



BIODIVERSITY MAINSTREAMING IN PRACTICE

A Review of GEF Experience

A full-page photograph of a tropical forest. In the center, a waterfall cascades down a rocky cliff, surrounded by dense green foliage. To the left, a palm tree with a large, yellow, dried frond stands prominently. The foreground is filled with various green plants and leaves, some in sharp focus. The background shows more forested hills under a slightly hazy sky. A dark green rectangular box is overlaid on the upper right portion of the image, containing the title text in white.

PRIMER ON BIODIVERSITY MAINSTREAMING



Biodiversity mainstreaming has emerged as an increasingly important element of conservation practice in the last 20 years.¹ In response to its potential as an investment strategy to advance the objectives of the Convention on Biological Diversity (CBD), the GEF has embedded biodiversity mainstreaming in its strategy dating back to the early part of this century.

In order to better inform GEF support to biodiversity mainstreaming, the GEF has undertaken two reviews of biodiversity mainstreaming to identify best practice and lessons learned.² The purpose of this publication is to synthesize these analyses and complement them with a systematic review of the final evaluations of completed mainstreaming projects with the aim of identifying key “project moderators” (factors that are not part of project design and that are largely unaffected by the project, but influence the magnitude and quality of the project outcomes) and “project design features” (these are design elements, which can be changed by project designers or implementers, that make the project more successful) that are most correlated with successful projects.

The systematic review of completed biodiversity mainstreaming projects will be an ongoing process to inform better project design and implementation, identify lessons learned, refine the GEF’s investment strategy, and improve the GEF’s Theory of Change of biodiversity mainstreaming. This publication provides the first emerging findings from this review.

1 Redford, Kent H., Huntley, Brian J., Roe, Dilys, Hammond, Tom, Zimsky, Mark, Lovejoy, Thomas E., da Fonseca, Gustavo A. B., Rodriguez, Carlos M., Cowling, Richard M. (2015) Mainstreaming Biodiversity: Conservation for the Twenty-First Century, *Frontiers in Ecology and Evolution*, Volume 3.

2 Huntley, B.J., Petersen, C. (2005) Mainstreaming Biodiversity in Production Landscapes, Working Paper 20. Global Environment Facility, Washington, D.C., and, Huntley, B.J., Redford, K.H. (2014) Mainstreaming Biodiversity in Practice: a STAP Advisory Document. Global Environment Facility, Washington, D.C.

Biodiversity mainstreaming at the GEF

Protected areas have been the conservation community's most successful management response to conserve and sustainably use biodiversity, and the GEF has been a critical and recognized supporter of this achievement in GEF-eligible countries. Nevertheless, in recognition of the importance of managing the landscapes and seascapes outside of the protected area estate for achieving biodiversity objectives and outcomes, for the past 15 years the GEF has undertaken a concerted and intentional effort to embed biodiversity conservation and sustainable use objectives in the management of the production landscapes and seascapes outside of protected areas through support to an array of policies, strategies, and practices that engage key public and private sector actors. This process has become to be known as "biodiversity mainstreaming" in conservation parlance. Up until 2014, the GEF has focused primarily on the following suite of activities³:

- a) **developing policy and regulatory frameworks** that remove perverse subsidies and provide incentives for biodiversity-positive land and resource use that remains productive, but that does not degrade biodiversity;
- b) **spatial and land-use planning** to ensure that land and resource use is appropriately situated to maximize production without undermining or degrading biodiversity; and
- c) **improving and changing production practices** to be more biodiversity positive with a focus on sectors that have significant biodiversity impacts (agriculture, forestry, fisheries, tourism, extractive industries such as gas, oil, and mining) through technical capacity building and implementation of financial mechanisms (certification, payment for

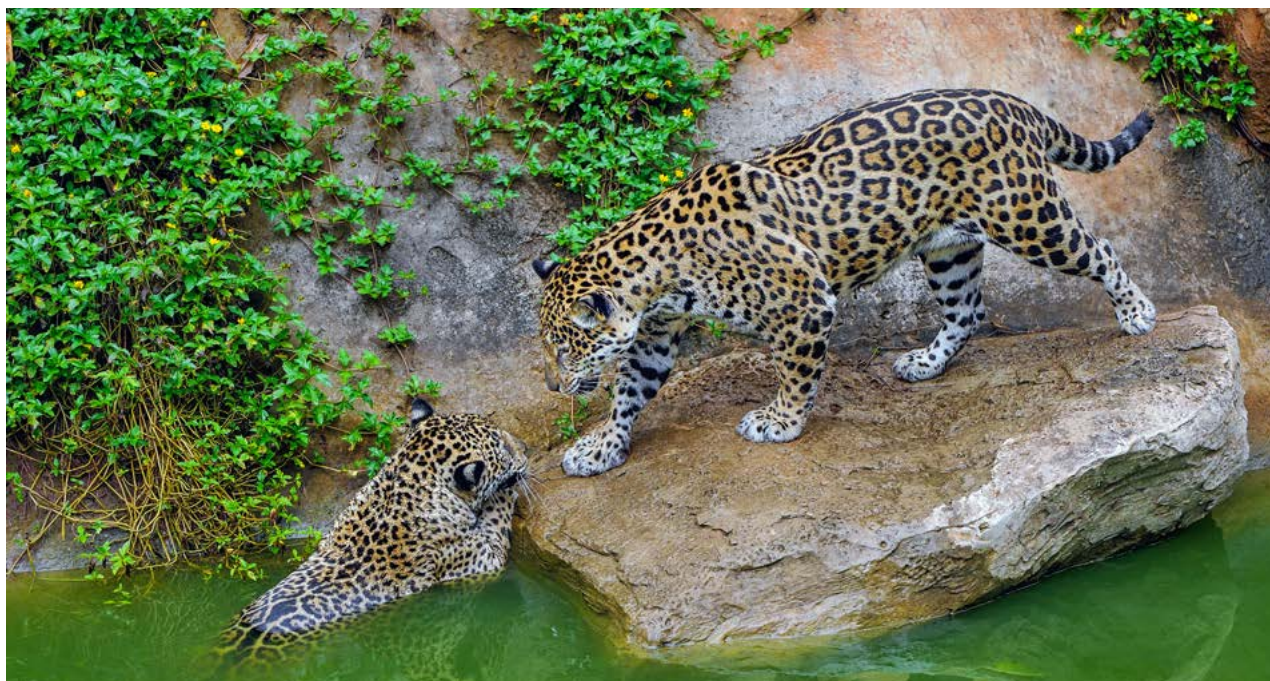
environmental services, biodiversity offsets, etc.) that incentivize actors to change current practices that may be degrading biodiversity.

During its current funding phase (GEF-6: 2014–2018), the GEF continues to support these activities, but with a renewed emphasis on ensuring that interventions are spatially targeted and thematically relevant to conserving or sustainably using *globally significant biodiversity*, consistent with the GEF's unique mandate to generate global environment benefits through its investments. Through more careful targeting, support under this program can better deliver multiple conservation outcomes by sustaining biodiversity in the production landscape and seascape, which will simultaneously help secure the ecological integrity and sustainability of protected areas and entire protected area systems.

Successful biodiversity mainstreaming initiatives in the GEF portfolio have often been a long-term process requiring multiple and complementary projects that span numerous GEF funding phases. In order for biodiversity mainstreaming to generate impacts at the scale necessary to advance progress in achieving the related Aichi Biodiversity Targets, a series of investments by the GEF that are strategically nested within a larger-scale national planning and management framework is often required. Projects in GEF-6 and onward have been required to frame the GEF's support to biodiversity mainstreaming accordingly to increase the likelihood of success and impact.

In addition to the elements of GEF support to biodiversity mainstreaming identified earlier, the GEF introduced a new complementary area of investment that supports the integration of biodiversity and ecosystem services valuation into development and finance planning. Although a number of approaches are currently being used to recognize, demonstrate, and capture the value of biodiversity and ecosystem services, a mismatch remains between valuation and development policy and financing. Valuation is not leading to the development of policy reforms needed to mitigate the drivers of biodiversity loss and encourage sustainable development through the better management of biodiversity and natural capital,

3 The GEF defines biodiversity mainstreaming as: "the process of embedding biodiversity considerations into policies, strategies and practices of key public and private actors that impact or rely on biodiversity, so that it is conserved and sustainably used both locally and globally."



nor is it triggering changes in the use and scale of public and private finance flows on the scale necessary to address threats. Valuation does not have to lead to creating markets or putting a price on such services, but policy and finance reforms must accompany valuation so that the finance and development decisions that impact natural ecosystems and biodiversity include incentives, holistic cost-benefit analysis, and/or price signals that result in more cost-effective and sustainable biodiversity management.

Therefore, the GEF is supporting national-level interventions that link biodiversity valuation and economic analysis with development policy and finance planning. The outcome from these projects will be biodiversity valuation that informs policy instruments and fiscal reforms designed to mitigate perverse incentives leading to biodiversity loss. These may be linked to larger policy reforms being undertaken as part of the development policy dialogue, development policy operations, or other efforts. It will also include specific support to reform finance flows, for instance through public expenditure reviews, and to

operationalize innovative finance mechanisms such as payments for ecosystem services, habitat banking, aggregate offsets, and tradable development rights and quotas.

The current state of biodiversity mainstreaming

The GEF, with the help of the GEF Scientific and Technical Advisory Panel (STAP), has undertaken periodic reviews of its support to biodiversity mainstreaming to better define and understand the practice of biodiversity mainstreaming.^{4,5} The key findings and messages of a literature review and an expert workshop undertaken in 2014 are presented below.

4 Huntley, B.J., Petersen, C. (2005) Mainstreaming Biodiversity in Production Landscapes, Working Paper 20. Global Environment Facility, Washington, D.C.

5 Huntley, B.J., Redford, K.H. (2014) Mainstreaming Biodiversity in Practice: a STAP Advisory Document. Global Environment Facility, Washington, D.C.

The background of the page is a composite of two underwater photographs. The top half shows a blue, slightly hazy underwater scene with several small fish swimming. The bottom half shows a vibrant, colorful coral reef with various types of coral in shades of red, orange, yellow, and purple.

KEY FINDINGS OF THE 2013 LITERATURE REVIEW

The literature review synthesized the thinking, structure, and content of biodiversity mainstreaming interventions, and the evidence base of mainstreaming investments and their effectiveness as reported in peer-reviewed journals primarily. The conclusions are summarized in the following key findings:

- With more than 80% of the earth's surface never likely to be managed within legally designated protected areas, biodiversity conservation interventions across all landscapes and seascapes are vital. Mainstreaming aims to address this need.
- Mainstreaming biodiversity has been given priority at the highest levels of international policy (e.g. by the Convention on Biological Diversity) and of conservation investment (e.g. by the Global Environment Facility and many international NGOs, and philanthropies). Within the GEF, countries have begun to prioritize investing in biodiversity mainstreaming at higher amounts on a per-dollar basis as opposed to investing in protected areas management.
- Mainstreaming characteristics and considerations reported in the literature include: integration/internalization/ inclusion of biodiversity goals in development models, policies, and programs to simultaneously achieve positive biodiversity and development outcomes.
- Biodiversity mainstreaming intervention approaches vary according to institutional business models. Approaches include the incorporation of biodiversity and ecosystem service values into accounting frameworks; policy and regulatory frameworks; production practices; and financing mechanisms.
- A great deal more has been written about how and why mainstreaming should be carried out than about what has been learned from mainstreaming practice based on testable and replicable evidence.
- Mainstreaming projects funded through the GEF have produced very few, if any, peer-reviewed articles by the project implementers or others. Project implementers — very often the real “champions” of such projects — are generally not writers for academic journals or periodicals, which contributes to the biodiversity mainstreaming knowledge gap.
- In practice, most apparent win-win biodiversity mainstreaming projects actually involve trade-offs between desired conservation outcomes and desired social outcomes. Because these trade-offs are not explicitly identified and quantified they are not negotiated for at the commencement of projects. Therefore, projects tend to overpromise delivery of results and when results are not fully delivered as promised, project stakeholders are often disappointed, which can undermine future support for mainstreaming.
- Due to the heterogeneity of methods, and lack of clear experimental design and data collection, very little can be concluded about the effectiveness of many mainstreaming tools including a very commonly employed tool, payments for environmental services (PES). To address some of the weaknesses with this particular financial mechanism, the GEF developed a targeted guidance document to improve PES design and implementation in GEF projects.⁶

⁶ Wunder, S., Wertz-Kanounnikoff, S., Ferraro, P. (2010) Payments for Environmental Services and the Global Environment Facility: A STAP advisory document. Global Environment Facility, Washington, D.C.

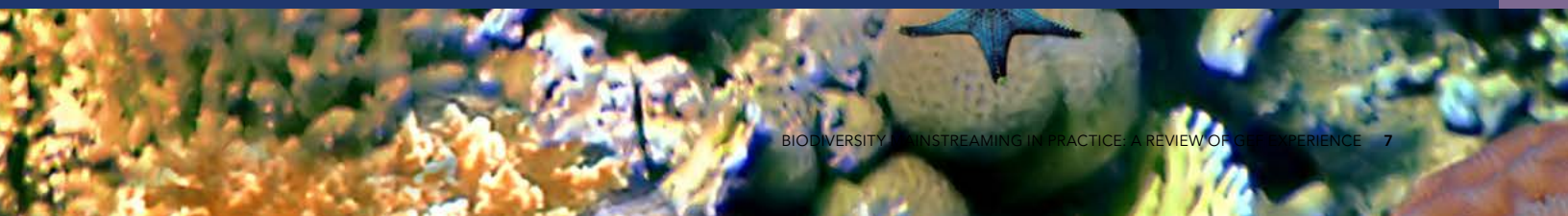


- In general, the evidence base supporting the various mainstreaming models and approaches is weak. Therefore, greater attention needs to be given to the design, implementation, and assessment of mainstreaming projects. A program of research is needed to measure how program impacts vary with socio-political and bio-physical contexts, to track economic and environmental impacts jointly, to identify spatial spillover effects in untargeted areas, and to use theories of change to characterize causal mechanisms that can guide data collection and the interpretation of results.
- Mainstreaming is not a controlled experiment, but rather a social experiment in changing the value structures of institutions and individuals — with vital consequences for the natural world and the humans who rely on it. While mainstreaming may not prove amenable to rigorous testing, it does, however, deserve more systematic inquiry.

KEY MESSAGES FROM THE 2013 EXPERT WORKSHOP

The following are the key messages from the workshop that were directed to the wider community of practice, beyond simply the GEF:

- An adequate collective knowledge base is now available for the development of theories of change for biodiversity mainstreaming, effectively linking interventions to desired outcomes within overarching hypotheses, and the development of common indicators and measurement approaches to provide evidence to test these hypotheses.
- Mainstreaming is a complex, costly process that takes a long time — decades or even a generation — to achieve impact at scale and across sectors. Transaction costs can be high, and in some cases greater investment in design, monitoring, evaluation, and publication of results will be needed.
- Strong and detailed science-based biophysical and socio-economic data and knowledge at appropriate spatial scales have underpinned successful mainstreaming interventions. Investment in such foundational knowledge is essential to program success, but such data and knowledge collection should be policy-relevant to achieve cost-effective impact.
- Even though few biodiversity mainstreaming project results have been published in peer-reviewed journals, it is likely that significant progress has been made in developing the evidence base on successful interventions. Although projects whose purpose is mainstreaming do not always lend themselves to replicable experimental design, further investment in developing a stronger evidence base on project outcomes is desirable.
- Communicating the right message to the right audience at the right time has proven to be of paramount importance. Making a business case for biodiversity requires skills that lie outside the expertise of most mainstreaming implementers. It indicates the need for closer partnership with the private sector and, in particular, use of successful business models for marketing.
- Good governance and strong institutions are key moderators of project success or failure. A balance needs to be struck between working in countries and sectors where there is sufficiently strong governance capacity for mainstreaming outcomes to have a good chance of success, and tackling the most pressing mainstreaming challenges in situations where globally valuable biodiversity is threatened but capacity is often lacking.



MAINSTREAMING DEFINED IN THE GEF AND REFINING THE THEORY OF CHANGE

Over time, the definition of biodiversity mainstreaming in the GEF context has evolved. For the GEF, biodiversity mainstreaming is: *“the process of embedding biodiversity considerations into policies, strategies, and practices of key public and private actors that impact or rely on biodiversity, so that it is conserved and sustainably used both locally and globally.”*

The STAP advisory document referenced earlier, “Mainstreaming Biodiversity in Practice”, identified 10 key elements that appear to correlate with progress in achieving positive biodiversity impacts through mainstreaming.

We have grouped these elements under two main categories: moderators of project success and features of the project:

“Moderators of project success” — factors that are not part of project design and that are largely unaffected by the project, but influence the magnitude and quality of the project outcomes:

- *Democratic, transparent, and stable governance systems*
- *Strong capacity at individual and institutional levels*
- *Availability and use of science-based biophysical and socio-economic spatial information systems and assessments at relevant scales*

“Features of the project” — these are design elements, which can be changed by project designers or implementers, that make the project more successful:

- *Project design and operational strategy embedded within a theory (or theories) of change for biodiversity mainstreaming*
- *Flexible project duration, financial sustainability, and adaptive management approaches*
- *Effective project monitoring and evaluation systems implemented*
- *Strong and responsive teams led by champions*
- *Effective communication with stakeholders to make the case for biodiversity*
- *Alignment of mainstreaming projects with the CBD and other intergovernmental processes*
- *Alignment of mainstreaming initiatives with government priorities and working across sectors*

Figure 1 presents the theory of change for GEF’s mainstreaming strategy for GEF-6 (2014–2018) GEF’s Biodiversity Mainstreaming Portfolio

Theory of Change: Mainstreaming of Biodiversity in Production Landscapes/Seascapes and Sectors in the GEF Biodiversity Strategy



The image is a vertical composite. The top half shows a dense canopy of mangrove trees with bright green, oval-shaped leaves against a clear blue sky. The bottom half shows an underwater scene of the same mangrove roots. The roots are dark, gnarled, and extend from the surface down into the water. Several fish are visible: two yellowish-brown fish with dark eyes and fins are swimming in the center and bottom right, and a large, translucent jellyfish with white spots is on the left. The water is clear, and the seabed is covered in green algae and some coral.

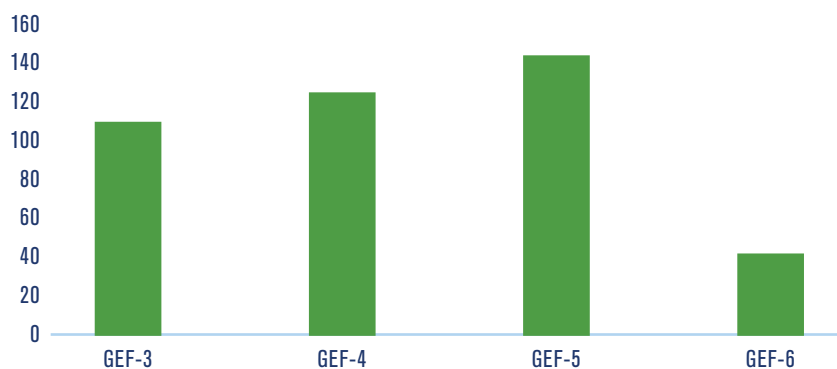
ANALYSIS OF GEF INVESTMENTS IN BIODIVERSITY MAINSTREAMING



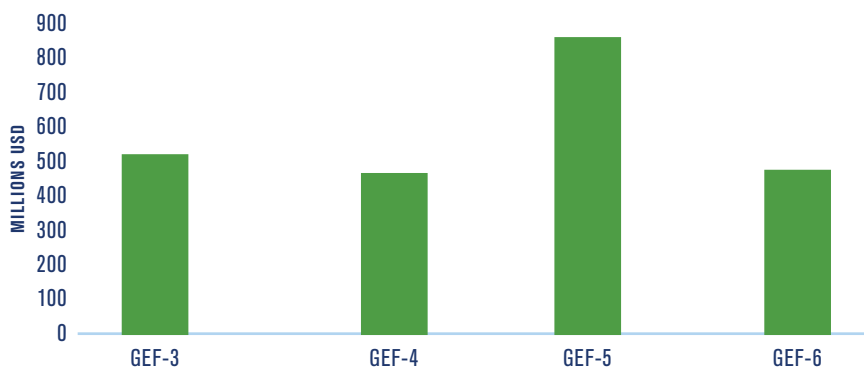
GEF's Biodiversity Mainstreaming Portfolio

Between 2004 and 2016, the GEF supported a total of 427 biodiversity mainstreaming programs and projects, totaling US\$ 2,719,882,760 in GEF funding and US\$ 16,842,483,011 in co-financing.⁷ Thus, it has been a significant part of the overall GEF conservation investment as presented in the graphs below. The graphs include not only resources from the biodiversity focal area, but also from other focal areas when these resources have been used in integrated investments to support biodiversity mainstreaming. Each GEF phase has seen an increase in the numbers of programs and projects and total grant amounts. GEF-6 only covers two years of funding, as opposed to four years in the other phases. In GEF-6, we note that while the number of programs and projects will likely be fewer the grant amount will be higher due to an increase in the size of programs and projects budget with the aim of achieving greater impact at scale.

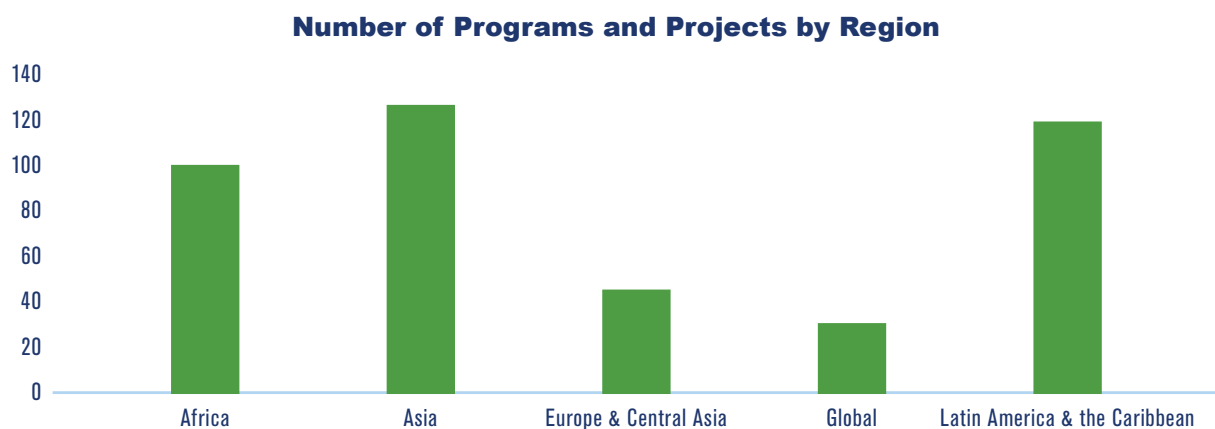
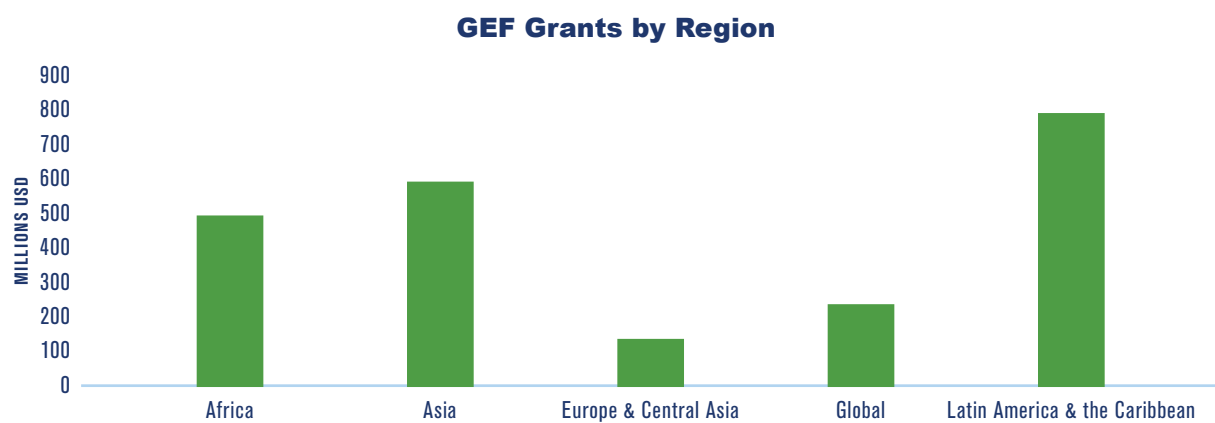
Number of Programs and Projects



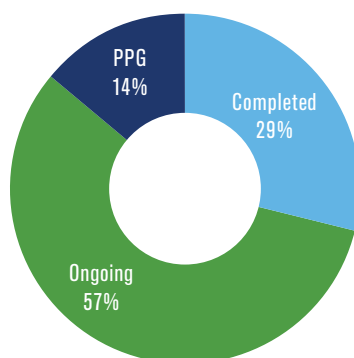
Grant Amount



⁷ GEF replenishment phases: GEF-3 (2002–2006), GEF-4 (2006–2010), GEF-5 (2010–2014), GEF-6 (2014–2018).



Mainstreaming Program and Project Status



Methodology and Approach

Final evaluations of 66 biodiversity mainstreaming projects or about 15% of the total number of mainstreaming programs and projects funded by the GEF in the last 12 years were reviewed. This cohort could be considered the first generation of biodiversity mainstreaming investments (from 2002 to 2009) by the GEF. These included projects that focused on:

- a) **developing policy and regulatory frameworks** that remove perverse subsidies and provide incentives for biodiversity-positive land and resource use that remains productive, but that does not degrade biodiversity;
- b) **spatial and land-use planning** to ensure that land and resource use is appropriately situated to maximize production without undermining or degrading biodiversity;
- c) **improving and changing production practices** to be more biodiversity positive with a focus on sectors that have significant biodiversity impacts (agriculture, forestry, fisheries, tourism, extractive industries such as gas, oil, and mining) through technical capacity building and implementation of financial mechanisms (certification, payment for environmental services, biodiversity offsets, etc.) that incentivize actors to change current practices that may be degrading biodiversity.

The analysis assessed whether the project design features and project moderators deemed critical for successful mainstreaming were present in the project design and implementation and whether these were correlated with progress to impact and projects achieving their outcomes.

In addition, the assessment identified key findings with regards to project design and implementation in the use of spatial and land-use planning, as well as specific sectoral experiences and approaches in the biodiversity mainstreaming process. Emerging findings, lessons learned, and future opportunities are identified in the GEF's mainstreaming work.

Emerging Findings and Lessons Learned from the GEF's Ongoing Analysis

FINDINGS

The project design features and project moderators deemed critical for successful mainstreaming were indeed correlated with progress to impact for the cohort examined. This was true across three of the four sectors examined (forestry, agriculture, tourism). The fisheries cohort (two projects) was simply too small from which to draw any general findings. The hypothesis also held for a sub-cohort of projects (16) that did not have a discrete sectoral focus as they used spatial and land-use planning as the means to implement mainstreaming across multiple sectors.

All mainstreaming models and approaches, and even the most straightforward activities such as spatial and land-use planning, involve iterative processes that take a long time. When projects did not factor in the length of time required for implementation, project performance suffered often resulting in under-delivery of project outcomes even when project implementation times were extended.

Spatial and land-use planning projects that demonstrated high progress to impact blended work on protected areas and surrounding production landscapes (predominantly agriculture and forest production) represented one of the GEF's most successful biodiversity mainstreaming investments in this cohort. In these instances, spatial and land-use plans sought to regulate activities in the production landscapes so that they did not detract from the biodiversity objectives of the protected area sites.

The first generation of biodiversity mainstreaming projects in the forestry sector examined in this cohort had little relationship with the large-scale forestry sector. In addition, very few of these projects had clearly articulated theories of change that demonstrated a clear causal link between project activities in forestry and concrete biodiversity benefits.

Policy work in the agriculture and forestry sector also failed to elucidate clear cause and effect relationships between proposed policy changes and concrete biodiversity benefits generated by instituting changes. Projects often underestimated the time needed or challenges involved in development of a law or policy and its adoption and implementation; thus, in many instances the project was only able to support the drafting of a law or policy by the end of the project.

While spatial and land-use planning projects consistently reported impacts at scale, improving production practices in the forest and agriculture sector at any scale to be meaningful beyond the site level was not a significant focus of this cohort. While this has changed to some extent in the more recent generation of projects, it indicates a general lack of understanding of the most important entry and leverage points for GEF investments to significantly advance biodiversity mainstreaming in these two sectors and to generate concrete biodiversity benefits. In addition, it also indicates that GEF projects have difficulty engaging with the large-scale agriculture and forest sector, which is driven primarily by an imperative to produce cost-efficient yields of food and timber in very competitive industries, as well as the government policy makers who regulate the environmental impact these sectors might have.

Support to the sustainable use of agrobiodiversity and the protection and/or sustainable use of crop wild relatives is an investment niche where global biodiversity benefits are clear and where the GEF has a unique role to play given the global importance of agrobiodiversity (plant and animal genetic resources) to food production and security globally, particularly in the face of climate change.

LESSONS LEARNED

The success of spatial and land-use planning as a mainstreaming investment requires political skill to ensure that the results are integrated into government decision making and planning at the correct governance level. This process takes time and requires the engagement of the right complement of stakeholders from the very start.

Modest and targeted investments in spatial and land-use planning can be quite impactful and set the stage for future mainstreaming work. Building institutional capacity to generate science-based biophysical and socio-economic spatial information and to use it in land-use planning is an investment strongly correlated with project impact and can be seen as building a kind of “biodiversity mainstreaming readiness” for future mainstreaming actions.

The GEF needs to elaborate a more precise operational definition of biodiversity mainstreaming in the forestry, agriculture, fisheries, and tourism sectors, and identify the entry and leverage points, strategies, and geographies where GEF projects can have the most impact and where the GEF — as a financier — has a comparative advantage.

Assessing the outcomes of biodiversity mainstreaming projects and their real contribution to biodiversity status and condition remains a critical challenge during project lifetime; thus, more robust proxy indicators are necessary.



A photograph of several elephants in a savanna setting. The elephants are standing on dry, brownish ground. The background is a clear blue sky. A semi-transparent blue banner is overlaid across the middle of the image, containing the text "MOVING FORWARD" in white capital letters.

MOVING FORWARD



Biodiversity mainstreaming will remain an important part of conservation strategies going forward, including those of the GEF. This analysis represents the first of a series of systematic reviews that will be undertaken of completed biodiversity mainstreaming projects supported by the GEF. Insights developed on mainstreaming in practice will be integrated into future project designs and the GEF's overall biodiversity mainstreaming strategy and theory of change. The review of this cohort indicates the following ways forward to improve performance of these investments to generate concrete and measurable biodiversity benefits.

Spatial and land-use planning as a mainstreaming instrument should be seen as a first step to develop the information, data, analysis, and associated individual and institutional capacity required to identify possible biodiversity-friendly management options in the production landscape and seascape. Follow-on investments to this support would be focused on management actions or policy options to maintain biodiversity in production landscapes or seascapes. This enabling activity investment would be appropriate in all countries, but particularly those with limited capacity as a first step to larger-scale efforts at mainstreaming. Large-scale spatial and land-use planning is likely most appropriate as a first investment in countries where all three project moderators are strongly evident: a) democratic, transparent, and stable governance systems; b) strong capacity at individual and institutional levels; and particularly, c) availability and use of science-based biophysical and socio-economic spatial information systems and assessments at relevant scales.

Linking the objective of sustaining protected areas and their conservation objectives with targeted investments in spatial and land-use planning in the surrounding geographies should continue to be a GEF investment strategy as the cohort demonstrated numerous successes with this approach at various scales in a variety of implementation environments. This kind of investment is appropriate in all countries as the focus can be quite targeted in nature.

All future GEF-funded projects on biodiversity mainstreaming must demonstrate, building on the GEF's existing theory of change, how the proposed activities will lead to the intermediate outcomes and expected impact of the GEF's mainstreaming strategy. The geographic areas and scale to be targeted needs to be proportional to the time and funding available.

Further research and analysis of biodiversity mainstreaming, including the GEF's portfolio, are needed to assess the extent to which biodiversity mainstreaming project types have moved along their hypothesized change pathway, how this is correlated to biodiversity status and condition, and how and when their outcomes and impact might be measurable within the time frame of a GEF project and in the subsequent years following project closure. This understanding will be critical in assessing the return on investment on biodiversity mainstreaming and for identifying the most critical entry points and strategies to deliver positive biodiversity outcomes.

The analysis of this cohort supported the conclusion of the expert group that identified mainstreaming as a long-term *process*. Thus, achieving outcomes and impact at scale will require either longer project time frames or phasing project investments over time after sufficient enabling conditions are established as noted previously. Successful sectoral mainstreaming will require more refined and iterative theories of change that help guide investment strategies over the course of a number of GEF phases and project investments.





ABOUT THE GEF

The Global Environment Facility (GEF) was established on the eve of the 1992 Rio Earth Summit, to help tackle our planet's most pressing environmental problems. Since then, the GEF has provided \$14.5 billion in grants and mobilized \$75.4 billion in additional financing for almost 4,000 projects. The GEF has become an international partnership of 183 countries, international institutions, civil society organizations, and private sector to address global environmental issues.

The GEF's 18 implementing partners are Asian Development Bank (ADB), African Development Bank (AfDB), Development Bank of Latin America (CAF), Conservation International (CI), Development Bank of Southern Africa (DBSA), European Bank for Reconstruction and Development (EBRD), Foreign Economic Cooperation Office—Ministry of Environmental Protection of China (FECO), Food and Agriculture Organization of the United Nations (FAO), Fundo Brasileiro para a Biodiversidade (FUNBIO), Inter-American Development Bank (IDB), International Fund for Agricultural Development (IFAD), International Union for Conservation of Nature (IUCN), United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), United Nations Industrial Development Organization (UNIDO), West African Development Bank (BOAD), World Bank Group (WBG) and World Wildlife Fund U.S. (WWF-US).

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