



Leveraging innovation for transformational change

STAP ADVISORY DOCUMENT
June 2023

STAP

SCIENTIFIC AND TECHNICAL
ADVISORY PANEL

*An independent group of scientists that advises
the Global Environment Facility*



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SUGGESTED CITATION:

Donaldson, J. and Ratner, B.D., 2023, *Leveraging Innovation for Transformational Change, A STAP Advisory Document*. Scientific and Technical Advisory Panel to the Global Environment Facility. Washington, DC.

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ABOUT STAP:

The Scientific and Technical Advisory Panel (STAP) provides independent scientific and technical advice to the GEF on its strategies, programs, and projects. <https://stapgef.org>

ABOUT GEF:

The Global Environment Facility (GEF) is a family of funds dedicated to confronting biodiversity loss, climate change, pollution, and strains on land and ocean health. Its grants, blended financing, and policy support help developing countries address their biggest environmental priorities and adhere to international environmental conventions. Over the past three decades, the GEF has provided more than \$23 billion and mobilized \$129 billion in co-financing for more than 5,000 national and regional projects. <https://www.thegef.org>

COPY EDITOR:

Emily Youers

DESIGN AND LAYOUT:

Four Hundred Communications

COVER PHOTO:

Vaclav Volrab on Shutterstock.com

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EXECUTIVE SUMMARY

Innovation is critical to achieving Global Environment Facility (GEF) objectives. It has been a consistent theme since the inception of the GEF, and the Independent Evaluation Office (IEO) has identified multiple examples of innovation in GEF programming, with increasing emphasis in successive replenishment cycles. Under GEF-8, there is even more need for innovation, particularly innovations to solve systemic challenges and contribute to transformational change.

In this document, the Scientific and Technical Advisory Panel (STAP) outlines an approach to more purposeful decisions about the types of innovation needed to ensure that the GEF can achieve its strategic objectives. This begins with five practices that, when applied sequentially, can help strengthen innovation across GEF programmes and projects:

1. **Prioritize problems** that most need solutions to achieve global environmental benefits. Improving the level of precision in defining problems in theories of change at programme and project levels can go a long way to ensuring a better fit between problems and solutions.
2. **Align ambition** to support interventions aiming to solve these important problems. Finding novel solutions to complex and persistent problems typically involves more innovative and higher risk projects, where successful outcomes are less certain.
3. **Embrace diversity**, leveraging multiple innovation domains. Solutions to difficult problems typically involve a combination of innovations from multiple fields of expertise, including finance, business models, technologies, institutional and behavioural change, and policy.
4. **Design for scale**, assessing how solutions will be implemented to achieve impact. A systematic approach to innovation involves an iterative process of generating and testing solutions with the intention of selecting those that can be implemented at scale.
5. **Ensure learning** from innovation to minimize risk and accelerate change. Building in regular feedback from stakeholders who are most likely to champion innovative solutions—as well as those most likely to oppose them—is an important part of the cycle of testing and learning.





STAP further recommends four priorities to institutionalize incentives for innovation in GEF programming over the longer term:

- a. **Adopt a risk appetite framework, along with metrics for transformational change.** The IEO has recommended that the GEF “clearly articulate the level of acceptable risk across the various instruments and approaches...to encourage innovation through a managed approach.”¹ In response, the GEF Secretariat has committed to “establishing a clear baseline for risk acceptance in GEF-8 programming.”² Deciding on the GEF’s appetite for programmatic risk in different areas will be an important step forward to support greater innovation and, particularly, to encourage higher risk–higher reward investments.
- b. **Use targeted funding windows strategically to support innovation.** Targeted funding windows can be used to strengthen innovation. Monitoring of non-grant instrument investments can be used more strategically to support and test financial innovations in different environmental sectors, as well as their impacts on innovations in technologies and business models. Similarly, there is scope for a more coherent and targeted use of medium-size projects (MSPs) to strengthen innovation by testing riskier but potentially higher impact solutions as well as novel approaches to scaling. Finally, enabling the Innovation Window introduced in GEF-8 to fund higher risk exploratory innovations would mean tailoring project approval and implementation processes to cater for greater uncertainty and risk associated with more innovative projects, while focusing attention on practices for scaling and learning.
- c. **Embed innovation priorities in the programme design cycle.** A strategic approach to innovation in future GEF replenishment cycles could include portfolios of projects testing innovative solutions across GEF structures and delivery modalities and facilitate rapid exchange and cross-learning among them. Such an approach could build on country-level prioritization exercises, engaging civil society actors alongside government to ensure that the innovations tested respond directly to country demand as defined in country engagement strategies. Programme-level planning in integrated programming and focal areas could also be used strategically to identify and select the innovations required at different phases of piloting, testing, and scaling to support programme objectives.
- d. **Build knowledge management systems that drive learning for innovation and transformation.** As the GEF works towards adopting a knowledge management and learning strategy, STAP has advised the GEF to identify the distinct causal pathways by which this strategy can influence systems transformation. These pathways include strengthening the organizational culture around knowledge and learning, building incentives to access and share knowledge, supporting scaling processes, enhancing country-level policy coherence, and leveraging greater co-investment. The fundamental challenge in the longer cycle of innovation and scaling is linking individual projects into an ecosystem of learning from relevant experiences within the broader GEF portfolio – and far beyond. This requires sharing knowledge effectively between programmes and projects and tapping into scientific and practice networks to ensure that GEF investments are positioned at the cutting edge of innovation.



INTRODUCTION

The Global Environment Facility (GEF) has set its objectives for transformations in food, energy, transportation, material flows, and other systems in ways that require a significant reorientation of policies, practices, and investments to regenerate ecosystem services and deliver other global environmental benefits (GEBs). Over successive replenishment cycles, GEF strategy has shifted towards addressing the root causes and drivers of environmental problems, recognizing the importance of a systems perspective, and increasing focus on the role of innovation in achieving systems transformation. Indeed, the GEF-8 Programming Directions identify^{3,4} innovation as one of four levers needed to achieve transformational change.

The Seventh Comprehensive Evaluation of the GEF (OPS7)⁵ by the Independent Evaluation Office (IEO) found that the GEF has supported innovation across its portfolio in all focal areas, project sizes, and geographical regions, with an increasing trend in innovative projects over GEF replenishment periods. Innovation has been catalysed through delivery modalities such as medium-size projects (MSPs), Integrated Approach Pilots, Impact Programmes, and Integrated Programmes and is the focus of the new targeted Innovation Window.

However, as the Scientific and Technical Advisory Panel (STAP) noted in its earlier guidance on the topic, the GEF would benefit from a more systematic approach to innovation.^{6,7} Such an approach would require being purposeful in decisions about the types of innovation needed to ensure that the GEF can achieve its strategic objectives: it is not enough to be innovative – that innovation needs to be channelled to overcome specific challenges for the achievement of GEBs and scaled to achieve global impact.

This document provides guidance on five practices that, when applied sequentially, can help strengthen innovation across GEF programmes and projects. It then offers recommendations on longer term strategic opportunities to increase the incentives for innovation within GEF programming.





FIVE PRACTICES TO STRENGTHEN INNOVATION IN CURRENT GEF PROGRAMMING

Table 1 summarizes the five key practices and corresponding questions that can be applied to programme- and project-level design choices.⁸ Each is elaborated in the discussion that follows.

Table 1: Five practices for strengthening innovation in GEF programming, with questions to ask at programme and project levels. The questions are intended to be addressed sequentially.

	Programme level	Project level
1. Prioritize problems that most need solutions to increase global environmental benefits	Have the problems requiring innovation at programme level been identified and prioritised?	Is the problem requiring innovation properly defined, and does the project provide a compelling case for how the innovation will achieve impact?
2. Align ambition to support interventions aiming to solve these important problems	Does the portfolio of projects reflect the ambition for innovation with an appropriate allocation for more transformative innovations?	Is the project design consistent with the level of ambition for innovations, especially for projects exploring novel solutions to new or persistent problems? Such problems will have greater uncertainty and should have greater investment in monitoring and learning.
3. Embrace diversity, leveraging multiple innovation domains	Does the programme include projects covering a diversity of solutions from relevant domains to achieve change?	Does the project focus on an appropriate domain of innovation for the intended solution, and does it link to complementary innovations in other domains?
4. Design for scale, assessing how solutions will be implemented to achieve impact	Is there a coherent plan for identifying effective solutions and taking innovations to scale?	Does the project theory of change identify a pathway towards scaling the solution or at least consider how this could happen? Does it consider actions that may be needed to support implementation further along the pathway?
5. Ensure learning from innovation to minimize risk and accelerate change	Is there support for learning across projects in order to more quickly identify solutions and mitigate risks associated with innovation?	Is the project designed to facilitate rapid learning and feedback to correct assumptions as quickly as possible? More complex and higher risk projects require a greater investment in learning.



1. PRIORITIZE PROBLEMS THAT MOST NEED SOLUTIONS TO INCREASE GLOBAL ENVIRONMENTAL BENEFITS.

A core issue for effective innovation is how to fit solutions to problems. This means having a clear idea of what the problems are and where innovative solutions are likely to result in the best outcomes for GEBs. Overcoming some problems will open opportunities for significant improvements to GEBs; overcoming others will make only a marginal difference to the status quo. For innovations to have a significant impact, it is necessary to identify and prioritize those that are most likely to deliver solutions to the most important problems.

A portfolio of projects delivering small innovations can also collectively have a big impact, if those projects are well designed and aligned to overcome a series of problems, together contributing to achieving a larger objective (Figure 1). An example is the rollout of mini-grids in Africa⁹, where a series of MSPs was used to explore innovative solutions to barriers that prevented the uptake and scaling of this technology for distributed access to renewable energy.

The theory of change at programme and project levels is expected to map out causal pathways for achieving specific objectives and entails analysing barriers to achieving those objectives.¹⁰ The barriers identified at programme level, and particularly in relation to scaling successful pilot approaches, can point to specific problems where further innovative solutions are required.¹¹

At project level, the theory of change should define the problem addressed as precisely as possible. What is the exact nature of the problem, and what types of change are required to solve it? For example, if creating alternative livelihoods is a solution for unsustainable extractive practices, it is essential to specify how many people are affected, how much change is required (adapting successful livelihood innovations or developing new ones), and whether this change fits into an existing rural economy or requires an adjustment to the entire system (e.g. from subsistence agriculture to ecotourism). Improving the level of precision in defining problems can go a long way to ensuring a better fit between problems and solutions.

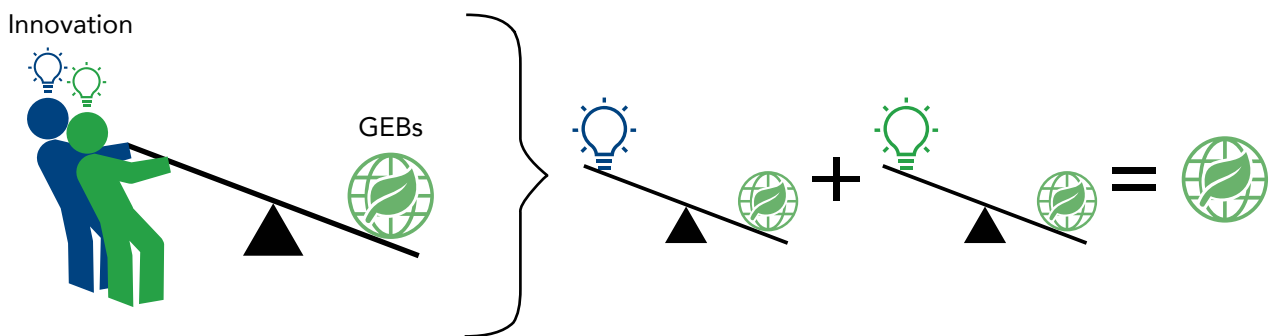


Figure 1: Innovation needs to focus on overcoming problems that will unlock significant global environmental benefits (GEBs), either through united efforts to tackle big problems or through a portfolio of well-aligned innovations to overcome a series of smaller, linked challenges.

Source: STAP.

2. ALIGN AMBITION TO SUPPORT INVESTMENTS AIMING TO SOLVE THESE IMPORTANT PROBLEMS.

Finding novel solutions to complex and persistent problems typically involves more innovative and higher risk projects, where successful outcomes are less certain (Figure 2). An intention to achieve big changes in GEBs will therefore require support for innovative investments with sufficient ambition to solve the most important problems.

Take the case of food systems, for example. While much is known about needed improvements in cropping patterns, land management, and agroforestry on the production side (existing solutions), exploring the potential for higher impact requires complementary shifts in financial structures, working to develop the potential of blended

finance as an impact accelerator for regenerative and sustainable practices. Actions in this case may involve engaging the domestic private sector at a scale that can reach smallholder farmers and other producers, processors, and traders. It also means leveraging novel sources of finance, including carbon markets and emerging biodiversity markets, which in turn requires country-level policy innovation to align climate and biodiversity commitments with objectives for food systems transformation, rural enterprise development, and social equity.^{12,13}

Individual projects will not be able to deliver that scale of systems change, but clarity about where each investment fits within an innovation matrix, defined by the degree of novelty in the solutions and the complexity in the challenges faced (Figure 2), can help increase the chances that multiple projects will contribute to durable change.¹⁴

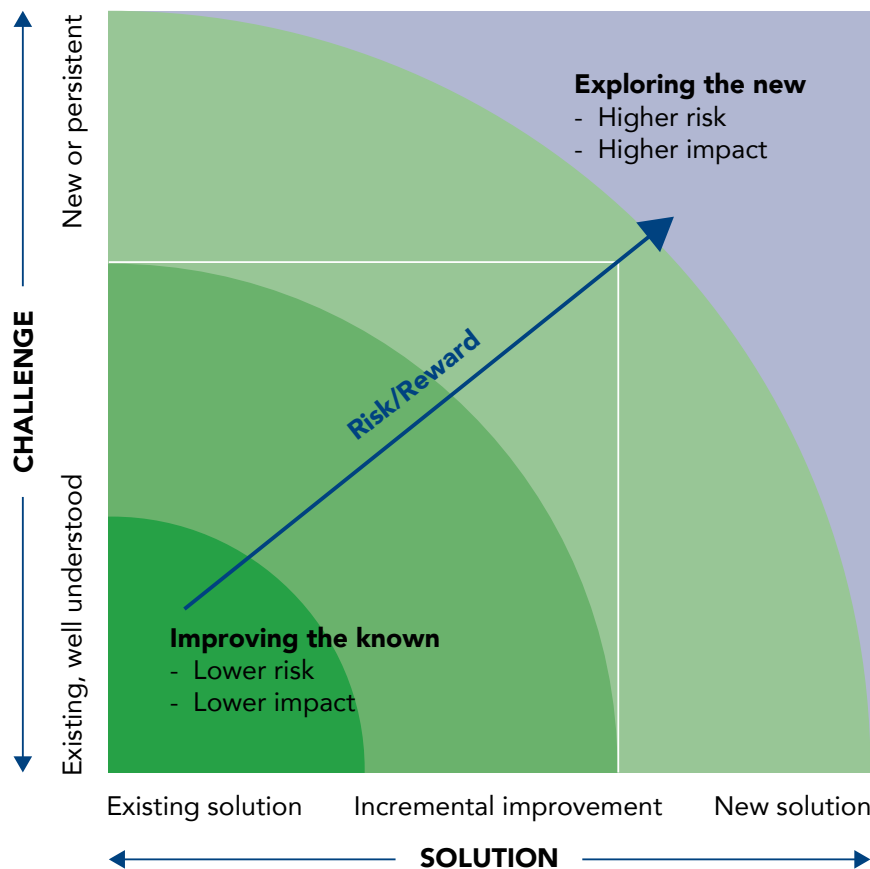


Figure 2: An innovation matrix showing the relationship between low-risk innovations to improve what is already known versus higher risk innovations to find novel solutions to new or persistent challenges. Modified from: Holden et al. (2018).



3. EMBRACE DIVERSITY, LEVERAGING MULTIPLE INNOVATION DOMAINS.

Solutions to difficult problems are seldom the result of one intervention and more typically involve a combination of inputs and innovations from multiple fields of expertise and across innovation domains (Figure 3).¹⁵ This is particularly true of solutions to complex social–ecological problems relevant to the GEF.

For example, addressing land-based sources of marine pollution requires technological innovations for biodegradable plastic substitute materials and more effective ways to remove plastics from the environment. These technological innovations need to be complemented by behavioural changes in the way people use plastics and innovations in business models relating to the production, distribution, and

recycling of plastic-based products. Nature-based solutions for wastewater treatment are needed, along with municipal regulatory and financing instruments that enable equitable cost-sharing to finance construction and long-term maintenance of treatment facilities in low-income countries. Financial and policy incentives for regenerative agriculture that reduce or eliminate the need for chemical inputs are key too.

The key message is that effective solutions to complex problems will need to include innovations from a diversity of domains. Drawing on inputs from a wide range of people representing different sectors and perspectives can help identify some novel opportunities for effective solutions. The five domains of innovation (Figure 3) can be used as a guide for the range of people who could be involved in programme and project design conversations.



Figure 3: Exploring change pathways that leverage different innovation domains requires including people with a diversity of expertise and experience in the process of identifying problems and solutions. The five domains of innovation are adapted from STAP's previous advice (Toth, 2018) to make the inclusion of technical and behavioural innovations more explicit.

Source: STAP

4. DESIGN FOR SCALE, ASSESSING HOW SOLUTIONS WILL BE IMPLEMENTED TO ACHIEVE IMPACT.

Successful innovation happens when ideas for solutions are tested, adapted, and implemented at a scale that has a chance for meaningful impact. In the GEF context, this means at a scale where solutions make a significant difference to the achievement of GEBs.

STAP has outlined different pathways to achieve scaling, as well as different modalities for scaling.^{16,17} A systematic approach to innovation involves an iterative process of generating and testing solutions with the intention of selecting those that can be implemented at scale (Figure 4).

It is seldom possible to implement the entire process in one project. There may be several pilot projects testing alternative solutions to the same problem and, in almost all cases, the process from

pilot to testing and then to scaling will involve sequential projects, often transitioning to new sources of long-term financing in the process. In many cases, further innovations may be required to implement solutions at scale, and a specific theory of change to address barriers at that phase may be essential.¹⁸

For example, payments for ecosystem services (PES) provided an innovative solution for incentivizing environmentally friendly practices and has been successfully applied in many contexts. However, scaling often required further innovations, such as changes in policies for water pricing or development of carbon markets, and new funding models to facilitate PES implementation and application.

Well-designed projects should specify the stage of ideation, piloting, testing, and scaling that is envisioned for each innovation (Figure 4). This requires clarity about the longer term trajectory of change envisioned at scale, as well as the lessons from prior efforts and obstacles faced.

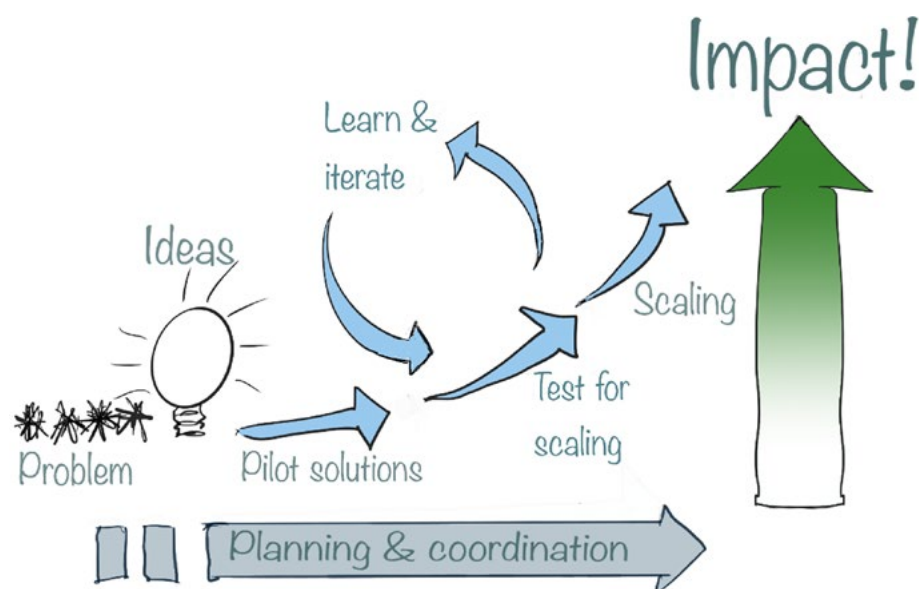


Figure 4: Innovative solutions achieve impact when they are implemented at scale. The innovation process may involve multiple steps from conception and pilot projects through further testing and iteration until the solution can be scaled. Learning occurs throughout this process and requires ongoing interaction with stakeholders to ensure a good fit between solutions and problems.

Source: STAP.



5. ENSURE LEARNING FROM INNOVATION TO ADAPT AND ACCELERATE SYSTEM TRANSFORMATION.

Learning is critical to the success of the innovation process. Innovation is often presented as an iterative cycle of testing a solution, learning from the outcomes and then reworking and retesting the solution until it solves the target problem or is judged unviable (Figure 4). To achieve this, learning from successes, unexpected outcomes, and things that did not work needs to be consolidated rapidly to adapt project activities, reduce risks, and improve solutions during implementation.

Building in regular feedback from prospective end users is an important part of the cycle of testing and learning. It is not much good coming to the end of a GEF project to discover that the product or service is not as helpful as originally envisaged. Stakeholder engagement is essential to acquiring regular feedback; project teams must engage with those who are most likely to adopt and champion innovative solutions, as well as with those who are most likely to oppose them.¹⁹ There are a variety of learning tools used in the business sector that can be adapted for use in GEF projects, such as the rapid learning cycle, which is a synchronized set of problem-solving activities to manage risk, reduce uncertainty, and capture knowledge. Incorporating feedback and learning tools can require adjustments to the typical rhythm of project implementation and review.²⁰





RECOMMENDATIONS TO INSTITUTIONALIZE INCENTIVES FOR INNOVATION IN GEF PROGRAMMING OVER THE LONGER TERM

The five practices outlined above can be implemented through existing structures and instruments. These practices should be strengthened as part of an overall approach to innovation in the GEF. Yet, there are also institutional commitments that can bolster the incentives for strategic decision-making on innovation across the portfolio of GEF programmes and projects: STAP recommends the following four institutional commitments as priorities to increase incentives for targeted innovation over the longer term.

A. ADOPT A RISK APPETITE FRAMEWORK, ALONG WITH METRICS FOR TRANSFORMATIONAL CHANGE.

The IEO has recommended that the GEF “clearly articulate the level of acceptable risk across the various instruments and approaches...to encourage innovation through a managed approach.”²¹ In response, the GEF Secretariat has committed to “establishing a clear baseline for risk acceptance in GEF-8 programming.”²² Deciding on the GEF’s appetite for programmatic risk in different areas will be an important step forward to support greater innovation and, particularly, to encourage higher risk–higher reward investments.

As STAP has advised, a robust framework requires a clear risk appetite statement, defined by the GEF Council, following deliberation that engages the broader GEF Partnership; it also requires follow through to adjust operational policies and procedures, culture, and incentives to align with the chosen risk appetite, as well as metrics and monitoring systems to track progress against agreed goals.²³ Critically, these systems should include metrics that define and track intermediate progress towards longer term goals of transformational change.²⁴

B. USE TARGETED FUNDING WINDOWS STRATEGICALLY TO SUPPORT INNOVATION.

The non-grant instrument portfolio was introduced in GEF-6 and covers equity investments, private sector loans, risk guarantees, reimbursable grants, debt aggregation, and blended finance. While reaffirming the importance of this funding window to address market gaps, the IEO notes that “²⁵ systematic monitoring of results and impacts will be critical to build investor confidence.” Systematic monitoring is equally essential to ensuring that lessons can be harvested on the suitability of various financial innovations in different environmental sectors, as well as their role in supporting innovations in technologies and business models.²⁶

Similarly, there is scope for a more coherent and targeted use of MSPs to strengthen innovation by testing riskier but potentially higher impact solutions as well as novel approaches to scaling (Figure 2). The IEO noted that MSPs have indeed been used for more innovative projects.²⁷ Further analysis by STAP of MSPs from GEF-7 found that just under half of them met the criteria for being innovative, and most of those concerned incremental improvements to existing solutions.²⁸ More than half of these projects were addressing climate change, and the extent of innovation through MSPs varied significantly by agency. Nevertheless, there was relatively even spread among the five types of innovation defined by STAP (Figure 3), indicating that some GEF agencies have taken on board the need for a diversity of solutions. These findings underscore both the flexible potential of MSPs as well as the need for clear criteria identifying expectations for the role of MSPs in supporting innovation and learning. More coherent and targeted use of MSPs could be made to explore innovative solutions, for example marshalling bids to focus on a priority problem and funding several projects to tackle the problem from different perspectives.



The Innovation Window introduced in GEF-8 (\$12 million) presents an opportunity to support innovation and overcome some of the constraints associated with other GEF funding instruments. Enabling this window to fund higher risk exploratory innovations would mean tailoring project approval and implementation processes to cater for greater uncertainty and risk associated with more innovative projects, while also focusing attention on the five practices outlined above, particularly numbers 4 (scaling) and 5 (learning).

C. EMBED INNOVATION PRIORITIES IN THE PROGRAMME DESIGN CYCLE.

A strategic approach to innovation in future GEF replenishment cycles could include portfolios of projects testing innovative solutions across GEF structures. A portfolio could include elements from across GEF structures and delivery modalities by, for example, having (i) a pilot project as an MSP linked to one country and implementing agency and (ii) a full-size project testing options to scale the solution in another country, supported by a different agency. The approach would need to consider how best to construct a portfolio of innovative projects in this context and facilitate rapid exchange and cross-learning among them. Such an approach could build on country-level prioritization exercises, engaging civil society actors alongside government to ensure that the innovations tested respond directly to country demand as defined in country engagement strategies.²⁹

Programme-level planning in integrated programming and focal areas could also be used strategically to identify and select the innovations required at different phases of piloting, testing, and scaling to support program objectives. The program-level planning could be buttressed by an expectation that program design processes include external experts and research groups unaffiliated with implementing agencies to aid in the identification of both existing and emerging problems. These partnerships are particularly important when problems are poorly defined and understood and when further scoping, analysis, or research is required to clarify the problem.

D. BUILD KNOWLEDGE MANAGEMENT SYSTEMS THAT DRIVE LEARNING FOR INNOVATION AND TRANSFORMATION.

Knowledge and learning gained from developing and deploying innovations across projects and programs should be collected, systematized, and made readily accessible to ensure that the best approaches are replicated, failures are not repeated, and lessons are harvested to improve future investments. As the GEF works towards adopting a knowledge management and learning strategy, STAP has advised the GEF to identify the distinct causal pathways by which this strategy can influence systems transformation. These pathways include strengthening the organizational culture around knowledge and learning, building incentives to access and share knowledge, supporting scaling processes, enhancing country-level policy coherence, and leveraging greater co-investment.³⁰

The fundamental challenge in the longer cycle of innovation and scaling is linking individual projects into an ecosystem of learning from relevant experiences within the broader GEF portfolio – and far beyond. This requires sharing knowledge effectively and in a timely manner between programs and projects, so that mistakes made by one intervention do not get repeated and effective solutions and good practices can be shared and more widely adopted. Linking projects with the broader ecosystem also requires tapping into scientific and practice networks working in relevant domains to ensure that GEF investments are positioned at the cutting edge of innovation.



ENDNOTES

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