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Annex III. Review of MRV Practices at Comparable Institutions

This is a review of the MRV practices of comparable institutions to identify "best practices" or at least "better practices" that could offer useful guidance for the GCF. Institutions reviewed include the NAMA Facility, the Global Environmental Facility (GEF) and the Clean Development Mechanism (CDM).

Designing Theories of Change and Logic Frameworks

As described previously, the GCF requires AEs to design a theory of change expressed as a logic framework in project proposals. Logic frameworks articulate in step-wise fashion how inputs and activities are expected to achieve the desired results, expressed as a long-term vision and outcomes. These documents are used both to evaluate whether a project makes sense and to track and report how project activities contribute to the long-term goals of the GCF.

Currently, the GCF allows a high level of flexibility for AEs to choose indicators and design their theories of change. In fact, the design of the theory of change and the selection of indicators for the logic framework have largely been left up to AEs, with little guidance from the GCF.

On the one-hand, since the design of theories of change and the selection of indicators for the logic framework is highly project specific, it is important for AEs to have some flexibility in how they develop this component. However, without guidance, the GCF's theories of change and logic frameworks have fallen short on quality. According to the IEU review of the GCF RMF, only 32 percent of sampled proposals had well defined theories of change and 61 percent had indicators in the logic framework that mapped to result areas they were targeting. Moreover, as the IEU findings indicate, there is a disconnect between what the AEs are choosing to monitor and how they contribute to the GCF's goal of achieving a paradigm shift. This indicates that for many projects, theories of change and logic frameworks are falling short of the intended objectives towards identifying and tracking relevant metrics impacted by the projects.

In the section below, we look at how other comparable institutions provide guidance or other support to advance strong project designs.

Comparable Institutions

For the **NAMA Facility**, the theory of change and logic framework form the basis of their MRV system. The theory of change describes how funding from donors ultimately results in transformative change to a low-carbon society. The logic framework, based on the results chain illustrated in the theory of change, is prepared for each project and provides project-specific details. The NAMA Facility requires NAMA Support Projects (NSPs) to track five core indicators[1] in their logic framework, along with sector-

[1] Mitigation, co-benefits, transformational change, public finance and private finance

and project-specific indicators. This tracking of indicators forms the basis of project monitoring and evaluation (M&E) plans.[2] A graphical representation of the theory of change, the logic framework and a preliminary M&E plan are required in the full proposal.
Similar to the GCF's paradigm shift potential investment criterion, the NAMA Facility also requires proposals to include a description of a project's potential for transformational change. This metric is broken down into catalytic effect, sustainability and replicability/scalability.

To help organizations prepare theories of change and logic frameworks for their own projects, the NAMA Facility provides a graphical representation of the overall NAMA Facility theory of change, as well as the overall NAMA Facility logic framework and how NSP logic frameworks feed into it. The Technical Support Unit (TSU) of the Facility is also available to provide guidance to organizations in designing their theories of change and logic frameworks. The NAMA Facility additionally provides templates for organizations to complete their logic frameworks and M&E plans. Further, the proposal template used in the Outline Phase provides in-depth questions for applicants to answer to address the required metrics on transformational change.

The NAMA Facility's guidance on theories of change and logic frameworks shows clearly how indicators tracked at the project-level fit into the results chain that forms the basis of the theory of change. It further shows the logical progression of how results at the project-level feed into the theory of change on the NAMA Facility level. Additionally, there is clear guidance on what factors contribute to transformational change. This high level of guidance on theories of change and logic frameworks, as well as support offered by the TSU, improves the quality and relevance of these documents, albeit with somewhat reduced flexibility relative to the GCF. Theories of change and logic frameworks are expected to have certain indicators and results, though project and sector specific indicators/results are chosen by the NSO.

In contrast to the GCF and the NAMA Facility, the **GEF** does not use a theory of change or logic framework. Under the updated (and simplified) results architecture for GEF-7, the GEF tracks eleven core indicators and their associated sub-indicators across all focal areas. (Previously, a higher number of indicators was used.) For all proposals other than enabling activities, applicants must complete a Core Indicators Worksheet on which they calculate target results for each of the core indicators[3]. While there

[2] Monitoring and Evaluation Framework, November 2015, http://www.nama-facility.org/fileadmin/user_upload/publications/documents/2015-11_doc_nama-facility_me-framework.pdf

[3] (1) Terrestrial protected areas created or under improved management for conservation and sustainable use, (2) Marine protected areas created or under improved management for conservation and sustainable use, (3) Area of land restored, (4) Area of landscapes under improved practices (excluding protected areas), (5) Area of marine habitat under improved practices to benefit biodiversity (excluding protected areas), (6) Greenhouse gas emissions mitigated, (7) Number of shared water ecosystems (fresh or marine) under new or improved cooperative management, (8) Globally over-exploited fisheries moved to more sustainable levels, (9) Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and

is no specific guidance on additional indicators, many projects will have more indicators than just the core indicators at the time of CEO Endorsement. The GEF is currently having internal discussion about potential additional indicators. The expectations for what indicators are included can also vary by capacities across projects and countries. As such, flexibility in choosing indicators is rated medium and consistency across projects is rated high. While the indicators in the updated results architecture are relevant and simplified, the quality/relevance is rated medium as they are not based on a theory of change.

As a mechanism focused on generating emission reduction credits, the **CDM**'s MRV procedures are narrowly focused on accurately quantifying emissions reductions that have been achieved after a project has been implemented. As the CDM credit approval process does not require projects to demonstrate transformational change or require a post-project evaluation of whether actions were achieved as anticipated, the CDM does not require theories of change or logic frameworks.

Analysis/Discussion

As summarized in Table 1, below, both the NAMA Facility and GEF guidelines and procedures are expected to yield greater quality and consistency across projects than the current laissez-faire approach used by the GCF. In particular, with respect to the theory of change, the NAMA Facility offers clear causal pathways and reporting requirements for assumptions and sources of verification, all of which are expected to promote evidence-based, outcome-oriented project designs that can later be verified. As far as logic frameworks, further guidance on the choice of indicators (or specification of the indicators to be used) will both lead to greater consistency/comparability. Finally, providing capacity support to AEs (for example, through direct project design assistance and workshops) to help them understand expectations for theories of change and the development of logic frameworks can reduce the time required to complete these documents and improve quality.

Table 1. Comparison of guidance and requirements for Theories of Change and Logic Frameworks

	Theories of change		Logic frameworks/Results Frameworks		
Metric[4]	**NAMA Facility**	**GCF**	**NAMA Facility**	**GEF**[5]	**GCF**
Consistency	High	Low	High	High	Low
Flexibility	Medium	High	Medium	Medium	Medium
Quality/Relevance	High	Low	High	Medium	Low

their waste, (10) Reduction, avoidance of emissions of POPS to air from point and non-point sources, (11) Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

[4] Metrics will be defined in an introductory section and used for other recommendations. Consistency refers to consistency across projects and affects aggregation and comparison of projects. Ease of application refers to the burden on AEs. Accuracy refers to the quality of the results on an individual project basis.

[5] Although the GEF results framework is not a logic framework, it has a similar impact as far as tracking key indicators.

Essential Definitions

The GCF's guidance to AEs lacks definitions for terms essential to determining the scope of emissions considered in evaluating GHG mitigation benefits. As key examples, the GCF lacks definitions for the following concepts:

1. *Project boundary:* what GHG emissions effects should be considered in assessing a project's mitigation impact
2. *Direct and indirect emissions effects*: how to define and whether to include emission effects attributable to different types of project outcomes, such as from discrete investments vs replication effects.
3. *Project lifetime (i.e. accounting period)*: what period of time are emissions calculated for

Currently, the GCF provides no guidance on how to define project boundary and there is no distinction between direct and indirect emission effects. The GCF has no stated requirements for project boundary, including direct or indirect emissions. In the Secretariat's most recent document for consideration by the Board on further development of the Fund's PMF, it recommends "both direct and, where applicable, indirect emissions" be counted. Proposals are required to estimate both annual and project lifetime emissions reductions; however, there is no guidance on what is meant by the project lifetime. Without consistent definitions of key terms, it is conceivable that different AEs will establish their own interpretations for what to include/exclude from the estimate, affecting the comparability of projects and the aggregation of results on the Fund level.

Review of Comparable Institutions

Other institutions offer different approaches for defining the scope of the GHG analysis, described below.

The **NAMA Facility** defines project scope as "direct GHG emission reductions achieved by project investments and discrete investments financed or leveraged during the project's supervised implementation period (throughout the entire lifetime of the project)." The template for reporting ex-ante emission effects requires estimates of indirect emission reductions, which are undefined except as encompassing emissions that are "not direct". The NAMA Facility leaves the decision as what to include under "indirect" emissions up to NSOs. The NAMA Facility's recommended methodology, the GHG Protocol Policy and Action Standard (Policy and Action Standard), does not distinguish between direct and indirect emission reductions. Rather, they use other terms (e.g., in-jurisdiction and out-of-jurisdiction) that do not directly align with the NAMA Facility template.

The Policy and Action Standard does provide guidance for how to decide what effects (emissions impacts) should be included in GHG assessments. It provides step-by-step instructions for determining potential emission effects, their relative significance, and whether or not to include them in the assessment. The standard allows for the exclusion of effects for specific justifiable reasons, such as

difficulty in measuring the effects, the data not being available or insufficient user capacity to measure the effect. There is also guidance on when it is or is not appropriate to exclude effects.

Regarding project lifetime, the NAMA Facility requires the disaggregation of GHG mitigation benefits by duration (funding period) of the project and by the lifetime of the investment/intervention. While the NAMA Facility does not provide default values for investment lifetimes, its indicator guidance provides a hierarchy of sources[6] NSOs should use for data collection. The hierarchy instructs NSOs to prioritize project-specific data when available and to use standard values provided by methodologies (e.g. GEF methodologies) as a last resort. This would suggest a tailored approach in which project lifetime is based on the particular project conditions (e.g., equipment type and use characteristics).

The **GEF**, on the other hand, provides clear definitions for different emission effects and what values should be used for project lifetimes. The GEF defines three different categories of emission effects to be assessed:

1. *"Lifetime direct project GHG emissions mitigated* are attributable to investments during the project's supervised implementation period, totaled over the respective lifetime of the investments.
2. *Lifetime direct post-project emissions mitigated* are attributable to investments outside the project's supervised implementation period, but supported by financial facilities or regulatory interventions by the GEF project, totaled over the respective lifetime of the investments. Financial facilities such as partial credit guarantee facilities, risk mitigation facilities, or revolving funds will remain in operation after the project ends.
3. *Lifetime indirect GHG emissions mitigated* are those attributable to the long-term outcomes of GEF activities that remove barriers, such as capacity building, innovation, and catalytic action for replication."

GEF methodologies, discussed in the next section, provide detailed instructions for the calculation of each category of emissions reductions. For direct emissions reductions, however, the exact project boundaries are unclear. There are no instructions for what emission effects (e.g. leakage and rebound effects) should be included. Instead, for most projects types outside the Agriculture, Forestry and Other Land Use (AFOLU) sector, there are developed GEF tools for ex-ante estimations that essentially standardize the project scope. For example, the GEF's model for bus rapid transit (BRT) projects automatically includes estimated construction emissions in the output for direct emissions mitigated.

Direct emissions are reported for investment lifetimes, rather than a project's supervised funding period. The GEF provides default values for the lifetimes of various technologies and project types. For example, for AFOLU projects, "the length of time is defined as 20 years, unless an alternative number of years is deemed appropriate." For calculating indirect emissions mitigated, the GEF assumes an influence period of 10 years.

[6] The hierarchy is not specific to lifetime values.

The **CDM** defines project boundaries in each methodology specific to the project type. The concept of "project lifetime" under the CDM is also different, as certified emission reductions (CERs) are issued based on crediting periods, rather than the entire lifetimes of investments. As the CDM doesn't track the transformational change or paradigm shift potential of projects, it also doesn't monitor indirect emission effects that might result from efforts to remove barriers to investment and spark catalytic change. Considering these inherent differences in defining project scope for the CDM compared to the GCF, the CDM is not considered in the analysis, below.

Analysis/Discussion

The NAMA Facility and the GEF offer definitions that would improve the accuracy and consistency of the GCF's emissions reductions estimates. In particular, the NAMA Facility's use of the Policy and Action Standard offers a broadly applicable (not sector-specific), systematic approach to determining the boundary definition, ensuring that a comprehensive list of different effect types (e.g. in- and out-of-jurisdiction effects, rebound effects) are considered. This approach would yield a high level of accuracy and consistency across projects to the degree that including significant effects is feasible, while still offering flexibility in cases where the AE can provide a clear justification for excluding an emissions source. However, while this flexibility reduces the burden on users, it would also reduce the consistency of estimates across projects.

In contrast, the GEF's approach to defining boundaries uses models and modules with built in calculations for different potential GHG effects. This approach reduces the amount of decision making required by the user, increases the consistency across projects (all projects of the same type would use the same boundary) and reduces the burden on users. However, it could potentially reduce the accuracy of assessments if the models don't fully capture a project's effects.

With respect to defining direct and indirect emissions, the GEF provides specific guidance on how to define these categories, with a clear delineation between the two. Having a clear definition would provide consistency and accuracy. The GCF could consider which types of emissions to count in evaluating impact and paradigm shift, and to set definitions accordingly.

Regarding project lifetime, there are several considerations in defining how emissions reductions are reported over time. A first consideration is whether there is a distinction to be made for emissions that (i) occur within the supervised duration of the project, (ii) occur outside the supervised duration of the project, but result from investments made during the supervised duration of the project, and (iii) occur outside the duration of the project resulting from revolving loans, guarantees or other instruments that continue operating after the end of the supervised project period. A second consideration entails the recommended approach to defining the length of the project life. Tradeoffs between the comparable institutions relate to accuracy (e.g., the NAMA Facility prioritizes use of project-specific data sources, as

available, with default values used as a last resort) vs. consistency and ease of use (e.g., the GEF provides a list of default values). Either approach would result in improvements over the status quo.

Table 2. Comparison of NAMA Facility and GEF definitions[7]

	Project Boundary		Direct and Indirect Emissions		Project Lifetime	
Metric[8]	**NAMA Facility**	**GEF**	**NAMA Facility**	**GEF**	**NAMA Facility**	**GEF**
Consistency	Medium	High	Low	High	Medium	High
Ease of application	Medium	High	-	-	High	High
Accuracy	High	Low	Low	High	High	Medium

Methodology for Calculating GHG Benefits

The GCF currently lacks any methodological guidance for AEs to assess project results. Instead, the GCF relies on AEs to select their own approach to assess project performance. In the case of mitigation projects, AEs are expected to estimate tons of carbon dioxide equivalent (tCO_2e) mitigated for the project lifetime and annually.

However, without methodological guidance/requirements for AEs, estimated and reported GHG mitigation impacts may not be reliable or comparable across projects. This affects the aggregation of results, the evaluation of funding proposals, and confidence in reported performance of the Fund critical to replenishment.

Generally, GHG benefits are calculated by comparing estimated or observed emission reductions resulting from the project activity to an estimated baseline scenario. Baselines, also commonly referred to as business-as-usual (BAU) scenarios, broadly represent what would happen if the project didn't occur. Baselines can be either static or dynamic (i.e. they change over time).

Comparable Institutions

In the **NAMA Facility**'s 2015 Monitoring and Evaluation Framework, the NAMA Facility provides significant guidance for reporting on their five core indicators, such as accepted data sources and reporting requirements. For GHG emission reductions, this includes their recommended methodology for calculating emission reductions (the Policy and Action Standard) and a short list of other allowed

[7] Assumes the Policy and Action Standard is used for the NAMA Facility, and that a GEF manual and corresponding model/module is applied for the GEF (excluding the AFOLU sector for which there is no current GEF manual).
[8] Metrics will be defined in an introductory section and used for other recommendations. Consistency refers to consistency across projects and affects aggregation and comparison of projects. Ease of application refers to the burden on AEs. Accuracy refers to the quality of the results on an individual project basis.

methodologies[9]. The GHG mitigation indicator is required to be estimated ex-ante and ex-post annually for each calendar year.

For baseline calculations, the NAMA Facility recommends a dynamic baseline calculated using the Policy and Action Standard. The standard gives the option of two different methods for baseline calculations—the scenario method or the comparison group method. The scenario group method can be applied to both ex-ante and ex-post GHG assessments and involves estimating a baseline scenario for the same group/region that will be affected by the project. The comparison group method can only be applied ex-post and compares the group or region affected by the project to an equivalent group or region not affected by the project. In either case, the baseline should be updated ex-post to reflect any deviations from the expected conditions (e.g. if natural gas prices dropped unexpectedly over the course of the project, which would result in a different business-as-usual energy mix than what was used in the ex-ante baseline).

The GHG Protocol Policy and Action Standard "details a general process that users should follow when estimating the GHG effects of policies and actions, but it does not prescribe specific calculation methodologies or tools that should be used"[10] This is a key difference when comparing the standard to methodologies published by the GEF and CDM. It also allows a degree of flexibility in selecting a desired level of accuracy from a range of methodological options, based on objectives, data availability, and user capacity. For example, in making assumptions about parameters in the policy (project) scenario, users can use a lower level of accuracy (i.e. "static or linear extrapolations of historical trends") or a higher level of accuracy (i.e. "dynamic an estimated based on detailed modeling or equations").

The Policy and Action Standard provides guidance for both ex-ante and ex-post assessments. For ex-ante estimation of GHG benefits, the standard applies the following steps (after definition of the project boundary as discussed above):

1. Define the most likely policy scenario
2. Identify parameters to be estimated
3. Select a desired level of accuracy
4. Estimate policy scenario values for parameters
5. Estimate policy scenario emissions
6. Estimate the GHG effect of the policy or action

[9] 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Greenhouse Gas Protocol – Policies and Actions Standard; CDM methodologies; Manual for Calculating GHG Benefits of GEF Projects: Energy Efficiency and Renewable Energy Projects; Manual for Calculating Greenhouse Gas (GHG) Benefits for GEF Transportation Projects

[10] GHG Protocol – Policy and Action Standard, http://ghgprotocol.org/sites/default/files/standards/Policy%20and%20Action%20Standard.pdf

For ex-post assessment, the standard provides three options—top-down, bottom-up, or integrated top-down/bottom-up methods. Top-down methods use statistical models (e.g. econometric models or regression analysis) and bottom-up methods calculate the effects for each sink/source then aggregate them to determine the total mitigation impact.

Notably, the Policy and Action Standard does not provide any specific methodology for calculating indirect emission reductions.

Unlike the NAMA Facility, the **GEF** has developed their own methodologies and methodological tools for the calculation of GHG emission reductions, except for the AFOLU sector. For this sector, the GEF recommends the Ex-Ante Carbon-balance Tool (EX-ACT) from the FAO or the Carbon Benefits Project. For both the AFOLU sector and non-AFOLU sectors, the GEF provides general guidance, particularly regarding the scope of emissions to be assessed, discussed in the previous section. These methodologies, however, are not mandatory. The GEF allows GEF Agencies to decide what methodology they use to calculate GHG emission reductions.

The GEF provides detailed methodologies and complementary tools for the transportation and energy sectors (including a wide range of generation and energy efficiency project types)[11]. For transportation projects, the GEF developed the Transportation Emissions Evaluation Model for Projects (TEEMP) that includes eleven specific models for different project types. For energy efficiency projects, the GEF methodology includes four modules for ex-ante assessment of different project component types—standards and labeling, building codes, demonstration and diffusion, and financial instruments. These modules use simple algorithms for calculating GHG impacts.

The GEF requires projects to develop baselines that reflect BAU scenarios for emissions without any GEF or co-financing contribution to the project. The baselines are supposed to capture expected changes in parameters over time. If using TEEMP for transportation projects, a separate baseline calculation isn't necessary, as TEEMP calculates a dynamic baseline in its market-shed analysis. If using the GEF developed modules for energy efficiency projects, baselines are also calculated using the modules. General guidance on what to include and consider for baselines is also provided in the GEF methodologies. The GEF allows GEF Agencies to decide whether or not they revise their baseline to reflect changes in underlying assumptions for ex-post assessments.

[11] GEF, Manual for Calculating Greenhouse Gas Benefits for Global Environment Facility Transportation Projects, https://www.thegef.org/sites/default/files/council-meeting-documents/C.39.Inf_.16_STAP_-_Manual_for_Calculating_Greenhouse_Gas_Benefits_0_1.pdf; Manual for Calculating GHG Benefits of GEF Projects: Energy Efficiency and Renewable Energy Projects, https://www.thegef.org/sites/default/files/council-meeting-documents/C.33.Inf_.18_Climate_Manual_1.pdf

For ex-ante emission reduction estimation, direct and direct post-project emission reductions are generally estimated using the GEF models/modules. GEF methodologies also provide general guidance for assessments to follow if the models/modules aren't applied.

Since the GEF developed their own methodologies and tools, they are tailored to calculate metrics specific to the goals of the GEF. This is particularly evident in the calculation of indirect emission reductions, which reflects the GEF's goal of achieving replication and market expansion. Indirect emissions are calculated with two different methods: top-down and bottom up. The top-down method produces what is considered the "highest extent in the range of potential indirect impacts". It uses the maximum realizable market size and assumes all emission reductions in that market can be attributed to the GEF intervention. Since these are strong assumptions, a "GEF causality factor" is applied to reflect the degree to which the reductions can be attributed to the intervention. The bottom-up method provides a more conservative estimate for indirect reductions. It uses expert judgement to estimate a replication factor which is simply multiplied by direct and direct post-project emission reductions.
The GEF doesn't provide ex-post assessment guidance and the GEF IEO has stated that GEF methodologies have limitations for ex-post evaluation.[12]

The **CDM** requires project participants to apply emission baseline and monitoring methodologies approved by the Executive Board of the CDM to their project activity. Currently, there are over 200 approved CDM methodologies. These methodologies are used for both ex-ante estimations during project design and for ex-post calculation during project monitoring.[13]
Each methodology includes:

- "Definitions that are required to apply the methodology;
- Description of the applicability of the methodology;
- Description of the project boundary;
- Procedure to establish the baseline scenario;
- Procedure to demonstrate and assess additionality;
- Procedure to calculate emission reductions;
- Description of the monitoring procedure."[14]

As part of the project design stage, a project participant must demonstrate that the chosen methodology is applicable to the project activity. This is based on conditions listed in each methodology that the project participant must show the project activity meets.

[12] GEF IEO, Climate Change Mitigation: GEF Support to Market Change in China, India, Mexico, and Russia, 2014, http://www.gefieo.org/sites/default/files/ieo/evaluations/files/climate-change-mitigation-2014.pdf
[13] CDM project standard for project activities, Version 01.0, https://cdm.unfccc.int/filestorage/e/x/t/extfile-20170307130848253-reg_stan04.pdf/reg_stan04.pdf?t=UEZ8cGVqaWthfDAEUy4xprDimP_B3Cqr13Nl#page=17
[14] CDM Methodology Booklet, Ninth Edition, Chapter 3, https://cdm.unfccc.int/methodologies/documentation/1803/CDM-Methodology-Booklet_fullversion_PART_2.pdf

CDM also provides methodological tools that are required by different methodologies. These include tools to demonstrate additionality and identify the baseline scenario. There are 30 tools in total, many of which are specific to sectors or project types (e.g. Tool 22: Leakage in Biomass Small-scale Project Activities).

In an effort to facilitate the calculation of emission reductions, the CDM has introduced standardized baselines. These can be a list of emission reduction activities that would be considered automatically additional under certain conditions, a baseline scenario or baseline emission factor (e.g. grid emission factor). Standardized baselines are generally intended to:

- Reduce transaction costs
- Enhance transparency, objectivity and predictability
- Facilitate access to the CDM, particularly with regard to underrepresented project types and regions
- Simplify measuring, reporting and verification.

The CDM requires all emissions related to the project to be estimated, whether or not it might be deemed material.[15]

Analysis/Discussion

NOTE: In the following analysis, ex-ante and ex-post methodologies refer to direct emission reduction assessments. For the NAMA Facility, it is assumed the recommended methodology, the GHG Protocol—Policy and Action Standard, is applied. Since baseline calculations impact the results of ex-ante and ex-post assessments, they are considered in these sections as well as a separate section.

For the NAMA Facility, the Policy and Action Standard provides broad guidance for ex-ante and ex-post emissions estimation, but allows for considerable flexibility so long as basic steps are adhered to. Similar to the definition of project boundary, the Policy and Action Standard allows users to choose methods that work best for the particular circumstance, user capacity, and required level of accuracy. This flexibility reduces the consistency of assessments across projects. This is also true for the calculation of baseline emissions. While increased flexibility should reduce the burden on users, the Policy and Action Standard has been criticized for being too long. As a result, some NSOs choose not to use the standard while others adopt some elements of the standards but not others. For the ex post assessment, the GHG Protocol Policy and Action Standard requires use of updated baselines, improving the accuracy by reflecting changes in background conditions that occur over time.

The GEF and CDM methodologies are significantly more prescriptive than the Policy and Action Standard—the GEF methodologies provides spreadsheet models for ex-ante calculations and the CDM

[15] Although not adopted, the CDM previously considered the use of materiality as way of reducing the burden on users. As it relates to the CDM, information is considered material if it could influence the decision of the Board to register (approve) the project or to issue certified emission reductions (CERs). By applying the concept of materiality to GHG assessments, the processes of data collection and calculations can be simplified by focusing the assessment on issues that have a more significant impact.

methodologies provide detailed equations specific to project types for ex-ante and ex-post calculations. This leads to high consistency of application across projects. The two sets of methodologies, however, diverge in terms of ease of application and accuracy. Within the GEF transportation manual, GEF methodologies are described as "less rigorous and data intensive compared to … the Clean Development Mechanism … They are more accessible to project managers and more flexible to accommodate [a] diverse array of transportation project types."[16] The CDM has similarly recognized the need to simplify their methodologies and reduce transaction costs.[17]

Both the GEF and CDM methodologies offer less guidance than the GHG Protocol Policy and Action Standard on ex-post emissions assessments. Notably, the GEF lacks guidance for ex-post emissions assessment, but still requires it at project mid-term and completion, likely resulting in relatively low consistency across projects. CDM methodologies applied in the later years of a given crediting period are expected to be less accurate than emissions reductions estimates earlier in the period to the degree that key assumptions deviate from what was originally estimated. This is because the CDM does not require users to update their baseline calculations.

Similarly for indirect emissions calculations, the NAMA Facility is rated low for consistency as it requires indirect emissions estimates but does not provide methodologies for it. The CDM isn't rated for indirect emissions at all since they are not considered by the CDM. The GEF's methodologies for calculating indirect emissions is rated medium for consistency as the bottom-up approach largely depends on the replication factor simply determined by "expert judgement". Although it requires two additional assessments, GEF's methods for indirect emissions calculations are rated high for ease of application because they largely build off the estimates for direct emissions. Accuracy is rated low as they are based on the already lax estimates for direct emissions and require even more assumptions.

[16] GEF, Manual for Calculating Greenhouse Gas Benefits for Global Environment Facility Transportation Projects, https://www.thegef.org/sites/default/files/council-meeting-documents/C.39.Inf_.16_STAP_-_Manual_for_Calculating_Greenhouse_Gas_Benefits_0_1.pdf
[17] FCCC/KP/CMP/2016/8/Add.1, https://unfccc.int/resource/docs/2016/cmp12/eng/08a01.pdf#8

Table 3. Comparison of NAMA Facility, GEF and CDM methodologies[18]

	Ex-ante (direct emissions)			Ex-post (direct emissions)		
Metric[19]	**NAMA Facility**	**GEF**	**CDM**	**NAMA Facility**	**GEF**	**CDM**
Consistency	Medium	High	High	Medium	Low	High
Ease of application	Low	High	Low	Low	-	Low
Accuracy	High	Low	High	High	-	Medium
	Baseline Calculation			**Indirect Emissions Calculation**		
	NAMA Facility	**GEF**	**CDM**	**NAMA Facility**	**GEF**	**CDM**
Consistency	Medium	High	High	Low	Medium	-
Ease of application	Low	High	Medium	-	High	-
Accuracy	High	Low-med	Medium	-	Low	-

Evaluation of Proposals

The GCF is developing investment criteria indicators (previously "indicative minimum benchmarks") to better inform the evaluation of proposals and their six investment criteria. These investment criteria indicators are also meant to help AEs assess how their project impacts compare to other similar projects. This information can help AEs consider how they might improve their projects to be more impactful, or might prompt them to provide explanations proactively for why their projects might not perform well on a particular criterion. This information will also help the Secretariat weigh the relative merits of different projects and suggest improvements. The Secretariat is not to use these as a binary fail/pass test or minimum threshold that proposals must pass.[20]

Comparable Institutions

For the **NAMA Facility**, criteria for the evaluation of proposals are clearly defined and available for each call on their website. The required core performance indicators (GHG mitigation, potential for transformational change, co-benefits, private finance and public finance) largely align with the proposal evaluation ambition criteria.[21]

[18] Ex-ante and ex-post methodologies refer to direct emission reduction assessments. For the NAMA Facility, it is assumed the recommended methodology, the GHG Protocol—Policy and Action Standard, is applied.
[19] Metrics will be defined in an introductory section and used for other recommendations. Consistency refers to consistency across projects and affects aggregation and comparison of projects. Ease of application refers to the burden on AEs. Accuracy refers to the quality of the results on an individual project basis.
[20] https://www.greenclimate.fund/documents/20182/1087995/GCF_B.20_Inf.14_-_Investment_criteria_indicators.pdf/69363c9f-c893-0fc7-953b-d75504bd4870
[21] General Information Document 5th Call for NAMA Support Projects, November 13, 2017, https://www.nama-facility.org/fileadmin/user_upload/call-for-projects/5th-call/171113_nama_facility_5th_call_general_information_document_en.pdf

The NAMA Facility proposal process is divided into two stages: the Outline Phase and the Detailed Preparation Phase (DPP). Proposals in the Outline Phase are assessed by an independent external evaluator and cross-checked by the technical support unit (TSU) using the following criteria[22]:

- Eligibility Criteria: NSPs must meet a set of eligibility criteria, which serve to ensure that the submitted Outlines fulfil the formal requirements of the competitive bidding for NAMA Facility support (e.g. timely submission of Outline documents)
- Ambition Criteria: ensure that the NAMA Facility supports the most ambitious NSPs. NSPs are assessed on the basis of a point-grade system (largely correspond to Core Indicators)
- Feasibility Criteria: ensure that the NSPs are not only highly ambitious but also likely to be implemented successfully (e.g. clear logic framework)

Projects selected in the Outline Phase for the DPP then receive support for more detailed preparation of NSPs. This phase results in the full-fledged proposal, which is then assessed and potentially recommended to the Board for funding. Assessment of full NSP proposals is based on criteria similar to those used to assess Outlines, except with a stronger emphasis on feasibility[23]:

- Ambition Criteria: follows same criteria as applied for the Outline assessment, although a higher level of refinement, particularly with respect to mitigation potential and a well-designed financing mechanism
- Feasibility Criteria: Proposals will be assessed more strictly with regard to the feasibility criteria than the Outlines. They are to be substantiated by baseline and feasibility studies

The eligibility criteria assessed in the Outline Phase must be met before a proposal can be considered for NAMA Facility support. Criteria for ambition and feasibility are weighted with a point system. Notably, these evaluations are made based solely on information provided by the applicant; there is no ability in this first phase for the NAMA Facility to challenge the provided estimates. This means a project can make it through the Outline Phase selection process by presenting an optimistic estimate of GHG reductions reduced. In some cases, projects were rejected during the DPP phase in part because their emission reduction estimates came down too much once challenged to present more realistic estimates.

GEF proposals are also evaluated at two stages, the PIF stage and the CEO Endorsement/Approval stage, when applicable.[24]

- At the PIF stage[25], projects are reviewed based on: Project Eligibility

[22] Specific criteria are available in the NAMA Facility General Information Document: 5th Call for NAMA Support Projects, https://www.nama-facility.org/fileadmin/user_upload/call-for-projects/5th-call/171113_nama_facility_5th_call_general_information_document_en.pdf
[23] Specific criteria are available in the NAMA Facility General Information Document: 5th Call for NAMA Support Projects, https://www.nama-facility.org/fileadmin/user_upload/call-for-projects/5th-call/171113_nama_facility_5th_call_general_information_document_en.pdf
[24] These criteria may be outdated (should consult with a GEF contact); GEF, Criteria for Review of GEF Projects, https://www.thegef.org/sites/default/files/council-meeting-documents/GEFProjectReviewCriteria2008_5.pdf
[25] For full sized projects (FSPs)

  - Resources availability
  - Whether the GEF Agency submitting the proposal has the comparative advantage
  - Expected milestones
- At the CEO Endorsement/Approval stage[26], projects are reviewed based on:
  - Results from project
  - Project financing
  - Updated Project Information
  - Expected milestones

No information is available for how these criteria are weighted or considered.

The **CDM** approves CERs for each ton of pollution reduced once emissions reductions are demonstrated as per the required methods. Proponents have an incentive to reduce emissions based on the market value of the credits generated. There is no evaluation process.

Analysis/Discussion

Both the NAMA Facility and GEF provide lists of basic considerations/criteria to be used in proposal evaluation. The NAMA Facility's point system allows for more transparency and understanding of the relative importance of different proposal elements and how they're weighted in the evaluation. Neither institution uses benchmarks as a way to assess relative performance. One advantage of a point system is that this approach facilitates evaluation of a broader set of proposal elements (e.g. the amount of risk, plausibility of assumptions, institutional capacities). However, benchmarks can potentially provide more specific information at an indicator level on how a proposal compares against others. The two approaches are not mutually exclusive.

Quality Checks and Vetting of AEs for MRV Capacity

There is little information on how the GCF determines whether AEs have the capacities to produce high quality measurements or implement robust systems of MRV. While the GCF does check that AEs have monitoring and reporting processes in place, it is unclear if these processes are assessed for quality.

Comparable Institutions

The TSU of the **NAMA Facility** is primarily responsible for assuring the quality of the monitoring and evaluation of funded projects. It reviews NSP reports to make sure indicators are properly measured and the theory of change and logic framework are consistent. The quality of the logic framework and M&E concept are also assessed during proposal evaluation.[27] Each project is assigned a "desk officer" who is responsible for providing support to that project. Desk officers also review reporting on indicators using a check list with general common sense checks to verify figures and suggest how they can be approved.

[26] For FSPs and mid-sized projects

[27] http://www.nama-facility.org/fileadmin/user_upload/publications/documents/2015-11_doc_nama-facility_nsp-guidance.pdf

Organizations are also required to use general quality assurance practices when estimating and monitoring mandatory core indicators. For example, guidance for the GHG reductions indicator instructs NSOs to "work with the recipient country's climate experts to quality-check your data and assumptions. Check which emission factors are used in the country's inventory or in other mitigation or CDM projects implemented in the country."[28]

While the NAMA Facility doesn't require accreditation of NSOs, they do assess the eligibility of NSOs largely based on relevant past experience. The NSO is also assessed based on the alignment of their processes for monitoring, evaluation and reporting with NAMA Facility requirements.[29] Currently, an NSO could be eliminated if their MRV procedures don't meet minimum standards—although to date, no NSO has been eliminated solely on these grounds. In the future, the NAMA Facility will focus on building the applicant's MRV capacity, rather than using it as grounds for elimination.

The quality of M&E systems within the **GEF** is reviewed by the GEF Evaluation Office, an independent unit within the GEF. It presents annual reports on the quality of M&E systems and also reviews the quality of terminal evaluation reports by GEF Agencies.[30]

The GEF does require accreditation for their GEF Agencies. Under this process, potential GEF Agencies are reviewed based on project criteria, governance framework criteria, and environmental and social safeguard and gender mainstreaming criteria. Project criteria include checking for monitoring and project-at-risk systems and evaluation function.[31]

The **CDM** has a very robust system for third party verification for CERs. In particular, verification and validation are carried out by designated operational entities (DOEs), private third-party certifiers that assess the quality of a project's report on GHG emission reductions.[32] DOEs themselves are thoroughly vetted for their ability to carry out these processes through an accreditation process.[33]

Analysis/Discussion

The GCF currently falls short of comparable institutions in vetting the quality of M&E capabilities of its AEs. Since the GCF relies on AEs to implement their own monitoring and evaluation methodologies, more thorough vetting of AEs for MRV capacity is needed than for the NAMA Facility or GEF, where

[28] NAMA Facility, Monitoring and Evaluation Framework, November 2015, http://www.nama-facility.org/fileadmin/user_upload/publications/documents/2015-11_doc_nama-facility_me-framework.pdf
[29] http://www.nama-facility.org/fileadmin/user_upload/publications/documents/2016-07_doc_nama-facility_4th-call_general-information.pdf#page=23
[30] http://www.gefieo.org/sites/default/files/ieo/evaluations/gef-me-policy-2010-eng.pdf
[31] https://www.thegef.org/sites/default/files/documents/PR.IN_.04.Accreditation_Procedure_for_GEF_Project_Agencies.05212012_0.pdf
[32] https://cdm.unfccc.int/filestorage/e/x/t/extfile-20170502114945594-reg_stan06.pdf/reg_stan06.pdf?t=TEl8cGcxMHd0fDBXUOgqjNA00z8-amq5L-vz
[33] https://cdm.unfccc.int/filestorage/e/x/t/extfile-20180323155155628-accr_stan01.pdf/accr_stan01.pdf?t=ZVF8cGcxNnNtfDBIYiU0ulXpfcKTbyAIJwrZ

there is more explicit methodological guidance on MRV procedures, and in the case of the NAMA Facility, stronger review and verification of emissions reduced. Under the CDM, vetting the DOEs' capacity to validate and verify CDM projects is extremely important since the reported amount of GHG reductions determines the number of CERs issued.

The NAMA Facility, GEF and CDM all require evaluations of parties responsible for MRV. However, while the NAMA Facility and GEF use quality checks and vet organizations for their MRV capacities, the extent and details of these processes remain vague. While the CDM's rigorous approach to verification and validation is comprehensive and thorough, it is also more resource and time intensive. The CDM verification and validation procedures can be a burden for project implementers and the CDM itself.