Climate Technology Centre & Network

Monitoring and Evaluation Guidance for Technical Assistance Implementers

March 2020

Summary

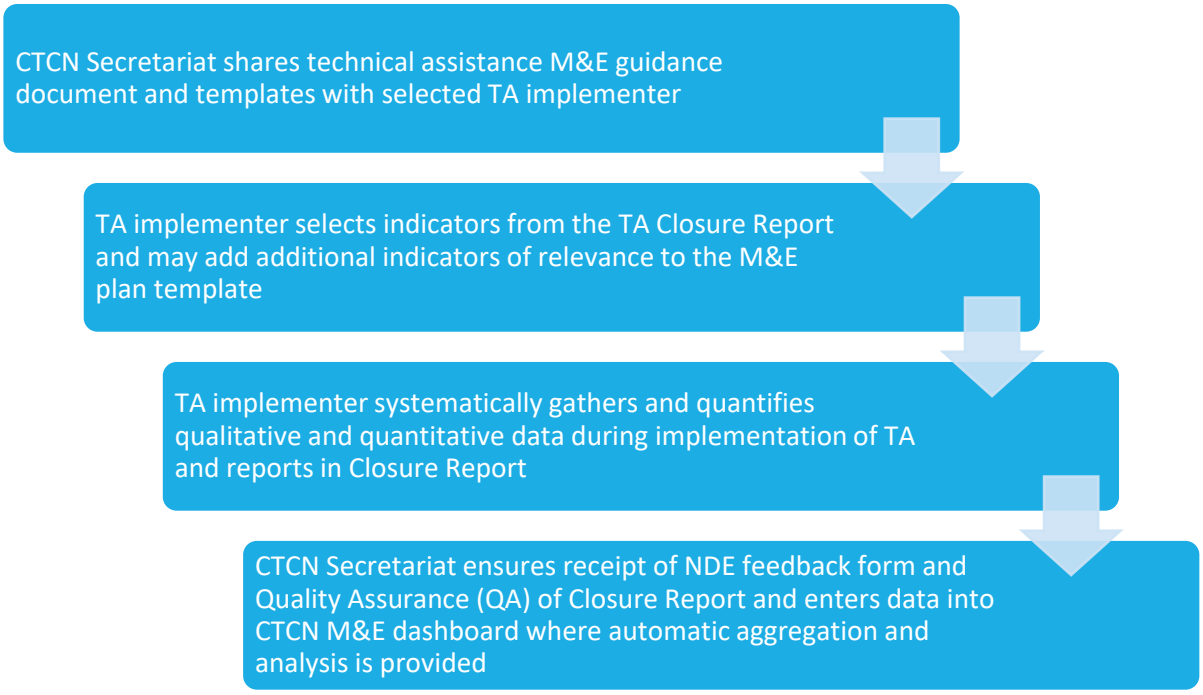
The TA monitoring and evaluation (M&E) guide for implementers provides CTCN TA implementers with an overview of the procedures for monitoring and evaluation of technical assistance, as well as recommended methodologies for reporting on quantitative and qualitative core indicators.

Overview of TA M&E process

The TA implementer is expected to fill in and provide the following two M&E documents :

- Before TA implementation : **M&E plan and Impact Statement**
- After TA implementation : **Closure Report**

The image below describes the full technical assistance M&E process starting from the moment contracting of TA implementer is complete.



Guidance for core indicators

The indicator guides below support CTCN technical assistance (TA) implementers in quantifying data and report qualitatively for selected indicators and help the CTCN Secretariat assure quality and consistency of the M&E data received via TA Closure Reports.

	I.1.A: Anticipated metric tons of CO_2 equivalent (tCO_2e) emissions reduced or avoided as a result of CTCN TA (disaggregated by annual and life of project)
Definition of indicator	The indicator quantifies the volume of tCO_2e of emissions reduced or sequestered as a result of the TA and post-TA activities. The indicator applies to all CTCN TA expected to result in project activities with climate change mitigation objectives or with mitigation effects as co-benefits. **Anticipated**: This indicator estimates emission reductions that are likely to occur as a result of the implementation of the project activity.

	I.1.A: Anticipated metric tons of CO_2 equivalent (tCO_2e) emissions reduced or avoided as a result of CTCN TA (disaggregated by annual and life of project)
	As this indicator is reported on at the completion of the TA deliverables and prior to implementation, GHG emission reductions are those anticipated as a result of future project activities. **Project activity**: TA deliverables may contain actionable recommendations or next steps for a variety of stakeholders. A post-TA activity occurs as a result of stakeholders implementing these recommendations or procedures. The scope of the anticipated post-TA project activity, for the purposes of this indicator, should be commensurate with the scope of the recommendations or implementation plan included in the TA deliverable(s). **Annual**: The average estimated emission reductions expected to occur in a calendar year as a result of the project activity compared to the baseline scenario (tCO_2e per year). **Total**: The total estimated emission reductions expected to occur as a result of TA and post-TA activities compared to the baseline scenario for the entire life-of-project. **Life-of-project**: The estimated time in which a technology or other project activity is expected to remain in place and operational. Various technologies will have different life-of-project estimates. Local operating conditions and other factors must also be considered when estimating life-of-project time periods for anticipated project activities. The methodology for quantifying this indicator is based on the World Resources Institute's 'GHG Project Protocol for Project Accounting'[1], the "Project Protocol".
Unit of measure	Metric tons of CO_2 equivalent (tCO_2e)
Disaggregation	Annual (emissions per year) Total (life-of-project emissions)
Theory of change	Reducing or avoiding CO_2 emissions is part of the long-term desired impact of the CTCN services, contributing to the mitigation of climate change and to the transformational change and low-emissions development strategy set forward by the Paris Agreement.
Risks and assumptions	Ex-ante emission reduction estimations are subject to different degrees of precision, depending on the available data and the quantifiers' knowledge and skills.

[1] http://ghgprotocol.org/standards/project-protocol

	I.1.A: Anticipated metric tons of CO_2 equivalent (tCO_2e) emissions reduced or avoided as a result of CTCN TA (disaggregated by annual and life of project)
	It is assumed that the NDEs and/or TA implementers have enough technical capacities and access to quantified data to perform an adequate ex-ante quantification of expected GHG emission reductions. Anticipated emission reductions have not yet occurred but are likely to occur if the recommendations or next steps described in the TA deliverables are fully implemented. However, full implementation is not assured.
Data method and source	The basic steps for an ex-ante estimation of GHG emissions reductions or sequestration for a technology development, deployment and/or transfer project are detailed in the Project Protocol. These guidelines should be used and applied by TA implementers while estimating anticipated GHG emissions reduced or avoided on an ex-ante basis, and can be summarized as follows: **a) Defining the GHG Assessment Boundary (Chapter 5 of the Project Protocol)** Defining a GHG assessment boundary involves: • identifying the expected post-TA project activity (or activities) • identifying the primary and secondary effects associated with each post-TA project activity; and • thoroughly analyzing the secondary effects to determine which are significant for the purpose of estimating and quantifying GHG reductions. **b) Selecting a Baseline Procedure (Chapter 6 of the Project Protocol)** For each primary effect associated with a post-TA project activity, the TA implementer shall select and justify the choice of baseline procedure used to estimate baseline emissions. As mentioned above, two procedures exist for estimating baseline emissions associated with an expected post-TA project activity's primary effect: the project-specific and performance standard procedures. **c) Identifying the Baseline Candidates (Chapter 7 of the Project Protocol)** Baseline candidates are alternative technologies or practices within a specified geographic area and temporal range that could provide the same product or service as the post-TA project activity. They can involve both existing and potential technologies and practices. For each expected post-TA project activity, the TA implementer shall develop a complete list of baseline candidates that will be used in

the baseline procedures to represent possible alternatives to the project activity. The following steps are required:

- Define the product or service expected to be provided by the post-TA project activity.
- Identify possible types of baseline candidates.
- Define and justify the geographic area and the temporal range used to identify baseline candidates.
- Define and justify any other criteria used to identify baseline candidates.
- Identify a final list of baseline candidates.
- Identify baseline candidates that are representative of common practice (for the project-specific baseline procedure).

d) Estimating Baseline Emissions - Project Specific Procedure (Chapter 8 of the Project Protocol) and Performance Standard Procedure (Chapter 9 of the Project Protocol)

The TA implementer must select or establish referential and operational modalities for the identification and evaluation of baseline scenarios. The baseline scenario must accurately reflect what would have occurred in the absence of the project/technical assistance. For most projects, emissions are not stable in baseline scenarios: businesses would continue to grow; new technologies would have been adopted; and business practices would have become more efficient, even without the new technology. In order to establish these specific dynamics, the TA implementer must document what would have occurred based on the best available project and contextual information and put forward assumptions to cover for information gaps.

The project-specific procedure produces an estimate of baseline emissions for a post-TA project activity's primary effect through the identification of a baseline scenario linked to the specific circumstances surrounding the post-TA project activity. The baseline scenario is identified through a structured analysis of the post-TA project activity and the baseline candidates. This procedure has two components. The first component involves identifying the baseline scenario. The second component involves estimating the GHG emissions associated with the baseline scenario.

The performance standard procedure analyzes the GHG emission rates of all baseline candidates to construct a GHG emission performance standard against which expected post-TA project activity emissions can be compared. The performance standard is used to determine baseline

	I.1.A: Anticipated metric tons of CO_2 equivalent (tCO_2e) emissions reduced or avoided as a result of CTCN TA (disaggregated by annual and life of project)
	emissions for the post-TA project activity's primary effect. Once a performance standard is developed, any number of similar project activities may be compared to it. A performance standard is periodically updated to reflect changing circumstances within the relevant geographic area or temporal range. **e) Quantifying GHG reductions (Chapter 10 of the Project Protocol)** GHG reductions shall be quantified using the following steps: • Identify the time period over which GHG reduction might be quantified (typically the estimated life-of-project for the project activity or service). • Quantify the expected GHG reductions for the post-TA project. The TA implementer must apply the appropriate standards and methodologies to quantify GHG emission reductions and GHG removals. Emissions reductions or increases in GHG removals must be quantified as the difference between emissions and/or removals from sources, sinks and reservoirs of relevant GHGs for the project and those relevant to the baseline scenario. The TA implementer should quantify emission reductions separately for each relevant GHG and its sources, sinks and reservoirs in the project and baseline scenario. The TA implementer must use the tCO2e as the unit of measure and must convert the quantification of each type of GHG, using the 100-year global warming potentials (GWPs).
Reporting frequency	The GHG baseline should be established during the inception phase of the TA and reported in the TA's monitoring & evaluation (M&E) plan. The final GHG baseline and emission reduction estimate and supporting narratives should be reported in the TA Closure Report (see TA Closure Report for required narratives). Where applicable, the TA implementer should incorporate emission reduction estimates and supporting documentation in mitigation TA deliverables.
Responsibilities	**The TA implementer** should quantify the anticipated annual and total emission reductions and report the values and methodologies in the M&E plan and TA Closure Report. **The CTCN TA team** will support the TA implementer by providing reporting guidelines, methodological assistance, and technical assistance with uploading the results onto the TA dashboard.

	I.1.A: Anticipated metric tons of CO_2 equivalent (tCO_2e) emissions reduced or avoided as a result of CTCN TA (disaggregated by annual and life of project)
	The M&E team will review and approve the TA Closure Report indicator results and aggregate data from the TA Closure Reports and the knowledge management system (KMS) for annual reporting.
Additional resources	A variety of online emissions calculators are freely available. For example: Clean Energy Emission Reduction (CLEER) Tool https://www.cleertool.org/ Agriculture, Forestry and Other Land Use (AFOLU) Carbon Calculator http://www.afolucarbon.org/ Agriculture and Land Use (ALU) National Greenhouse Gas Inventory Software https://www.nrel.colostate.edu/projects/alusoftware/home GHG Protocol Calculation Tools https://ghgprotocol.org/calculation-tools

	I.1.B: Anticipated increased economic, health, well-being, infrastructure and built environment, and ecosystems resilience to climate change impacts reported by CTCN participant countries
Definition of indicator	The indicator measures the increase in economic, health, well-being, infrastructure and built environment, and ecosystems resilience to climate change impacts reported by the countries that have benefited from CTCN TA's. These different sectors contribute to a climate change resilient development. Increased economic resilience refers to the anticipated reduction in the reliance on economic sectors vulnerable to climate change and to enhance economic diversification, as a result of CTCN technical assistance. Increased health and well-being resilience refer to the anticipated improvement in the response to climate-sensitive diseases, accidents and food and water security, as a result of CTCN technical assistance. Increased infrastructure and built environment resilience refers to the anticipated improvement of physical assets (such as housing, schools, hospitals, public and private buildings and the infrastructure that serve them) and the ability to implement climate-resilient planning, design, construction, operation and/or regulation of these assets, as a result of CTCN technical assistance. Increased ecosystem resilience refers to improvement of the protection of ecosystems and their ability to provide ecosystem services in a changing climate, as a result of CTCN technical assistance.
Unit of measure	N/A (qualitative indicator)
Theory of change	Improving climate change resilient development through technology development and transfer is part of the long-term impact of the CTCN services that will contribute to the transformational changes envisioned by the Paris Agreement toward low-GHG development and overall climate resilience.
Risks and assumptions	It is assumed that the responses to the NDE feedback forms adequately capture increases in climate change resilience across all relevant sectors. Risks include insufficient detail provided by the NDE due to lack of engagement or knowledge as well as response biases by the NDE or reviewer.
Method and source	**Economic**: Anticipated increased resilience identified if the targeted beneficiaries will be relying less on vulnerable economic sectors and will be diversifying their livelihood following the implementation of the TA results. **Health and well-being**: Anticipated increased resilience identified if the targeted beneficiaries would have improved well-being, better access to water and/or increased food security following the implementation of the TA results. **Infrastructure and built environment**: Anticipated increased resilience identified if fewer climate induced damages will affect the targeted beneficiaries' physical assets following the implementation of the TA results.

	Ecosystems: Anticipated increased resilience identified if the ecosystem of the TA intervention zone will have a better capacity to resist climate-induced disturbances and to recover from such damages to the ecosystem, following the implementation of the TA results. The TA implementers proceed with this assessment at the end of the TA and report in section 5 of the Closure Report. The results reported for this indicator should align with the scope of activities included in the TA. The narratives provided in the closure report should describe the causal link between the TA activity and the anticipated impact. NDEs will report in the post-implementation survey and, as applicable, describe the increased resilience achieved as a result of implementing the TA results. The survey responses may include considerations to the following aspects: • Changes in economic aspects • Extent of the adoption of diversified climate-resilient livelihood options following the implementation of the TA results • Introduction of health measures to respond to climate sensitive diseases following the implementation of the TA results • Perspective of a sample of households of the well-being (incl. access to water and increased food security) following the implementation of the TA results NDEs reporting positive results may be asked to provide supporting documentation.
Frequency	Once per Closure Report; once per post-implementation NDE survey
Responsibilities	**The TA implementer** will include these narratives in the Closure Report at the end of the TA. **The NDEs** will fill in 1) the feedback form after each TA, and 2) the post-implementation NDE survey. **The CTCN TA** team will support the TA implementer by providing reporting guidelines, methodological assistance, and technical assistance with uploading the results onto the TA dashboard. **The M&E team** will review and approve the TA Closure Report and aggregate data from the TA Closure Reports for reporting.

	I.1.C: Anticipated number of beneficiaries as a result of TA (disaggregated by mitigation, adaptation, and both)
Definition of indicator	This indicator measures the number of people that are anticipated to receive a monetary or non-monetary benefit as a result of a technical assistance activity. Beneficiaries refers to the number of people with improved access to low-carbon energy (mitigation) or with reduced vulnerability or increased resilience to climate change (adaptation) as a direct result of the TA. The beneficiaries include the individuals who may benefit from the sustainable development co-benefits of the TA intervention. Beneficiaries may include, but are not limited to, people trained by peer trainers or individuals who benefit from the technology transfer network set up by the TA. In some cases, they might be service consumers of the sector targeted by the TA. Benefits may include increased energy access, water security, economic or livelihood benefits, and increased resilience to climate shocks or stressors. This indicator may apply to technical assessments or technical support on policy and planning tools that have a national, sub-national or local scope, however the number of beneficiaries must be plausibly linked to the implementation of the project activity.
Unit of measure	Number of beneficiaries
Disaggregation	Mitigation, Adaptation, Both Mitigation and Adaptation
Theory of change	Reaching out directly or indirectly to many beneficiaries increases climate change awareness and awareness on climate technology development and transfer. It also supports the emergence of a critical mass of stakeholders engaged in climate technologies, who have the capacity and tools to build a low-carbon climate resilient development, as envisioned in the Paris Agreement.
Risks and assumptions	For project activities with clear implementation plans, TA implementers may be able to assess the anticipated number of beneficiaries based on simple assumptions. TAs which are intrinsically national in scope, or without clear causal pathways that can be used to assess potential beneficiaries, may not be able to report on this indicator.
Method and source	Estimate the anticipated number of people who will benefit from the direct and indirect results of the TA (disaggregated by adaptation, mitigation, or both). Anticipated beneficiaries need to be defined and identified as appropriate in the project context. Estimation methods must be reasonable and commensurate with the project activity.

	These estimates must include any potential negative impacts resulting from the project activity, and the number of individuals who may suffer from these negative impacts must be subtracted from the total number of beneficiaries. Negative impacts could, for example, be increased risks or production losses during the installation of technology. Assessment boundaries, including a justification of why the individuals counted are beneficiaries should be included in the Closure Report. Additional supporting information used to estimate anticipated impacts and associated beneficiaries should be included in the project deliverables.
Frequency	Once per Closure Report
Responsibilities	**The TA implementer** will include the quantitative values and supporting narratives in the Closure Report at the end of the TA. **The CTCN TA team** will support the TA implementer by providing reporting guidelines, methodological assistance, and technical assistance with uploading the results in the Closure Report onto the TA dashboard. **The M&E team** will review and approve the TA Closure Report and aggregate data from the TA Closure Reports and for reporting.

	Outcome 2.C: Amount of funding/investment leveraged (USD) as a result of TA (disaggregated by public, private, national, and international sources, as well as between anticipated/confirmed funding)
Definition of indicator	This indicator monitors the amount of funding/investment leveraged for climate technologies in developing countries as a result of CTCN technical assistance. The data provided for this indicator should consider if the anticipated or confirmed funding leveraged is from public, private, national or international sources. • Public and private finance: The categorization of the funds leveraged as either public or private depends on the status of the entity anticipated to provide it. The public sector comprises of all the government owned organizations, agencies and state offices. The private sector includes privately owned businesses, companies, partnerships, and for-profit organizations. • Funding leveraged/mobilized: The terms "mobilized" and "leveraged" are used interchangeably for this indicator. Funds can be counted as mobilized once they reach financial closure. Financial closure may vary by funding type, but typically represents a legally binding commitment of financiers to provide funding for the project. Such funding must account for a significant part of the project cost. All types of funding may be considered under this indicator including, for example: development aid, private equity, loans, or concessional finance. Various finance flows may also be considered, for example: developed countries to developing countries, within developed or developing nations, developing to developed nations or from other sources such as multilateral development banks. Various activities may be financed, for example: direct or indirect climate change related actions, or compensation for damages. There must be a clear causal link between the technical assistance and the (public or private) funding mobilized in order to be included under this indicator. For example, the implementer should demonstrate that the activity would not have moved forward in absence of the CTCN technical assistance. Funds must be considered "new or additional", i.e. the extent to which money would or would not have been spent on the same purpose in the absence of the CTCN intervention. Assessment of additionality will need to be done on a case-by-case basis and will rely on judgement and reasoning of the TA implementers.
Unit of measure	US dollars[2]
Theory of change	Additional funding/investment is necessary for the adoption of new and existing climate technologies by developing countries and progress toward resilient development.

[2] Data must be reported in numerals only; data must be reported in actual dollar value, not thousands or millions

Risks and assumptions	There is a risk that double-counting may occur when anticipating funding leveraged from CTCN activities in instances where projects have been co-funded by other entities. The CTCN TA team should ensure that double counting is avoided.
Baseline and target	The CTCN baseline will be determined based on the pilot test of this indicator for one year. The CTCN baseline will be a ratio between funding leveraged as a result of CTCN TA and CTCN funds invested in TAs on annual basis. The 5-year target is to reach a ratio of 10/1 (funding leveraged / CTCN funding).
Method and source	TA implementers should identify potential areas of future funding during the provision of the technical assistance and determine whether these investments would occur without the TA. TA implementers should quantify the anticipated funding based on the analyses included in the deliverables, or by considering the potential value of proposed project activities as a result of the TA. The portion of this value that has been used for the same purpose before the TA and/or would have been used for the same purpose in the absence of the TA are not considered additional. All values must be converted into US dollars, and disaggregated by public national, public international, private national, private international, and anticipated or confirmed funding. The sources for data collection might include project deliverables, application documents, budgets, contractual arrangements and governmental expenditure documents. TA implementers should provide supporting documentation for all confirmed funding, which may include primary financial documents, or secondary sources such as press releases or other public announcements.
Frequency	Anticipated funding: Once per TA Closure Report Confirmed funding: Once per TA Closure Report, and on an ongoing basis via the post-implementation NDE surveys.
Responsibilities	**The TA implementer** will include the quantitative values and supporting narratives in the Closure Report at the end of the TA. **The CTCN TA** team will support the TA implementer by providing reporting guidelines, methodological assistance, and technical assistance with uploading the results in the Closure Report onto the TA dashboard. The CTCN TA team will also provide periodic updates on closed TAs as information about confirmed values become available (e.g. via NDEs, GCF, web searches, other sources). **The M&E team** will review and approve the TA Closure and aggregate data from the TA Closure Reports and for reporting.

Further guidance	• Guidelines available in the OECD paper on “Comparing Definitions and Methods to Estimate Mobilised Climate Finance” • Michele de Nevers. Assessing “Leverage” in the Climate Investment Funds, CGD Policy Paper 110, October 2017

Annex I: GHG Protocol Definitions[3]

Greenhouse gas (GHG): Gaseous constituent of the atmosphere, both natural and anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere and clouds. The most common greenhouse gases include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride.

GHG emissions: Release of GHGs into the atmosphere.

GHG sequestration or removal: Removal of carbon from the atmosphere through natural or artificial processes.

GHG source: A process that releases greenhouse gases into the atmosphere.

GHG reservoir: A component, other than the atmosphere, that has the capacity to accumulate GHGs, and to store and release them.

GHG sink: A process that removes and stores GHGs from the atmosphere.

Carbon dioxide equivalents (CO_2e): Unit for comparing the radiative forcing of a GHG to that of carbon dioxide.

Emission factor: A coefficient which allows the conversion of activity data into GHG emissions. It is the average emission rate of a given source, relative to units of activity or process/processes.

Global Warming Potential (GWP): A measure of how much energy the emissions of 1 ton of a gas will absorb over a given period (100 years), relative to the emissions of 1 ton of carbon dioxide.

GHG effects: Changes in GHG emissions, removals, or storage caused by a project activity. There are two types of GHG effects: primary effects and secondary effects. A primary effect is the intended/expected change in GHG emissions, removals, or storage associated with a GHG source or sink as a result of a technical assistance (TA) activity. Each technology project following a TA will generally have only one primary effect. A secondary effect is an unintended change as a result of a project following a TA in GHG emissions, removals, or storage associated with a GHG source or sink. Secondary effects are typically small relative to a project activity's primary effect. In some cases, however, they may undermine or negate the primary effect.

GHG assessment boundary: All primary effects and significant secondary effects associated with post-TA project. The GHG assessment boundary is used to identify the GHG sources and sinks that must be examined to quantify a project's GHG reductions. It is not a physical or legal "project boundary."

GHG reductions: Either a reduction in GHG emissions or an increase in removals or storage of GHGs from the atmosphere. GHG reductions are calculated as the difference between project activity emissions and baseline emissions.

Baseline scenario: A description of what would have most likely occurred in the absence of any considerations about climate change mitigation. The baseline scenario is used to estimate baseline emissions.

Baseline candidates: Technologies or practices, within a specified geographic area and temporal range, that could provide the same product or service as a project activity.

Baseline emissions: Baseline emissions associated with primary effects are derived from either a baseline scenario or a performance standard. Baseline emissions associated with secondary effects

[3] See additional definitions and concepts in the GHG Protocol for Project Accounting from pp.10-19 https://ghgprotocol.org/sites/default/files/standards/ghg_project_accounting.pdf

are linked to the TA-specific baseline scenario. If the performance standard procedure is used, baseline emissions associated with secondary effects are inferred from baseline candidates or are estimated conservatively.

Baseline procedures: Baseline procedures are methods used to estimate baseline emissions. The GHG Project Protocol for Project Accounting[4] describes two procedures:

- Project-specific procedure —This procedure produces an estimate of baseline emissions through the identification of a baseline scenario specific to the expected post-TA project activity. The baseline scenario is identified through a structured analysis of the post-TA project activity and its alternatives. Baseline emissions are derived from the baseline scenario and are valid only for the post-TA project activity being examined.
- Performance standard procedure —This procedure produces an estimate of baseline emissions using a GHG emission rate derived from a numerical analysis of the GHG emission rates of all baseline candidates. A performance standard is sometimes referred to as a multi-project baseline or benchmark, because it can be used to estimate baseline emissions for multiple project activities of the same type. It serves the same function as a baseline scenario but avoids the need to identify an explicit baseline scenario for each post-TA project activity.

[4] https://ghgprotocol.org/sites/default/files/standards/ghg_project_accounting.pdf