



Enhancing Adaptation and Climate-Resilient Operations within the Multilateral Development Banks

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March 2020

- » The Multilateral Development Banks (MDBs) have committed to align their operations with the mitigation and the adaptation goals of the Paris Agreement.
- » This memo describes how banks can assess and implement their alignment with the Paris Agreement's adaptation goal.
- » We argue that the MDBs need to do two major things to make their operations Paris aligned with regard to adaptation: (1) ensure that all investments are climate-resilient by adopting robust quantitative processes that incorporate climate risks and adaptation options in project design and analysis, and (2) enhance the quality of climate adaptation projects by adopting climate adaptation and resilience metrics.
- » We suggest that the MDBs adopt a harmonized multi-step quantitative process for new medium- and high-risk projects that incorporates climate risk and adaptation options in project financial and economic analysis and set a date in the near future by which all new projects will be analyzed.
- » Additionally, we recommend that MDBs expand on their current adaptation finance tracking processes to adopt additional adaptation and resilience metrics, including some output- or outcome-based metrics that allow them to track and report on the quality and results of adaptation finance activities, in addition to the volume of adaptation finance.

Introduction

The Paris Agreement establishes three broad goals in the context of sustainable development and efforts to eradicate poverty: (1) limiting global average temperature rise to well below 2°C and striving to limit it to 1.5°C (Article 2.1a); (2) increasing adaptive capacity and climate resilience (Article 2.1b); and (3) aligning financial flows with low-emission, climate-resilient development pathways (Article 2.1c).¹ The three are closely interconnected, and Article 2.1c, on financial flows, is a necessary condition for attaining the Agreement's temperature and adaptation goals.²

In order to advance Article 2.1c, Multilateral Development Banks (MDBs)ⁱ are striving to align their own

operations with the Paris Agreement. In a December 2018 statement, MDBs announced that they were jointly developing an approach to implement Paris alignment. In that statement, they identified six key areas or “building blocks” that will form the core of their Paris alignment approach: (1) Alignment with mitigation goals; (2) Adaptation and climate-resilient operations; (3) Accelerated contribution to the transition through climate finance; (4) Engagement and policy development support; (5) Reporting; and (6) Aligning internal activities. The MDBs are now developing methodologies and tools for Paris alignment under each building block.³

This memo is one of a six-part series on the MDBs' building blocks. It focuses on Building Block 2 on adaptation and climate resilient operations. In Building Block 2, MDBs commit to actively manage physical climate change risks "in a manner consistent with climate-resilient development", identify opportunities to make their operations more climate resilient, and help improve the adaptive capacity of their clients.⁴

This memo builds on the World Resources Institute landscape report *Toward Paris Alignment: How the Multilateral Development Banks Can Better Support the Paris Agreement*⁵ and draws from our review of the Paris alignment literature, discussions with MDBs on how they are beginning to conceptualize Building Block 2, and our own expert opinion on what is feasible and practical for these institutions.

This memo first sets out overarching principles to guide implementation of Building Block 2. It then discusses implementation in greater detail. The goal is not to provide a comprehensive treatment of everything MDBs do in relation to adaptation. Instead, this memo aims to provide concrete recommendations on two issues that are key to implementation of Building Block 2: (1) how to increase the resilience of all project-level investments, and (2) how to make existing adaptation finance projects more effective. It concludes with recommendations for MDBs as they advance this element of their Paris alignment approach.

Box 1: Trade-offs between adaptation and mitigation

The Paris Agreement includes goals relating to mitigation and adaptation and puts the two on equal footing. In many cases, mitigation and adaptation are mutually reinforcing. But in some instances there may be tradeoffs between the two objectives. For example, investment in increased fossil fuel-based air conditioning to respond to hotter dryer conditions would, of course, run counter to mitigation objectives.

The MDBs' approach to Paris alignment requires alignment with both Building Block 1 (on mitigation) and Building Block 2. Consequently, they will need to develop methodologies for identifying and managing these sorts of tradeoffs. If a particular adaptation measure would result in large associated emissions, it may not be the most appropriate option and alternatives should be considered. And they typically exist. *Given the distributional impacts of climate change, including poverty, the focus of MDBs should be on enhancing resilience in the most low-carbon manner as possible.*

Adaptation solutions that undermine mitigation efforts to a significant degree cannot support climate-resilient pathways.¹³ But in most cases, adaptation and mitigation will be complementary. Even with the most ambitious adaptation actions, there will be residual climate impacts. Thus, ambitious mitigation has been called the

best form of adaptation.¹⁴ Some interventions provide both adaptation and mitigation benefits. For example, natural climate solutions (NCS), such as reforestation, avoided deforestation, coastal restoration and improved agricultural management, can provide more than one-third of the climate mitigation needed between now and 2030 to have a likely chance of keeping global warming below 2°C. And if effectively implemented, many also offer resilience benefits, such as flood buffering, improved soil health and enhanced crop productivity.¹⁵

In terms of infrastructure – a core focus of MDB investments – resilience need not entail large associated emissions. There is evidence that integrating gray with green infrastructure can provide lower-cost and more resilient services than simply relying on gray infrastructure alone.¹⁶ Where gray infrastructure needs to be made more resilient (eg, elevating power plants, making water conveyance structures larger, enhancing drainage for roads), the additional costs may be only a few percent of the total project costs,¹⁷ and the associated embedded emissions from more construction materials may not be significant. Small additional greenhouse gas (GHG) emissions would be justified with significant achievements in other SDGs and strong resilience benefits, especially for vulnerable populations.

ⁱ The banks involved are: African Development Bank (AfDB), Asian Development Bank (ADB), Asian Infrastructure Investment Bank (AIIB), European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), InterAmerican Development Bank (IADB), Islamic Development Bank (IsDB), New Development Bank and World Bank Group.

Overarching Principles

The concept of climate-resilient development pathways is integral to the question of Paris alignment of investment flows. The Intergovernmental Panel on Climate Change (IPCC) defines a climate-resilient development pathway as a “continuing process for managing changes in the climate and other driving forces affecting development, combining flexibility, innovativeness, and participative problem solving with effectiveness in mitigating and adapting to climate change”.⁶ They are “development trajec-

tories that combine adaptation and mitigation ... to realize the goal of sustainable development”.⁷ Developing climate-resilient pathways requires identifying vulnerabilities to climate change impacts, assessing opportunities for reducing risk, and considering decisions over both short- and long-term time horizons.⁸ Based on this conceptual formulation, we argue that several overarching principles could guide MDBs in implementing Building Block 2.

1 | Implementing Building Block 2 requires MDBs to consider both the *resilience of* and *resilience through* their investments. Considering the *resilience of* investments means taking steps to make the specific assets or activities being financed climate resilient over their lifetimes. In the case of an infrastructure project, it could mean strengthening the assets to withstand projected changes in climate conditions (temperature, precipitation, sea-level rise and severe precipitation events) and associated impacts, such as flooding. For agriculture, it could mean adopting drought-resistant varieties or employing water conservation measures.

Achieving *resilience through* investments means identifying opportunities for investments to deliver broader resilience benefits. For instance, infrastructure could be designed to build community resilience by reducing the vulnerability of exposed populations, enhancing livelihoods and protecting assets. These two dimensions of resilience have been articulated in the World Bank’s proposed resilience ratings system.⁹ The Climate Bonds Initiative similarly refers to *asset-focused* and *system-focused* resilience.¹⁰

2 | MDB investments should consider climate risk across timescales, evaluate opportunities and adaptation options for reducing risk, and incorporate decision making under uncertainty.

The risks of climate change will intensify over time, given inertia and time lags in the climate system. Thus, it is important to understand and, where possible, quantify the risk over many timescales. For infrastructure, this would mean over the entire lifetime of the asset (20–100 years), though often beyond, as the location of future infrastructure is highly dependent on the current built form. Given the uncertainty of future climate projections in many places, especially at fine spatial or temporal scales, decision making should factor in uncertainty.

3 | MDBs should focus on adaptation effectiveness and go beyond tracking the quantity of adaptation investments. To date, MDBs have focused on measuring adaptation volumes. While the current joint reporting framework on adaptation finance has been instrumental in scaling up MDBs’ adaptation finance (increasing from \$4.2 billion in 2011¹¹ to \$12.9 billion in 2018¹²), the current reporting does not gauge the effectiveness of adaptation finance nor provide metrics on the expected or ex post benefits of their adaptation finance projects. Consequently, MDBs should adopt resilience metrics to measure the effectiveness of their adaptation finance across sectors. Where possible, they should strive to maximize co-benefits in line with the Sustainable Development Goals (SDGs) and complementarities with climate change mitigation (Box 1).

Implementing Building Block 2

Creating processes to ensure all investments are climate resilient

In this section, we describe the current MDB climate risk management processes and offer recommendations for additional measures MDBs could take to better ensure the *resilience* of investments.

MDBs have begun to develop processes to assess and manage the climate-related risks to their investments. Most MDBs conduct some form of initial risk screening.¹⁸ Screening takes place early in the project development process, at either project identification or concept note stage, and typically involves filtering a project into qualitative risk categories (eg, low, medium and high risk) based on the geographic location and sector of the investment and on location-specific data on current climate and/or climate projections.ⁱⁱ

MDBs have differing requirements for what comes after the initial risk screening process. The Asian Development (ADB) typically conducts vulnerability studies for any project categorized as high risk and for some medium-risk investments. It conducts detailed climate risk vulnerability assessments and economic analyses of climate-proofing investments, and these assessments are sometimes publicly disclosed with project documentation.¹⁹ The World Bank has tended to allow project teams greater discretion to decide whether to conduct additional climate-related assessments²⁰, but it is currently developing a Resilience Rating System, part of which will be used to assess the resilience of projects. The Rating System is designed to measure the extent to which a project has accounted for climate-related risks to project performance; the implementation of progressively more sophisticated analyses allows projects to attain higher grades on a scale from R (unknown) to A+.²¹ The InterAmerican Development Bank (IADB) is currently pilot testing a new disaster and climate change risk assessment methodology that requires additional project-specific research for high- and moderate-risk projects to determine the scope of risk.²² Their new methodology requires detailed quantitative risk assessments for a more limited set of projects.²³ The Islamic Develop-

ment Bank (IsDB) developed a set of sector guidance notes for project teams to use following initial risk screening; they are designed to help project teams further evaluate climate-related risks and identify adaptation options.²⁴

Because significant variation remains, we provide specific recommendations for what we believe should follow risk screening. In particular, we propose a multi-step process to incorporate climate risks and adaptation options into project financial and economic analyses for all projects that are considered medium or high risk.

These recommendations draw on the deep base of existing literature on climate risk management^{25,26} and many organizations have presented similar guidance. For example, the Climate Bonds Initiative has articulated a series of resilience principles and associated analyses for resilience bonds.²⁷ The European Financing Institutions Working Group on Adaptation to Climate Change has produced guidance on incorporating climate information and risk into project planning and analyses²⁸ and the Task Force on Climate-related Financial Disclosures has outlined the importance of scenario analysis for physical risk.²⁹ In line with these resources, we propose the following process:

1. **Quantify climate risk.** For high- and medium-risk projects, additional more detailed assessments are needed to quantify the most significant climate risks to the project. These assessments should then be disclosed in publicly available project documents. The climate hazard and impact variables to be quantified would be context specific and likely vary for projects in different sectors. For example, assessments for an agriculture project might include quantification of how precipitation and temperature changes would impact crop yields, while assessments for a drinking water supply project might measure how precipitation variability would impact water quantity. However, assessments quantifying climate risks should also share a number of common characteristics:

ii The EBRD does not incorporate future climate projections into risk screening.

- a. **Assessments should include short-, medium-, and long-term climate risks.** The analysis should consider current climate risk and the impacts of climate change over the short- (< 10 years), medium- (10–30 years) and long-term (30–50+ years). It is important to consider a longer-term perspective, beyond the project period, to encompass the lifetime of the asset. For example, many infrastructural assets can last 50 years or more.³⁰ But even for shorter-lived assets, this should apply. Although roads might last 10–20 years, their future location is often constrained by the past.
 - b. **Assessments should include a range of scenarios and climate models.** The analysis should employ a range of emissions scenarios (eg, business-as-usual – Representative Concentration Pathway³¹ (RCP) 8.5, 1.5 °C, 2 °C pathways) and climate models. (In the near term, there is little divergence in projected climate impacts across emission scenarios, but in the long term, differences become very pronounced.) It is always preferable to use an ensemble of models that covers the distribution of projections and the ensemble mean or median, rather than rely on a single model in climate analyses.
 - c. **Assessments should include consideration of uncertainty.** Where possible, the analyses would be presented in a probabilistic manner, eg, percent chance that minimum runoff in a watershed management project would fall below x cubic meters per second or crop yield would fall by x kilograms per hectare. Of course, not all climate risks can be easily quantified, and data gaps persist in many geographies. Nonetheless, this process is iterative, and with time, as data are more available and models become more sophisticated, the ability to characterize climate risk will improve.
2. **Include climate risk in project economic analyses.** After measuring climate risks, project teams should assess how those risks would affect project economics, for example, how increased costs or reduced benefits under different climate scenarios would affect project net-present value or internal rate of return. Not all impacts are easily quantifiable, however, and so some impacts, such as loss of cultural heritage or non-market ecosystem values, may need to be described qualitatively. This is in line with the general recommendation that MDBs should include the full climate costs and benefits in project economic analyses.³²
 3. **Identify adaptation options and include them in project economic analyses (where possible).** Potential adaptation options should also be included in project analyses, and where possible, their costs and benefits should be quantified and included in the project economic analyses, described above. Here we are not referring to calculating the incremental cost of climate change adaptation, which is the additional cost of restoring welfare and benefits to the level it would have been without climate change, ignoring deficits to current climate.³³ With the exception of certain infrastructure investments, incremental costs can be difficult to calculate and are not especially meaningful for many adaptation interventions, particularly “soft” measures such as capacity building.³⁴ Instead, we are simply referring to the cost of building resilience in a project identified to have medium or high climate risks. Additionally, as discussed above, not all adaptation benefits can be easily quantified and thus included in cost-benefit analyses but should be characterized qualitatively.
- Given uncertainty, the selection of adaptation options should incorporate risk management³⁵ approaches such as safety margins in adaptation planning³⁶, low- or no-regrets options³⁷, the inclusion of sensitivity analyses in cost-benefit or other economic analyses³⁸, or robust decision making.³⁹ Such approaches could help identify adaptation strategies that perform well over a wide range of possible future climates. Contingency plans should be described in case of failure of the adaptation intervention. Moreover, it is important that analyses extend beyond the project boundary in some cases to guard against an adaptation measure being implemented that is maladaptive with regard to other communities outside the project, for example, downstream users in a water resource management project.

4. **Quantify residual risk.** Adaptation options typically will not remove the climate risk completely. What remains is the residual risk. There may be other options that minimize climate risk, but they may not be feasible to implement or may have costs that exceed the benefits (eg, avoided losses). Fundamentally, residual risk is dependent on the underlying climate risk and the opportunities identified to address that risk (adapta-

tion options). It may not always be possible to quantify the residual risk with great precision.

Current processes in certain MDBs already include elements of the multi-step process described above. For instance, Box 2 illustrates this quantitative climate risk analysis by examining an ADB project where many – but not all – of the outlined steps have been carried out.

Box 2: An example of climate risk management

ADB's Rupsha 800-Megawatt Combined Cycle Power Plant Project

ADB engaged a consultant to conduct a climate risk vulnerability assessment for a proposed gas-fired power plant in Bangladesh (Rupsha 800-Megawatt Combined Cycle Power Plant Project).^{40,41} The assessment first determined that climate change could affect the plant in a number of ways:

1. Higher average temperatures and more frequent and severe extreme temperatures could reduce the plant efficiency and thus generating capacity.
2. Reduced surface water availability and changing seasonal flow patterns of the river that is the primary source of cooling water could increase the risk of thermoelectric power plant de-ratings.
3. Sea-level rise and increasing frequency and intensity of storms and cyclones could increase the vulnerability to flooding, storm surge and saltwater intrusion.

The project only examined the impacts of increased air and river water temperature on power output, based on projections in temperature using a multi-model mean for two emissions scenarios (RCP8.5 and RCP2.6). Based on the projections, the authors assumed average daily air temperature and river water temperature would increase by 0.02°C per year in Bangladesh. Moreover, they estimated that a 1°C increase in air temperature above the design point of 15°C would lead to a reduction in generation capacity by approximately 0.45% per year and a reduction in net efficiency by approximately 0.01% per year. Similarly, they estimated that a 1°C increase in water temperature would reduce the generation capacity by 0.16% per year and decrease the net efficiency of the power plant by 0.1% per year.⁴⁰

The project team then conducted an economic analysis of adaptation options. They examined the cost of four adaptation measures, including a closed loop cooling tower, a water treatment system, riverbank protection and other auxiliary systems, which was estimated to cost Tk3,424 million in total. They included this in project economic analysis, calculating that the net present value and internal rate of return would be taka (Tk)55,884 million and 18.5%, respectively, without climate change, and Tk27,885 million and 14.3% with climate change. Lastly, they estimated that the residual damage would be Tk16,427, as the 'climate proofing' investment was estimated to recover 50% of climate change impact in terms of power output and net efficiency rate.

Overall, this sort of analyses represents an important step for the ADB, and MDBs that are not yet integrating quantification of climate risks and adaptation options into economic analyses should follow suit. However, there are some ways that the analysis could be improved. The economic analysis only examined the impacts of increased air and river water temperature on power output and did not consider the impacts of sea-level rise and storm surge. Nor did it consider projected changes in precipitation and hence stream flow. Moreover, it is preferable to more fully capture the envelope of model projections rather than simply using the ensemble model mean. The analysis only looked 26 years into the future, a timeframe much shorter than the lifetime of a typical power plant. Capturing the variation in projected daily air temperature and river temperature, as opposed to simply using the daily average would more fully capture the risks to plant efficiency and power outputs. This would better characterize variability and provide for a probabilistic presentation of risk.

Adopting climate resilience metrics

As part of their joint climate finance reporting framework, MDBs measure and report on adaptation finance volumes. Although joint reporting has been instrumental in scaling up MDBs' adaptation finance (increasing adaptation finance from \$4.2 billion in 2011⁴³ to \$12.9 billion in 2018⁴⁴), their current approach does not assess the effectiveness of adaptation finance in delivering adaptation or resilience benefits. Consequently, we argue that MDBs could potentially enhance resilience through their investments by expanding on this input-based approach to include a range of resilience metrics, including metrics that would allow them to track and report on the quality and results of adaptation finance activities.⁴⁵

Indeed, the need for adaptation metrics that “enable consistent reporting on the results that [adaptation finance] delivers” is one of the main lessons that MDBs gleaned from three years of joint adaptation finance tracking.⁴⁶ In fact, MDBs are taking steps to adopt climate resilience metrics; together with the International Development Finance Club (IDFC), they have developed a *Framework for Climate Resilience Metrics in Financing Operations*.⁴⁷ The framework offers an overarching structure to guide MDBs as they develop resilience metrics systems.

The terms “adaptation metrics” and “resilience metrics” encompass a range of concepts.⁴⁸ Metrics include both indicators (usually single factor or variable measures) and indices (often composites of indicators). Metrics also vary in terms of what they measure, when they are applied and at what scope. They can be formulated to assess climate vulnerability, adaptive capacity, risk, resilience or climate impacts.⁴⁹ They can measure variables at any point along the standard project results chain, which includes inputs, outputs, outcomes and impacts (Figure 2). They can be used to set ex-ante targets or to evaluate results on an ex-post basis. Additionally, metrics can be measured and reported at project or asset level or at systems level.

Recognizing the diversity of metrics and the context-specific nature of adaptation and resilience, the MDBs' proposed framework for climate resilience metrics sets out a flexible approach based on a results chain model.⁵¹ Their proposed framework distinguishes between metrics that describe the quality of project design and metrics that describe project results.

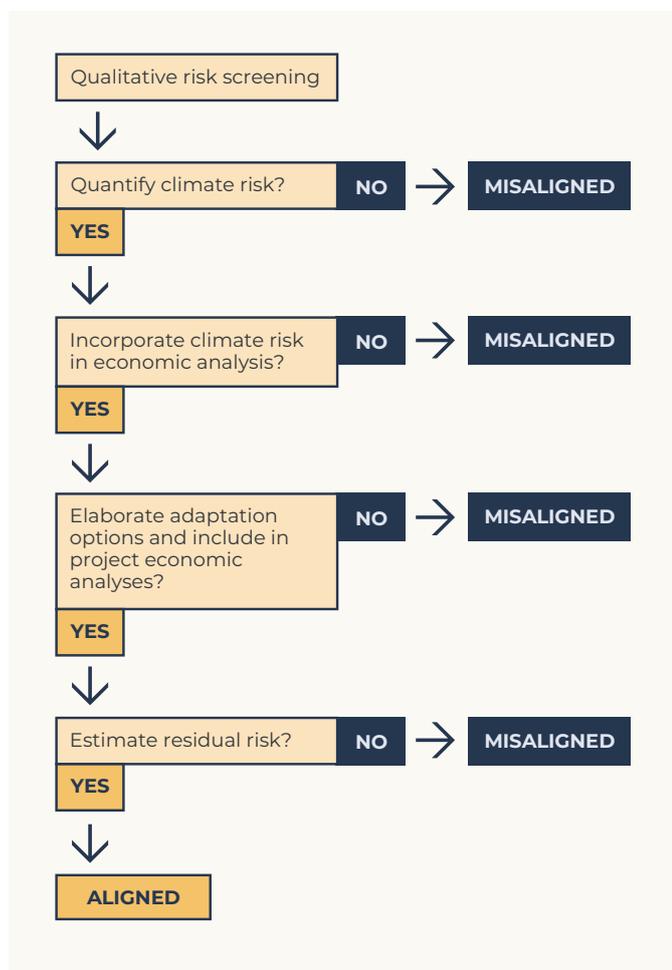


Figure 1. A decision tree for assessing alignment of medium- and high-risk investments in terms of climate resilience. This process should be the end goal for MDBs.

Ideally, MDBs would implement all of the above steps (Figure 1) and include the various assessments in publicly disclosed project documents. However, we acknowledge that MDBs' current climate risk management systems vary in terms of sophistication and that aspects of this process may pose challenges for some in the near term. For example, the data necessary to quantify climate risks at project level and include them in detailed economic assessments may not be available in all places. Consequently, MDBs could adopt a phased approach, whereby they expand the scope of quantitative assessments they conduct and the categories of projects subject to such assessments over time.

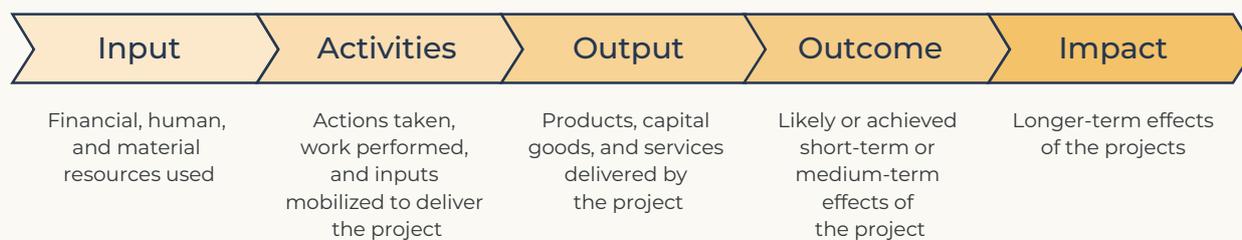


Figure 2. The project results chain.⁵⁰

Project design metrics include those related to project diagnostics, inputs and activities, while project results metrics include output-, outcome- and impact-related metrics.⁵² The framework is not prescriptive. Instead, it recognizes that metrics can be applied at any point along the results chain and allows for application at asset level or systems level. Furthermore, the framework calls for flexibility to accommodate diverse financing needs and variance across MDBs in terms of structure, financial instruments and business models.

While we recognize the need for flexibility, we believe there is room for some harmonization of practices with respect to resilience metrics across different MDBs. First, the proposed framework allows for projects to be assessed based on project design and/or project results. While different metrics will apply under different circumstances and at different financial institutions, we urge all MDBs to commit to adopting project results metrics, including adaptation output-, outcome- and impact-related metrics, to evaluate the effectiveness of adaptation activities across different sectors. For example, they could commit to including at least one adaptation output-, outcome- or impact-related metric in all projects counted as adaptation finance under the joint climate finance tracking framework.

Additionally, while metrics used to evaluate the effectiveness of specific adaptation interventions are likely to be highly context specific, MDBs could also adopt a more limited set of metrics with broader applicability across their portfolios or for selected sectors. They could potentially link this more limited set of metrics to their results frameworks. MDB corporate results frameworks generally include performance indicators across several levels or tiers: the larger country or regional development context, the banks' contribution towards development through their projects, and its internal operational or organizational management (Annex 1). Currently, while various social and human development indicators are included in many MDBs results frameworks – and good development builds resilience⁵³ – overall, there is a dearth of explicit adaptation or resilience indicators included in MDBs results frameworks.

The adaptation metrics used by the European Bank for Reconstruction and Development (EBRD) as part of its the Green Economy Transition approach⁵⁴ (Annex 1) and some of the multilateral climate funds (Annex 2) offer guidance on the types of indicators that could be employed in this way by MDBs. Additional examples of potential adaptation metrics with broader applicability are included in Table 1.

Table 1: Examples of possible adaptation metrics to be applied across portfolios or sectors (non-exhaustive list)

General	Sectoral (all could have both economic and non-economic measures)
<ul style="list-style-type: none"> • Number of direct and indirect beneficiaries from the most vulnerable populations • Assets protected, damages avoided, or income increased • Increased human health and productivity (quality-adjusted life years (QALYs))/ saved wealth (relative and absolute basis) and saved health 	<ul style="list-style-type: none"> • Land area restored/protected • Land area employing climate-smart agricultural practices/improved water management • Increased water availability in the face of increasing climatic variability • Increased energy availability in the face of increasing climatic variability

Of course, all metrics have advantages and limitations. Perhaps the simplest metrics relate to the number of direct or indirect beneficiaries, which the Green Climate Fund (GCF) uses. On the one hand, these metrics are widely applicable. On the other hand, they lack specificity and would require detailed guidance to ensure they are calculated in comparable ways. Purely economic metrics, like avoided damages and the value of assets protected, only capture the adaptation benefits that can easily be monetized. Other more complex metrics include saved wealth (economic assets protected from climate change impacts) and saved health (human lives and health protected) of projects.⁵⁵ All metrics would require additional methodological development by MDBs.

Additionally, in adopting project results metrics, it is important that investments are not only designed to maximize impact (eg, number of beneficiaries)

without regard to the distributional impacts of investments. Project results metrics should also pay special attention to the poorest, most vulnerable populations. Saved wealth, for example, can be calculated on a relative basis to incorporate the fact that losses for a poor household from climate impacts may be a much larger proportion of household wealth.

Where feasible, applying common metrics across different MDBs would facilitate comparability of efforts and shared learning across MDBs. This, in turn, could enhance ambition across MDBs, much like the joint climate finance tracking methodology has done for increasing the volumes of adaptation finance. While complete harmonization in this respect may not be practical, MDBs may be able to adopt a sub-set of common metrics that are applied and reported in similar ways.

Recommendations

In order for MDBs to enhance adaptation and climate-resilient operations in accord with the Paris Agreement, they need to consider both the *resilience of* and *resilience through* their investments. While MDBs have different operating circumstances and modalities, it is important that they harmonize as best as possible their approach to climate resilience. This is one of the key lessons of their joint reporting on climate finance: where there is standardization and a common basis of comparison, enhanced ambition follows.

To align their operations with the Paris Agreement on climate resilience, we recommend that MDBs:

1. **Adopt a harmonized multi-step quantitative process for new medium- and high-risk projects that incorporates climate risk and adaptation options in project financial and economic analysis, and set a date by which all new projects will be analyzed.** As a start, each MDB could begin to quantify the climate risk of projects and disclose them in project documents.
2. **Adopt a common set of emission scenarios, timeframes and a set of climate models to be used in climate risk analyses.** The climate risk should be evaluated over the short (< 10 years), medium (10–30 years) and long term (30–50 years). The emission scenarios should include both a business-as-usual (eg, RCP8.5) and 1.5°C/2°C scenarios (eg, RCP2.6). The climate models would be those that are part of the World Climate Research Program’s Coupled Model Intercomparison Project,⁵⁶ whose outputs are used in IPCC assessment reports.
3. **Adopt adaptation and resilience metrics that allow MDBs to track and report on the results and effectiveness of adaptation finance activities.** Incorporate adaptation output-, outcome- or impact-related metrics in all projects counted as adaptation finance under the joint climate finance tracking framework. Consider adopting a narrower set of metrics that are more widely applicable at portfolio or sector level and, where feasible, harmonize these metrics to allow for comparison and shared learning across MDBs.

Annex 1. MDB corporate results frameworks.

Bank	Levels	Focus/Priorities	Explicit Adaptation/ Climate Resilience-Related Indicators ⁱⁱⁱ
AfDB⁵⁷	<ul style="list-style-type: none"> Level 1 tracks development progress across Africa Level 2 measures the bank's contributions towards development in all its operations Level 3 assesses the quality of the bank's operations Level 4 monitors the bank's efficiency as an organization. 	<p>Level 1 and 2 indicators are for five priority areas ("the High 5s"):</p> <ul style="list-style-type: none"> Light up and power Africa Feed Africa Industrialize Africa Integrate Africa Improve the quality of life for the people of Africa <p>The framework establishes indicators and goals for the five priority areas, as well as for cross-cutting strategic areas</p>	<ul style="list-style-type: none"> Land with improved water management (thousand ha) (Feed Africa) People benefiting from improvements in agriculture (millions) (Feed Africa) Rural population using improved farming technology (millions) Resilience to water shocks (index)
ADB⁵⁸	<ul style="list-style-type: none"> Level 1: Development progress in Asia and the Pacific Level 2: ADB's contributions to development results Level 3: Operational management Level 4: Organizational management 	<p>The Strategy 2020 lays out the main priorities: inclusive economic growth, environmentally sustainable growth, and regional integration. Overarching goal is ending poverty</p> <p>Level 1 indicators are focused on poverty and other development outcomes. Level 2 includes core operational areas: energy, transport, water, education, environment, regional cooperation and integration</p>	Land improved through irrigation, drainage, and/or flood management (hectares)
EIB⁵⁹	<p>Outside the EU, uses Results Measurement (ReM) Framework to track results of projects:</p> <ul style="list-style-type: none"> Pillar 1: Assesses consistency with EIB mandate objectives as well as contribution to EU priorities and country development objectives Pillar 2: Assesses results and the ability of the promoters to achieve these based on the soundness of the operation and the operating environment Pillar 3: Assesses the EIB contribution beyond what local markets can offer in terms of (i) financial contribution; (ii) technical advice; and (iii) facilitation 	Mobilize resources and expertise to achieve EU objectives	List of core and standard sectoral indicators at project level not publicly available.

ⁱⁱⁱ There is some subjectivity involved in determining what is and what is not an adaptation metric. We have excluded social and human development indicators, even though good development does build resilience. We have also excluded measures of energy/water access or simple agricultural production, unless they explicitly reference climate change.

EBRD^{60, 61}

Organized in five sections:
 (1) transition impact
 (2) operational performance
 (3) financial performance
 (4) organizational performance
 (5) resource framework

Competitive, green, inclusive, resilient, integrated and well-governed economies

The EBRD has adopted the Green Economy Transition (GET) approach for assessing resilience benefits with these metrics:

- Increased water availability in the face of increasing climatic variability (m³/year; €)
- Increased energy availability in the face of increasing climatic variability (MWh/year; €)
- Increased agricultural potential in the face of increasing climatic variability (soil erosion: tones/hectare/year; €)
- Increased human health and productivity in the face of increasing climatic variability (quality-adjusted life years (QALYs))
- Reduced weather-related disruption (days/year downtime; €)
- Reduced weather-related damage (risk frequency of a damaging weather or climate event; service life; €)

(Each both economic and non-economic)

IADB⁶²

- Level 1: Regional context
- Level 2: Country development results
- Level 3: IADB Group performance

Three challenges: (1) social inclusion and equality; (2) productivity and innovation; and (3) economic integration. Three cross-cutting themes: (1) climate change and environmental sustainability; (2) gender equality and diversity; and (3) institutional capacity and rule of law

Beneficiaries of improved management and sustainable use of natural capital

IsDB⁶³

- Level 1: member countries' progress in addressing developmental challenges
- Level 2: IsDB's contributions to development outcomes in member countries and Muslim communities
- Level 3: IsDB's operational effectiveness and organizational efficiency

The 10-year strategic priorities include: (1) inclusiveness (IsDB as economic and social development partner); (2) connectivity (South-South cooperation); and (3) Islamic finance growth. Strategic pillars include economic and social infrastructure, private sector development, inclusive social development, cooperation between member countries, and Islamic finance sector development

Area irrigated (ha)

World Bank⁶⁴

- Tier 1: Development context
- Tier 2: Client results
- Tier 3: Performance (operational and organizational)

The overarching goals of the World Bank are around poverty and inclusive economic growth. Tiers 1 and 2 focused on growth, sustainability and resilience, and inclusiveness

- Farmers adopting improved agricultural technology
- Area provided with irrigation services
- Countries institutionalizing disaster risk reduction as a national priority
- There are a number of broad, but not climate-specific, resilience indicators, eg, number of countries with strengthened public management systems

Annex 2. Metrics used by international climate funds

Organization	Results categories and indicators
Adaptation Fund ⁶⁵	<p>Outcome 1: Reduced exposure at national level to climate-related hazards and threats</p> <ul style="list-style-type: none">• Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis <p>Output 1: Risk and vulnerability assessments conducted and updated at national level</p> <ul style="list-style-type: none">• Number and type of projects that conduct and update risk and vulnerability assessments• Development of Early Warning Systems <p>Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socio-economic and environmental losses</p> <ul style="list-style-type: none">• Number and type of targeted institutions with increased capacity to minimize exposure to climate variability risks• Number of people with reduced risk to extreme weather events <p>Output 2.1: Strengthened capacity of national and regional centers and networks to respond rapidly to extreme weather events</p> <ul style="list-style-type: none">• Number of staff trained to respond to, and mitigate impacts of, climate-related events• Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased <p>Output 2.2: Targeted population groups covered by adequate risk reduction systems</p> <ul style="list-style-type: none">• Percentage of population covered by adequate risk-reduction systems• Number of people affected by climate variability <p>Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level</p> <ul style="list-style-type: none">• Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses• Modification in behavior of targeted population <p>Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities</p> <ul style="list-style-type: none">• Number and type of risk reduction actions or strategies introduced at local level• Number of news outlets in the local press and media that have covered the topic <p>Outcome 4: Increased adaptive capacity within relevant development and natural resource sectors</p> <ul style="list-style-type: none">• Development sectors' services responsive to evolving needs from changing and variable climate• Physical infrastructure improved to withstand climate change and variability-induced stress <p>Output 4: Vulnerable physical, natural and social assets strengthened in response to climate change impacts, including variability</p> <ul style="list-style-type: none">• Number and type of health or social infrastructure developed or modified to respond to new conditions resulting from climate variability and change (by type)• Number of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by asset types) <p>Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress</p> <ul style="list-style-type: none">• Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress <p>Output 5: Vulnerable physical, natural and social assets strengthened in response to climate change impacts, including variability</p> <ul style="list-style-type: none">• Number and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets) <p>Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas</p> <ul style="list-style-type: none">• Percentage of households and communities having more secure (increased) access to livelihood assets• Percentage of targeted population with sustained climate-resilient livelihoods <p>Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability</p> <ul style="list-style-type: none">• Number and type of adaptation assets (physical as well as knowledge) created in support of individual or community livelihood strategies• Type of income sources for households generated under climate change scenario

Outcome 7: Improved policies and regulations that promote and enforce resilience measures

- Climate change priorities are integrated into national development strategy

Output 7: Improved integration of climate-resilience strategies into country development plans

- Number, type, and sector of policies introduced or adjusted to address climate change risks
- Number of targeted development strategies with incorporated climate change priorities enforced

Green Climate Fund⁶⁶

- Expected total number of direct and indirect beneficiaries (reduced vulnerability or increased resilience); number of beneficiaries relative to total population (output)
- Degree to which the activity avoids lock-in of long-lived, climate-vulnerable infrastructure (output)
- Expected reduction in vulnerability by enhancing adaptive capacity and resilience for populations affected by the proposed activity, focusing particularly on the most vulnerable population groups and applying a gender-sensitive approach (outcome)
- Expected strengthening of institutional and regulatory systems for climate-responsive planning and development (output)
- Expected increase in generation and use of climate information in decision making (output)
- Expected strengthening of adaptive capacity and reduced exposure to climate risks (outcome)
- Expected strengthening of awareness of climate threats and risk reduction processes (outcome)
- Other relevant indicative assessment factors, taking into account the GCF's objectives, priorities and result areas, as appropriate on a case-by-case basis

GEF LDCF/SCCF⁶⁷

Objective 1: Reduce the vulnerability of people, livelihoods, physical assets and natural systems to the adverse effects of climate change (outcome)

- Number of beneficiaries (output)
- Type and extent of assets strengthened and/or better managed to withstand the effects of climate change (output)
- Population benefiting from the adoption of diversified, climate-resilient livelihood options (output)
- Extent of adoption of climate-resilient technologies/practices (output)

Objective 2: Strengthen institutional and technical capacities for effective climate change adaptation (outcome)

- Public awareness activities carried out and population reached (output)
- Risk and vulnerability assessments, and other relevant scientific and technical assessments carried out and updated (output)
- Number of people/geographical area with access to improved climate information services (output)
- Number of people/geographical area with access to improved, climate-related early warning information (output)
- Number of people trained to identify, prioritize, implement, monitor and evaluate adaptation strategies and measures (output)
- Capacities of regional, national and sub-national institutions to identify, prioritize, implement, monitor and evaluate adaptation strategies and measures (output)

Objective 3: Integrate climate change adaptation into relevant policies, plans and associated processes (outcome)

- Institutional arrangements to lead, coordinate and support the integration of climate change adaptation into relevant policies, plans and associated processes (output)
- Regional, national and sector-wide policies, plans and processes developed and strengthened to identify, prioritize and integrate adaptation strategies and measures (output)
- Sub-national plans and processes developed and strengthened to identify, prioritize and integrate adaptation strategies and measures (output)
- Countries with systems and frameworks for the continuous monitoring, reporting and review of adaptation (output)

**Pilot Program for
Climate
Resilience⁶⁸**

- Degree of integration of climate change in national, including sector, planning (output)
- Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience (output)
- Quality and extent to which climate responsive instruments/investment models are developed and tested (optional) (output)
- Extent to which vulnerable households, communities, businesses and public sector services use improved PPCR-supported tools, instruments, strategies and activities to respond to climate variability or climate change (output)
- Number of people supported by PPCR to cope with the effects of climate change (output)

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This memo series was developed in collaboration by Germanwatch, NewClimate Institute and the World Resources Institute as part of the project Alignment of development finance with the Paris Agreement funded by BMZ

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This report received financial support from the Federal Ministry for Economic Cooperation and Development (BMZ). The authors are solely responsible for the content of this publication.

With financial support from the



Federal Ministry
for Economic Cooperation
and Development