

STAP technical background paper on blended finance impact pathways

April 2026

STAP

SCIENTIFIC AND TECHNICAL
ADVISORY PANEL

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



STAP technical background paper on blended finance impact pathways

April 2026

Summary

The Global Environment Facility (GEF) is committed to mobilizing more nature-positive private investment, including through blended finance projects, which are to be mainstreamed across the GEF's portfolio in its next replenishment cycle (GEF-9). These projects are generally screened by the GEF's Scientific and Technical Advisory Panel (STAP). Previous STAP papers have observed that blended finance projects tend to consider their finance logic (i.e. the financial structure and how it will deliver returns) and their impact logic (i.e. how the project investments will deliver global environmental benefits (GEBs)) separately. This is an area that requires more analysis, logic, and advice, as noted by STAP and by the GEF Independent Evaluation Office in its latest assessment, among others.

To inform the design and screening of blended finance projects so as to maximize their environmental impact, **this paper sets out a framework for exploring the *interactions between finance and impact logics and how these interactions might affect best practice design***. This framework draws on an analysis of extant GEF projects, the available research literature, and a set of 27 interviews with practitioners, developers, and academics, identifying the design consequences of the framework for meeting key selection criteria for GEF blended finance projects (financial additionality and minimum concessionality; GEF additionality; GEB impacts and durability; commercial viability and durability; and innovation and scalability).

The framework allows the design insights of practitioners to be systematized in relation to seven **impact pathway attributes** that affect how interactions between finance and impact logics play out in different blended finance models: the *length* and *diversity* of the impact pathways; the *maturity* of the intervention; *how long* the intervention takes to deliver GEBs and *how long* it takes to deliver financial returns; the ease of *measuring* targeted GEB impacts; and the *durability* of those impacts (the italicized text identifies the seven impact pathway attributes). From this systematic collation and analysis, the paper identifies **eight issues to be considered to improve the durable delivery of GEBs through blended finance**. These issues are the basis for an advisory checklist for use by those who screen blended finance projects for their scientific and technical rigour and may also be useful for project developers.

Contents

Summary	1
1. Introduction	3
2. Structures of blended finance projects.....	6
3. A framework for analysing impact pathways in blended finance projects.....	11
3.1 GEB impacts	11
3.2 GEB-creating interventions	13
3.3 Pathways to financing the interventions	14
4. Implications for design and screening	16
4.1 Selection criteria for blended finance projects.....	16
4.2 Towards an impact pathway checklist for blended finance projects	18
5. Conclusions	24
6. Annexes	25
Annex A: Method and acknowledgement of inputs	25
Annex B: Examples of recent GEF blended finance projects, illustrating different impact pathway models.....	26
Annex C: Some GEF global environmental benefits and their attributes	29
Annex D: Checklist for project screeners and developers	31
7. References	33

1. Introduction

Global investments in nature-positive interventions continue to fall well below what experts agree is needed (GEF, 2026b). In response, the conventions that the Global Environment Facility (GEF) serves have called for increases in private sector investment that is aligned with nature-positive goals and that, in particular, deliver the global environmental benefits (GEBs)¹ targeted by the GEF (GEF, 2026b). One route to achieving this is project investments funded through blended finance arrangements. The GEF has supported innovation in blended finance over several replenishment periods and has committed to significantly increase this support in the Ninth Replenishment Period (GEF-9), partly by mainstreaming blended finance into all areas of GEF funding (GEF, 2026a). GEF's Independent Evaluation Office (IEO) in its latest evaluative report notes that blended finance projects have shown promise but need scaling and require "stronger design elements...to achieve transformational impact" (GEF IEO, 2026).

Earlier Scientific and Technical Advisory Panel (STAP) information notes on blended finance (Stafford Smith et al., 2024a, 2024b) have summarized evidence that blended finance projects involve diverse and sometimes complex financial arrangements to deliver funds that then flow along diverse and sometimes complex impact pathways to support interventions that create GEBs. These aspects can be described as the *finance logic* and *GEB impact logic* of blended finance arrangements (Thompson, 2022).² The different cultures,³ motivations, and terminologies for the finance logic and GEB impact logic involved in such projects makes it challenging for designers to fully appreciate all the elements involved and, in particular, how the finance and impact logics *interact* (GIIN, 2018; Moran and Ward-Christie, 2022; Stafford Smith et al., 2024a, 2024b; Toledano et al., 2025). This is not for want of trying. Moran and Ward-Christie (2022) apply an institutional logic theoretical frame to analyse social impact investment projects; they explain that some blended finance models have genuine and profound complexities derived from interactions among multiple institutional logics. Such findings also apply to GEB impacts, helping to explain why challenges may inevitably arise, and how they might be addressed; for example, Guillon and Bennett (2025) argue for integrated teams with "a different set of capabilities than those found in traditional conservation organizations or financial institutions alone". However, another need is to expose and understand the interactions between the logics at the level of transactions or projects (Stafford Smith et al., 2024a, 2024b), which is the intent in this paper.

A consequence of this complexity and the often-different focus between those designing (or assessing) the finance logic and the impact logic, noted in both academic and practitioner literature, is that blended finance projects are usually classified and discussed in terms of the many types of financial instruments that may be involved (e.g. GEF, 2022a; Stafford Smith et al., 2024a). Given the diversity of instruments, this discussion is needed. But the Organisation for Economic Co-operation and Development (OECD) has observed that "When many blended finance operations refer to 'impact', they are talking about 'outputs' or 'outcomes' as these terms would be understood by evaluators [not results like GEBs or impacts on nature], and only rarely refer to unintended or negative effects. As a result, insufficient attention has been paid to higher-level outcomes in the results chain, and harmful effects may go undiscovered" (Spratt et al., 2021). Hence, it is also important to understand the diversity of the types of *impacts* blended finance projects may have, such as GEBs, and the *impact pathways* leading to them (see Box 1 on how these terms are used in this paper).

Making sense of this diversity matters to the GEF for many reasons: to learn and innovate from one project to the next, to ensure GEBs are delivered, to support the scaling of particular models, to

¹ For a full list of the GEBs currently targeted by the GEF, see <https://www.thegef.org/documents/global-environmental-benefits>.

² Thompson (2022) observes that impact investing is based on hybrid institutional logics, combining environmental impact ("impact logic") and profit ("profit logic") in the same project. Here, we refer to the latter as "finance logic" to indicate that it includes approaches and practices that go beyond just delivering profit.

³ "Culture" here refers to a variety of factors that influence the knowledge and approaches that different people bring to blended finance projects (e.g. disciplinary or sectoral background, worldviews, norms, values).

facilitate efficient project design and screening, and to enable evaluation. The GEF engages with various efforts to document good models for blended finance, for example the Conservation Investment Blueprints (CPIC, 2018); however, these model descriptions have not been structured within a conceptual framework that includes the impact pathways of the models. While a systematic framework for blended finance impact pathways cannot be found in the peer-reviewed or grey literature (Stafford Smith et al., 2024a), discussions with many blended finance practitioners highlight numerous unsystematized insights of relevance, and there are plenty of calls for improving replicability of blended finance models and guidance on design decisions (e.g. Apampa, 2026). Hence **the purpose of this paper is to develop a framework focused particularly on the interactions between finance and impact logic⁴ and to use it to systematize the insights provided by interviewed practitioners and by such literature as is available.** To assist project developers and screeners who may not be deeply engaged with blended finance, the paper **aims to provide the basis for a checklist of impact pathway-related issues to consider in blended finance projects in a GEF context.**

The paper proceeds by (i) recapping key insights about the structures and attributes of blended finance impact pathways, leading to a systematic framework for describing these, (ii) reporting insights from interviewees about the implications of the attributes for blended project design, and (iii) synthesizing a set of key lessons for project developers and screeners, thus responding to the GEF IEO (2026) call for “stronger design elements” in blended finance projects. The lessons are operationalized in a separate checklist that STAP will use for project screening (STAP, 2026).

⁴ This is a narrower purpose than the full consideration of different modes of mobilizing private capital for nature and the limitations of these modes – see, for example, Kedward et al. (2023); Luxton et al. (2024); Obura et al. (2026); Penna et al. (2023); Sheikh et al. (2025), and Stanley et al. (2026) – which is also important to the GEF.

Box 1: Glossary of key terms relevant to blended finance project logics

This glossary explains how key terms **are used in this paper**, as there are many language differences between finance- and environment-related disciplines, even among blended finance practitioners. We do not suggest that this is necessarily the “best” way to define the terms, just how they are used consistently in this paper and in the context of projects in the GEF.

Finance logic and **impact logic**: *Finance logic* refers to the way in which the financial component of a blended finance project is designed to deliver returns (particularly to private investors); *impact logic* focuses on how the project will deliver *impacts* (see figure 1 in either previous STAP information note⁵).

Blended finance instrument, model: A *blended finance instrument* is a particular finance arrangement (e.g. guarantee, insurance, structured finance, debt, equity, contingent loan) that delivers blended funding to an *impact pathway*; a *blended finance model* is the form of the entire finance and *impact pathway* structure in a blended finance project.

Impact: The *impact* is the final effects of a blended finance project,⁶ measured primarily as the production of GEBs for the GEF (hence, *GEB impacts*), although other impacts such as improved livelihoods or profits may be *prerequisite co-benefits* needed to make the *impact pathway* work and endure.

Impact pathway: The *impact pathway* is the chain of steps from making finance available from a blended finance arrangement, through possible *intermediaries*, to influencing *interventions* that produce *GEB impacts*, often represented as part of a theory of change – this may be a single step or many.

Attribute: The *attributes* are the characteristics of the *impact* being sought and of the *impact pathways* to that impact (see Figure 4); *attributes* have different states (e.g. long or short *impact pathway*, low or high *maturity*), which may be amenable to systematic analysis as regards their implications for project design.

Selection criteria: These are the key aspects of the selection criteria against which GEF blended finance projects are assessed that are relevant to how *finance* and *GEB impact logics* interact.

Intermediaries: The *intermediaries* are the financial organizations, firms, agencies, or individuals that play a role in the *impact pathway* before finally influencing the *intervention actors*; there may be none or up to four or more sets of these, depending on the *blended finance model*.⁷

Intervention: The *intervention* is the specific endpoint action that produces *GEB impacts*, for example a change in land management, the use of solar panels, recycling implementation, protected area management, or replacement of a pollutant.

(Intervention) actors: *Actors* are the people or organizations at the end of the *impact pathway* that actually enact the *intervention* that produces *GEB impacts*, for example farmers doing land management, households deploying solar panels or doing recycling, a conservation agency managing a park, or a company substituting a polluting chemical.

Maturity: The *maturity* of an intervention is defined as the likelihood that the intervention, such as a new technology or management system, will yield the expected results in the expected time frame in a given context.

Prerequisite co-benefits: These are the benefits produced by interventions, other than the targeted GEBs, that are needed to incentivize those interventions;⁸ in this paper, the term often specifically refers to the financial or livelihood returns necessary to repay financing.

Durability: The *durability* of a blended finance project is the extent to which the *impacts* persist beyond the lifetime of the project, and preferably indefinitely.⁹

⁵ *Finance logic* is used here in a wider sense than the *profit logic* usually referred to in impact investing literature (see also footnote 2, and Thompson (2022) for review).

⁶ Referred to as *results* or *outcomes* in some literature; *impact* in economic literature may include externalities.

⁷ In the financial literature, *intermediaries* is generally used for entities that broker between different financial operators (e.g. between funds and their investee businesses or local banks) in the process of *intermediation*; in this paper, it is also used for all those entities on the *impact pathway* (see Figure 4).

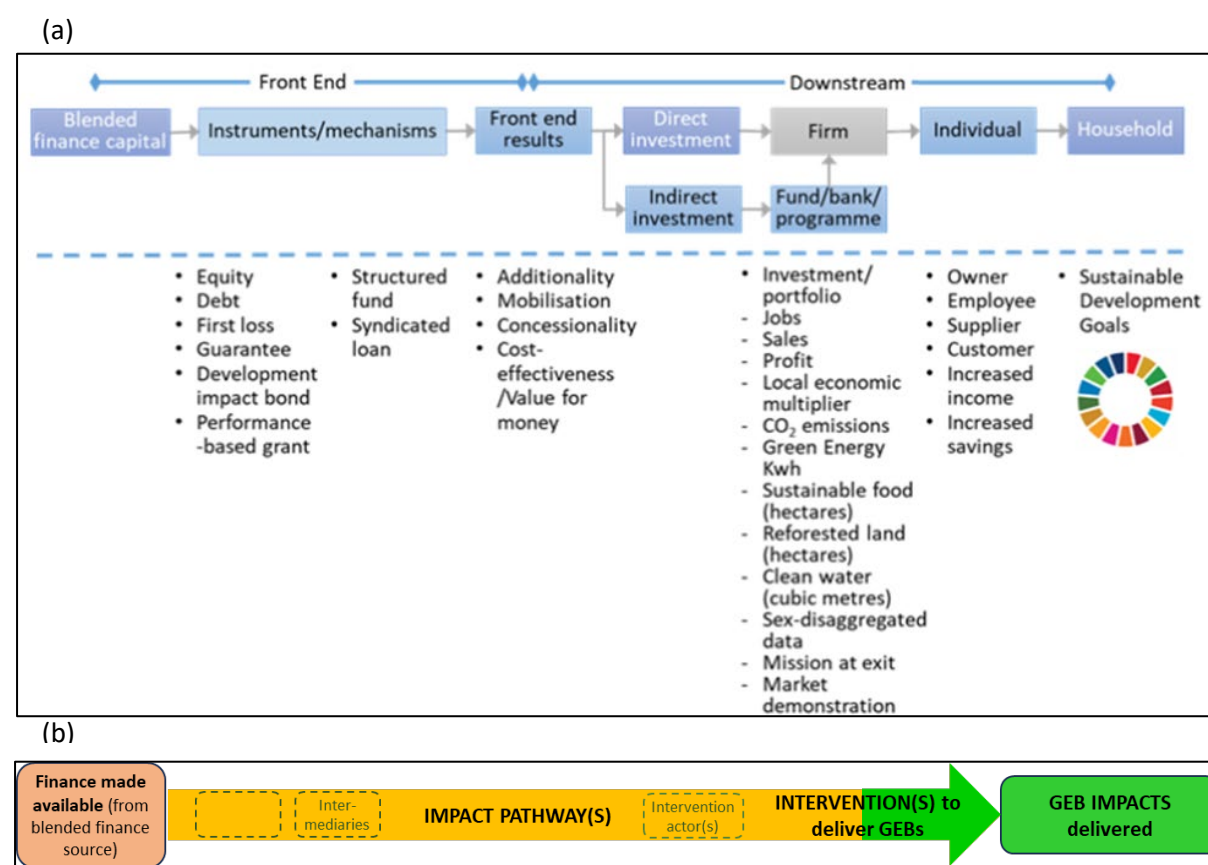
⁸ See STAP paper on co-benefits: Stafford Smith and Metternicht (2022).

⁹ See STAP paper on durability: Stafford Smith (2019).

2. Structures of blended finance projects

The OECD has sketched the basic logic of diverse blended finance projects (Figure 1a; Habbel et al., 2021). In this diagram, the “Downstream” part represents the impact pathway once the blended funds are mobilized; for the GEF, the end point of this is specifically GEBs, and this part can be represented simply, as shown in Figure 1b. STAP’s second information note on blended finance showed how the impact pathway can be much more complex and diverse than envisaged in Figure 1, both in the flow of finance and in how it aims to influence the behaviour of the intervention actors who eventually create the GEBs (who are often businesses in the case of GEBs rather than households or individuals) (Stafford Smith et al., 2024b). These findings allow Figure 1b to be elaborated usefully. The following thinking was enriched by the responses of our interviewees (Annex A).

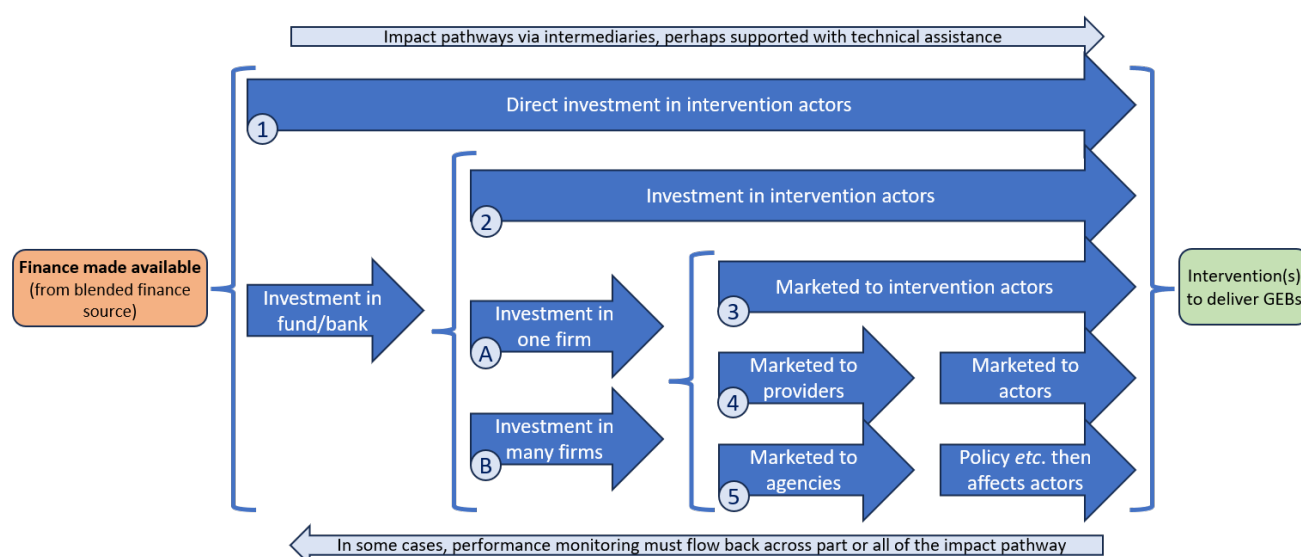
Figure 1: Generalized representations of a blended finance project: (a) showing the (mainly finance) logic leading to the availability of funding on the left (“Front End”) and the subsequent deployment of this funding in diverse ways through the (mainly impact) logic pathways on the right (“Downstream”); (b) a simplified impact pathway, focusing on its main elements once the finance has been made available (i.e. from “Front end results” onwards in panel (a)). This paper focuses on elaborating how the finance and impact logics shown in panel (b) interact, where the aim is to deliver GEBs. [Source: (a) reproduced from figure 4.2 in Habbel et al. (2021); (b) STAP.]



Drawing on the examples in STAP’s previous notes (Stafford Smith et al., 2024a, 2024b), as well as Annex B to this paper, Figure 2 shows some of the very diverse but classifiable structures through which GEF’s extant blended finance projects deliver funds to influence the interventions that actually produce GEB impacts:

- Funds may be paid directly to organizations that implement the interventions (Path 1); this path is likely to have monitoring feedback built in, as most project examples either incorporate some form of performance-related payment or convertible instrument to incentivize the success of the intervention, or have contractual requirements for delivery (e.g. debt-for-nature swaps).¹⁰
- Other structures involve at least one impact pathway intermediary. In the simpler cases (Path 2), the finance sets up an investment or banking facility that then invests in or loans directly to the intervention actors. The actors are usually (but not necessarily) all in one class, such as solar panel installers, smallholder farmers or conservation agencies. In most cases, the interventions need to both create GEB impacts and improve the profits or livelihoods of the recipient so they can repay the funding.
- As pathways get longer, an initial investment or banking facility may invest in or loan to one or more entities in another layer of intermediaries that produce a product or service, which is marketed to the intervention actors (Path 3, A or B). Again, the intervention usually needs to both deliver GEB impacts and improve the profits or livelihoods of the actors to pay for the product or service, but now the intermediary (usually a firm) also needs to create profits to repay their funding.
- The longest pathways observed so far extend Path 3, inasmuch as the purchasers of the products and services from the second layer of intermediaries may not be the actual intervention actors. This leads to Path 4 or Path 5 (usually B), where services such as improved remote sensing or GIS capabilities may be sold to government agencies (Path 5) – which then implement better land-use policies, which in turn alter farmer behaviour (so the final link does not have a direct financial feedback) – or to private sector services (Path 4) – that then on-sell to shopping centres (e.g. solar panel installations) or farmers (e.g. fertilizer application advice).

Figure 2: The downstream pathways that convert funding from a blended finance source into interventions that deliver GEBs, drawing on models in GEF blended finance projects analysed in Stafford Smith et al. (2024b) and examples in Annex B. (Numbers and letters in circles are explained in the main text.) [Source: STAP.]



¹⁰ A short pathway does not ensure a good project, any more than a direct grant does – it simply makes the logic tracking easier. In addition, there may be ancillary issues outside the project design scope of this paper that need attention; for example, see Hunt and Hilborn (2025) and Standing (2023) on debt-for-nature swaps or Christiansen et al. (2025) and Trotta (2024) on impact bonds.

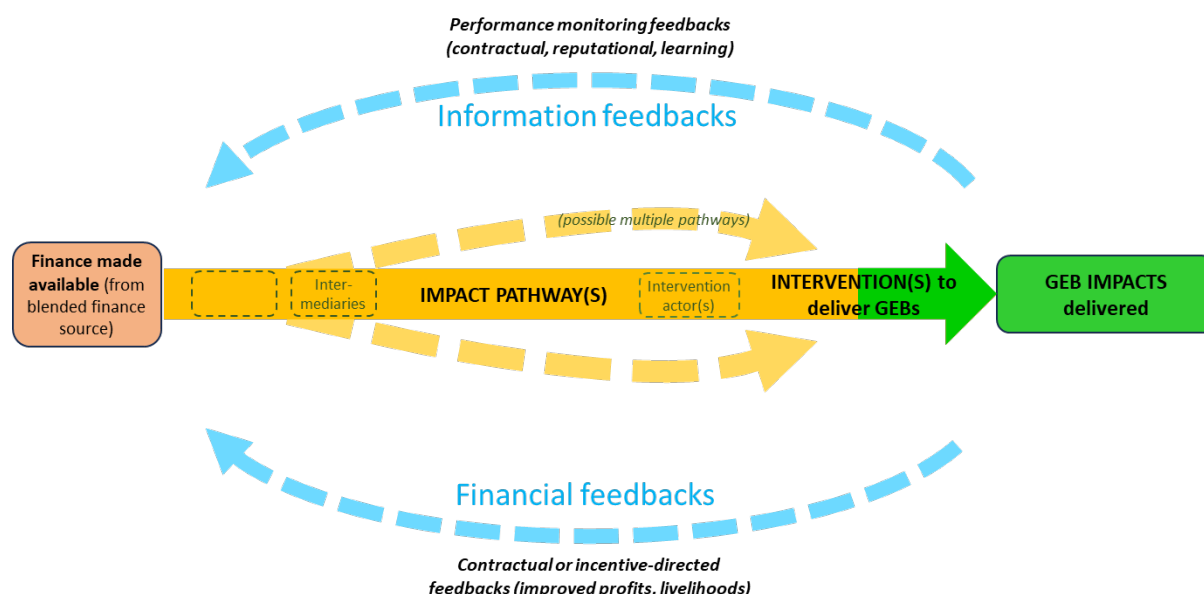
This analysis does not describe the details of every possible impact pathway model but aims to **highlight some key attributes, particularly related to the length and diversity of pathways and their feedback mechanisms**, that have systematic implications for project design because they affect the finance logic, or vice versa. For example, as the pathways get longer, more and more attention must be paid to ensuring the incentives to carry out the interventions are effective. In addition, pathways with more intermediaries are likely to have higher total transaction costs, as are pathways with diverse intermediaries, although diversity of pathways may also convey some resilience in the face of failures (i.e. Bs in Figure 2). Our interviewees, as well as Kwon et al. (2022a), emphasized that such issues have design implications for governance, commercial viability, monitoring, and technical assistance, as discussed in the next two sections. Our interviewees did not identify any models that were functionally different to the options illustrated in Figure 2, although there were cases where the GEF agency itself invested into the impact pathways, mainly in the form of technical assistance grants or as an anchor investor in the case of development banks.

Many of these impact pathway models can also be found in projects based only on grants, and so some of the resulting challenges are already familiar to project designers and screeners. However, the explicit emphasis in this paper is on **how these aspects of the impact logic interact with the finance logic** with consequences that often differ, more or less obviously, to those in direct grant projects. A key issue is the nature of system feedback in different blended finance models. Even the metaphorical language of “Downstream” in Figure 1a implies that this part of the pathway has no effect on the “Front End”. However, a variety of feedback mechanisms lead to interactions between the finance and impact logics in most (perhaps all?) blended finance models (Figure 3), particularly mediated through performance monitoring or financial flows:

- Many blended finance models require feedback on how successfully the targeted GEBs are being achieved. This is particularly important for performance-related instruments but also for any models that are expecting some form of carbon or biodiversity credit from the GEBs, and, as our interviewees emphasized, for any models where investor reputation might be on the line. Even instruments like debt-for-nature swaps or some forms of bond issuance, where funds are then directed to, for example, conservation trust funds (CTFs), some level of performance monitoring is usually in place to ensure the continuation of the funding, even if it is not a contractual payment-for-performance model. In this regard, different GEBs may be easier or harder to measure, and different interventions may deliver detectable GEB impacts more or less quickly.
- Many blended finance models require financially mediated feedback, whether in the form of livelihoods or profits. Some models require the ability to repay loans or capital in a sufficiently timely manner to suit the repayment timeline for the “Front End” private investors, but our interviewees emphasized how important these benefits can also be as incentives for intervention actors (e.g. that farmers see livelihood benefits from their GEB-creating actions) even when there is no formal loan.
- The GEF, and possibly other partners, may wish to learn which impact pathways work better or less well in different blended finance models, and consequently may support learning feedback loops at various levels. Interviewees had strong views on who should be responsible and who should pay for such monitoring – usually those organizations that saw learning as a key output.
- Across all these feedback mechanisms, some impacts are easier to measure or experience than others, and some are more enduring in terms of providing ongoing incentives for interventions. In addition, some interventions are better known or more mature than others and thus are assessed as less risky by investors.

The feedbacks thus have many consequences for interactions between the finance and impact logics. Some examples from the interviews are provided in Box 2 and are systematized in Section 3.

Figure 3: Extending Figure 1b to show the potential for multiple impact pathways with different numbers of intermediaries and intervention actors, simplified from Figure 2, as well as key feedback mechanisms in information and financial flows. [Source: STAP.]



Box 2: Examples from practitioners of how finance and impact perspectives interact in blended finance projects

- Some impacts are easier to measure than others for performance-based financial instruments, which link the level of return on investment to the achievement of impact (e.g. in general, it is easier to measure results from carbon mitigation than biodiversity conservation).
- Some interventions may realize financial co-benefits more quickly than others (e.g. many land management actions for climate resilience take longer to produce returns than installing solar). For interventions where loans or capital must be repaid, the time taken to create these co-benefits affects project viability.
- Where measurement of impact is required to define performance-related payments, some interventions may realize measurable GEB impacts more quickly than others (e.g. some wildlife species have faster or more statistically detectable population responses than others relative to a wildlife bond maturation period).
- Impact pathways with more intermediaries may require more attention to ensure the incentives to produce impacts are passed down the whole pathway (e.g. where funds invest in small businesses that sell their products or services, like drone technology for crop monitoring, to consultants who then use them with farmers).
- More diverse impact pathways may have greater transaction costs, impeding financial viability (e.g. capitalizing diverse businesses, that are selling different products and services like agriculture technology or farm planning tools to different users, may require more diverse skills and organizational arrangements among intermediaries to ensure that GEBs are achieved on all pathways).
- Some interventions *in the context that they are applied* are more mature and certain to produce results (e.g. solar technology in stable markets) than others (e.g. ecosystem restoration in fragile situations), affecting the risk assessments of investors.
- Some GEB impacts are less certain to endure than others (e.g. due to conflicting policies or climate change effects), creating reputational risks for investors.

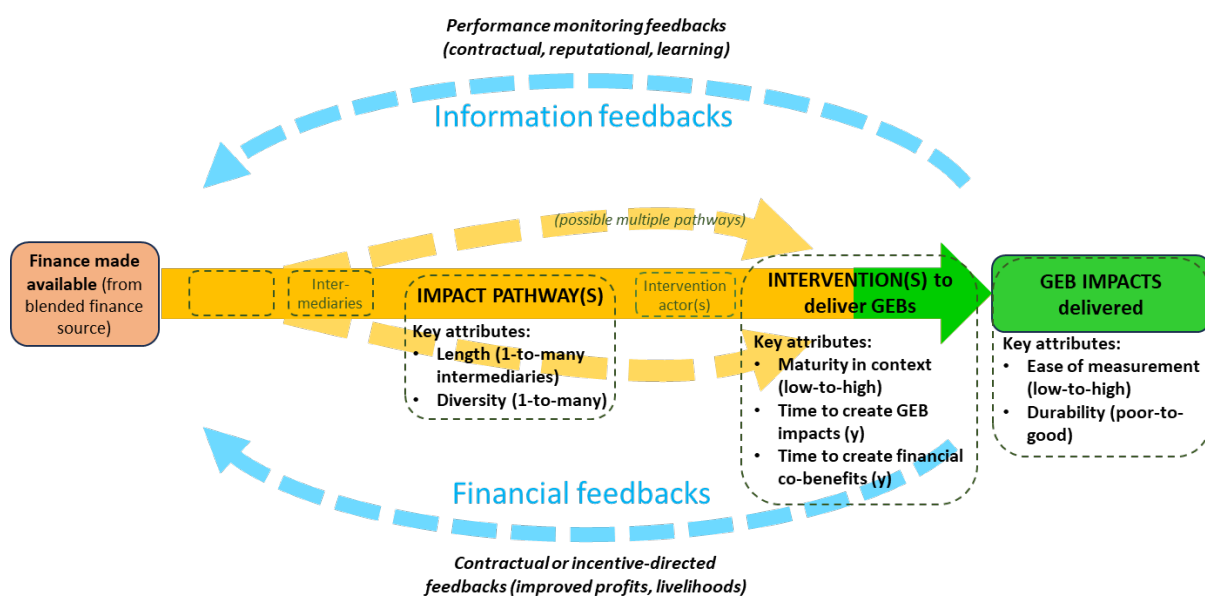
Importantly, **few of the combinations of these impact pathway attributes have any sort of one-to-one relationship with particular blended finance arrangements**, even though all the attributes have consequences for at least some finance logics (Stafford Smith et al., 2024b). Hence, a given pathway model can interact with different finance logics and, conversely, a single finance logic often interacts with different pathway models. **Thus, classifying solely by blended finance model (as often occurs in the blended finance literature, both academic and grey) is insufficient to characterize the overall model of a given project.** In addition, some finance arrangements target multiple GEB impacts and **some contain more than one of the pathway models** shown in Figure 2; this is likely to make them more complex to design and manage. The intention of this paper is to ensure that those arrangements are still analysable in terms of their specific, distinct impact pathways. The examples in Annex B illustrate these points further.

It is important to be able to systematically describe blended finance projects in terms of their proposed impact pathway attributes at the design stage and to critically assess what matters in different models, and with what consequences. The next section addresses these questions systematically.

3. A framework for analysing impact pathways in blended finance projects

Figure 4 shows the seven attributes of blended finance impact pathways identified in Section 2 that together help categorize the implications of different models for interactions between the finance and GEB impact logics. Our interviews with a suite of practitioners focused on their insights related to about these attributes (Annex A). The list of attributes in Figure 4 is not necessarily complete, but no critical gaps were identified in the interviews. This section synthesizes these practitioner insights with any available literature for each attribute in turn, working back from the GEB impacts.

Figure 4: Adding to Figure 3 the key impact pathway attributes that matter for interactions between the finance and impact logics for blended finance models, as attributes of the pathways overall, of the interventions, and of the GEB impacts being sought. [Source: STAP.]



3.1 GEB impacts

Two key attributes of the targeted GEBs are **how easily the GEB can be measured** and what **confidence there is in the GEB's durability** beyond the period of intervention. While both matters are important to the GEF for its reporting in all projects, they take on additional significance (with different nuances) for many blended finance models.

The interviewees highlighted several issues here. First, it was noted that financial institutions are generally good at tracking performance based on key performance indicators (KPIs) once these are defined, since investor confidence is tied to these; however, KPIs are often defined in terms of leading or (as one interviewee put it) “vague headline” indicators as proxies for impact – i.e. processes or investments that may lead to the impact, but are often poor indicators of the real delivery of GEBs. Second, many private sector investors are not really interested in the details of how KPIs are measured as long as they are credible; hence, there are important questions around who is (and should be) responsible for (and who should pay for) measurement, verification, and reporting in different models. Thus, the financial KPIs and the impact logic are often linked by governance concerns, which may be contractual. A growing set of impact taxonomies that provide structured lists of acceptable topics or even interventions to invest in will help with these issues (Dembale et al., 2021), but taxonomies (as well as exclusion lists that seek to ensure investments “do no harm”) are still often high level and idiosyncratic at the moment. Current efforts to harmonize approaches into some form of widely accepted “common impact taxonomy” (e.g. FBF and UNEP FI, 2024; SBFN and GIZ, 2024) and to develop guidance on the approach to defining metrics (e.g. The Biodiversity Consultancy Limited, 2025) are thus important (Apampa, 2026).

Most straightforwardly, performance-based instruments, such as the Rhino Bonds model, require feedback on the success of the targeted performance measures to determine, contractually, how much of the incentive funds is released. In the case of Rhino Bonds, this is based on a fairly simple measure of rhino populations, which can be determined quite cheaply. A recent debt-conversion-for-nature project (GEF ID 11324; see Annex B) plans to convert GEF guarantee funds on the basis of the conservation performance of the CTF organizations funded from part of the reduced debt interest; while CTFs have a good reputation, performance verification is still required and will be multifaceted. In cases where the criterion is ecosystem condition, measurements for this feedback may be harder and more costly. Interviewees pointed out that performance-based bonds require indicators that are both biologically feasible (i.e. it is plausible that effects can be measured within the bond term) and statistically detectable (i.e. if biological effects emerge, they are able to be measured with statistical significance, and, perhaps, be attributable to the intervention); the interviewees noted that such concepts are not necessarily familiar to financial institutions.

Depending on the instrument and whether financial flows are sensitive to the precision with which impacts can be measured, **the precision and accuracy with which impacts must be measured for GEF reporting may be more or less (with associated cost variation) than that needed for commercial purposes.** Many instruments do not formally need this measurement at all for their finance logic, but may still be concerned to achieve credible impacts for reputational reasons. Some of the GEF's "Core Indicators" for the GEBs are also much more easily measured and more closely related to ultimate impacts than others (see Annex D). These indicators could be arranged on a rough scale that would inform project designers and screeners how much attention may need to be paid to projects targeting different GEBs, when their measurement matters to the finance logic.

Durability is important to assure all interested parties that the effect of the investment is, as much as possible, permanent. Durability is already a major concern with carbon credit models (e.g. Macintosh et al., 2024; Swinfield et al., 2024; West et al., 2023) and should be a consideration in all blended finance projects. Durability is an attribute of the GEB impact being targeted, especially given that some of the GEF's GEB core indicators are leading indicators, not necessarily ensuring the durability of the intended environmental outcomes. Durability is also a desirable result of intervention design, inasmuch as the GEF aspires to achieve permanent environmental improvements. In fact, the interviewees emphasized that durability was a much wider issue, beyond contractual performance issues, for many blended finance projects. Even when there are no contractual obligations for durability, investor reputation may be on the line if they are claiming nature-positive investing that turns out not to last beyond the investment period – an issue for a growing number of investors and the focus of the rising attention being paid to greenwashing (e.g. de Grefte and de Bruin, 2025).

A related challenge raised by the interviewees is common to all GEF projects. Projects generally need to address the risk of spillovers (Ramírez-Mejía et al., 2025; STAP, 2010), especially "leakage", that is, where the GEBs achieved leak away over time or across regions, usually as a result of a lack of policy coherence (box 1 in Stafford Smith et al., 2022). For example, a GEF investment in reforestation in one valley can be undermined by the release of new logging coupes in the next valley, or improved water (or energy) use efficiency in horticulture can result in a rebound effect of expanded areas of horticulture that end up using more water (or energy) in total. An example is certification of the shrimp supply chain in Asia, where the standards successfully focused on reducing mangrove clearing, but in fact were resulting in more overfishing elsewhere – an issue now being addressed in a follow-up project. Thus, for example, supporting a start-up to market more efficient pumps or drip irrigation needs to occur in a context of policies that constrain total water usage to ensure there is no rebound effect. Projects risks that include some of these issues are receiving growing attention in the literature (e.g. CPIC, 2018; TNC, 2024).

An additional reason for monitoring GEB impacts and their durability, preferably in conjunction with any prerequisite livelihood or profit financial impacts, is to **learn which models work best and improve design over time as innovative models are refined.** This may be of particular concern to the GEF Partnership and, as many interviewees observed, not necessarily a priority for financial intermediaries, and hence may need resourcing separately to the blended finance arrangement.

3.2 GEB-creating interventions

A huge variety of interventions create GEBs, and how tried and tested they are varies by context. The finance logic often concentrates on technologies or new services provided by investee firms, but a technology like drip irrigation or a service like supporting a new chemical process does not usually create GEBs itself – these technologies must be applied in the right way by a farmer or a chemical business to realize the actual intervention that will lead to better land management or a reduction in a pollutant. The diversity of taxonomies of interventions and impacts mentioned in Section 3.1 are relevant here too, but recent moves to consider taxonomies of *how to build* the pathways to these interventions hold important promise for the future.¹¹

Financial investors are already well attuned to adjusting their risk expectations in relation to the maturity of a product or process. Thus, early-stage investment in an invention may attract angel investors with a high risk appetite compared to market scaling of a proven product where investors perceive a much lower risk. Design rubrics in the blended finance literature already note the importance of considering the maturity of the targeted market and its surrounding institutions on investor confidence, with more mature markets requiring risk mitigation instruments rather than catalytic capital instruments (e.g. figure 4 in Kwon et al., 2022a). These issues of maturity are closely associated with the value of reducing ambiguity, in the sense discussed by Flammer et al. (2025), which similarly reduces perceived investment risk; this reduction may be achieved through pilot projects or technical assistance directed at increasing confidence in the intervention. Similarly, some interviewees advised that finance risk and impact risk are generally correlated, making it important to reduce perceptions of the latter.

The same concept of **maturity can drive confidence levels with regard to environmental interventions.** For example, the expansion of solar panels in a stable governance context is regarded as a mature intervention to achieve carbon emissions reductions, whereas there may be less confidence in a particular novel conservation management intervention, or even in solar panel installation in a corrupt governance context. **The maturity of an intervention can be defined as the likelihood that an intervention like a new technology or management system will yield the expected results in the expected time frame in a given context.** This interacts with how the KPIs for “expected results” are defined (see Section 3.1), inasmuch as, if these KPIs are general lead indicators of the GEB impact, then there may be less confidence the GEBs will eventuate than if the KPIs are measuring the GEB impacts themselves (see critique in Hunt and Hilborn (2025)). There is a very wide range of interventions that may deliver any individual GEB, and a wide range of contexts in which they may be enacted. Interviewees emphasized that it is important to be explicit about these interventions and contexts in terms of the effect on investor confidence. This will be driven by the maturity of the finance as well as the impact logic, as illustrated in some of the growing documentation of exemplar projects (e.g. see website supported by CPIC, 2018)

Another key attribute of GEB interventions in many blended finance projects is the **timescale over which they deliver both GEB impacts and intended financial benefits.** Flammer et al. (2025) found that these two measures were highly correlated in their sample, which may be true where social impacts predominate but is implausible for environmental impacts in general. Interviewees cited cases where, for example, some land management interventions may improve livelihoods rapidly but provide GEBs only slowly (e.g. improved fertilizer management to decrease land degradation may improve profits quickly by reducing fertilizer costs but may take years to have soil carbon benefits), whereas others may provide GEBs more quickly than they improve livelihoods (e.g. tree planting with a long harvest cycle for carbon sequestration, where carbon is stored as soon as the trees start growing but it may be 10–20 years before the timber can be harvested for livelihood benefits). It would be useful to test hypotheses on conditions where environmental and financial benefits are or are not likely to be correlated; this correlation may be likely where finances are directly related to environmental benefits

¹¹ The GEF has recently approved a medium-sized project with the World Wildlife Fund and the Finance for Biodiversity Foundation that takes this approach.

(e.g. carbon sequestration and carbon credits) but not where the two are decoupled (as in many biodiversity cases).

Timing issues like these can affect whether some financial interventions (e.g. loans) can be repaid sufficiently quickly and whether enduring GEBs can be achieved by the time of repayment. This clearly matters where contractual obligations are affected, as for performance-based bonds or loan and capital repayments. In these cases, it must be plausible that GEB impacts or financial benefits can be achieved within the time frame of the bond. For example, STAP has seen early proposals for performance-based bonds where it was not biologically plausible that the suggested KPI could be achieved within the bond term, even disregarding statistical detectability; hence, this achievability needs to be a conscious checkpoint. Interviewees also stressed that timely (and equitable: Chopra et al., 2024) financial benefits are a crucial incentive for intervention actors to continue implementing the interventions even when there is no explicit financial feedback (a *prerequisite co-benefit* in STAP's terms (Box 1)) and that timely achievement of GEB impacts may also be important to maintain the confidence of some investors.

3.3 Pathways to financing the interventions

To assess how incentives will flow down and up the pathway, and to maximize the chance that the intervention actors will undertake the actions required to create durable GEB impacts, STAP has emphasized that each impact pathway needs to be articulated, even if only briefly (Stafford Smith et al., 2024b). Two attributes of these pathways, associated with the finance logic design, particularly affect these incentives. Increasing the **length of the pathway** means the links along the pathway become potentially more tenuous, and increasing the **number of pathways** in a single model requires more work to analyse them the different pathways and potentially more transaction costs to verify their impacts. The interviewees pointed out that neither of these issues necessarily mean the models will not work; they mean that designers must put in more effort and project screeners will expect more information or assurance of appropriate planned processes in the proposals. Fenichel and Dean (2024) suggest that transaction costs are generally underrated in the financial literature.

The **length of the pathway** is essentially related to how many intermediaries are involved, and its effect relates to the nature of those intermediaries and of the transactions between them.¹² In models where an investee firm is marketing a new product that could be used to create GEBs, some such products are almost guaranteed to deliver GEBs, whereas others have a much weaker logic. For example, a novel solar pump to be sold in an area where everyone is currently using diesel pumps may have a high likelihood of reducing carbon emissions; by contrast, selling drip irrigation products may help manage water resources better but could also result in expanded areas of horticulture and use of fertilizers. In some cases, one intermediary has a strong influence on how the next intermediary or the intervention actor uses the products or services, but in other cases this influence may be less. **As a generalization, the chain of intended causality requires increasing attention as it gets longer**; in addition, a longer chain of causality may be harder to assess, and incentives that discourage reporting of failures for learning may be less visible. The interviewees also commented that longer pathways mean that the degree of concessionality may be diluted along the pathway; they expressed scepticism about models where the allocation of this subsidy is left to intermediaries that may have conflicts of interest and suggested that in these cases the allocation decision is better left to public institutions. All these issues are exacerbated when one finance instrument is achieving GEB impacts through multiple **diverse impact pathways**, such as a fund investing in many firms creating diverse technologies or banks loaning

¹² The financial literature examines intermediaries and “intermediation” but mainly focuses on financial intermediaries (e.g. Habbel et al., 2021; Ivory, 2023; One Planet Lab, 2021), such as local banks, or entities that assist in brokering the partnerships in a blended finance instrument (e.g. USAID INVEST, 2023; NGFS, 2023), such as fund managers and “information intermediaries”. In this paper, we use “intermediaries” more generally to include any intermediate entities along the impact pathways, for example on-sellers of products and services; a rare recognition of this use is by Berkelmans (2019).

to smallholders who are creating GEBs through diverse interventions with varying maturities or delivery timescales (as in Paths 4 or 5, A and B; see Figure 2).

Pathway length and diversity can both have implications for the governance of the pathway and how much it can be left to implicit incentives (e.g. a process that saves money, like a solar pump, has an internalized incentive due to its livelihood benefits, which are more or less indivisible from the intervention), compared to other approaches where incentives are less internalized. The interviewees also emphasized that the country context matters: wider policy commitments to transition pathways in climate or biodiversity action plans can provide an enabling environment that reinforces incentives that might otherwise be tenuous. Another incentive-creating approach mentioned was to establish a vested interest on the part of the intervention actors, for example by requiring their co-investment in the intervention. Other approaches that projects have already tested include constraining the types of products and services to be invested in, or providing technical assistance to intermediaries or to intervention actors to increase their capacity to deliver the relevant GEBs; accessing this technical assistance can then be a condition of obtaining a loan or a capital investment.

Again, as a generalization, **as pathways become longer and more diverse, monitoring and learning is likely to become more complicated and costly**. Yet it is often more critical to learn which types of intervention driven by which types of finance logic work best on these longer and more diverse pathways. Aligning monitoring with technical assistance may be one route to enable this learning; for example, if an organization is providing technical assistance to farmers to identify appropriate sustainable land management practices that meet criteria for low interest loans from local development banks, the same organization might be contracted to help collect monitoring data on which practices are delivering benefits in a timely way, affecting both financial viability (which the bank may detect through loan repayments) and the delivery of GEBs impacts (details of which may be less important to the bank).

Where there are multiple long pathways, the observations of Moran and Ward-Christie (2022) about multiple logics (i.e. more than just finance and impact) having the potential to result in greater confusion and contestation may become more acute and hence require closer appraisal. This issue deserves greater research attention.

4. Implications for design and screening

Systematic advice for blended finance projects from a science and technology perspective is challenging as there is not yet any systematic analysis available of how the impact pathways of most concern to this perspective interact with the finance logic, nor even a conceptual framework for this. In this paper, we suggest a framework based mainly around the presence or absence and the nature of key system feedback mechanisms in most blended finance models, and how these link to or interact with some key attributes of the impact pathways in those models. This framework has been tested in an initial way through interviews with diverse blended finance practitioners, project designers, funders, and academics, from which some initial advice to project designers and screeners can be devised. This needs to continue to be reviewed and updated.

The resulting checklist is strictly focused on issues arising from the *interactions* between finance and GEB impact logics, both for conciseness and to fulfil its intent to help bridge these logics; it assumes that pure financial logic issues will be dealt with by designers and screeners with financial expertise (the Advisory Group of Financial Experts in the GEF's case¹³) and that issues related simply to GEB impacts (e.g. ecological feasibility or availability of technology) are part of the normal expertise needed for the design and assessment of GEF grant projects.

4.1 Selection criteria for blended finance projects

Blended finance projects in the GEF are assessed against a variety of **selection criteria**, some of which apply to all GEF projects.¹⁴ Many of these criteria are recommended as issues for attention in leading blended finance practice by other organizations as well (e.g. DFI Working Group, 2023; OECD, 2025). The following selection criteria emerged from the literature and interviews as being particularly affected by the *interactions* between finance and GEB impact logics:

- *Financial additionality* is a usual condition for blended finance projects – that is, that the investment would not have happened without the GEF funds in the mix. *Minimum concessionality* is closely related, requiring that the terms on which the GEF funds are provided are as little better than normal market conditions as possible, so as not to crowd out private capital. Achievement of these criteria is affected by the impact logic, inasmuch as less mature or less reliable impact pathways in general increase the risk to the private investor. Also, in some cases, the impact logic may need to ensure timely financial benefits to intermediaries or intervention actors. The interviewees also noted that concessionality can be diluted on longer impact pathways, and that there are important issues linked to governance around who defines the level of concessionality in such cases.
- *GEF additionality* is required for all GEF projects and, as defined by the GEF IEO, “the extent to which innovation, enabling conditions (especially legal, institutional, and financial), and environmental and social impacts may not have occurred without the support of the GEF” (GEF IEO, 2021), is a wider concept than financial additionality, encompassing the need for the GEB impacts themselves to be achieved efficiently. Identifying GEF additionality depends on defining and measuring the impacts, which interacts with how the finance sector defines KPIs.
- All GEF projects must also deliver *durable GEBs*, and clearly both this criterion and GEF additionality are affected by the nature of the GEB impacts being targeted, as well the interventions that create them. The interviewees noted that many investors care about impact durability, if only for reputational reasons.
- Blended finance projects must also achieve *commercial viability and durability* (usually called “sustainability” in the finance literature), which are affected by how fast the impact pathways may deliver returns, where this is required for the blended finance model. The interviewees

¹³ https://www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF.C.55.12_NGI.pdf

¹⁴ The current full set of blended finance project-specific selection criteria are available in GEF-8 calls for proposals (e.g. <https://www.thegef.org/documents/third-call-proposals-gef-8-blended-finance-global-program>), but these projects must also meet general GEF expectations, such as delivering GEBs.

noted that commercial viability and durability are often important for the potential to scale the blended finance model.

- The GEF requires that blended finance projects are *innovative* and show the potential to be *scalable*. Projects commonly articulate this in terms of the financial arrangements, but these criteria also depend on the impact pathways being targeted and the maturity of the proposed interventions. The interviewees noted that in some models the scalability criterion speaks to the need to change the capacity of the finance system locally over time to understand how to invest in the GEB impacts, as well as the need to have a clear exit strategy for any concessional funding. These issues often interact with the rate at which the GEB intervention delivers its impacts.

Our expert interviewees raised a number of other key issues related to these selection criteria where the impact logic may have implications for the finance logic.

Whether to take a blended finance approach to a particular problem: There is an expanding set of guidelines related to the decision to apply a blended finance approach to a project, both in terms of when this is likely to be appropriate and what initial design choice processes should be deployed (e.g. Chemonics, 2021; GIIN, 2018; Kwon et al., 2022a, 2022b); these guidelines are mainly focused on the choice of financial instrument rather than its interactions with the impact logic; hence, they are not the focus of this paper, but in some aspects such guidelines draw on related issues (e.g. intervention maturity; see Section 3.2). The different motivations of different types of investor, who may be fund managers with portfolios or impact investors in individual projects (e.g. FBF and UNEP FI, 2024), were highlighted by the interviewees; different types of investor may have diverse levels of tolerance for reduced financial returns or other risks in exchange for impact-related benefits. Several interviewees emphasized that blended finance should be in service of impact objectives and not the other way around, a point also made strongly in recent literature (e.g. Glemarec et al., 2023; Mazzucato and Vieira de Sá, 2025). One participant noted that the approach to design itself can be an important locus of innovation (e.g. citing a proposal that included a well-structured national exercise as a project activity to identify the appropriate blended finance approach, rather than this being defined a priori; this can also be seen in some investment fund constitutions). Although these issues are mostly beyond the scope of the present paper, project screeners should be aware of them; in addition, some of the impact attributes discussed herein are relevant to conceptual developments regarding whether blended finance is likely to be a good approach in a particular context or not.

Achieving true additionality: The interviewees also noted that the long-term goal of GEF blended finance projects, over and above the universal goal for GEF projects of delivering GEBs, is to entrain private finance that would not otherwise be deployed towards GEBs (i.e. true additionality), as also called for in blended finance principles (DFI Working Group, 2023; OECD, 2021) and recent literature (e.g. Mazzucato and Vieira de Sá, 2025; Pegon, 2023; Toledano et al., 2025). Some interviewees noted that there may be nature-positive outcomes that should not seek private finance, either due to inappropriate levels of financialization of nature (e.g. Chopra et al., 2024; Kedward et al., 2023; Luxton et al., 2024; Penna et al., 2023) or due to incompatibilities between the logics. The former is important but outside the scope of this paper. However, the framework developed here may help inform decisions about the latter (e.g. where some transaction or verification costs are likely to be too high to be viable).

Clear scaling and exit strategies: Scaling – that is, how the results of one project will be picked up and replicated (scaling out) or how they will change the institutional arrangements or purpose (scaling up or deep, respectively) of the finance system within which private sector finance operates – is a key concern for the GEF, given that it sees its role as innovative, catalytic, and transient in particular blended finance models. Scaling may result from (i) a declining need for concessional capital across a series of similarly structured projects over time as markets recognize lower perceived investment risk, (ii) from building the capacity of institutions such as local banks to deploy novel (at least to them) instruments such as nature-positive loans, or (iii) from changing the objectives of private capital, for example through appropriate disclosures. Many interviewees emphasized the need for individual projects to contribute to scaling but also recognized that a portfolio approach is usually needed for this,

looking across the cumulative effect of a set of projects; this point is echoed by GEF IEO (2026). Individual projects should explicitly articulate how they mean to contribute to one or more of these forms of scaling, including, where appropriate, clear exit strategies for the concessional financing.

4.2 Towards an impact pathway checklist for blended finance projects

Table 1 summarizes the insights from the literature and the interviewed experts against each of the seven attributes identified in the framework (Section 3), paying particular attention to their design consequences in addressing the selection criteria discussed in Section 4.1. Although a few general design issues are mentioned, **the main focus is on the interactions between the finance and impact logics, particularly (but not only) as mediated by the systems feedbacks** discussed in Section 2 and illustrated in Figure 4.

Table 1: Key attributes that describe different impact pathway models and their consequences for blended finance project design and screening [source: STAP from literature, interviews, and analysis.]

Attributes	Key design implications for achieving selection criteria
Impact pathways	
Length of pathway: measured by the number of steps in the chain of intermediaries	Occurrence: Longer pathways occur in blended finance instruments that de-risk or capitalize fund facilities or finance mobilization (like bond issues) where the funding is then put through one or more intermediaries before its consequences reach the intervention actors. Short pathways are more likely in debt-for-nature swaps or performance-based bonds. Implications: All else being equal, longer pathways mean longer chains of impact logic (with more assumptions about cause and effect that may need testing), more intermediaries who must be motivated in some way to pass on the expectation of delivering GEBs (affecting GEF additionality and GEB impacts), more transaction costs and more intermediaries who may need economic returns (affecting commercial viability and scalability), and more potential steps through which monitoring feedback must be passed. Consequences: Longer pathways do not necessarily mean that GEB impacts are harder to achieve, depending on the nature of the intervention and the intervention actors, but the longer the pathway, the more attention should be paid to the governance of the pathway to ensure it passes on GEB-related obligations; incentives to intermediaries to do so (perhaps justifying greater concessionality); and technical assistance that helps entrain appropriate actions by intervention actors. Longer pathways are very likely to increase transaction costs and profit sharing, and clear attention should be paid to the implications of these for commercial viability and for the scalability of the model beyond the GEF as the co-investor. Longer pathways with more intermediaries may have increasing issues with achieving transparency, as more steps involve commercial-in-confidence or personal privacy concerns; hence, it is important to clarify during design how data can be aggregated in ways that obviate these concerns and still provide useful monitoring and learning for innovation. In longer pathways, some practitioners warn that concessionality levels should be determined by public rather than private entities to avoid perverse incentives. The existence of national policy commitments for nature-positive transition pathways can provide a supportive enabling environment.
Diversity of pathways: measured by the number of distinct pathway logics	Occurrence: More diverse pathways occur in blended finance instruments that de-risk or capitalize fund facilities, which in turn invest in multiple intermediary pathways – usually multiple firms that are developing different types of products and services. Implications: The main effect of having more diverse pathways is that project designers must understand the impact logic for how <i>each</i> pathway will deliver GEBs, thus multiplying the task compared with a single pathway of whatever length. For a given length of pathway, this will add more transaction costs, affecting commercial viability and scalability, as well as exacerbating the need to demonstrate GEF additionality and GEB impacts (e.g. by monitoring) along multiple pathways rather than just one. Consequences: As with pathway length, more diversity of pathways does not necessarily inhibit the delivery of GEBs (indeed, it may improve robustness to individual pathways failing), but it will result in the need to outline the logics of multiple distinct impact pathways. Essentially, all the design concerns about longer pathways (see “Length of pathways” row) will be compounded when pathways are diverse. It may be important for designers to look for opportunities to pursue similar impact pathways to reduce the costs of monitoring and learning and the potential diversity of types of technical assistance needed (i.e. economies of scale may be possible with more similar pathways).

Interventions	
Maturity: the level of confidence that an intervention will yield the expected, timely impacts in context	Occurrence: Whether there is confidence that the intervention will work depends on how well-tested it is, but may also be very context-dependent. That is, encouraging climate resilient management measures in general may involve great uncertainty, whereas there may be much higher confidence about individual measures in particular places; conversely, certain sustainable land management practices may be robust and mature but still risky in poorly governed contexts. Implications: Whether intervention maturity matters depends on the structure – if there is no feedback from achieving the intervention to the finance logic, maturity may not matter. Where there is feedback (e.g. through the achievement of livelihood co-benefits to enable intervention actors to pay for products or loans, or on implications for the reputation of investors of too many failed interventions; see Figure 3), then intervention maturity should be factored in to investor risk assessments. (It also affects the confidence of achieving GEBs in any GEF project, though the GEF has expressed a high appetite for risk in this regard when innovations may produce outsized results (but may also fail).) Consequences: Blended finance designers are accustomed to factoring in the maturity of the market context of a project, the capacities of local financial institutions, or the stage of development for start-up businesses. The same logic is relevant to GEB interventions, which are less familiar to financiers. In general, lower maturity favours performance-linked instruments, then risk mitigation, then catalytic capital, with declining concessionality. Hence, designers should explicitly assess whether intervention maturity matters to their model and, if it does, should explore this factor in the proposed implementation context; transparency is important to financiers (who may be unfamiliar with the interventions). Monitoring and learning about which interventions work in which contexts and are compatible with the finance arrangements should be considered. Technical assistance should be considered to help intervention actors apply the correct detailed interventions. Taxonomies and exclusion lists can help assess maturity and appropriateness of interventions but are generally not yet harmonized or disaggregated enough to determine maturity in context in consistent ways.
Time to create GEB impacts: how long it takes for GEBs to emerge (and be detectable)	Occurrence: How long it takes for GEBs to emerge (or become detectable) is mainly an attribute of the intervention, the GEB it is targeting, and its context. For example, interventions that directly deliver GEBs (e.g. installing solar panels that deliver emissions reductions) are likely to see GEBs emerge more quickly than interventions that establish the environmental or social preconditions for a GEB (e.g. declare a protected area, build farmer capacity, plant trees). Implications: Longer times to GEB impacts matter in obvious ways for finance logics that require some form of performance feedback to allocate contracted payments (e.g. for performance-based bonds); here, timing will also interact with ease of measurement. Longer times to GEB impacts also matter when any of the finance logic is related to claiming carbon or biodiversity (or any other new) credits. However, there is a more general implication for assuring the GEF that impacts are being achieved and for monitoring and learning what blended finance models work: if time to impacts is too long, it may not be possible to determine this until after the finance arrangements have ceased; in addition, cycles of innovation and learning are liable to be very long. Consequences: There is a strong impetus during design for performance-based instruments to have impacts that can emerge quickly in order to service the contractual financial feedback. The plausibility of these time frames should be explicitly addressed in design to ensure the commercial viability of the arrangement. For other arrangements, the main implications may relate to the reputational concerns of investors and to the design of monitoring and learning; long time frames raise the question of whether monitoring of GEB impacts is needed beyond the lifetime of the financial arrangements and, hence, perhaps should rely on a technical assistance facility.
Time to create financial outcomes: how long it	Occurrence: How long it takes for financial co-benefits of GEB interventions to emerge is also an attribute of the intervention, the GEB it is targeting, and its context and may be important for contractual or incentive-creating purposes. Implications: Longer times to livelihood or profit outcomes matter for any finance logic where intermediaries or intervention actors need to be able to repay some form of finance within a contractual term; they thus have implications for commercial viability and commercial durability, as well as the prospects for

takes for financial benefits to emerge	scalability. Longer times to livelihood benefits may also be important when these benefits are prerequisite co-benefits as incentives for interventions and intervention actors to help secure their commitment to achieving the GEB impacts and preserving their durability. Consequences: For blended finance models where financial feedback to intermediaries or intervention actors is needed (Figure 3), the time to deliver this feedback should be an explicit consideration, for contractual or incentive reasons. It may also be important to consider this time relative to the time to create GEB impacts in some models (e.g. GEB impact and durability may be undermined both where the financial feedback is quick but transient compared to GEB emergence, and where GEBs emerge swiftly but financial benefits are slow).
GEB impacts	
Ease of measurement of GEB impact	Occurrence: As formally defined, the GEF's core indicators of GEBs vary in their ease of measurement (Annex C) but also in how closely they measure environmental outcomes as opposed to plausible precursors to those outcomes (i.e. whether they are outcome or process/lead indicators of impact). Implications: When there are contractual obligations in the finance logic that depend on certain levels of GEB achievement (e.g. performance-based instruments or dependence of impact pathway intermediaries on carbon or biodiversity credits), less easily measured indicators are likely to increase investor risk and the costs of monitoring. When the indicators are of processes rather than outcomes, the instrument is (all else being equal) more at risk of reputational challenges about greenwashing. In both cases, the resulting investor risk may require more concessionality, may affect commercial viability and commercial durability, and challenge scalability. The GEF requires reporting on GEBs, but finance arrangements often use different KPIs (often drawing on taxonomies of acceptable activities). Explicitly articulated impact pathways within a theory of change are key to developing KPIs that link convincingly to GEBs, as is independent verification of measurements. Consequences: The consequences mostly revolve around aspects of monitoring and learning. Performance-based instruments should choose measures of performance that can be readily ascertained, as these will be the subject of a legal agreement of some form. However, if they are not GEB indicators themselves (as is often the case for performance bonds), they need to have a strong evidence base for being good lead indicators of subsequent GEB delivery; they also need to be both physically and statistically plausible within any contractual time frame (see "Time to create GEB impacts" row). For relevant blended finance models, project designers should explicitly consider whether the nature of the GEB indicator creates any risk for the finance logic (including investor reputation) and whether technical assistance may be needed to support the monitoring and learning that might offset this risk. There are also cost implications of measuring GEB impacts, which may affect overall instrument transaction costs in the blended finance instrument, and parallel funding (e.g. through technical assistance grants) may be needed.
Durability: assurance that the GEB impact will persist over time and not be subject to leakage	Occurrence: GEB durability is a selection criterion for all GEF projects but also interacts with finance logic when performance or credibility of impact delivery matters. The durability of different GEBs also differs by context, when the risk of leakage depends on the presence or absence of relevant policy coherence. Implications: When the finance logic depends on contracted GEBs, a failure to consider the durability of the GEBs can undermine actual performance – affecting commercial viability and commercial durability – and can challenge scalability. It may also open the arrangement up to charges of greenwashing, which increase investor reputational (and possibly commercial) risk. Consequences: Project designers should ensure they address the likely GEB durability in the context of the interventions expected in the impact pathways with transparency, putting in place any necessary monitoring and learning, perhaps supported by technical assistance, to affirm this transparency. This requires consideration at the design stage and may influence specific governance features and how incentives flow down the impact pathways.

In terms of applying these insights in project design, the attributes listed in Table 1 and other issues raised in Section 4.1 have a reasonably sequential (if iterative) relationship, illustrated as a logical checklist of eight issues for project design and screening in Figure 5. The following list summarizes all the issues raised in this paper (blue numbers refer to Figure 5 and Table 2):

- In a blended finance project, some form of financial structure is established that brings together public and private finance to create a source of funds. The GEF may invest in this structure, either directly or through some form of guarantee or commitment to pay performance fees. The **choice of this instrument** should be appropriate for the interventions and impacts intended (1). These funds then enter an impact pathway that ultimately leads to one or more interventions that aim to create GEBs.
- This impact pathway (orange/green arrow in Figure 5) can vary in **length** and **diversity** (dashed orange arrows; see also Figure 2). It may be very short and singular (e.g. investing directly in one form of intervention by one type of actor) or it may be long (e.g. investing in multiple small businesses creating different products that are sold to different markets to be used in different ways for different interventions to create different GEBs). The length and diversity affect transaction costs and how easily incentives to deliver the GEBs are passed down the pathways, among other effects (2).
- The technical interventions that create GEBs (e.g. changed land or sea management, chemical waste controls, or renewable energy installation) have three key attributes. First, their **maturity** – that is, how well tested they are in the context in which they are being applied – affects the confidence of investors and, consequently, the choice of financial instrument and levels of concessionality (3).
- Two more attributes are associated with the rate at which the interventions deliver detectable impacts (blue feedback arrows in Figure 5): interventions can have **quick or slow results**, both in terms of how fast any **financial or livelihood co-benefits** are realized, which may be vital to incentivize the interventions in both short and more enduring time frames (4), and in terms of how quickly **GEB impacts** are realized, which matters for performance-based contractual arrangements (5).
- Ultimately, successful interventions deliver GEBs (green arrow in Figure 5), and different GEBs can be **easy or hard to measure**. This matters if financial returns (or investor reputations in some cases) depend on **enduring performance** (6) but is also important for learning feedback mechanisms (8), given that the GEF invests in blended finance innovations to explore their feasibility. Technical assistance can be targeted to help realize this feedback.
- Finally, the GEF aims to **scale** successful blended finance approaches. So there needs to be a rationale for how the project approach might be scaled in the longer term such that the GEF can exit its catalytic investment phase, having either reduced the perception of risk by the private sector or altered private sector priorities in other ways to create more willingness to invest in this domain (7). This rationale will need to take account of finance and impact logic interactions.

Key aspects and uncertainties in this chain of logic should be reflected in the project theory of change for the impact pathway and its associated assumptions (Stafford Smith et al., 2024b). Based on this framework, the checklist in Table 2 (elaborated in Annex D and in the separate STAP checklist (STAP, 2026) describes criteria that STAP prioritizes in screening GEF blended finance projects.

Figure 5: Eight checklist steps (blue numbers) mapped on to Figure 4 and listed in Table 2 – see text for more details about the logic of these steps. [Source: STAP.]

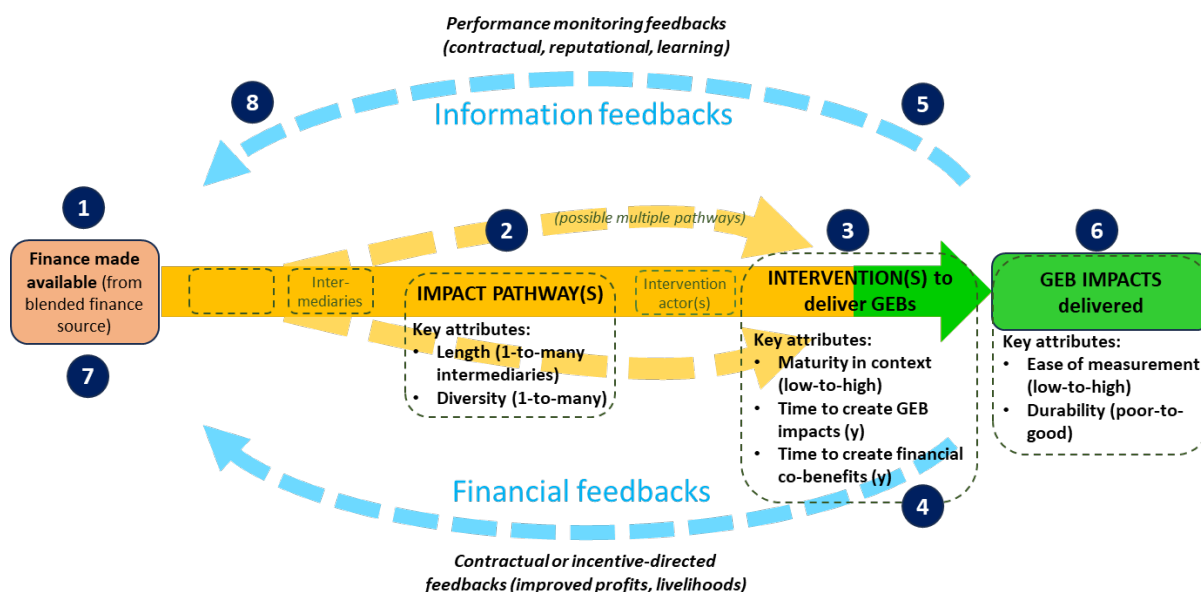


Table 2: Eight proposed checklist steps for project design and screening that focus on interactions between finance and impact pathway logics in blended finance projects. These steps are further elaborated in Annex D. [source: STAP]

Proposed checklist steps
1. Is blended finance clearly justified as an appropriate solution for the types of interventions and GEB impacts proposed?
2. Are the implications of the length and diversity of the proposed impact pathway(s) addressed?
3. Is consideration given to how mature the proposed intervention(s) are in the context of the project ?
4. Will the key intermediaries and intervention actors be plausibly incentivized to ensure that GEBs are produced ? Especially for longer and more diverse pathways, how are the intermediaries on the impact pathway(s) motivated to facilitate the delivery of GEBs, and might technical assistance be needed to support this?
5. Are there suitable and timely performance or outcome monitoring systems ? Easily measured KPIs may only be weak lead indicators of achieving relevant GEB impacts, and some GEB impacts are much slower to emerge and harder to measure than others.
6. Are the proposed GEB impacts plausible and enduring ?
7. Is there a clear logic for scaling impact , at least eventually? A key rationale for the GEF to invest in a concessionary way in blended finance projects is to support the scaling of nature-positive private finance, such that the need for concessionary funding declines over time.
8. Is there a strong commitment to learning and exchange of lessons ? Learning is a priority for the GEF to justify investing in innovative arrangements, though some blended finance partners may have less interest in this.

5. Conclusions

There is a view that blended finance projects are all bespoke and context specific; STAP has argued that this view simply arises from blended finance structures being genuinely complex. Hence, **greater efforts to systematize the interactions between the finance and impact logics are needed, since this is where a large part of the complexity emerges** (Stafford Smith et al., 2024b). Indeed, some of our expert interviewees commented that blended finance project design is “more art than science” because of the diversity of contexts, players, and motivations. However, in contradiction to this view, **interviewees then revealed a wealth of generalizable experiential insights**. It is these insights that this paper aims to start capturing, while acknowledging that it is only a first step and that there remain some contextual issues that cannot be so easily generalized. Two interviewees also highlighted how even knowing when more focus on particular issues or contexts is likely to be needed allows the right design team skills to be assembled after the initial concept designs. And emergent issues that are particularly challenging may highlight where innovation in blended finance projects should focus or what designs should avoid.

In aiming to systematically address bridging issues that arise from the interactions between finance and impact logics, STAP has remained conscious that **any checklist or guideline must be readily operationalizable**. The framework outlined in this paper leads to eight reasonably straightforward steps that are made explicit in STAP’s accompanying Checklist (STAP, 2026). Nonetheless, ensuring the delivery of impact in many blended finance projects will remain conceptually complex, and anyone who thinks otherwise is probably failing to appreciate the full range of institutional logics involved. Therefore, even the **use of this checklist requires some effort to understand the rationale behind it**, which this technical paper aims to assist. The intent here was mostly to capture and systematize the experience of practitioners, but we have found it necessary to develop a framework for this as there seems to be nothing comparable aimed at the environmental impact pathways of blended finance projects in the literature. STAP hopes that the framework in this paper starts to fill a gap in systematising this understanding and, hence, that it has value beyond the immediate purpose of assisting the GEF. **Future research could be usefully aimed at further testing the framework and its generalizability.**

6. Annexes

Annex A: Method and acknowledgement of inputs

This paper was developed as follows. On the basis of insights emerging from STAP's earlier information notes (Stafford Smith et al., 2024a, 2024b), a draft framework was proposed inductively and tested in a series of expert interviews. This framework identified a draft set of impact pathway attributes, as illustrated in Figure 4, as well as noting key selection criteria used by the GEF (Section 4.1). The framework and attributes were then tested for their meaningfulness and practical relevance with a range of practitioners and academics, mostly as individuals but sometimes in small groups, and mostly online but occasionally in person. The interviewees were provided with a short presentation to introduce these ideas, including some consequences already noted from the literature; this was followed by a semistructured interview based on three central questions:

- Does the overall logic resonate?
- Are there blended finance models you have been involved with that do not fit this schema?
- Do you have any rules of thumb, design approaches, caveats, or insights that address the impact side of blended finance projects, especially for nature-positive investments?

Responses were often in the form of the interviewees' experiences with specific blended finance projects (some of them with the GEF). Comments are not attributed to individuals, but the list of interviewees' affiliations is provided in Table A1.

In general, the list of impact pathway attributes stood up well, but some areas in need of amendment were identified, as well as a few possibly missing issues and, importantly, some areas where differences in disciplinary jargon could cause misunderstanding. Comprehensive interview notes were taken and subsequently subjected to a deductive content analysis. The analysis looked at the implications of the interview findings for project design and screening, mostly reported in Section 3. In the interest of conciseness, what is reported in this paper is the result of updating the framework to account for these inputs, but a summary of key issues raised in these interviews (not attributed to specific interviewees) is available from the authors. The inputs were then summarized (Table 1); the authors then identified a checklist based on these inputs, which was tested with some STAP screeners, resulting in a consolidation from 15 to eight steps (Table 2).

We express our gratitude to 41 interviewees from the following 24 organizations for their time and thoughtful inputs, noting that they are not responsible for the views or interpretations expressed in this report.

Table A1: Affiliations of interviewees [Source: STAP.]

Asian Development Bank	GEF Independent Evaluation Office
Baastel	GEF Secretariat
Caribbean BlueFin	Gordon & Betty Moore Foundation
Climate Bonds Initiative	Inter-American Development Bank (IDB)
Climate Investment Funds	IDB Invest
Clarmondial	International Fund for Agricultural Development
Conservation International	International Finance Corporation
Cornell University	Johns Hopkins University
European Bank for Reconstruction and Development	Monash University
Ecoforge	World Wildlife Fund
Finance for Biodiversity Foundation	United Nations Development Programme
Green Climate Fund Independent Technical Advisory Panel	World Bank

Annex B: Examples of recent GEF blended finance projects, illustrating different impact pathway models

Table B1 provides some examples of recent GEF blended finance projects, with key attributes of their impact pathways (for details on the numbers or letters of Pathway types, refer to Figure 2) and significance of feedbacks (if any; see Figure 3). The descriptions have been summarized by STAP (in 2025) from the latest project documents then publicly available on the GEF website and may not represent exactly what was finally implemented. The purpose here is to illustrate the diversity of impact pathway structures proposed or actualized.

Table B1: Recent GEF blended finance projects and key attributes [Source: STAP.]

Project	Brief description	Key attributes
Latin America Regional Facility (IDB) GEF ID 11324 [GEF-8]	IDB, with GEF support, provides a loan guarantee to renegotiate a portion of participating countries' sovereign debts at a lower interest rate, and each country undertakes to invest a portion of the interest costs thus saved into conservation interventions by established Conservation Trust Funds (CTFs). As an added incentive, the GEF risk guarantee funds are gradually released and may be converted into additional funding for the CTFs if they perform well.	Pathway 1 – direct investment from the country. The performance-linked conversion of the GEF funds provides added incentive for GEBs to be delivered, hence monitoring of and feedback on these outcomes is required. CTFs are trusted intervention actors but still must provide performance monitoring, so detectable outcomes (or at least strong lead indicators) must occur quickly enough for this monitoring to occur.
Rhino/coral/Rwanda wildlife/lemur bonds (World Bank) GEF ID 10330, 11323, 11514, 11694 [GEF7-8]	The World Bank raises a bond issue to be spent on rhino (or coral, etc.) conservation. Bond holders agree to forgo their coupon payments, which are directed instead to specific conservation bodies for interventions to support rhinos (or coral reef habitats, etc.). The eventual return on the bond is performance or outcome linked, assuring investors of at least a low return, but GEF funds then top this up to greater amounts depending on the success of the conservation actions.	Pathway 1 – direct investment from the forgone coupons. Monitoring of the rhino population (or coral reef condition, or chimpanzee population, or lemur population) is required to provide the feedback for the performance-linked payments; this outcome must therefore be prospectively detectable within the bond maturation term.
PSEPP2 (DBSA) GEF ID 11064 [GEF-8]	Credit risk guarantee by the GEF (US\$ 13 million) and DBSA (US\$ 5 million) for an approximately US\$ 500,000 loan facility capitalized by partner commercial banks, coupled with US\$ 1.9 million (+US\$ 3 million, DBSA) technical assistance grant. The loans are on discounted interest rates to SMEs to support energy efficiency initiatives. (The technical assistance is mainly aimed at partner bank staff to build their capacity in the energy efficiency area, and support their reporting.)	Pathway 2 mainly – loaning to a class of actors (SMEs) who will apply relatively mature energy technologies, mostly to achieve emissions reductions directly. The SMEs must benefit quickly enough financially to repay the (concessional) loans (i.e. financial feedback loop).
SWIOFish3 (World Bank) GEF ID 9563 [GEF-7]	Blue bonds issue by the Government of Seychelles, supported by the GEF partly covering the coupon payments and a guarantee from IBRD; the bond issue (approximately US\$ 15 million total) contributes US\$ 3 million to capitalizing a Blue Grants Fund (BGF) directly funding marine	Pathways 2 & 3B for BGF, probably also for BIF (though some impact pathways, such as through laboratory diagnostics, are much longer). COVID-19 has been part of the delay, but limited institutional and individual capacity and confidence as well as delays in issues such as land gazetting

	conservation projects, with the rest into a revolving Blue Investment Fund (BIF, managed by the Development Bank of Seychelles), providing loans to projects aimed at sustainably expanding seafood value chains. Established in 2018, the closure report (World Bank, 2024) indicates the BGF has disbursed funds successfully; the BIF has been slow to get going, but three loans (75% of BIF capital) are now approved. ¹⁵ The bond repayment is the responsibility of the Government of Seychelles. A complication has been establishing the necessary processes and capacity in Development Bank of Seychelles to manage blue economy loans, but this is a long-term investment in capacity.	have contributed. Despite a reasonable theory of change, some of the original impact indicators were poorly chosen (adaptively corrected in 2024, though see Hunt and Hilborn (2025)). BGF/BIF together must create enough benefits to the Government of Seychelles economy (as well as or due to nature benefits) to justify the bond costs; BIF loans must enable their targets to pay back the loans.
Living Amazon (Funbio) GEF ID 11327 [GEF-8]	The GEF provides US\$ 6 million in reimbursable grants, approximately matched by Natura and other private capital, to the Living Amazon Mechanism. The Mechanism uses a known instrument, Certificates of Agribusiness Receivables, to provide fixed rate, concessional loans (discounted approximately 6%) via approximately 20 local cooperatives to finance working capital and input purchases of smallholder farmers in the supply chain of Natura in the Amazon, all supported by VERT, a financial market company. The loans will finance bioeconomy activities like the purchase of raw materials, repairs, product processing, adding value to products, marketing, and investing in new markets, all linked to sustainable production in protected areas in the Brazilian Amazon. There is also a US\$ 200,000 technical assistance grant.	Pathway 3B – the funds are delivered via multiple Certificates of Agribusiness Receivables to multiple cooperatives, which then loan to multiple smallholders trying different interventions. The involvement of Natura (and potentially other firms) both as investor and buyer of products provides confidence in the impact pathway, with sustainability assured by the cooperatives (supported by technical assistance). Funbio sits on the Investor Committee (with Natura), monitoring progress reports from VERT.
Yield Lab (IDB) GEF ID 11066 [GEF-8]	IDB and the GEF contribute equity investment in a venture capital fund, the Yield Lab LATAM Fund, which then attracts private finance, all to finance early-stage technology-based start-ups supporting decarbonized and sustainable food systems, aimed at farmer resilience. The scope encompasses diverse tech like farm mechanization, data, bioenergy, soil technologies, and food processing.	Pathways 4/5B – diverse investees with direct or indirect pathways to intervention actors (mostly farmers); immature investees in terms of commercialization, but mostly mature technologies, though these may not be mature in the specific intervention context (e.g. insufficient readiness among farmers).
Green Global Supply Chain Decarbonization	IFC loan facility supported by first loss guarantees from the GEF and multiple multinational brands as private sector partners to provide loans to manufacturers or suppliers to that brand's value chain, or via third parties that can aggregate multiple such manufacturers or suppliers, to	Pathways 2B/3B – directly or via aggregators to diverse loan recipients, the intervention actors. GEBs are created in the short to medium term, often with cost savings (e.g. energy efficiency projects have a four-year payback). Most interventions are fairly mature in context, depending on recipient track

¹⁵ For a seafood processing plant, a laboratory for veterinary and environmental diagnostics, and the expansion of a prawn aquaculture project, together scaling up seafood production and processing activities with enhanced quality assurance (World Bank, 2024).

Platform (World Bank–IFC) GEF ID 11326 [GEF-8]	support increased climate-related sustainability in emerging markets through energy and water savings, as well as reduction of chemicals and waste.	records. Impacts are generally quite easy to measure, except perhaps the levels of some harmful chemicals (e.g. mercury). Interventions are supported by targeted technical assistance.
Green Mobility Financing Facility for Africa (AfDB) GEF ID 11671 [GEF-8]	AfDB provides diverse forms of concessional loans (via a facility supported by a GEF concessional loan and other private and public lenders) to invest through four defined pathways (direct to bus operators or indirectly through leasing/asset companies) in electric vehicles (buses and e2-wheelers) and/or charging infrastructure in six countries (Ethiopia, Kenya, Nigeria, Rwanda, South Africa, and Uganda) to reduce greenhouse gas emissions.	Pathways 2B/3B – intervention actors, mostly transport or charging infrastructure providers, in some models facilitated by leasing companies or a higher-level coordinator of local providers. Interventions are mature, though market context varies among countries. GEBs are rapid (financial paybacks are also possible). Greenhouse gas benefits are relatively easy to assess. Significant technical assistance is provided.
Agtech for inclusion and sustainability: SP Ventures' Regional Fund (Agventures II) (IDB) GEF ID 10336 [GEF-7]	The IDB supports an agricultural technology venture capital fund (target capitalization US\$ 60 million, mostly private investors, plus US\$ 5 million equity investment from the GEF, managed by SP Ventures), targeting 20–30 start-up companies that provide products and services (e.g. precision agriculture tools, financial services, agricultural insurance, agrochemical alternatives, reducing waste-intensity), eventually for farms or value chains, though often via service companies or the government. The agtech is expected to generate environmental benefits by reducing degradation, greenhouse gas emissions, and chemicals and waste.	Pathways 3B, 4B (and possibly 5B) – targeting diverse companies that sell directly or indirectly to small and medium farms as the intervention actors, hence involving relatively diverse pathways of various lengths. The maturity of the interventions is variable among start-ups, from nascent to established. The time taken to create impacts and financial returns is also likely variable, though potentially short to medium term. The ease of monitoring is variable, and projects are sometimes liable to leakage (i.e. limited durability).

AfDB = African Development Bank; DBSA = Development Bank of Southern Africa; Funbio = Brazilian Biodiversity Fund; GEB = global environmental benefit; GEF = Global Environment Facility; IBRD = International Bank for Reconstruction and Development; IDB = Inter-American Development Bank; IFC = International Finance Corporation; SMEs = small- to medium-sized businesses.

Annex C: Some GEF global environmental benefits and their attributes

Examples of the GEF's GEBs and of types of interventions that may deliver them from extant blended finance projects (GEF-6 to GEF-8) are shown in Table C1. The table identifies features that affect how blended finance projects may perform.¹⁶ The key attributes discussed include the *maturity* of some types of intervention, the *rates* at which GEBs and financial co-benefits may typically accrue, whether the benefits will *endure* and not lead to leakage,¹⁷ and the *ease of monitoring* the GEB indicators (see Sections 3.2 and 3.3). The numbering refers to the GEF core indicators and subindicators (full list in GEF (2022b)).

Table C1: Examples of GEF core indicators and targeted GEBs, their key attributes, and their implications for blended finance. Descriptions of many of the projects mentioned can be found in Annex B. [Source: STAP, expanded from annex A, table 1 in Stafford Smith et al. (2024b).]

Core Indicator/GEB	Subindicator/intervention type	Key attributes, and implications for blended finance [GEF project example]
1. Terrestrial protected areas	1.2 Terrestrial protected areas under improved management effectiveness	Maturing to established, but benefits to biodiversity from management effectiveness are often hard to measure. Support for bioeconomy value chains may deliver economic benefits quite quickly due to established financial tools (e.g. Agribusiness Receivable Certificates in Brazil). High risks related to climate change and global markets. Risk of deforestation leakage, reducing forest cover. [Living Amazon Mechanism, GEF ID 11327]
2. Marine protected areas created or under improved management	2.2 Marine protected areas under improved management effectiveness	Nascent example: Blue bonds to support sustainable marine fisheries and marine conservation. Often hard to quantify GEB effectiveness. Benefits to biodiversity may occur in only a few years. Local economic benefits may take time. [SWIOFish3, GEF ID 9563]
4. Area of landscapes under improved practices (excluding protected areas)	4.3 Area of landscapes under sustainable land management in production systems	Reasonably mature but hard to measure reliably at farm level. Land management benefits for soil organic carbon are slow to emerge. Some economic benefits can be generated quickly, others slowly. Durability uncertain. High potential for deforestation and land-use change leakage without value chain traceability. [Green Finance and Sustainable Agriculture in the Dry Forest Ecoregion of Ecuador and Peru, GEF ID 10852 ¹⁸]
	4.1 Area of landscapes under improved management to benefit biodiversity	Maturing but usually hard to measure with confidence (unless elements are very simple). Landscape (and biodiversity) benefits are usually slow to emerge. Local economic benefits are often hard to mobilize and are likely to emerge in the medium to long term. Durability uncertain. High potential for deforestation and land-use change leakage in the absence of value chain traceability. [Conservation Finance Initiative, GEF ID 9914]
6. Greenhouse gas emissions mitigated	6.4 Increase in installed renewable energy capacity	Generally mature and easily measured. Rapidly determinable benefit. Economic benefits are possibly rapid. Likely to endure, though leakage may occur through rebound effects. [Partial Risk Sharing Facility for Energy Efficiency, GEF ID 4918]
	6.1 Greenhouse gas emissions mitigated in the agriculture,	Maturing. Investing in reducing deforestation (fast benefits) or promoting afforestation and sustainable agricultural production (multiple years for greenhouse gas mitigation benefits). Forest cover is

¹⁶ The examples given are not necessarily the only ones addressed by the projects.

¹⁷ "Leakage" occurs when interventions aimed at creating GEBs in one place result in (or do not prevent) those GEBs being lost elsewhere (Stafford Smith et al., 2022); "durability" refers to GEBs persisting over time.

¹⁸ (Eventually did not proceed, but design is typical of some others)

	forestry and other land-use sector [20 years+]	measurable. Local economic benefits may be slow. Risk of leakage by deforestation without good traceability. <i>[AGRI3, GEF ID 10497]</i>
8. Globally over-exploited fisheries moved to more sustainable levels (metric tons)	N/A (More sustainable fisheries and improved marine biodiversity)	Nascent example. Blue bonds to support marine protected areas, coral health, and ecosystem services generated by marine biodiversity. Monitoring blue bonds and their impact on fisheries and the blue economy is challenging, and likely to take time to produce GEB impacts, with risks of leakage if fishing effort is displaced elsewhere. <i>[Coral Bond, GEF ID 11323]</i>
9. Chemicals of global concern and their waste reduced	9.1 Solid and liquid persistent organic pollutants (POPs) removed or disposed (POPs type)	Piloting. Interventions support value chains or agricultural production through the use of technologies. Possibly difficult to trace the impacts of biological pest control technologies on POP reduction or removals. Complementary metrics to the subindicator could facilitate better monitoring of outcomes on GEBs. <i>[Agtech for inclusion and sustainability: SP Ventures' Regional Fund (Agventures II), GEF ID 10336]</i>
	9.2 Quantity of mercury reduced	Pilot example: Partnerships to reduce mercury in textile value chains, but monitoring reduced mercury is challenging. If proof of concept works (i.e. uptake of technologies and explicit benefits), financial reflows, GEBs, and improved livelihoods could be achieved quite quickly. <i>[Green Global Supply Chain Decarbonization Platform, GEF ID 11326]</i>
	9.4 Countries with legislation and policy implemented to control chemicals and waste	Pilot example: Investors need reassurance that policies are working in concert to de-risk investments while improving environmental goals. The presence of legislation is easily measured, but implementation effectiveness is harder. Economic benefits, GEBs, and local benefits likely to emerge in the medium to long term. <i>[Green Global Supply Chain Decarbonization Platform, GEF ID 11326]</i>

GEB = global environmental benefit; N/A = not applicable.

Annex D: Checklist for project screeners and developers

The GEF's Advisory Group of Financial Experts advises on the diverse financial structures that can be applied in blended finance projects. The checklist in Table D1 therefore focuses on how the equally diverse forms of GEB impact pathways interact with the financial logic. Project design for some of these details may be less developed at the time of review than expected in GEF Trust Fund projects; however, proposals should still explicitly acknowledge the need to explore relevant issues further during project implementation. Questions 1 and 6–8 may be of more concern to the GEF than to financial intermediaries like banks or fund managers and, hence, may be areas where targeted resources for monitoring or technical assistance are required to fulfil the GEF's expressed desire for innovation, learning, and scaling. The numbers relate to those in Figure 5. A stand-alone version of this checklist may be found in STAP (2026).

Screeners should read a project design document with the following questions in mind, then address those that are relevant in their comments. When first reading a proposal, it may be useful for screeners to sketch a simple diagram of the impact pathway logic, if the proposal does not already provide one.

Table D1: Checklist for project screeners and developers [Source: STAP.]

1. Is blended finance clearly justified as an appropriate solution for the types of interventions and GEB impacts proposed?	The justification should start with the problem to be solved rather than the need to apply blended finance. Is GEF additionality for this problem well-reasoned as regards using blended finance – that is, how will the GEF's involvement lead to greater flows of financing for GEBs than would have resulted otherwise from the private sector or public sector?
2. Are the implications of the length and diversity of the proposed impact pathway(s) addressed?	a. Short – where the blended finance funds are invested more-or-less directly in intervention actors (e.g. debt-for-nature swaps, performance-based bonds), does the design address the credibility of the intervention actors (e.g. a conservation trust fund, value chain business, or government agency), incentives for them to perform (see 4), and the intervention maturity (see 3)? b. Longer – where the blended finance establishes some form of investment fund or loan facility that then provides money to intermediaries (e.g. companies creating nature-positive technology or subnational banks providing concessionary loans to farmers), the intervention actors may be two or more steps removed from the blended finance. Does the design address the implications of multiple intermediaries (or diverse pathways) for overall transaction costs and the possible dilution of concessionality, the maturity of the whole impact pathway arrangement (see 3), and the maintenance of incentives down the pathway (see 4)?
3. Is consideration given to how mature the proposed intervention(s) are in the context of the project ?	Intervention maturity is the likelihood that the intervention will deliver the GEB impacts in the intended context or market (e.g. an investee company may be developing a very new technology, or commercializing a well-established technology into an untested market, and either could have low maturity). This may affect the perceived risk by private sector investors. Is intervention maturity discussed in addition to any innovation risks in the financial system?

4. Will the key intermediaries and intervention actors be plausibly incentivized to ensure that GEBs are produced? Especially in longer and more diverse pathways, how are the intermediaries on the impact pathway(s) motivated to facilitate the delivery of GEBs, and might technical assistance be needed to support this?	a. If assured by contractual means, does the proposal clearly articulate the intent to embed such contractual obligations in the way the blended finance instrument and its subsequent investments are structured, even if the details of these structures cannot yet be foreseen? Do the likely target jurisdictions have legal precedents for the necessary contractual measures, e.g. involving nature-related clauses? b. If reliant on financial or livelihood incentives (e.g. intermediary companies make profits to repay capital or farmers gain improved livelihoods to repay loans), are these incentives plausible co-benefits of the GEB-generating intervention(s), and are they likely to accrue in a timely and equitable manner (e.g. in relation to capital repayment periods, bond terms, or loan terms)?
5. Are there suitable and timely performance or outcome monitoring systems? Easily measured KPIs may only be weak lead indicators of achieving relevant GEB impacts; and some GEB impacts are slower to emerge and harder to measure than others.	Are the links between KPIs and GEBs recognized, and is there discussion of how these links will be operationalized? For example, is there a theory of change as to why and how the delivery of the proposed KPIs will result in the GEBs (or at least the explicit intent to create one as investments develop)? Is there a need for technical assistance in this area? Is responsibility for monitoring clear? If there are contractually-required GEB (e.g. to determine the level of payments in performance-based bonds), then is it technically plausible that the intervention will achieve these in a statistically-defensible way within the time required (e.g. the bond term in this case)?
6. Are the proposed GEB impacts plausible and enduring?	Is there a plausible case for the durability of the GEBs (preferably accounting for possible leakage and lack of policy coherence) beyond the investment period? The durability of GEBs is a core GEF requirement as well as being reputationally desirable for most investors.
7. Is there a clear logic for scaling impact, at least eventually? A key rationale for the GEF to invest in a concessionary way in blended finance projects is to support the scaling of nature-positive private finance, such that the need for concessionary funding declines over time.	Is there a clear discussion of the role of the proposed project in some potential scaling pathway? For example, this may be as part of a sequence of projects that will reduce the perceived risk of the financing approach and the interventions involved, through changing finance system incentives, demonstrating novel models, building the capacity of local institutions to replicate the approach, or more generally addressing the enabling policy and regulatory environment. Is monitoring of key drivers of the proposed scaling pathway (e.g. changes in risk perceptions, capacities, or policy action) planned? Is there a clear eventual exit strategy for GEF (or even philanthropic) funding in similar projects?
8. Is there a strong commitment to learning and exchange of lessons? Learning is a priority for the GEF to justify investing in innovative arrangements, though some blended finance partners may have less interest in this.	Is there an intent to learn beyond the single project (e.g. to test what investment or intervention types work in different blended finance models, especially where the level of intervention maturity is low; or to explore how best to scale)? Does the proposed project consider the need for separate funding for learning and exchange, and how to access aggregated data if commercial-in-confidence/privacy issues constrain transparency? Is the need for aligned technical assistance for learning considered?

GEF = global environmental benefit; KPI = key performance indicator.

7. References

- Apampa A (2026). Six common critiques of blended finance and their implications. *Convergence*. <https://www.convergence.finance/news/7h9uqGC189IE64vfk8bZ1o/view> (accessed Apr 2026).
- Berkelmans M (2019). The Role of Intermediaries in Blending Investments for Landscape Restoration Projects. Master's thesis. Erasmus University, Rotterdam.
- Chemonics (2021). Blended Finance Technical Briefs Primer. Chemonics Centre for Private Sector Engagement, Washington, DC. <https://chemonics.com/resource/blended-finance-technical-briefs/> (accessed Nov 2023).
- Chopra R, Nobanee H, Chakraborty D, Hamill PA (2024). Investing in nature: Unpacking trends and gaps in biodiversity finance research. *Development and Sustainability in Economics and Finance* 2-4:100023. <https://www.sciencedirect.com/science/article/pii/S2950524024000234>.
- Christiansen J, Irvine-Broque A, Dempsey J, Nelson S, Shapiro-Garza E, Bigger P, Islar M (2025). Off the charts? Reasons to be skeptical of the growth in biodiversity finance. *Current Opinion in Environmental Sustainability* 75, 101544. <https://doi.org/10.1016/j.cosust.2025.101544>
- CPIC (2018). Conservation Investment Blueprints: A Development Guide. Coalition for Private Investment in Conservation. https://www.cpicfinance.com/wp-content/uploads/2021/12/CPIC_Blueprint_Development_Guide_2018.pdf.
- de Grefte J, de Bruin B (2025). Sustainable finance, biodiversity, and greenwashing: how contested values, metrics, and causation facilitate information distortion, information omission, and information pollution. *Current Opinion in Environmental Sustainability* 74:101522. <https://www.sciencedirect.com/science/article/pii/S1877343525000156>.
- Dembele F, Schwarz R, Horrocks P (2021). Scaling up Green, Social, Sustainability and Sustainability-linked Bond Issuances in Developing Countries. OECD Publishing, Paris. <https://www.oecd.org/dac/financing-sustainable-development/blended-finance-principles/documents/scaling-up-green-social-sustainability-sustainability-linked-bond-issuances-developing-countries.pdf>.
- DFI Working Group (2023). DFI Working Group on Blended Concessional Finance for Private Sector Projects Joint Report, March 2023 update. Asian Development Bank. <https://www.adb.org/sites/default/files/institutional-document/876671/dfi-bcf-joint-report-2023-update.pdf>.
- FBF, UNEP FI (2024). Finance for Nature Positive: Building a Working Model. Finance for Biodiversity Foundation and United Nations Environment Programme. https://www.financeforbiodiversity.org/wp-content/uploads/Finance-for-Nature-Positive_FfB-Foundation-and-UNEP-FI_Discussion-Paper.pdf.
- Fenichel EP, Dean MF (2024). Blended academic insights for biodiversity and conservation finance. *Ecol Econ* 223:108258. <https://doi.org/10.1016/j.ecolecon.2024.108258>.
- Flammer C, Giroux T, Heal GM (2025). Biodiversity finance. *Journal of Financial Economics* 164:103987. <https://www.sciencedirect.com/science/article/pii/S0304405X24002101>.
- GEF (2022a). GEF Blended Finance Global Program and Non-Grant Instruments Policy Update (Doc GEF/C.63/12). Global Environment Facility, Washington, DC. https://www.thegef.org/sites/default/files/documents/2022-11/EN_GEF_C.63_12_GEF%20Blended%20Finance%20Global%20Program%20and%20NGI%20Policy%20Update_%20__1.pdf.
- GEF (2022b). Guidelines on the Implementation of the GEF-8 Results Measurement Framework. Global Environment Facility, Washington, DC. https://www.thegef.org/sites/default/files/documents/2022-09/Results_Framework_Guidelines_2022_06_30.pdf.

- GEF (2026a). GEF-9 Programming Directions (GEF/R.09/19). Global Environment Facility, Washington, DC. https://www.thegef.org/sites/default/files/documents/2026-04/GEF_R.9.18_GEF-9%20Programming%20Directions.pdf (accessed Apr 2026).
- GEF (2026b). GEF-9 Strategic Positioning Framework (GEF/R.09/23). Global Environment Facility, Washington, DC. https://www.thegef.org/sites/default/files/documents/2026-02/GEF_R.09.23_GEF-9%20Strategic%20Positioning%20Framework.pdf.
- GEF IEO (2021). GEF Additionality: Broadening the Definition. Independent Evaluation Office of the GEF, Washington, DC. <https://www.gefio.org/sites/default/files/documents/learnings/additionality-framework-learnings.pdf> (accessed Nov 2023).
- GEF IEO (2026). Integration for Greater Impact: Eighth Comprehensive Evaluation of the GEF (OPS8). Global Environment Facility Independent Evaluation Office, Washington, DC. <https://www.gefio.org/en/types/evaluations/ops8>.
- GIIN (2018). A Resource for Structuring Blended Finance Vehicles: Utilizing Junior Equity, Subordinated Debt, First-Loss Capital, Guarantees, or Technical Assistance. Global Impact Investing Network. <https://www.convergence.finance/resource/a-resource-for-structuring-blended-finance-vehicles/view> (accessed Aug 2025).
- Glemarec Y, Singer B, Gálmez Márquez V, Hofstede R (2023). Making Blended Finance Work For Nature-based Solutions (Green Climate Fund Working Paper No. 5). Green Climate Fund, Incheon, Korea. <https://www.greenclimate.fund/document/making-blended-finance-work-nature-based-solutions> (accessed Apr 2026).
- Guillon B, Bennett G (2025). Design for demand: What actually drives private finance for nature? In: Nature's Investment Frontier: Practical paths forward for Biodiversity Markets and Finance. Forest Trends Association, Washington, DC. p 22–29.
- Habbel V, Jackson ET, Orth M, Richter J, Harten S (2021). Evaluating Blended Finance Instruments and Mechanisms. Approaches and Methods (OECD Development Co-operation Working Papers, No 101). OECD Publishing, Paris. https://www.oecd-ilibrary.org/development/evaluating-blended-finance-instruments-and-mechanisms_f1574c10-en (accessed Nov 2023).
- Hunt A, Hilborn R (2025). Seychelles' blue finance: A blueprint for marine conservation? Marine Policy 179:106717. <https://www.sciencedirect.com/science/article/pii/S0308597X25001320>.
- Ivory R (2023). Blending with technical assistance – Data brief. Convergence.
- Kedward K, zu Ermgassen S, Ryan-Collins J, Wunder S (2023). Heavy reliance on private finance alone will not deliver conservation goals. Nature Ecology & Evolution. <https://doi.org/10.1038/s41559-023-02098-6>.
- Kwon T, Panulo B, McCallum S, Ivankovic K, Essa Z (2022a). Blended Finance: When to Use Which Instrument? Initiative for Blended Finance, University of Zurich. <https://www.csp.uzh.ch/en/research/Practitioner-Research/Blended-Finance-When-to-use-which-instrument.html> (accessed Nov 2023).
- Kwon T, Panulo B, Van Staden J, Spazzoli R (2022b). Blended Finance: When to Use Which Approach. Decision-Making Tool and Framework. Initiative for Blended Finance, University of Zurich. <https://www.csp.uzh.ch/en/research/Practitioner-Research/Blended-Finance-When-to-use-which-instrument.html> (accessed Nov 2023).
- Luxton SJ, Smith GS, Williams KJ, Ferrier S, Bond AJ, Prober SM (2024). An introduction to key ecological concepts, financial opportunities, and risks underpinning aspirations for nature positive. Bioscience. <https://doi.org/10.1093/biosci/biae040>.
- Macintosh A, Butler D, Larraondo P, Evans MC, Ansell D, Waschka M, Fensham R, Eldridge D, Lindenmayer D, Gibbons P et al. (2024). Australian human-induced native forest regeneration

- carbon offset projects have limited impact on changes in woody vegetation cover and carbon removals. *Communications Earth & Environment* 5(1):149. <https://doi.org/10.1038/s43247-024-01313-x>.
- Mazzucato M, Vieira de Sá R (2025). Mind the mission, not the gap: Rethinking blended finance for public purpose (IIPP WP 2025-09). UCL Institute for Innovation and Public Purpose, London. <https://www.ucl.ac.uk/bartlett/publications/2025/jun/mind-mission-not-gap-rethinking-blended-finance-public-purpose> (accessed Aug 2025).
- Moran M, Ward-Christie L (2022). Blended social impact investment transactions: Why are they so complex? *Journal of Business Ethics* 179(4):1011–1031. <https://doi.org/10.1007/s10551-022-05153-7>.
- NGFS (2023). Scaling Up Blended Finance for Climate Mitigation and Adaptation in Emerging Market and Developing Economies (EMDEs). Network for Greening the Financial System, Paris. <https://www.convergence.finance/resource/scaling-up-blended-finance-for-climate-mitigation-and-adaptation-in-emdes/view> (accessed Feb 2024).
- Obura D, Agrawal A, Christie M, Fromentin J-M, Harrison PA, Jones M, O’Brien K, Pauchard A, Roy HE, Settele J et al. (2026). A systems reset for sustainable development. *Communications Sustainability* 1(1):3. <https://doi.org/10.1038/s44458-025-00009-3>.
- OECD (2021). OECD DAC Blended Finance Principles for Unlocking Commercial Finance for the Sustainable Development Goals. OECD Publishing, Paris. <https://www.oecd.org/dac/financing-sustainable-development/development-finance-topics/OECD-Blended-Finance-Principles.pdf>.
- OECD (2025). OECD DAC Blended Finance Guidance 2025, Best Practices in Development Co-operation. OECD Publishing, Paris. <https://doi.org/10.1787/e4a13d2c-en>.
- One Planet Lab (2021). Blended finance for scaling up climate and nature investments. One Planet Lab and Grantham Research Institute. <https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2021/11/Blended-Finance-for-Scaling-Up-Climate-and-Nature-Investments-1.pdf> (accessed Nov 2023).
- Pegon M (2023). Opinion: Blended finance is about leveraging impact – relying on financial ratios as efficiency proxy in blended finance can lead to bad investment decisions. Devex News. <https://www.devex.com/news/opinion-blended-finance-is-about-leveraging-impact-105665> (accessed 10 Nov 2023).
- Penna CCR, Schot J, Steinmueller WE (2023). Transformative investment: New rules for investing in sustainability transitions. *Environmental Innovation and Societal Transitions* 49:100782. <https://www.sciencedirect.com/science/article/pii/S2210422423000928>.
- Ramírez-Mejía D, Zinngrebe Y, Ellis EC, Verburg PH (2025). Land-use spillovers from environmental policy interventions. *Global Environmental Change* 92:103013. <https://www.sciencedirect.com/science/article/pii/S0959378025000500>.
- SBFN, GIZ (2024). SBFN Toolkit: Sustainable Finance Taxonomies. International Finance Corporation, Washington, DC. https://www.sbfnetwork.org/wp-content/uploads/2024/05/SBFN-Toolkit_Sustainable-Finance-Taxonomies.pdf.
- Sheikh HA, Narain D, Bartlett C, Christiaen C (2025). Unlocking private finance for nature: Addressing barriers and reframing risk-return dynamics. *iScience* 28(11):113669. <https://www.ncbi.nlm.nih.gov/pubmed/41146713>.
- Spratt S, Lawlor E, Coppens V (2021). Core Concepts in Blended Finance: Assessment of Uses and Implications for Evaluation (OECD Development Co-operation Working Papers, No. 90). OECD Publishing, Paris. https://www.oecd-ilibrary.org/development/core-concepts-in-blended-finance_711006b7-en (accessed Nov 2023).

- Stafford Smith M (2019). Achieving Enduring Outcomes from GEF Investments. Scientific and Technical Advisory Panel to the Global Environment Facility, Washington, DC.
<https://www.stapgef.org/resources/advisory-documents/achieving-enduring-outcomes-gef-investment>.
- Stafford Smith M, Metternicht G (2022). Refining the Tracking of Co-benefits in Future GEF Investments. Scientific and Technical Advisory Panel to the Global Environment Facility, Washington, DC. <https://stapgef.org/resources/policy-briefs/refining-tracking-co-benefits-future-gef-investments>.
- Stafford Smith M, Metternicht G, Bierbaum R (2022). Policy Coherence for the GEF. Scientific and Technical Advisory Panel to the Global Environment Facility, Washington, DC.
<https://www.stapgef.org/resources/policy-briefs/framing-policy-coherence-gef>.
- Stafford Smith M, Bierbaum R, Duron G (2024a). STAP Information Note #1 on Blended Finance. Scientific and Technical Advisory Panel to the Global Environment Facility, Washington, DC.
<https://www.stapgef.org/resources/information-note/stap-information-note-1-blended-finance>.
- Stafford Smith M, Bierbaum R, Duron G (2024b). STAP Information Note #2 on Blended Finance: Some Considerations for Project Design. Scientific and Technical Advisory Panel to the Global Environment Facility, Washington, DC. <https://www.stapgef.org/resources/information-note/stap-information-note-2-blended-finance-some-considerations-project>.
- Standing A (2023). The financialization of marine conservation: The case of debt-for-ocean swaps. *Development* 66(1):46–57. <https://doi.org/10.1057/s41301-023-00379-y>.
- Stanley T, zu Ermgassen SOSE, Buller A, Kedward K, Malhi Y, McDermott CL, Seddon N, Flesichman F, Adams J, Hirons M (2026). Reimagining nature finance [preprint].
<http://dx.doi.org/10.2139/ssrn.6551575> (accessed Apr 2026).
- STAP (2010). Payments for Environmental Services and the Global Environment Facility. Scientific and Technical Advisory Panel to the Global Environment Facility, Washington, DC.
<https://stapgef.org/sites/default/files/2020-02/Payments-for-Environmental-Services-and-GEF.pdf> (accessed Jan 2024).
- STAP (2026). STAP Screening Checklist for GEB Impact Pathway Logic in Blended Finance Projects (Version 1). Science and Technology Advisory Panel to the Global Environment Facility, Washington, DC. <https://www.stapgef.org/resources/policy-briefs/strengthening-gefs-learning-about-blended-finance-project-design-stap-0>.
- Swinfield T, Shrikanth S, Bull JW, Madhavapeddy A, zu Ermgassen SOSE (2024). Nature-based credit markets at a crossroads. *Nature Sustainability* 7(10):1217–1220.
<https://doi.org/10.1038/s41893-024-01403-w>.
- The Biodiversity Consultancy Limited (2025). Financing Nature: A Practitioner’s Guide to Results Metrics Selection. Inter-American Development Bank. <https://publications.iadb.org/en/financing-nature-practitioners-guide-results-metrics-selection> (accessed Apr 2026).
- Thompson BS (2022). Impact investing in biodiversity conservation with bonds: An analysis of financial and environmental risk. *Business Strategy and the Environment* 32(1):353–368.
<https://doi.org/10.1002/bse.3135>.
- TNC (2024). Nature Bonds Project Toolkit. The Nature Conservancy. <https://www.nature.org/en-us/what-we-do/our-priorities/protect-water-and-land/land-and-water-stories/nature-bonds/toolkit>.
- Toledano P, Vega AMC, Wilke T (2025). From Promise to Performance: Reforming Blended Finance for Scale. Columbia Center on Sustainable Investment, New York.
<https://ccsi.columbia.edu/sites/ccsi.columbia.edu/files/content/docs/publications/CCSI-From->

Promise-to-Performance-Reforming-Blended-Finance-for-Scale-Report.pdf (accessed Aug 2025).

Trotta A (2024). Environmental impact bonds: review, challenges, and perspectives. *Current Opinion in Environmental Sustainability* 66, 101396. <https://doi.org/10.1016/j.cosust.2023.101396>.

USAID INVEST (2023). Mobilizing Investment for Development with Catalytic Funding: Learning Brief. USAID, Washington, DC. <https://www.usaid.gov/invest/publications/catalytic-funding-learning-brief> (accessed Nov 2023).

West TAP, Wunder S, Sills EO, Börner J, Rifai SW, Neidermeier AN, Frey GP, Kontoleon A (2023). Action needed to make carbon offsets from forest conservation work for climate change mitigation. *Science* 381(6660):873–877. <https://www.science.org/doi/abs/10.1126/science.ade3535>.

World Bank (2024). Implementation Completion and Results (ICR) Report for the Third South West Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFish3) (Report No. ICR00156). World Bank, Washington, DC.