e.g., farmers and energy industry) together to address concerns and proffer synergistic solutions and develop supportive policies and creating a conducive regulatory environment. Other needed enablers include capacity-building initiatives to develop conventional farmers' technical and management skills and developing business and financing models to address the high initial cost of AV systems.

Given the potential of AV systems to deliver GEBs and the need to overcome existing adoption barriers and challenges, the GEF could consider supporting countries in understanding the technological appropriateness for their specific context and helping them put in place the needed enablers for adoption and scaling. This support could be through investment in demonstration projects and fostering partnership and multistakeholder dialogue to promote technical assistance and capacity building, especially with countries leading in AV system implementation.

3.4. Alternative livelihoods

The background paper presents the findings from STAP's review of the scientific and technical literature, guidelines, and frameworks on alternative livelihood interventions as an approach to mitigating environmental degradation (or reducing vulnerability to climate change impacts), as well as a sampling of GEF-7 projects[8] which used an alternative livelihood approach.

The review found that alternative livelihoods as a lever to achieve environmental outcomes are not well backed by strong scientific evidence. Questions remain about their effectiveness in achieving a permanent shift from environmentally destructive practices to sustainable alternatives because convincing people to change their livelihoods is complex, challenging, and often difficult to achieve at scale. Alternative livelihood

[8] STAP reviewed 42 full-size projects from the GEF7 funding cycle. The projects were selected from a preliminary screening of 76 projects that included livelihood activities in their taxonomy and/or project description.

interventions also require considerable support (such as community acceptance and financial, technical, and material input from governments, communities, and the private sector) to be established and sustained.

The paper notes that a major barrier is that projects often underestimate the complexity of achieving changes in people's livelihoods and make faulty assumptions about the expected outcomes. Successful alternative livelihood interventions require the application of a multi-dimensional approach, which considers factors affecting people's livelihood decisions (e.g., income size and reliability, food security, health and well-being, social status, and culture) and ensures an equitable distribution of benefits.

Elements of good practice include: ensuring that the theory of change has a clear logic with explicit pathways for achieving the desired outcomes; identifying and putting in place enabling factors (e.g., access to credit, development of markets, capacity building initiatives, and institutional or government support); co-designing and co-implementing interventions with targeted local communities; and assessing the risks associated with interventions, and effective mitigation measures. Other elements include considering how projects could affect existing sociocultural and power structures, designing projects at an appropriate scale, and with sufficient time and resources, and effectively monitoring and evaluating outcomes.

To improve the effectiveness of alternative livelihood interventions in GEF projects, the paper makes the following suggestions: carefully assess whether an alternative livelihood intervention is the most appropriate before moving forward; develop a theory of change with explicit pathways for achieving desired outcomes; ensure local stakeholder understanding and support; strengthen long-term monitoring and evaluation; and design projects with timelines that consider how long it takes to achieve desired behavioral changes.

3.5. Citizen science

The rapid pace of global change requires a "whole of society" approach to harness scientific understanding to anticipate, adapt, and innovate in addressing environmental degradation. This can often be achieved more effectively if done in partnership with those outside professional and scientific circles. The STAP background paper on citizen science illustrates the opportunities and benefits to the GEF of enhancing public engagement through citizen science.

Citizen science involves non-professionals and local communities in designing, implementing, monitoring, collecting data, analyzing, and evaluating projects to generate scientific information and knowledge. The paper describes different citizen science typologies, summarizes the benefits of adopting citizen science practices, highlights barriers and challenges to implementation, and offers some actions that the GEF could consider to encourage greater adoption of citizen science.

The paper shows that citizen science has been used to support areas of interest to the GEF, including biodiversity conservation, sustainable forest management, climate change mitigation, climate change adaptation, land degradation and restoration, and water quality testing and monitoring. It notes that citizen science can contribute to delivering GEBs by increasing the depth and breadth of data collection, empowering, and building the capacity of people who are under-served and under-represented by "traditional science," increasing scientific awareness and knowledge, enhancing opportunities for adaptive management and behavior change through social learning, and providing opportunities to broaden "ways of knowing" by including indigenous, traditional, and local knowledge.

Challenges to successfully implementing citizen science include low levels of citizen participation due to lack of information about citizen science opportunities and or incentives, lack of diversity among participants due to self-selection, lack of clarity on data ownership, poor data quality, and institutional and financial barriers including limited institutional capacity, lack of prolonged funding, and lack of institutional buy-in.

To overcome these challenges, the paper notes that citizens should be engaged early in project development using a collegial approach; expectations should be realistic and clear; open lines of communication should be maintained; capacity-building activities should be included; and health and safety standards should be established and followed. In addition, citizen science networks can be built jointly with civil society organizations, using multiple funding sources, to ensure that the viability of citizen engagement is not tied to a discrete project. The GEF Civil Society Organization (CSO) Network is ideal for this type of effort because it is already well-established, and its global membership engages with a diverse array of talented and experienced professionals and organizations well-placed to expand citizen science efforts.

To encourage greater adoption of citizen science and to optimize the potential benefits, the paper suggests that the GEF consider adopting a more consistent definition of citizen science to provide a better-shared understanding in the GEF partnership, developing criteria to guide the use of citizen science, and including "citizen science" as part of the taxonomy of terms in the new GEF Knowledge Management and Learning strategy. Other actions that the GEF could take include ensuring sound training and feedback to improve citizen engagement, ownership, and data quality, developing, and implementing sound data quality assurance and quality control protocols along with clear rules of data ownership, and encouraging partnerships between citizen science initiatives, Indigenous peoples, local communities, research institutions, and government agencies to enable knowledge sharing.

3.6. A summary of definitions, guidelines, and tools on ecosystem-based approaches for watershed management

One of the recommendations of the GEF IEO's "Strategic country cluster evaluation of the Lower Mekong River Basin ecosystem" stated that "...STAP, in consultation with the GEF, should provide technical advice on internationally agreed-upon definitions and guidelines for implementation of ecosystem-based conceptual approaches and management tools (e.g., ecosystem-based adaptation, ecosystem-based management, nature-based solutions, ridge to river basin) to support consistent understanding and implementation on the ground."[9]

This STAP information addresses this recommendation. The first part of the paper presents definitions of various ecosystem-based approaches and management tools. Two criteria were used to select definitions. First, the terms are aligned with the Convention on Biological Diversity's definition of ecosystem approach, "…a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way"[10]. Second, the terms are congruent with UNEP's definition of nature-based solutions, "…actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience, and biodiversity benefits".[11]

The second part of the paper briefly describes existing guidelines for implementing ecosystem-based approaches that could be used in GEF projects. The list of guidelines is a non-exhaustive compilation meant to accompany the terms listed in the paper's first section. The third section of the note offers examples of STAP's guidance on project design that could support ecosystem-based approach projects, such as the STAP paper on "Enabling elements of good project design" and STAP's Theory of Change Primer.

[9] Refer to recommendation 3 in GEF/E/C.64/ 02/Rev.01.
[10] Decision adopted by the Conference of the Parties to the Convention on Biological Diversity at its seventh meeting". Convention on Biological Diversity. https://www.cbd.int/doc/decisions/cop-07/cop-07-dec-11-en.pdf.
[11] UNEP (n.d.) "Intergovernmental consultations on nature-based solutions." United Nations Environment Programme, Nairobi. https://www.unep.org/about-un-environment/intergovernmental-consultations-nbs.

3.7. Preliminary findings from an analysis of adaptation benefits in GEF Trust Fund projects

STAP is in the process of reviewing adaptation benefits in the GEF Trust Fund. STAP's previous paper on a typology of climate change adaptation benefits classified three types of adaptation benefits: exposure (reduction in the frequency and or magnitude of climate impacts), sensitivity benefits (reduction in the impact of a climate-related event), and adaptive capacity benefits (increase in the ability to manage climate impacts or realize opportunities emerging from climate change).

Using this typology as a guide, STAP reviewed 24 projects, in all GEF focal areas, in the GEF-8 Trust Fund portfolio to better understand the extent to which these projects might also result in climate adaptation benefits (*or could* result in climate adaptation benefits with minor adjustments) without negatively affecting the stated goals of achieving GEBs.

Based on this preliminary analysis, STAP found that:

1. **Climate adaptation benefits are being delivered in nearly 40% of the GEF Trust Fund projects without these benefits being clearly articulated.**

   Adaptive capacity benefits occurred in one-third of the projects reviewed (9 total). Seven projects delivered a sensitivity benefit. Only one project (in the international waters focal area) delivered an exposure benefit. This project (GEF ID 11180) included a component to minimize flood exposure through improved prediction and management capacity in a river basin. The largest number of projects delivering sensitivity benefits were in the climate change mitigation focal area. By contrast, climate change and biodiversity contained the largest number of projects delivering adaptive capacity benefits.

2. **Nearly half the projects have the potential to deliver new or additional adaptation benefits through minor changes in project design that do not negatively affect the GEBs originally intended by the project.**

   For example, by clearly including a climate change stressor in the project description, some projects could build adaptation rationales that clearly link project outcomes to one or more forms of adaptation benefit without changing any other planned activity. In other cases, minor adjustments to project components (e.g., the content of a proposed training module) to include adaptation elements could help deliver adaptation benefits without disrupting other project goals. The international waters focal area had the largest number of opportunities to provide new or additional adaptation benefits, followed by biodiversity. More limited opportunities were found in the other focal areas.

3. **In two-thirds of the projects, climate change is either absent or characterized weakly so assessing adaptation needs and benefits is difficult, if not impossible.**

   About 20% of these projects did not refer to climate change impacts that might require adaptation. These were heavily concentrated in climate change mitigation, and chemicals and waste focal areas. Most of the projects that *did* refer to a climate challenge either did not include an explanation of how it relates to the project or mentioned it as a major challenge without any supporting data, or as a major challenge but only offered general (i.e., global) data in support. Overall, about 80% of these projects do not address climate change clearly enough to make the potential (or lack of potential) for adaptation benefits clear.

STAP will continue its work on this topic, and based on the findings, will provide advice on increasing adaptation benefits from GEF Trust Fund projects in the coming months.

4. STAP Secretariat and Panel Members updates

Changes in STAP

Dr Sunday Leonard was appointed STAP Secretary, effective October 1, 2023. He has been with the STAP Secretariat since May 2017, supporting STAP work on climate change mitigation and chemicals and waste focal areas as well as related GEF Impact and Integrated Programs.

Dr Graciela Metternicht, the STAP member for Land Degradation, and **Dr Edward Carr**, the STAP member for Climate Change Adaptation, will complete their terms at the end of March 2024. Recruitment of two new Panel Members is underway. We are extremely grateful to Dr Metternicht and Dr Carr for their service to the GEF family.

Other activities of Panel Members

Dr Rosina Bierbaum, the Chair of STAP, was elected and inducted into the American Philosophical Society for "achievements at the science-policy-environment interface domestically and internationally" (https://youtu.be/43HiO5DdoE4?si=pD3AZiS8svMXDMAi) in November 2023. She also received the Association for Environmental Health and Sciences Foundation Achievement Award for "significant contributions to the environmental field and outstanding environmental stewardship" (https://www.aehsfoundation.org/ecawards). Dr. Bierbaum participated in a Congressional briefing 18 January 2024 on the new 5th U.S. National Climate Assessment (https://www.eesi.org/briefings/view/011824nca) mandated by the Global Change Act of 1990. She highlighted how climate change is exacerbating social inequities, that mitigation needs to be greatly amplified, and that implementation of adaptation options and nature-based solutions are currently nascent and must be accelerated. Done thoughtfully, both mitigation and adaptation can enhance resilience of people, the economy, and the environment.

Dr Edward Carr, the STAP Panel Member for Climate Change Adaptation, was named the next director of the Stockholm Environment Institute's US Center, where he will be responsible for building a vision for the center and strengthening the center's work on adaptation. Dr. Carr was also named a Coordinating Lead Author of the IPBES Transformative Change Assessment, co-leading Chapter 4: Overcoming the Challenges of Achieving Transformative Change Towards a Sustainable World. He also recently co-coordinated a report for USAID titled "Operationalizing USAID's Climate Strategy to Achieve Transformative Adaptation and Mitigation in Agricultural and Food Systems." The report will guide USAID's strategic thinking on climate change and food security through 2030.

Dr Ngonidzashe Chirinda, the STAP Panel Member for Climate Change Mitigation, was appointed a co-chair for the 9th International Symposium on Soil Organic Matter, which will be held in Morocco in May 2024. He was also appointed a member of the Expert Panel on Livestock Methane. He also led the establishment of an Agrivoltaics platform at Mohammed VI Polytechnic University in Morocco. Dr Chirinda co-authored a publication on greenhouse gas mitigation through alternate wetting and drying irrigation in rice production and carbon dioxide and nitrous oxide emissions from a typical sugarcane production system. He was part of teams that secured funds for research projects on the sustainable upgrade of water treatment plants for resource recovery, water reuse, and health surveillance (SPORE-MED), and another on the valorization of poultry waste into bio "energy and fertilizer" resources.

Dr Miriam Diamond, the STAP Panel Member for Chemicals and Waste, participated in the Open-ended Working Group meeting on the Science-Policy Panel to contribute to the sound management of chemicals and waste and to prevent pollution, held in Nairobi, Kenya, from 11 to 15 December 2023. She prepared a submission to the secretariat and was a co-author of a peer-reviewed paper on Conflict of Interest in the context of the panel. Dr. Diamond was recently named an "Environment Commissioner" to the Earth

Commission 2.0, whose goal is to develop safe and just Earth system boundaries that can be implemented by, for example, cities and industries. She is the co-chair of the working group on "novel entities."

Dr John Donaldson, the STAP Panel Member for Biodiversity, as a co-chair of the IPBES Sustainable Use Assessment, was invited to present the assessment findings and their relevance to the Convention on Biological Diversity at the 25th meeting of the Subsidiary Body on Scientific, Technical, and Technological Advice to the Convention in October 2023. Dr. Donaldson is in his final term as Chair of the Steering Committee for South Africa's Centre of Excellence for Invasion Biology - a world leader in research on biological invasions. In October, Dr. Donaldson joined a global consortium of scientists to develop a research program exploring the root microbiome of plants as a source of nature-based solutions for restoring degraded lands, increasing agricultural production, and recovering populations of threatened plants. He is also working with NGOs to develop plant conservation projects, including fieldwork to assess populations and engage with communities in the Philippines and Tanzania.

Dr Graciela Metternicht, the STAP Panel Member for Land Degradation, was appointed to the Australian Government's Threatened Species Scientific Committee by the country's minister for the Environment and Water, Tanya Plibersek. The Committee will contribute to the Government's commitment to nature-positive outcomes through the protection and recovery of Australia's threatened species and ecological communities, including by playing an essential role in establishing a strategic approach for directing biodiversity protection and recovery action. In the past six months, Dr Metternicht also co-authored publications on challenges by cropland expansion in protected areas on the post-2020 biodiversity framework, satellite-based mapping of sand ecosystems, and the need for an Oceania biodiversity observing network. Dr Metternicht also attended the UNCCD Committee for the Review of the Implementation of the Convention, Twenty-first session (CRIC 21), held in Samarkand, Uzbekistan, from November 13 – 17, 2023. The meeting discussed the need for drought resilience indicators and guidelines and the possible implication role for the GEF regarding support to countries in building drought resilience. Dr Metternicht joined discussions on the UNCCD financial needs assessment, which seeks to understand countries' financial needs for achieving Land Degradation Neutrality (LDN) targets through the LDN Target Setting Program 2.0.

Dr Susanne Schmeier, the STAP Panel Member for International Waters, was appointed to the Advisory Board of the Water Diplomacy Centre at the Jordan University of Science and Technology, established to promote water cooperation and diplomacy in the MENA region. She was a speaker at the Stockholm World Water Week in August 2023. Dr Schmeier also co-authored several publications relevant to the GEF's work on international waters. These include on groundwater law, cooperation over transboundary wetlands, conflict risk in transboundary river basins, conflict and cooperation over the world's international freshwater resources, navigating water insecurity, addressing the complexity of transboundary water governance in central Asia's water and in the Okavango Delta in Botswana.

Dr Mark Stafford Smith, Senior Advisor to the STAP Chair, co-authored a scientific article on the transformation of urban systems.