



Briefing Note: Identifying Opportunities to Support Biodiversity Objectives Through MDB Operations

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1. Background

Multilateral development banks (MDBs) play an important role in supporting public and private sector clients in the management of biodiversity risks and the achievement of biodiversity-related objectives. Through their environmental and social (E&S) frameworks, technical assistance, investment activities and other instruments, MDBs support actions that contribute to biodiversity conservation, restoration, sustainable use, and the reduction of drivers of biodiversity loss while helping to sustain ecosystem services. These efforts support client biodiversity ambitions, national biodiversity priorities, and broader global biodiversity goals, including those articulated in the Kunming-Montreal Global Biodiversity Framework (KMGBF).

As countries and clients develop their plans, the KMGBF itself provides a framework for addressing biodiversity loss and supporting nature recovery. Through its 23 targets (and Guidance Notes), the mission of the KMGBF for the period up to 2030, towards the 2050 vision is:

To take urgent action to halt and reverse biodiversity loss to put nature on a path to recovery for the benefit of people and planet by conserving and sustainably using biodiversity and by ensuring the fair and equitable sharing of benefits from the use of genetic resources, while providing the necessary means of implementation.

The breadth of this mission highlights the many ways in which MDB operations can contribute to biodiversity goals. MDB E&S safeguard frameworks have long played an important role in supporting this mission by requiring the assessment and management of E&S risks and impacts associated with investments. Many client objectives are already supported through the implementation of MDB safeguard frameworks, including those related to KMGBF Targets 4, 6, 7, 10, 11, 14, 15, 21 and 22. With respect to biodiversity, these frameworks are grounded in the application of the mitigation hierarchy (avoid, minimise, restore, and offset) and aim to achieve no net loss and, where appropriate, net gain of biodiversity.

Increasingly, MDBs are also seeking to support further contributions to national and global biodiversity goals by identifying opportunities to reduce species extinction risk and support long-term recovery of nature. These contributions may arise through a range of approaches, including nature finance initiatives, as well as through upstream engagement, project preparation, due diligence, and broader landscape and system-level actions.

The purpose of this note is to highlight practical opportunities for MDBs to support client biodiversity ambitions and broader biodiversity objectives through their own operations, and to illustrate how such opportunities can be identified, developed, and, where appropriate, incorporated into project design, due diligence and implementation.

This note complements existing MDB guidance and draws on decades of MDB experience in biodiversity risk management, project preparation, due diligence, and E&S assessment. Together, these experiences provide a practical foundation for identifying opportunities to support biodiversity objectives through MDB operations.

2. Identifying opportunities through MDB operations

MDB operations provide multiple opportunities to support client biodiversity ambitions, national biodiversity priorities, and global biodiversity goals. These opportunities may arise through three complementary pathways:

1. Shaping project pipelines;
2. Leveraging due diligence;
3. Landscape and system-level actions.

2.1. Shaping project pipelines

The way projects are identified, screened, and initially framed can have an important influence on biodiversity outcomes. Before formal project preparation and due diligence begin, MDBs can influence both the types of projects that enter their pipelines and the extent to which biodiversity objectives and opportunities are considered from the outset. By shaping project pipelines, MDBs can help identify opportunities early in the project cycle and support the integration of biodiversity considerations throughout subsequent stages of project development.

2.1.1. Strategic spatial screening and analysis

By applying spatial data, screening tools, and strategic analysis, MDBs can inform how projects are identified and prioritised within their investment pipelines. This may include the use of sensitivity mapping, biodiversity risk screening tools, or portfolio-level analyses to identify geographies, sectors, and project typologies associated with elevated biodiversity risks and dependencies, as well as those that may offer strategic opportunities for conservation or restoration or address the drivers of biodiversity and ecosystem services loss. Applied internally, such approaches support early-stage decision-making by helping to prioritise investments that align with biodiversity objectives while flagging higher-risk contexts that may warrant greater selectivity.

2.1.2. Early project screening and concept development

At the project identification stage, MDBs may incorporate screening criteria that explicitly consider opportunities to contribute to positive biodiversity outcomes, including through nature-inclusive planning and design to support nature recovery or through nature-based solutions. Such criteria may help to shape how projects are framed before formal due diligence begins. Practical approaches may include the use of screening tools, checklists, or internal review processes to identify where biodiversity can be better integrated.

2.1.3. Integration into government procurement and project structuring

When feasible, MDBs can also influence biodiversity outcomes through their support to government procurement processes and project structuring, particularly in the context of public-private partnerships and concession-based models. This includes integrating biodiversity and nature-related considerations into procurement documents and contractual arrangements, such as requests for qualifications (RFQs), requests for proposals (RFPs), power purchase agreements, and concession agreements.

In this context, biodiversity can be addressed as part of a more integrated approach to project design and delivery, alongside social, technical, and commercial considerations. This may include, for example, embedding requirements or incentives that encourage bidders to incorporate biodiversity measures, nature-based solutions, or nature-inclusive design into project proposals, ensuring that such considerations are treated as core elements

of project structuring rather than as downstream requirements introduced during the lender due diligence process.

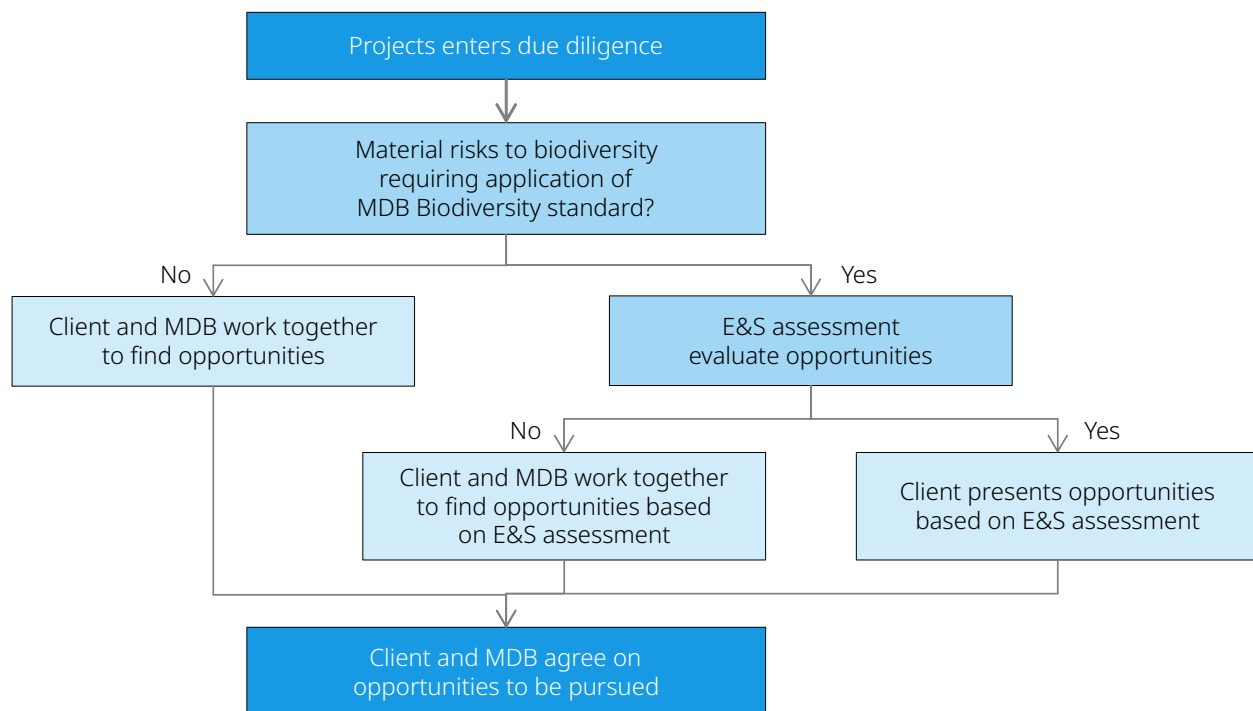
2.2. Leveraging due diligence

Project-level due diligence provides a particularly important opportunity to identify, refine, and advance biodiversity-related opportunities. In practice, these opportunities generally arise through three scenarios:

- **First**, a project may present no material risk to biodiversity (and therefore MDB biodiversity standards such as the World Bank's Environmental and Social Standard [ESS] 6 or EBRD's ESR6 might not be applied). In this case, opportunities may still exist at the project site, especially in modified or degraded habitats, as well as at the landscape or regional levels, such as to restore or enhance biodiversity and ecosystem services or address underlying drivers for their loss. MDBs can work with clients during due diligence to identify and develop such opportunities.
- **Second**, where compliance with MDB biodiversity standards is required, an E&S assessment has often already been undertaken. MDBs often review this assessment during due diligence and, building on its findings, may identify opportunities that complement biodiversity risk management requirements while also supporting national and global biodiversity goals.
- **Third**, ideally, opportunities may already be identified by the client during preparation of the E&S assessment and subsequently presented as part of the due diligence. MDBs may encourage clients to take this approach.

Across all three scenarios, commitments to pursue identified opportunities may be formalised between the client and the lender through an Environmental and Social Action Plan (ESAP) accompanying the loan agreement and/or through a Biodiversity Action Plan.

Figure 1 shows the relationship between compliance with MDB biodiversity standards, the E&S assessment, and opportunity identification.



Where there are material risks to biodiversity, **compliance with MDB biodiversity standards is a prerequisite before supporting other client ambitions or national and global biodiversity goals.** In simplest terms, projects should result in no net loss or net gains of natural habitat, priority biodiversity features and critical habitat.¹ Furthermore, projects cannot diminish the viability of threatened species. As mentioned in the introduction, this aligns directly with global goals to halt and reverse biodiversity loss (e.g., KMGBF Targets 4, 6, 10). More broadly, MDB E&S standards and compliance operations at large support a range of biodiversity-related objectives reflected in global biodiversity goals, including the integration of biodiversity considerations into planning and assessment processes, pollution prevention, stakeholder engagement and consultation, ecosystem services management, disclosure, and gender-responsive approaches (e.g., KMGBF Targets 7, 11, 14, 15, 21, and 22).

Once these requirements have been addressed, MDBs and clients may be well positioned to consider whether additional opportunities exist to support biodiversity objectives through the project itself and/or at the broader landscape- or regional-scale.

The identification of *further opportunities can build upon strong work conducted for compliance with MDB biodiversity standards*, beginning with the biodiversity baseline study and continuing through the E&S assessment and the design of mitigation measures, management plans, monitoring and wider initiatives. See Section 3, which describes these entry points.

2.3. Landscape and system-level actions

In addition to project-level actions, MDB-supported operations can contribute to broader landscape and system-level outcomes that address the underlying drivers of biodiversity loss. These actions extend beyond the immediate project footprint and are typically implemented through policy, planning, and sector-level instruments. By addressing risks at their source, they can help de-risk project pipelines and create the conditions for more sustainable investment.

MDBs are often uniquely positioned to play a catalytic role by facilitating partnerships among governments, industry, and conservation actors, and, where appropriate, mobilising technical advisory funding, additional resources, or co-financing to support implementation at scale. Building on the typology of nature finance activities recognised across MDBs, including the [Common Principles for Tracking Nature Finance](#) developed by the multilateral development banks, such interventions can be broadly grouped into three categories as shown below.

2.3.1. Policy, regulatory, and institutional instruments

MDBs may support the development and implementation of policy frameworks, regulations, and institutional systems that enable biodiversity conservation, restoration, and sustainable use across sectors, including through policy-based lending. These instruments create the enabling conditions for consistent integration of biodiversity considerations into development planning and investment.

Examples include:

- reforming sector policies or incentives that drive biodiversity loss (e.g., land use, resource extraction, agricultural expansion);

¹ Contributing biodiversity gains may include actions that exceed what would reasonably be required to achieve compliance with applicable MDB biodiversity standards (including no net loss or net gain), taking into account good international industry practice. Lender requirements vary on specific no net loss and net gain objectives.

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- building institutional capacity to manage biodiversity risks and opportunities at national or sector level;
 - developing national or regional biodiversity compensation frameworks, including aggregated offset or habitat banking mechanisms, to enable coordinated, landscape-scale approaches to conservation and restoration; and
 - establishing or enhancing financing mechanisms and incentives for investments in biodiversity.

2.3.2. Sectoral and landscape-level planning and coordination

MDBs may support integrated planning processes that guide how development occurs across landscapes, sectors, or value chains. These approaches aim to avoid biodiversity impacts at a landscape scale, reduce cumulative impacts and improve ecological connectivity by informing decisions on where and how development takes place.

Examples include:

- land-use and marine spatial planning processes that designate areas for conservation, restoration, and development, including opportunities to support protected areas and other effective area-based conservation measures (OECMs);
- sectoral planning and zoning to guide project siting and reduce pressures on priority biodiversity features;
- cumulative impact and regional assessments that inform coordinated action across multiple projects;
- multi-stakeholder platforms or industry initiatives that improve planning and implementation practices across a given sector or region; and
- landscape-scale restoration programmes (e.g., watershed, forest, or coastal ecosystem restoration) that target degraded areas and support ecological connectivity and the resilience of both biodiversity and infrastructure.

2.3.3. Enabling instruments to reduce drivers and scale nature-based solutions

MDBs may also support tools, programmes, and market or operational mechanisms that directly reduce the drivers of biodiversity loss or enable the integration of nature-based solutions across sectors.

Examples include:

- programmes that address key drivers of nature loss such as land-use change, pollution, overexploitation, or invasive species;
- development of standards, certification systems, or traceability mechanisms to shift sector practices;
- support for value chain interventions that reduce pressures on natural ecosystems; and
- scaling of nature-based solutions or hybrid green–grey approaches at landscape or sector level.

3. Entry points for identifying opportunities

Opportunities to support public and private sector client ambitions and national and global biodiversity goals at both the project level (Section 2.2) and beyond the project (Section 2.3) could be identified through a range of practical entry points. The following sections describe examples of such entry points, together with the role of biodiversity data sharing as an enabling mechanism and considerations relating to the implementation of identified opportunities.

3.1. Biodiversity Baseline Studies

Biodiversity baseline studies describe the ecological context of a project and enable project planners to identify priority biodiversity features, including ecosystems, habitats, species, protected areas, internationally recognised areas of biodiversity importance, and ecosystem services. However, biodiversity assessments for E&S risk management purposes typically narrow the scope of analysis to those biodiversity features and ecosystem services that are likely to be affected by the project.

To derive broader value from baseline studies undertaken as part of E&S assessments, practitioners may consider retaining a wider set of biodiversity features and ecosystem services within the scope of analysis, particularly those that are known to be (i) priorities for conservation due to species extinction risk; (ii) associated with threats to ecosystem extent and condition; or (iii) of particular value for local communities and Indigenous Peoples. While some of those features *may not be* directly affected by the project, they may nevertheless present opportunities for conservation, restoration, or actions that address underlying drivers of biodiversity loss, either at the project site or at broader geographic scales. As mentioned in MDB biodiversity standards and guidance, existing studies that establish or include national or regional prioritisation and/or targets for biodiversity conservation will be particularly useful for identifying such features. Another example is areas of conservation importance, such as Key Biodiversity Areas or legally protected areas, or broader ecosystem services, that may occur in the region but are outside the area of impact of the project. Supporting the conservation and restoration of these priority areas may be an ideal way to support both client biodiversity ambitions as well as national and global biodiversity goals.

3.2. Systematic Identification of Threats

MDB E&S standards require the assessment of biodiversity risks and impacts, including consideration of the broader pressures affecting biodiversity and ecosystem services within the landscape. Understanding these pressures (threats) can help identify opportunities to support biodiversity objectives beyond the management of project-specific impacts and inform broader conservation planning.

While conventional biodiversity risk management focuses on identifying mitigation measures for project impacts, opportunities may also be identified at a broader geographic scale where cumulative impacts and other pressures are a concern. Numerous types of actions can help reduce these pressures at a local, regional or national level, including actions that address pollution, invasive species, habitat degradation, or unsustainable resource use. Furthermore, upstream analysis of project options and spatial planning can help avoid impacts on biodiversity and ecosystem services while identifying opportunities for conservation that might otherwise fall outside the scope of a conventional project-level assessment.

Tools like IUCN's [Species Threat Abatement and Restoration \(STAR\) metric](#)² and the [Rapid High-Integrity Nature-positive Outcomes \(RHINO\)](#)³ approach can assist in the systematic identification and prioritisation of opportunities by highlighting the threats and pressures contributing most significantly to biodiversity loss and species extinction risk across sites and landscapes. These approaches can help focus actions on those interventions most likely to reduce key drivers of biodiversity loss and deliver measurable conservation outcomes.

3.3. Stakeholder Engagement & Consultation

Through stakeholder engagement and consultation, as required by MDB E&S standards, project planners can find partners that are actively pursuing projects to address relevant threats.

- At government level, agencies responsible for protected areas management, wildlife management, and environmental regulation may be helpful in identifying existing or planned activities that can be supported. These are generally published in a country's [National Biodiversity Strategy and Action Plan](#), developed in accordance with the Convention on Biological Diversity.
- Civil society organisations specialising in conservation will also have existing or planned activities that may benefit from more support. Conservation groups often publish on their websites their priorities and current projects for a region or country and may welcome direct requests for additional information. IUCN maintains a growing web-based database of existing conservation projects, called the [IUCN Contributions for Nature Platform](#).

Consulting government and civil society organisations should be helpful in determining where help is most needed, and where capacity exists for collaboration. The best collaborators for a given activity will need to be determined on a case-by-case basis.

The option also exists to start a new activity. This can be appropriate for clients with capacity to design and manage conservation projects, but it is more common and often more advisable to collaborate with existing organisations that have experience with conservation in the area.

3.4. Data Sharing

Biodiversity data collected through E&S assessments and monitoring programmes can support planning and decision-making well beyond the boundaries of an individual project. Increasingly, the publication and sharing of biodiversity data in standardised formats is being recognised as an important means of improving transparency, strengthening the evidence base for conservation, and supporting collective action toward national and global biodiversity goals.

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- 2 The STAR metric can help identify opportunities by highlighting where actions to reduce specific threats or restore habitat would yield the greatest contributions to global species-extinction-risk reduction. By spatially disaggregating the STAR threat abatement (START) and STAR restoration (STARR) values, users can see which threats drive extinction risk in a landscape and where targeted interventions would have the highest conservation leverage. In this way, STAR supports the identification of priority areas for investment and partnership, enabling organisations to align local actions with global biodiversity goals. When applied in its calibrated form, STAR also provides a framework for setting measurable targets and tracking progress, strengthening the case for nature finance opportunities grounded in science.
 - 3 IUCN's RHINO approach provides a science-based framework for businesses, financial institutions and other actors to identify, plan, implement and measure actions contributing to global biodiversity goals. It moves from identifying potential opportunities for reducing species extinction risk (Estimated STAR), through site-level refinement of those opportunities (Calibrated STAR), to setting measurable threat-reduction targets (Target STAR) and assessing the contributions achieved through implemented actions (Realised STAR).

Where appropriate and consistent with legal, confidentiality, and species-sensitivity considerations, MDBs may encourage clients to publish primary biodiversity data generated through MDB-supported projects. Platforms such as the Global Biodiversity Information Facility (GBIF) provide a mechanism for making such data accessible and usable for future research, conservation planning, environmental assessments, and biodiversity management. Recent guidance developed by EBRD ([Technical guidance for EBRD clients on uploading biodiversity data to the Global Biodiversity Information Facility](#), 2025) promotes the publication of biodiversity data generated through MDB-financed projects, recognising the long-term value of these datasets beyond the life of the project itself.

3.5. From Identification to Implementation

Identifying opportunities to support biodiversity objectives is only the first step. The mechanisms through which such opportunities are ultimately implemented will vary depending on the nature of the action, the client, and the institutional arrangements of the MDB concerned.

Implementation may occur through several channels, including project design and operational measures, E&S action plans, technical assistance and advisory support, or through climate and nature finance initiatives. In many MDBs, responsibility for these functions may sit across different teams and business units. As such, effective implementation often requires coordination beyond the E&S due diligence process itself.

The purpose of this note is not to prescribe implementation approaches, but rather to help surface opportunities that may subsequently be developed through the most appropriate MDB and client processes.

4. Measuring the benefits to biodiversity

Building on Section 2, once opportunities have been identified, whether through project-level due diligence (Section 2.2) or broader landscape and system-level actions (Section 2.3), consideration should be given to how the resulting biodiversity benefits can be measured. The appropriate approach will depend on the nature of the intervention, the expected pathway through which biodiversity outcomes are achieved, and the purpose for which the information will be used.

Recent MDB work has made an important contribution to this topic. In particular, [Financing Nature: A Practitioner's Guide](#) provides a comprehensive framework for understanding and measuring nature-related outcomes through the use of impact pathways. The guide describes how interventions can be linked to biodiversity outcomes through a logical sequence connecting actions, changes in pressures, and resulting changes in the condition of nature. This approach recognises that some interventions are intended to improve the state of biodiversity directly, while others contribute indirectly by addressing underlying drivers of biodiversity loss. Selecting indicators that are appropriate to the intervention and its expected pathway of influence is therefore an important consideration.

For interventions that seek to improve the condition of biodiversity itself, state indicators are often particularly relevant. Measurement of habitat extent and condition, species populations, and related biodiversity indicators has been a component of MDB biodiversity assessment and monitoring requirements for many years and remains a well-established practice. More recently, the [Nature Positive Initiative](#) (NPI) has brought together a broad coalition of organisations to advance approaches for measuring changes in the state of nature, including habitats, species, and ecological integrity. The resulting framework has also informed broader MDB thinking on biodiversity measurement and is reflected in the aforementioned MDB guidance document.

IFC's [Biodiversity Finance Metrics for Impact Reporting](#) further expands the range of measurement approaches available to practitioners by providing indicative metrics across a broad spectrum of nature-related activities, including indicators related to pollution, resource use, and production or management practices.

Annex A provides further information on biodiversity measurement approaches, including the Pressure-State-Response (PSR) framework reflected in the [Open Standards for the Practice of Conservation](#) (Conservation Measures Partnership, 2020) and widely used in conservation planning. Consistent with long-standing MDB biodiversity practice, particular attention is given to the measurement of habitat extent and condition, as well as species-related outcomes, as examples of state indicators that can be used to measure biodiversity gains.

5. Summary

Compliance with MDB biodiversity standards remains the foundation for managing biodiversity risks and impacts and contributes directly to many biodiversity objectives reflected in client ambitions, national biodiversity priorities, as well as broader global biodiversity goals. The processes and information generated through biodiversity risk management—including biodiversity baseline studies, E&S assessment, stakeholder engagement, and broader planning exercises—can also provide a valuable basis for identifying opportunities that extend beyond the management of project impacts alone.

This note highlights practical pathways and entry points through which MDBs and their clients may identify and develop such opportunities, whether through shaping project pipelines, project preparation and due diligence, or broader landscape and system-level actions. Viewed collectively, these pathways highlight how existing MDB processes can serve not only to manage biodiversity risks, but also to identify and develop opportunities that support wider biodiversity objectives.

Annex A: Biodiversity measurement: concepts and illustrative examples

This annex provides additional information on concepts and approaches relevant to biodiversity measurement. It complements Sections 2 and 4 by describing commonly used frameworks and indicators for assessing biodiversity outcomes and illustrating how different types of actions may lend themselves to different approaches to measurement.

As mentioned in Section 4, a useful framework for understanding these relationships is the Pressure-State-Response (PSR) framework, reflected in the Open Standards for the Practice of Conservation and widely applied in conservation planning. In this framework, pressures are the factors that drive biodiversity loss (e.g., habitat conversion to other land uses), responses are the actions taken to address those pressures (e.g., project mitigation measures, land use regulations and market incentives), and state refers to the condition of biodiversity itself, including habitats and species (e.g., the extent and condition of natural habitat) in terrestrial, freshwater and marine environments.

Different actions may contribute to biodiversity outcomes through different pathways and therefore lend themselves to different approaches to measurement. In some cases, changes in the state of biodiversity—such as habitat extent, habitat condition, or species populations—may be the most appropriate indicators. In others, particularly where outcomes occur over long timeframes or at broader scales, pressure and response indicators may provide a more practical means of assessing progress. The following sections provide a broad overview of these approaches and their application.

Measuring changes in state at the site and landscape level

The goal of any conservation action should be to sustain, if not improve, the state of biodiversity. Measuring changes in state at the site and landscape level is often required for impact assessment and mitigation required by MDB biodiversity standards but is also relevant for actions that go beyond compliance. The [Nature Positive Initiative](#) presents a collaborative synthesis on state metrics for this purpose.

At the same time, many contributions could also be made at the site, landscape, or systems level, which might lend themselves more readily to measurement using pressure and response indicators, such as policy or regulatory reforms to reduce habitat conversion. Related MDB work, such as [Financing Nature: A Practitioner's Guide](#), which incorporates the Nature Positive Initiative work, sets out a comprehensive framework based on impact pathways to link interventions, pressures, and resulting changes in biodiversity condition.

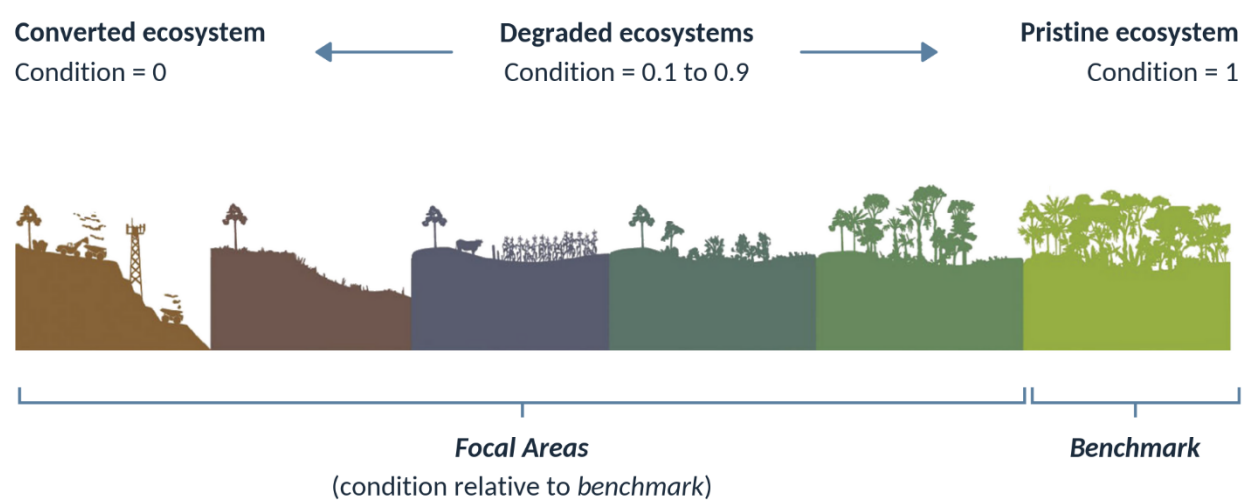
The remainder of this section will focus on contributions that lend themselves to measurement using state indicators – habitats and species. A broader range of state and related indicators, encompassing, for example, pollution, resource use, and production or management practices, is set out in IFC's Biodiversity Finance Metrics for Impact Reporting, which provides indicative metrics across a wide range of nature-related activities.

Habitats

The most common and practical approach to assess the state of biodiversity is to measure the *extent* and *condition*, also referred to as *quality*, of habitat. Measurement of habitat extent and condition has been a part of MDB biodiversity requirements for many years and is a well-understood practice. Measuring habitat extent is straightforward – it is simply the spatial area expressed, for example, as hectares or square kilometres. Condition is the degree to which the habitat resembles the highest quality, or “pristine,” representation of that habitat type (the “benchmark”). Figure 2 depicts the differences in condition scores of a habitat ranging from a completely converted area (a score of 0) to a pristine area (a score of 1). Figure 3 is an example of how condition might be calculated based on field data. When extent and condition are considered together it can be expressed in units such as quality-hectares (QH) and is the product of extent (ha) multiplied by

a condition co-efficient (0-1). A degraded site will have fewer quality hectares than an area of the same size that is not degraded.

Figure 2: Condition, or quality, scores varying from an area converted to a mine to a pristine ecosystem



Graphic adapted from Young, R.R., et al. 2022. International principles and standards for the ecological restoration and recovery of mine sites. Restoration Ecology, Vol 30 (S2), Nov 2022.

Figure 3: Example of a condition score calculation

Indicator	Functional category	Indicator quality	Functional group quality
Native species richness	Composition	0.65	0.50
Taxonomic composition	Composition	0.35	
Percent cover exotic species	Integrity	0.80	0.80
Percent cover herbs	Growth from	0.74	0.79
Percent cover shrubs	Growth from	0.68	
Percent cover trees	Growth from	0.95	0.72
Total basal area (m ² /ha)	Structure	0.57	
Abundance small trees	Structure	0.66	
Abundance large trees	Structure	0.92	0.69
Overall quality			



Measuring change involves three points of comparison: a) a benchmark habitat, the best representation of the native habitat in the region (where condition = 1); b) the baseline of the habitat in the project area before a planned intervention; and c) the project area after the intervention. Both the baseline and the area after intervention are compared to the benchmark to derive condition scores (0-1). Change in condition is the difference between the baseline habitat and the project area habitat after intervention. Box 1 provides examples of measuring changes from project impacts, restoration actions, and averted-loss offsets.

Box 1: Loss-Gain Analysis

Development projects can cause losses in biodiversity such as physical footprints in natural habitats, and gains in biodiversity from restoration and/or biodiversity offsets. It is considered GIIP to account for losses and gains of biodiversity on an annual basis to demonstrate either *no net loss* or a *net gain* in biodiversity over the life of a project.

If a habitat is measured, its extent as well as its quality are important to consider. In this case, quality (Q) might be expressed as a coefficient (0-1), where 1 represents the benchmark – a pristine example of that habitat type. Q is multiplied by the extent of the habitat (e.g., hectares), providing the unit of measure “quality-hectares” (Qha). Using this metric, a loss-gain calculation depicting a net gain from a habitat restoration offset would look like:

- Residual Impact of Project = Area of Project Impact (ha) x Habitat Quality (Q) = 100 ha x 0.75 = 75 Qha
- Offset = Area Restored (ha) x Change in Habitat Quality (Q) = 250 ha x $\Delta 0.5$ = 125 Qha
- 75 Qha (residual impact) < 125 Qha (offset) a *Net Gain*

A loss-gain calculation depicting a net gain from an averted loss offset would look like:

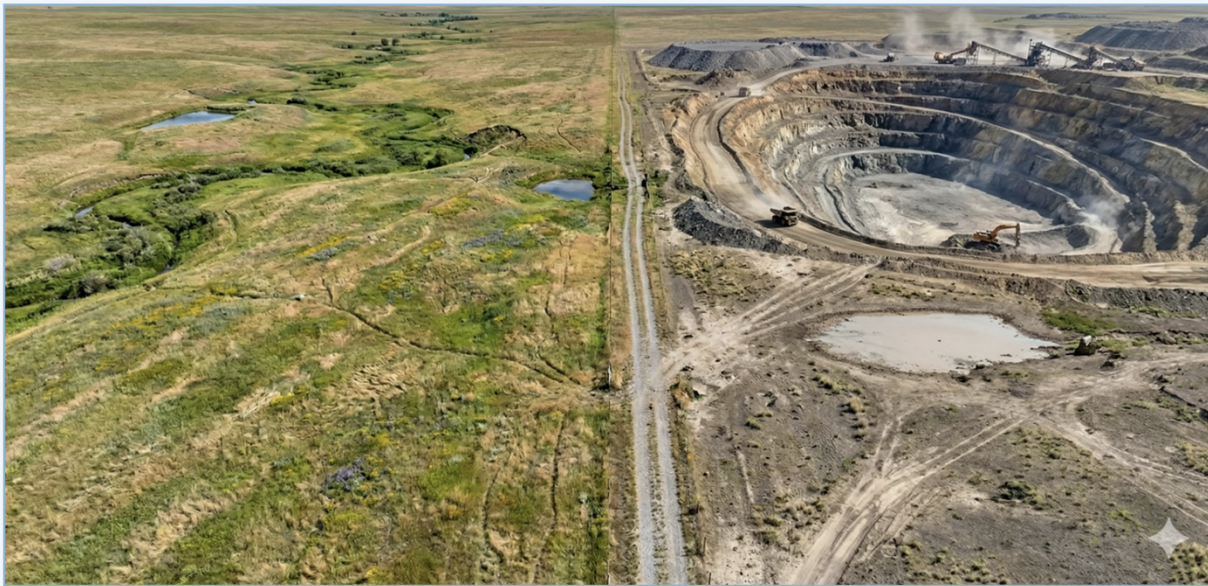
- Residual Impact of Project = Area of Project Impact (ha) x Habitat Quality (Q) = 100 ha x 0.75 = 75 Qha
- Offset = Area where habitat loss is averted (ha) x Habitat Quality (Q) = 100 ha x 1.0 = 100 Qha
- 75 Qha (residual impact) < 100 Qha (offset) a *Net Gain*

This approach can be used to measure the benefits of any conservation and restoration project, whether it is related to a required mitigation action or a voluntary beyond-compliance project. For example, Figure 4 displays a sequence of images from a hypothetical mining project that converts 2,000 hectares of partially degraded grassland. After mining, the area is reclaimed and the grassland is restored to a higher quality than baseline to achieve a net gain in grassland biodiversity. In addition, the project goes beyond compliance and supports a rangeland management programme that improves the quality of grasslands on 10,000 ha of degraded area in the landscape surrounding the project site, thus generating a significant biodiversity gain.

Figure 4: Example of habitat measurement for a mining project



Pristine grassland on the left (benchmark, Q=1). Degraded grassland on the right (baseline, Q=0.3)



A mine is developed on 2,000 ha of the degraded grassland on the right, for a loss of 600 QH in the project area.



The mine is closed, site reclaimed and grassland is restored in the project area to a quality of 0.8 (1,600 QH), for a net gain.



A rangeland management programme returns 10,000 ha of neighbouring degraded grassland beyond the project area to a quality of 0.8, for a total gain of 5,000 QH – an additional benefit for biodiversity.

A related indicator is fragmentation of habitat at the scale of the landscape, also referred to as *landscape condition*, which can be measured in terms of the intactness of the habitat, structural connectivity, and functional connectivity. This indicator is appropriate for projects with footprints that are large relative to the affected habitat and cause major fragmentation and/or linear infrastructure that bisects areas and impedes movement corridors for wildlife. The most common approaches to measurement are the use of GIS to estimate structural changes in habitat fragmentation based on geometric calculations.

Species

In some cases, it may not be sufficient to measure changes in biodiversity at the habitat level, and more focused measurement is needed at the level of individual species. This will be the case when: a) priority species for conservation are present, b) habitat does not serve as an adequate proxy for understanding how well they are conserved, and c) there is reason to believe a project will directly affect them (positively or negatively). However, it should not be assumed that this will be practical or even possible for all projects. Estimating species abundance generally involves statistical sampling, and the variance in samples may require sample sizes to be impractically large to ensure sufficient statistical power to detect changes with the necessary precision for management. Moreover, there may be other variables affecting the measurement of abundance, such as the natural year-to-year variation in species populations, whose impact may also be large, therefore introducing additional uncertainty in the analyses of changes in populations over time.

The choice of indicator is dependent on the priority species relevant to the project. A broad hierarchy of methods in terms of level of effort may be presented as follows:

- Lower effort: presence/absence (binary, without quantification)
- Medium effort: relative abundance
- Higher effort: absolute abundance, density estimates

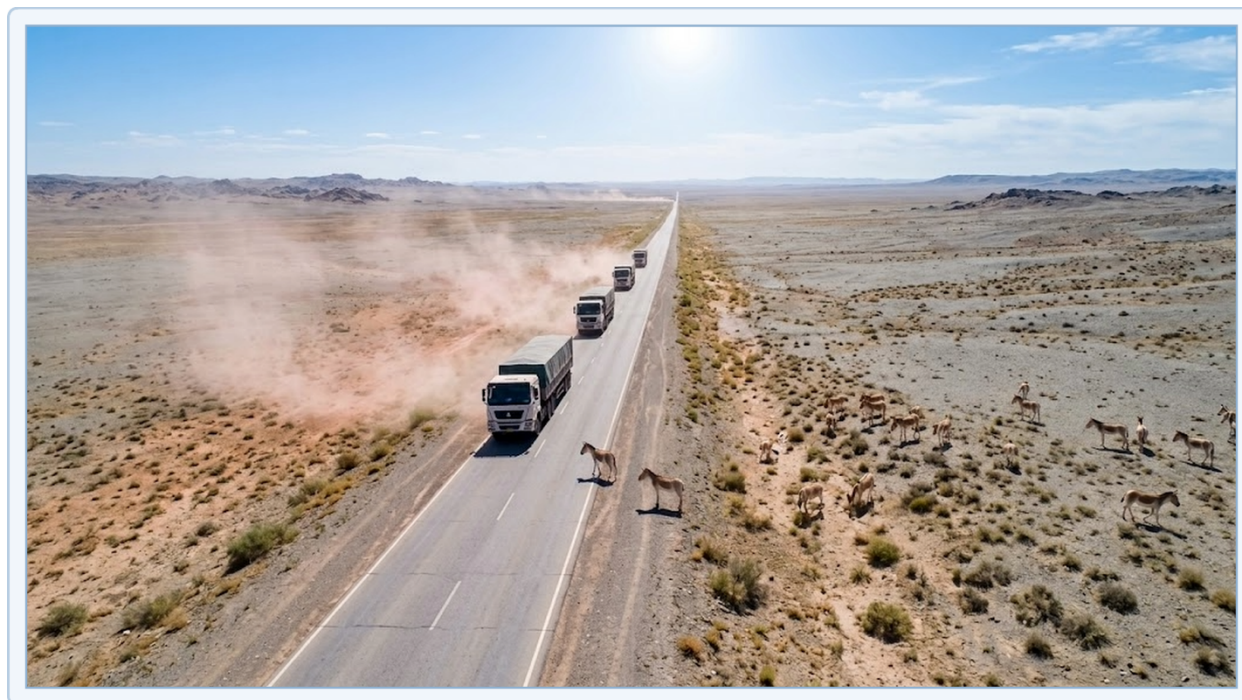
The level of effort should be commensurate with the importance of having an accurate and precise measure.

For example, a road constructed in a remote steppe habitat might cause two types of impacts to ungulates. The first is vehicle collisions. The second is a change in habitat use, potentially causing a change in population dynamics in the landscape. Vehicle collisions are easily monitored and quantified and provide direct and immediate feedback on the effectiveness of mitigation measures such as vehicle speed limits and driver training. Population dynamics are far more complex and are also affected by variables unrelated to the road itself, making it difficult to ascertain the effects of the road

(or even to identify trends outside of natural variation within short timeframes). In this case, for a species that is not highly threatened, measuring population dynamics may not be the most efficient use of resources.

Species extinction risk is another important factor. This is considered in most MDB biodiversity standards via the requirements for biodiversity based on a species' IUCN Red List status. IUCN is also developing 'Calibrated STAR', a refined, site-specific version of the STAR metric that adjusts the global (estimated) STAR score using local data on species presence and threats to produce a more precise and actionable measure of conservation opportunity.

Figure 5: Example of road affecting large mammals



A road constructed in a remote region might affect ungulates via vehicle collisions and habitat fragmentation through avoidance behaviour. The first impact is readily measured. The second may be more challenging.

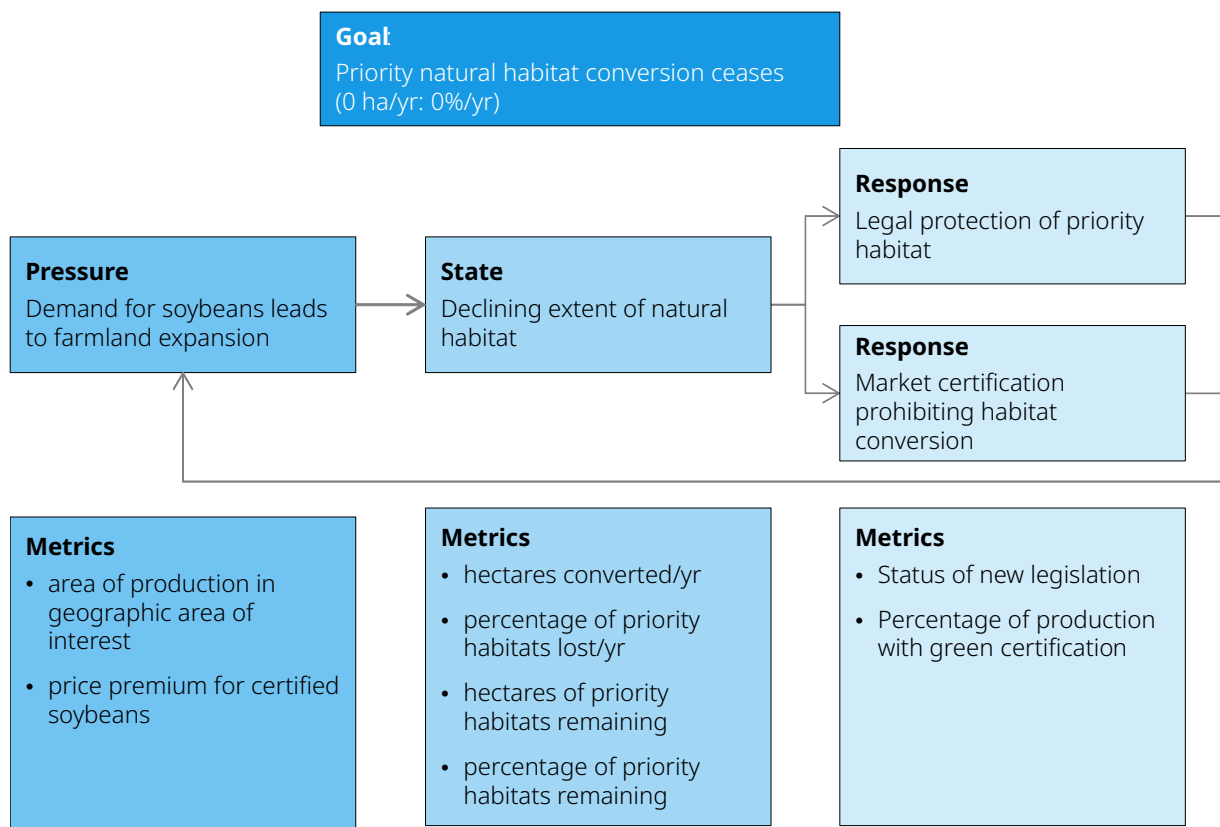
Measuring pressures and responses for system-level initiatives

It may not always be possible to detect significant changes in the state of biodiversity over a given period of time, especially short timeframes, or for system-level initiatives like improving public policy or institutional capacity needed to improve conservation outcomes at a national scale. In these cases, indicators for pressures and responses may track intermediate outcomes. Fundamental to measuring pressures and responses is a clear understanding of how they relate to the state of biodiversity.

A *theory of change* can be developed to summarise the understanding of the pressures, the responses needed to reduce those pressures, and how they will improve the state of biodiversity. To be credible, a theory of change should be vetted by experts that understand the local context considering social, economic and political factors as well as the effectiveness of similar activities implemented in the past. This is often accomplished through conservation design workshops and peer review processes. To support this process, conservationists often rely on methods such as those described in the [Open Standards for the Practice of Conservation](#) (Conservation Measures Partnership, 2020).

A simplified theory of change for reducing land use conversion for agriculture, building on the pressure-state-response framework, is presented in Figure 6. The complexity of a fully developed theory of change will be greater, but the concepts remain the same for producing a plausible model describing how conservation actions should improve the state of biodiversity.

Figure 6: Example of a simplified theory of change for slowing habitat conversion, with indicators and metrics for pressure, state, and response. The contents of each box provide illustrative examples and are not comprehensive.



The key requirement that must be met in a theory of change is that the necessary *and* sufficient actions are taken to achieve the desired outcome. In many cases, multiple responses will be needed, and may include addressing gaps in conservation priority setting, institutional capacity to enforce regulations, long-term financing mechanisms, among others. For example, providing 4x4 vehicles to a protected areas agency is not enough to ensure proper management of the protected areas system. There may be a need for new legislation, better monitoring and enforcement, improved understanding of the habitat requirements of species that require management, among many other possible needs. The theory of change should make this causal logic explicit, clearly linking the proposed actions to the outcomes they are intended to achieve.

The ultimate outcome of a well-designed and executed plan should be a material improvement in the state of biodiversity. Notwithstanding, there are many actions that will cause a change to occur only slowly or occur in a way or over a geographic scale that is otherwise not amenable to practical field measurement. For these reasons, practitioners of conservation have long relied on monitoring intermediate outcomes based on tracking the execution of actions taken to reduce pressures and resulting changes in those pressures. These are effectively pre-cursor indicators of progress towards improving the state of biodiversity over a longer time frame.

To meaningfully support the goals of the GBF, projects may fund or implement responses to pressures on biodiversity at any geographic scale beyond the project area. However, to credibly claim credit for this work, a fully vetted theory of change with measurable indicators will be needed. Attribution of expected gains in biodiversity should be transparent about: a) the actions that are supported by the project in the context of all the necessary interventions to achieve a conservation outcome; and b) the selected indicators of progress and the measurability of change for each.

Selecting Appropriate Indicators: Illustrative Examples

Opportunities to support the public and private sector client ambitions and national and global biodiversity goals are numerous—at site and landscape levels, as well as through addressing broader systemic needs. This note does not seek to

recreate existing taxonomies, which are already well established in the World Bank Group's [MDB Common Nature Finance Taxonomy](#).

Rather, the note highlights that different types of projects lend themselves to different forms of measurement. Some are best assessed through **state indicators**, such as habitat extent and condition, while others are more appropriately captured through **pressure** and **response** indicators. The choice of indicator type should therefore be made on a case-by-case basis, guided by expert judgement.

For illustrative purposes, Table 1 provides a limited set of examples to demonstrate this distinction. In practice, and assuming no resource constraints, any of these examples could theoretically be measured using pressure, response, or state indicators. However, the indicators suggested here reflect those most likely, and most practical, given typical time and resource limitations. As discussed above, where pressure and response indicators are used, a robust theory of change is essential to articulate how reducing pressures, through specific responses, will lead to measurable improvements in the state of biodiversity.

Table 1: Illustrative examples of opportunities by scale and indicator types

Example	Scale	Indicator Type
Adoption of innovative technologies to support climate smart or regenerative agriculture on project site	Site	Pressure, Response and State
Adoption of innovative waste and wastewater management solutions, including nature-based solutions on project site	Site	Pressure and Response
Commitment to restore project impacts against a 2020 (or earlier) baseline rather than a pre-project baseline.	Site	State
Lengthening the financial commitment to a biodiversity offset beyond the term agreed with the lender ⁴	Landscape	State
Working with neighbouring industry in the landscape/seascape to reduce cumulative threats/stressors via activities that are complementary to a project's own mitigation.	Landscape	Pressure and Response
Commitment to restore and/or conserve species and habitats in modified and degraded landscapes around the project beyond compliance requirements.	Landscape	State
Commitment to work with neighbouring communities, via social programmes, to lower pressures on ecosystem services via activities that are complementary to a project's own mitigation.	Landscape	Pressure and Response
Working with governmental authorities to establish national regulations on invasive species management and establishing quarantine controls in incoming major ports, which indirectly may be supportive of the project-level invasive species management.	Broader-scale/ Systemic Conservation Needs	Pressure and Response
Undertaking sectoral or landscape-level spatial planning to avoid development in areas of high biodiversity value and priority ecosystem services	Broader-scale/ Systemic Conservation Needs	Pressure and Response
Fund a protected area, or a protected area system, to ensure the regional or national viability of threatened species or ecosystems.	Broader-scale/ Systemic Conservation Needs	State
Fund the administration and capacity development of a national trust fund for protected areas.	Broader-scale/ Systemic Conservation Needs	Pressure and Response

4 For compliance with most MDB biodiversity standards, offsets should be supported for as long as the project's impacts persist. If impacts are remediated, the obligation to support the offset could be lifted.

Example	Scale	Indicator Type
Assist a national or global seed bank.	Broader-scale/ Systemic Conservation Needs	Pressure and Response
Fund applied science, such as updating and expanding IUCN Red List assessments.	Broader-scale/ Systemic Conservation Needs	Pressure and Response

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