

Core parameters for TCAF operations

This note translates TCAF objectives and portfolio selection criteria, as outlined in the TCAF Framework, into core parameters for TCAF operations.¹

TCAF will apply emerging guidance from the UNFCCC to concrete operations and will seek to inform the development of more generic guidance through TCAF's operational experience. Thus, the following discussion is intended to be an orientation of the basic principles for designing TCAF operations only and not a detailed technical guidance. TCAF operations will also be informed by emerging guidance on crediting under PMR as well as by analytical work undertaken by other initiatives. TCAF will only develop upstream knowledge products on crediting and related topics when necessary to support operations, while avoiding duplication with these other work streams.

Background

The basis for developing the following core parameters is provided by: (i) the framework of the Paris Agreement and the fact that all parties to the Agreement have adopted targets within their NDCs and are expected to achieve and increase the ambition of these targets as their top priority, (ii) the Trustee's and the contributors' experience as practitioners of the Kyoto market mechanisms and providers of technical expertise and capacity support for the development of domestic carbon pricing policies, (iii) the existing body of literature on market mechanisms and results-based climate financing (RBCF) including the Trustee's own work programs on these topics, and (iv) the objective of providing replicable and scalable solutions to all methodological and operational requirements as a public good.

The starting point are the goals and portfolio selection criteria of TCAF.

Goals of TCAF and portfolio selection criteria

TCAF is expected:

- i) To provide funding through emission reduction transactions in order to facilitate the generation of Verified Greenhouse Gas Emission Reductions from transformative Programs by leveraging existing or future investment or policy operations, as well as other emerging mandatory and voluntary greenhouse gas mitigation mechanisms;
- ii) To stimulate the establishment of robust regulatory frameworks for carbon pricing;
- iii) To promote sustainable development; and
- iv) To disseminate broadly the knowledge gained by the Bank, by Programs, Contributors and by Programs developers in the development of the Facility and the implementation of Programs.

TCAF portfolio selection criteria furthermore require:

1. Coherence with national mitigation aims. The program should demonstrate country commitment to GHG mitigation, by being consistent with or derived from the country's Nationally Determined Contribution (NDC) and being fully aligned with domestic policy objectives and sectoral priorities.

¹ The note reflects TCAF's current approach to scaled-up carbon crediting and might be updated in light of experience is gained through TCAF program development.

2. Support increased domestic ambition. The program should demonstrate transparently that it enables the host country to increase its mitigation target or enhance the implementation of mitigation actions and policies beyond what it would achieve with its own efforts.
3. Programs that achieve a lasting impact. There should be a credible path for the program to become self-sustaining or to ensure sustainability of emission reductions after the Facility's support ends. For example: (1) by mobilizing other sources of funding, in particular through crowding-in private finance, (2) by demonstrating that external funding needs are reduced or eliminated over time, (3) through the implementation of domestic carbon pricing measures and/or via potential linkages with international demand for carbon assets.
4. Programs have demonstrable sustainable development co-benefits and maintain environmental and social safeguard standards. The program should conflict with neither the World Bank's country engagement strategy, nor the United Nations sustainable development goals, and will follow the World Bank Operational Policies and Procedures including environmental and social safeguard policies, as appropriate.
5. High level of environmental integrity of emissions reductions. The Facility will support programs whose emissions reductions are consistent with the evolving framework and principles of UNFCCC rules at the time of implementation or ERPA signature. In all cases the Facility will only support programs whose emissions reductions show strong environmental integrity, including avoiding double counting, and applying robust monitoring, reporting and verification.
6. The Program should avoid any direct distortionary effects on the sector's international competitiveness and adverse incentives on the sector's GHG emission.
7. It should be possible to establish a robust baseline for the program.
8. Readiness for implementation after ERPA signature, preferably with ER generation to begin by 2020.

TCAF will purchase verified emission reductions (VERs) and aim for a share of these VERs corresponding to the funding provided by contributors interested in acquiring Internationally Transferred Mitigation Outcomes (ITMOs) to achieve recognition under Article 6 Paris Agreement. Such recognition could either happen under Article 6.2 or Article 6.4. TCAF is open to both alternatives. TCAF will provide blue-prints for efficient and low-cost mitigation globally and at scale. TCAF will inform the UNFCCC negotiation process based on experience gained over time in conceptualizing and implementing TCAF operations.

In the subsequent sections, methodological parameters will be distinguished from operational parameters. Methodological parameters include the topics: transformational change (covering items (i), (ii), (3) above), baseline setting ((1), (2), (5), (7)), additionality (5), Monitoring, Reporting and Verification, MRV (5), avoidance of double counting (5), and sustainable development ((iii), (4)). Operational parameters include: crediting parameters ((2), (3)), safeguarding against regrets ((3), (6), (8)) and finally pricing as a cross-cutting topic (pricing is not covered in this note).

Methodological parameters

(a) Transformational Change

TCAF operations are expected to contribute to transformational change towards decarbonized economies.² Contribution to transformational change is both a criterion for selecting a TCAF operation, as well as a performance parameter to be monitored and evaluated for each operation.

Given the case and circumstance, specific assessment needs for TCAF operations, and given that generic guidance and assessment frameworks for transformational change are already available or under development, the suggestion is to include transformational change directly in the theory of change to be developed for each TCAF operation including definition of transformational change indicators to be monitored during the lifetime of the operation.³

(b) Baseline setting⁴

Carbon crediting within countries that are Parties to the Paris Agreement and that have defined their own NDC targets is different from crediting emission reductions in developing countries under the Kyoto Protocol using the CDM. Differences also exist to crediting under JI as both TCAF host countries and TCAF participant countries typically did not define multi-year carbon budgets within their NDCs.

Baseline setting for TCAF operations will be informed by host countries' unconditional NDC targets. Clearly, emission reductions forming part of these targets cannot be credited and hence need to be part of the baselines. However, TCAF will not simply derive baselines from unconditional NDC targets as there is a need to ensure that such emission targets do not exceed business-as-usual (BAU) emissions. For each TCAF operation the respective BAU emission trajectory will therefore be compared with the target emission trajectory (using the unconditional target). The BAU emission trajectory will be determined through methodologies developed by TCAF. In instances where the target emission trajectory is below the BAU emission trajectory, the target emission trajectory will be the baseline, otherwise the BAU emission trajectory. Baselines will therefore be determined according to:

Baseline = Min (target emission trajectory, BAU emission trajectory).

This formula means that in cases where BAU emissions are below target emissions, the BAU emission trajectory will form the baseline. Otherwise, the target emission trajectory will become the baseline.

This does not mean that TCAF will credit all emission reductions relative to the baseline. This will certainly not apply to the case where the target emissions are higher than the BAU emissions but also not in general to the opposite case. The amount of credited emission reductions will be reduced through setting crediting parameters reflecting TCAF's strategic objectives as well as host country circumstances and interests including conditional targets if existing (see (g) below).

² De-carbonization does not mean to address only CO₂ emissions and ignore other GHGs. Both in this note and in the annex 1 on transformational change de-carbonization stands for "de-GHGization".

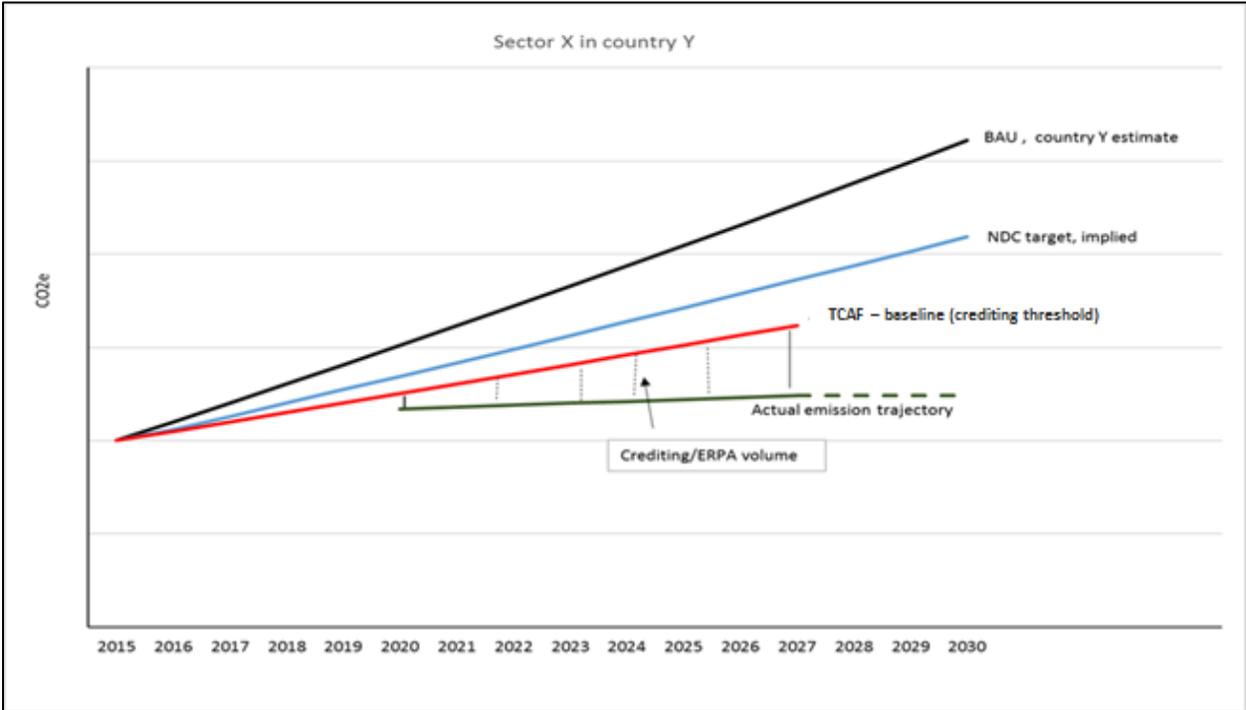
³ The suggested TCAF approach on transformational change is outlined in more detail in annex 1 to this note.

⁴ This section follows the recommendation provided in the PMR technical note "Establishing Scaled-Up Crediting Program Baselines under the Paris Agreement: Issues and options", 2017, <https://openknowledge.worldbank.org/handle/10986/28785>.

Conceptually distinguishing baseline setting from crediting parameter setting is helpful as it allows for continued conceptual understanding and baseline definition as the counterfactual development without the mitigation activity considered for TCAF support.

In practical terms this means that TCAF will credit against a crediting threshold or (“TCAF-baseline”) that is well below the BAU emissions trajectory and typically also well below the target emission trajectory. This is visualized in the figure below.

Figure 1: BAU, baseline and crediting threshold



For those VERs for which TCAF will not seek authorization and transfer as ITMOs corresponding to the share of funding provided by TCAF results-based climate finance (RBCF) contributors it will not be required to place the TCAF crediting line on or below the unconditional NDC target line of the host country. It will however be required for those VERs as well to be determined against a crediting line below BAU.

The diversity of NDCs of TCAF host countries means it requires a flexible approach and tailored for each TCAF operation. Nonetheless operations will likely fall into one of the following general categories: (i) congruence – full congruence of the unconditional NDC target area with the TCAF operation’s boundary (e.g., the TCAF operation is about increasing renewable energy generation under a NDC that has an explicit unconditional target on renewables),⁵ (ii) inside target - TCAF operation falls under a broader (e.g. economy-wide target, and (iii) outside target - the TCAF operation is outside the NDC target area (e.g. in the waste sector of a country that has only an energy target – assuming for simplicity no energy components of waste sector mitigation activities).

⁵ TCAF would then purchase emission reductions beyond those required by the target as per the suggested baseline approach.

Further complications arise from the fact that some countries distinguish “unconditional targets” from “conditional targets” (targets conditional to international support) – a distinction that is not reflected in the Paris Agreement -, and the aforementioned widespread adoption of single year targets.

Besides reflecting unconditional NDC targets in baselines for TCAF ITMO transactions and defining crediting thresholds below baselines further differences to the Kyoto Protocol’s project-based mechanisms occur where TCAF operations are policy-based. In such cases, baseline determination will typically require economic modelling not undertaken within CDM or JI methodologies. New approaches other than modelling and already existing methodological tools might be used as well to support baseline determination.

On baseline setting and environmental integrity the suggestion for TCAF is to build the required approaches, tools, and knowledge in a bottom-up process, i.e., in developing TCAF operation-specific methodologies starting from the following set of guiding principles:

- Baseline (ITMO) = Min (target emission trajectory, BAU emission trajectory) for TCAF ITMO transaction; and Baseline (RBCF) lower than BAU for TCAF RBCF transactions.;
- Crediting threshold below baseline for TCAF ITMO transactions;
- For TCAF ITMO transactions unconditional NDC targets will be reflected 1:1 in baselines in case (i) and broken down to the baseline depending on NDC ambition and host country strategy in case (ii). In case (iii) BAU will be adjusted in line with unconditional targets set by the host country for areas covered by its NDC and depending on host country ambition and mitigation strategy.
- For TCAF ITMO transactions in cases where countries exclusively provide a conditional target the BAU emission trajectory will be the baseline by default. This baseline might be adjusted by the full or partial conditional target (if the latter is lower than BAU) depending on agreement between host country and TCAF.
- Single year targets will conservatively be broken down to crediting periods (default is linear break down) for TCAF ITMO transactions;
- Modelling approaches to baseline setting and other new approaches will be used where required, and where possible existing methodological tools with relevant modifications will be used.

(c) Monitoring Reporting and Verification (MRV)

The Paris Agreement established a universal system of transparency for MRV, with built-in flexibility taking into account countries' different capacities. The Agreement requires all parties (with the exception of LDCs and SIDS) to report and be reviewed on a biennial basis on: (a) Progress with the implementation of NDCs; (b) Progress with the provision/receipt of support; and (c) Identification of capacity building needs. This gradual strengthening of national MRV-systems should also be the framework for any sector level TCAF MRV. To ensure legitimacy and support it is important that TCAF's MRV is in alignment (accounting methodology; computer systems; etc.) with host countries' national MRV systems. This way TCAF can also make a valuable contribution to building national level MRV capacity.

TCAF operations will typically be on a sectoral level or will be policy-based. Sectoral-level MRV can build on existing MRV methodologies developed under CDM and JI where appropriate and relevant. However, simplifications to reduce transaction costs might be possible in standardizing MRV approaches developed for project-based crediting when moving to a higher aggregation level in crediting. Such concepts are

publicly available such as the MRV component of the Standardized Crediting Framework developed by the World Bank under the Carbon Initiative for Development (Ci-Dev).⁶

Policy-based crediting will require modelling approaches to MRV. Development and set-up of such MRV systems require substantial efforts but policy MRV will typically be simpler and less costly to operate than facility-level MRV. Policy MRV will also provide co-benefits in enabling a better-informed policy design and implementation process beyond a concrete TCAF operation.

In all cases verification will be undertaken by an independent third party.

As with baseline setting, the suggestion is to develop MRV systems on an as needed basis for concrete TCAF operations following the principles of minimizing transaction costs while ensuring environmental integrity and enabling co-benefits outside the area of the TCAF operation. This takes into account the triple MRV requirements for TCAF related to emission reductions, transformational change, and sustainable development/safeguarding.

(d) Additionality

TCAF will use a two-layer approach to additionality taking into account that TCAF operations will follow a market mechanism logic as they are piloting potential new international market mechanisms under Article 6 of the Paris Agreement and seek for a share of the VERs generated by TCAF programs recognition of the purchased verified emission reductions (VERs) under Article 6 as NDC compliance grade (layer one: market mechanism layer).

TCAF operations will however also follow a climate finance logic as they are piloting Article 6 mechanisms through provision of results-based climate financing (RBCF) and as a part of TCAF funds will be disbursed as RBCF leaving corresponding VERs in the host country for host country NDC compliance. This suggests considering the underlying financial structure of TCAF operations within an attribution approach leading to a second layer approach to additionality (layer two: finance layer).

In requiring TCAF operations to comply with both layers of additionality they will benefit from substantially increased (“doubled”) standards of safeguarding of environmental integrity compared to, e.g., CDM market operations.

How these two layers of additionality are applied to TCAF operations is described in the following.

Layer one additionality – market mechanism logic

Additionality of TCAF operations following the market mechanisms logic will be defined as the difference between the crediting threshold (“TCAF baseline”) and the actual emissions (see figure 1 above).⁷ This will result in the “volume of layer one additional emission reductions”. Operationalization of layer one additionality will therefore be done through systematic assessment of the crediting threshold. Instead of

⁶ Cf. World Bank – Carbon Initiative for Development, “A standardized crediting framework for scaling-up energy access programs”, 2016.

⁷ As explained above the crediting threshold will be derived from either BAU or the implementing country’s unconditional NDC target whichever reflects lower emissions. This is analogous to the suggested Art 6 additionality approach in A. Michaelowa, S. Butzengeiger, “Ensuring additionality under Art. 6 of the Paris Agreement”, 2017, https://static1.squarespace.com/static/54ff9c5ce4b0a53deccfb4c/t/5a8b5e288165f58a19e13f5f/1519083068591/Art._6_Additionality_Perspectives_PRINT.pdf.

taking for granted that NDC targets will lead to emission reductions below BAU, TCAF will establish BAU trajectories on the level of TCAF operations and relate them to NDC targets. Furthermore, crediting parameters will be defined in such a way that TCAF will only credit emission reductions relative to emission trajectories (crediting thresholds) below the baseline. These trajectories can also be below NDC targets where appropriate. As target setting is not static under the Paris Agreement but dynamic – parties are expected to increase their NDC targets and coverage over time – increases in ambition will be reflected in baselines if they occur during TCAF crediting periods.⁸

Baselines and crediting thresholds will be validated by independent experts and verification of emission reductions will be done by independent third parties.

Layer two additionality – climate finance logic

Layer two additionality will follow an attribution approach to emission reductions achieved with TCAF operations. For that purpose, all international support a TCAF operation receives will be mapped and for each of these international support components the grant equivalent (“subsidy value”) will be determined. The subsidy value of the TCAF ERPA itself is the net present value of the ERPA payments.

Next the share of the TCAF subsidy value in the aggregated subsidy value across all instruments of international support used to support the TCAF operation will be determined. On that base the emission reductions attributable to the TCAF operation will be derived. This will result in the “volume of layer 2 additional emission reductions” and ensure that no more emission reductions are attributed to TCAF than what TCAF relatively delivered in international support to make the operations happen. Annex 2 explains this approach in detail.

(e) Avoidance of double counting

To ensure environmental integrity robust and consistent accounting of emission reductions and avoidance of double counting is required. Accounting of emission reductions under NDCs is a complex task as targets are formulated in different ways and as there is no common unit available such as Assigned Amount Units under the Kyoto Protocol. However, the challenge can be resolved by rigorously applying the principle of double bookkeeping.⁹

In a piloting phase involving only a few large-scale operations accounting of emission reductions and avoidance of double counting is a manageable task. Basically, the volume of emission reductions transferred as ITMOs would need to be transparently reported by the host country, e.g., in an annex to its inventory reports in indicating the exact nature, boundary and timing of the credited mitigation activity including indication of the baseline used (or at least the source of emission reductions). The corresponding volume of emission reductions purchased would need to be reported as well by the buying country including the same additional information and the intended usage of the credits (compliance purpose or cancellation). In the case of TCAF this would need to be done by all TCAF ITMO contributors pro-rata to their share in the purchasing fund.

⁸ See similar suggestion by Spalding-Fecher, R., et al. Environmental integrity and additionality in the new context of the Paris Agreement crediting mechanisms, 2017.

⁹ Cf. L. Schneider et al, “Robust Accounting of International Transfers under Article 6 of the Paris Agreement – Preliminary Findings”, DEHST 2016 for several options on accounting.

Double counting can in principle occur through double issuance (more than one unit issued for the same emission reduction), double claiming (same emission reduction counted twice for compliance such as by the buying and selling country) and double use (same issued unit used twice, e.g., in two different years). Most relevant in the context of TCAF and in general of market mechanisms under the Paris Agreement is double claiming of emission reductions for compliance under more than one NDC.¹⁰ To ensure that emission reductions are not accounted against more than one NDC target emerging guidance under the Paris Agreement for Article 6.4 requires corresponding adjustments for internally transferred mitigation outcomes that are used for NDC compliance. Similar Article 6.5 of the Paris Agreements requires that emission reductions generated under the Article 6.4 mechanism can only be claimed against one NDC target.

Avoidance of such double counting requires: (i) a commitment by the host country through an approval letter to apply corresponding adjustments for the share of emission reductions acquired by TCAF for NDC compliance purposes of TCAF contributors and to apply record keeping as outlined above to all international transfers of emission reductions (not just the transfers under TCAF operations) and to safeguard against double counting through appropriate diligence, (ii) a corresponding ERPA clause committing the TCAF operation implementing agency to the same principles, and (iii) including monitoring of compliance with the accounting rules in the due diligence of TCAF operations.

In the event TCAF would support a host country to reach a part of its NDC in order to capacitate the implementing country for further emission reductions (TCAF RBCF transaction), a supplemental agreement with the host country would be needed.¹¹

On accounting and avoidance of double counting the suggestion therefore is that TCAF adopts procedures that are practical and robust for a piloting phase along the lines of the criteria outlined above and following emerging UNFCCC guidance.

In case of corresponding adjustments TCAF will require to follow emerging UNFCCC rules on reporting, including reporting of indicative corresponding adjustments to the Article 6 database and reporting through the Biennial Transparency Reports (BTRs). TCAF will also require follow such UNFCCC guidance on undertaking actual corresponding adjustments in the target years (periods) of the respective host countries following UNFCCC eligible methods.

To safeguard host countries against regrets (see below) TCAF will limit the requested volume of corresponding adjustments from TCAF programs to the amount emission reductions in host countries exceed NDC targets.

Further dimensions of accounting and reporting are discussed in annex 3 to this note.

(f) Sustainable development

¹⁰ See Spalding-Fecher, R., et al.

¹¹ This refers to the case were TCAF would pay for emission reductions that will not be transferred but stay in the country to account against the country's target (TCAF RBCF transaction). In such a case TCAF would need to safeguard against the possibility that the host country sells such emission reductions to another country instead of accounting them against its NDC. To prevent this to happen an agreement between the host country and TCAF would be required.

The Trustee will ensure compliance of all TCAF programs with World Bank environmental and safeguard standards and consistency with UN Sustainable Development Goals. Going beyond a safeguarding approach the Trustee will also include sustainable development in the theory of change for each individual TCAF program and define the relevant indicators which can differ depending on the sector in which the program is implemented and the nature of sustainable development benefits. Examples can include indicators related to health benefits due to reduced air pollution, positive impacts on disposable income from low-income households through savings on energy bills, and reduced traffic accidents etc.

These indicators will become criteria for program selection as well as for performance monitoring and evaluation of program results over time.

Such an ambitious approach on sustainable development does not contradict the view that sustainable development is the prerogative of the host country. This is the case under existing market mechanisms. The ongoing discussions under the Paris Agreement seem to converge on this view as well for new market mechanisms.

Operational parameters

(g) Crediting parameters

Crediting parameters comprise the length of the crediting periods of TCAF operations, and the share of emission reductions achieved against the respective baseline (see (b) above) to be purchased by TCAF (crediting threshold). It also comprises pricing (not discussed in this note). Per the TCAF Framework, crediting periods will be of a duration of five to seven years. The share of emission reductions purchased by TCAF is variable and specific for each operation taking into account that TCAF operations aim for purchase volumes over the full crediting period of an order of magnitude of five million tCO₂e.

Within this overall framework TCAF will set crediting parameters for each individual operation with the aim of safeguarding environmental integrity, increasing ambition, achieving global mitigation, promoting sustainable development, and incentivizing private sector mitigation action.

On crediting parameters and design of operations the suggestion therefore is to adopt a bottom-up, operation-specific approach.

Related to setting the crediting period the following applies.

The crediting period is the period a mitigation program can generate emission reductions that may be used for NDC target achievement. The crediting period is defined by its start date and by its length. It does not need to coincide with the duration of the underlying mitigation activities or the ERPA purchase period.

For TCAF mitigation programs the earliest **start date of the crediting period** will be set as the date of submission of the first NDC. This approach allows for the crediting period to start well before 2020 (most NDCs were submitted in 2016) – in line with the objective of TCAF to generate experience with new crediting programs at an early stage.

The **length of the crediting period** is program specific but limited by the end of the NDC target period. Going beyond a given NDC target period would require redefinition of the baseline and the crediting line according to the new NDC. Potential changes to an existing NDC can be reflected in the baseline and crediting lines and be updated within the crediting period.

The **lifetime of the mitigation activities** underlying the program will not typically coincide with the crediting period. Such mitigation activities can have started any time earlier than the crediting period. This is different from CDM regulation requiring demonstration of prior consideration of the CDM (annex 4).

The **TCAF-ERPA purchase period** will most likely be shorter than the crediting period and host countries will be able to sell emission reductions to other buyers (generated outside the TCAF-ERPA purchase period or inside that period if TCAF is purchasing less than the full volume attributable to the mitigation program). The TCAF-ERPA purchase period can include the purchase of credits generated before ERPA signature and before successful program validation. This flexibility allows for payments at an early stage that might be necessary to support the program, e.g., the required MRV capacity. Such arrangements would be negotiated on a case-by-case basis.

Example: A country has submitted its NDC in 2016 with a 2025 target. The crediting period for a TCAF mitigation program in this country can start at the earliest in 2016 and end at the latest in 2025. Baseline and crediting lines might need updating during this crediting period depending on the requirements of the methodology applied and potential changes to the NDC. The country might generate credited emission reductions with mitigation activities that started before 2016, e.g., policies, and emission reductions from incentivized investments might last beyond 2025. TCAF might purchase a 2018-2023 vintage based on an ERPA signed in 2019 and a successful validation in that same year.¹²

In summary: For TCAF operations, crediting periods can start with NDC submission, or any time later and end with the NDC target period or any time earlier. TCAF-ERPA purchase periods can span entire crediting periods or fractions of such periods and they can start prior to ERPA signature and successful program validation. Mitigation activities eligible for crediting can have started prior to crediting periods.

(h) Safeguarding against regrets¹³

TCAF operations can reach substantial scale compared to mitigation efforts required to achieve host country NDC targets. The policy crediting program explored under TCAF, e.g., has the potential to generate about 10% of the country's (unconditional) emission reduction target implied in its NDC.

Overselling, i.e., missing the NDC target because of selling a too large volume of emission reductions for compliance purposes of a TCAF contributor, is therefore a risk that needs to be mitigated from a host country perspective but also from TCAF's perspective in order to avoid reputational risk.

In cases where overselling becomes a risk, TCAF will require a host country analysis of implications of TCAF operations for domestic NDC compliance. This basically means availability of a host country mitigation strategy which accounts for the TCAF operation. Such analytical work will require consideration of mitigation potential and mitigation strategy on the national level – depending on the nature of the NDC target potentially broken down to target sectors. Finally, as outlined above, TCAF will limit required corresponding adjustments to the volume of emission reductions achieved beyond host countries' NDC targets, avoiding the case where a country could be driven out of compliance because of transferring

¹² Any payment for VERs under an ERPA will however take place only after both program validation and emission reduction verification have taken place.

¹³ Safeguarding against regrets will be analyzed in more detail in the forthcoming technical PMR note on baseline setting for scaled-up crediting operations.

emission reductions to TCAF. The risk of overselling will furthermore be reflected in the TCAF pricing approach which is not discussed in this document.

TCAF will count as much as possible on work undertaken in this area by the host country itself and under initiatives such as the PMR. Only in cases where these analyses cannot be provided under existing work programs will TCAF close the gap through its own efforts.

In addition to host country regrets there could be regrets on the side of TCAF contributors due to lack of environmental integrity of verified emission reductions purchased. This is addressed through the outlined approach on baseline setting and environmental integrity above.

Annex 1 - Transformational change towards global de-carbonization

This note starts with thoughts on conceptualizing the assessment and measurement of transformational change from a theoretical and practical perspective. It then suggests a bottom-up, operations-based approach for TCAF and finally aims to validate the suggested approach in explaining how it relates to conceptualization of transformational change under selected initiatives including the Green Climate Fund (GCF) and how it can build on this work.

I. Conceptual pre-structuring: What can be done in theory, what in practice?

Transformational change towards global de-carbonization is best defined by the required structural change of the world economy to achieve the temperature stabilization goal defined in the Paris Agreement.

The Paris Agreement defines a long-term goal of holding the increase in the global average temperature well below two degrees above pre-industrial levels. Parties to the agreement aim to reach global peaking of GHG emissions as soon as possible followed by rapid emission reductions leading by the second half of this century to zero net global emissions.

Long-term de-carbonization pathways consistent with the below two-degree target can be defined for national economies and broken down to the sectoral level.

While a large number of global de-carbonization pathways (scenarios, trajectories) have been developed and suggested in the literature – for a comparison see IPCC,¹⁴ only limited work has been done so far on the level of national economies and sectors.

The Paris Agreement suggests in its Article 4.19 the formulation and communication of long-term low emission development strategies (LEDs) by all parties. From the side of developing countries only Mexico and Benin have communicated their LEDs up to 2050 for the time being.¹⁵

The Deep De-Carbonization Pathways Project is one initiative aiming to fill this gap. It has developed long-term de-carbonization pathways for Indonesia, Brazil, South Africa, India, China and Russia – in addition to Mexico and Benin and the developed countries who have communicated LEDs.¹⁶

In theory a set of indicators for transformational change can be developed on a purely technical basis using country/sector specific long-term de-carbonization pathways

Independent from any assumptions on effort sharing, country and sector specific de-carbonization pathways consistent with a global least cost pathway towards below two degrees can be developed. They essentially prioritize the timing of mitigation activities from a cost minimization perspective and avoid locking-in effects. On this basis a set of indicators for transformational change can be derived.

Such an approach is in theory first best but faces challenges and limitations in practice: Developing a long-term de-carbonization pathway on a country/sector level comes with substantial data and modelling requirements, and such an effort and its timing must be synchronized with the climate policy process of

¹⁴ <https://www.ipcc.ch/report/ar5/wg3/>

¹⁵ http://unfccc.int/focus/long-term_strategies/items/9971.php, accessed in June 2018.

¹⁶ <http://deepdecarbonization.org/>

the respective country. Also, depending on assumptions, there are a multitude of possible de-carbonization pathways and at the end it might be questionable if after filtering out results that are not robust - through appropriate sensitivity analysis - more insights can be gained as compared to a more heuristic approach building on already available literature and expert knowledge.

In practice a more heuristic approach to assessing transformational change towards global de-carbonization can be a preferred alternative approach

Based on several decades of research, climate policy experience and simple knowledge of available technology and corresponding costs and mitigation potential there are important areas of convergence of views on transformational mitigation measures and – on the other hand – areas that are highly controversial or even challenged from a perspective of transformational change.

An area of convergence of views seems to be, e.g., that a complete de-carbonization of the electricity sector and a new wave of (de-carbonized) electrification in the industrial sectors, building sector and transportation sector are required to achieve below two degrees.¹⁷ This has to be part of even broader transformative sectoral changes including demand and behavioral change as well. Taking furthermore into account different lifetimes of assets and the need to avoid stranding of assets from a simple perspective of political economy and economic cost, this alone enables one to derive various sets of indicators for transformational change (and indicators on measures to be rather avoided) for energy related GHG emissions, i.e., two thirds of global emissions.

A positive example could be the share of renewables in the electricity mix in 2030 (technology) incentivized by a feed-in tariff system (policy) moving over time to full passing through of tariff premiums to consumers (resource mobilization) embedded in supporting policy measures such as compensating low-income household for increased electricity prices (if needed) to enable sustainability.

A negative example could be fuel switching from coal/oil to natural gas in the building sector for the reason of locking-in a technology that is too carbon intensive to be consistent with achieving below two degrees in the long run despite contributing to short term mitigation.

II. Assessing the transformative quality of TCAF operations – the suggested approach

The TCAF framework defines four criteria for the transformative quality of TCAF operations: (i) size: TCAF operations are expected to show their transformational quality in achieving a large volume of emission reductions, i.e., at least 5 m t over 5-7 years; (ii) sustainability: emission reductions have to be sustainable over time; (iii) leverage: TCAF operations are expected to enable the host country to increase its domestic ambition over time; (iv) carbon pricing: TCAF operations should contribute to the development and implementation of domestic carbon pricing policies and catalyze a new and scaled-up international carbon market building on Article 6 of the Paris Agreement through piloting of innovative approaches to scaled-up carbon crediting.

¹⁷ Fay, Marianne; Hallegatte, Stephane; Vogt-Schilb, Adrien; Rozenberg, Julie; Narloch, Ulf; Kerr, Tom. 2015. *Decarbonizing Development: Three Steps to a Zero-Carbon Future*. Climate Change and Development; Washington, DC: World Bank. © World Bank. <https://openknowledge.worldbank.org/handle/10986/21842>

These criteria will both be used in the program selection process as well as in the monitoring and evaluation of the program performance over time. Operationalization is straightforward for size, but appropriate indicators need to be defined for the other three criteria.

In general, it will be important that a program does not only reflect a policy intent but that it is also substantiated through programed concrete implementation steps by the host country, including underlying program financing.

Sustainability

Sustainability has three dimensions: technology, policy, and financing. The host country has a responsibility to achieve this program sustainability and its commitment to this objective is an important criterion in the assessment TCAF will need to undertake. Each of these dimensions need to be assessed and appropriate indicators will need to be defined.

Technology sustainability: A technology sustainable program promotes the right technology at the right point in time that is consistent with a long-term de-carbonization pathway in the respective sector of the economy and in line with the global below two-degree target. In particular, a technology sustainable program avoids locking-in of technologies with short term mitigation benefits but insufficient long-term mitigation performance. Assessment of technology sustainability will be undertaken based on long-term de-carbonization pathways where available and feasible. Alternative such an assessment will be done based on a heuristic approach (see above).

Policy sustainability: TCAF operations will typically directly or indirectly be linked to domestic policies. For the operations to be sustainable it will therefore be important that underlying policies are sustainable. A key indicator for policy sustainability is broad political and social acceptance in the respective country and in particular within the group of affected stakeholders. This acceptance will largely depend on how potentially adverse effects on revenues/incomes of different stakeholders are affected and how these effects are managed or compensated. A further indicator for policy sustainability is policy implementation capacity, such as such as increases in relevant host country staff number, expanding the leading agency's policy mandate, strengthening inter-ministerial coordination.

Financial sustainability: TCAF operations and the mitigation activities they support are expected to be financially sustainable in the long run. A key indicator for that will be existence of a long-term vision and strategy enabling exit of public funding through targeted market development, regulation such as passing-on of costs to producers and/or consumers or achievement of sufficient technology cost decrease.

Leverage

Increasing ambition over time is a fundamental principal of the Paris Agreement and international support of all kind - including climate finance, technology transfer, capacity building, market mechanisms -, is explicitly linked in the Agreement to the objective of enabling developing countries to increase their ambition. In recent UNFCCC submissions of parties and observers on Article 6 of the Paris Agreement

reducing the cost of achieving mitigation targets was identified as a key (and within the submissions so far only mentioned) avenue to enable increase in ambition.¹⁸

This speaks for an indicator on financial benefits of host countries in engaging in TCAF operations such as relation of received carbon revenues to the cost of further mitigation activities, i.e., potential to increase mitigation further based on revenues received from TCAF, as suggested in the TCAF pricing approach. Besides such direct benefits there can be more indirect benefits as TCAF operations have the potential to strengthen domestic capacities in long term policy planning and programming and required MRV capacity – a well proven feature of results-based payments in general.¹⁹ These indirect effects can be captured through a more qualitative assessment.

Carbon pricing

Carbon pricing can be defined in different ways. The World Bank's State and Trends of Carbon Pricing report distinguishes explicit carbon pricing from implicit carbon pricing. Explicit carbon pricing includes carbon taxation, emissions trading, carbon crediting, and results-based climate financing using a carbon metric. Implicit carbon pricing creates indirectly a price on carbon through policies such as fuel taxation, energy efficiency standards, fossil fuel subsidy removal or incentives for low carbon technologies.²⁰ In the following a broad definition of carbon pricing will be used including both explicit and implicit carbon pricing.

TCAF operations can support domestic carbon pricing policies directly or indirectly. Direct support consists in crediting emission reductions generated by domestic carbon pricing policies.²¹ Indirect support is through contributing to building the needed momentum, knowledge and capacity for development and implementation of domestic carbon pricing policies.

While direct support, i.e., crediting of emission reductions of explicit or implicit domestic carbon pricing policies might be feasible in a limited number of operations only, all TCAF operations are expected to indirectly contribute to advancing carbon pricing in developing countries.

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<http://www4.unfccc.int/submissions/SitePages/sessions.aspx?showOnlyCurrentCalls=1&populateData=1&expectedsdsubmissionfrom=Parties&focalBodies=SBSTA> and http://unfccc.int/documentation/submissions_from_non-party_stakeholders/items/7482.php

¹⁹ World Bank. 2017. Results-based climate finance in practice: delivering climate finance for low-carbon development. Washington, D.C.: World Bank Group.

²⁰ World Bank; Ecofys; Vivid Economics. 2016. *State and Trends of Carbon Pricing 2016*. Washington, DC: World Bank. © World Bank. <https://openknowledge.worldbank.org/handle/10986/25160>

²¹ Early stage blueprints on crediting emission reductions from explicit carbon pricing are outlined in a recent report produced under the Carbon Partnership Facility: "Supporting Energy Pricing Reform and Carbon Pricing Policies Through Crediting", IISD 2016, http://cpf.wbcarbonfinance.org/system/files/Supporting_Energy_Pricing-Reform_Carbon_Pricing_Through_Crediting_March_2016.pdf. An example for crediting emission reductions from implicit carbon pricing is provided by the Morocco policy crediting program idea.

The following matrix provides an overview on how TCAF will support domestic carbon pricing.

TCAF domestic carbon pricing support matrix

	Implicit domestic carbon pricing	Explicit domestic carbon pricing
Direct TCAF support	a) Crediting of emission reductions achieved through regulatory policy or non-carbon based pricing policies/reforms	b) Crediting of emission reductions achieved through or above a carbon tax or ETS
Indirect TCAF support	c) TCAF program builds infrastructure used for implicit domestic carbon pricing	d) TCAF program builds infrastructure used for explicit domestic carbon pricing

An example for a) is crediting of a renewable energy program supported by a feed-in tariff system (implicit carbon pricing). An example for b) is crediting of emission reductions achieved by a carbon tax above a defined threshold (explicit carbon pricing). An example for c) is provision of benchmarks and MRV in a TCAF energy efficiency program that are used by the host country to implement a mandatory energy efficiency standard. An example for d) is facility level MRV developed for a TCAF energy sector program that is used by the host country to implement an ETS.

TCAF operations are in themselves a form of (explicit) carbon pricing, which can be tracked as price signal provided to a group of recipients, and they will build capacity for baseline setting and MRV that can be used by host countries for the development and implementation of domestic carbon pricing policies. TCAF operations will also help to advance the political process on carbon pricing through stakeholder engagement and they will build implementation capacity. In preparing a specific crediting program, the linkage areas where synergy exists to build capacity for MRV and policy implementation and advance the political process will be identified to support domestic carbon pricing in the host country.

On catalyzing a new and scaled-up international carbon market, key indicators will be developed to monitor the replicability of TCAF operations through usage of TCAF operational blueprints or TCAF baseline and MRV methodologies. Considerations of lessons learnt through TCAF operations by UNFCCC in operationalization of Article 6 Paris Agreement is a further indicator.

Most of these indicators on the transformative quality of TCAF operations will be operation specific and provided in the program selection phase in the PIN. The indicators will then be included in the theory of change of each individual program and monitored over time. This will form an essential part of program evaluation.

Table 1: Indicators for transformative quality of TCAF operations

Criteria	Indicator	Metric
Size	- Volume of ERs	- tCO2e
Sustainability		
- Technology	- Pathway consistency using technology specific indicators	- Qualitative and quantitative (program specific)
- Policy	- Policy change; enabling conditions	- Qualitative
	- Capacity	- Qualitative and quantitative (program specific)
- Financing	- Exit strategy	- Qualitative
	- Replicability	
Leverage	- Financial benefit	- \$
	- Strengthened capacity	- Qualitative
Carbon Pricing	- Carbon price signal	- \$/t
	- Recipients of price signal	- Qualitative and quantitative (#)
	- Support of domestic carbon pricing through capacity building and stakeholder engagement	- Qualitative
	- Replicability international carbon market	- # Replicated Programs
	- Impact on Article 6	- Qualitative

III. What are others doing? - Overview of selected approaches on measuring transformational change towards de-carbonization

Green Climate Fund (GCF)

The GCF considers usage of an indicator “shift to low-emission sustainable development pathways”. The underlying methodology would provide a target pathway derived from a cost-efficient trajectory to reach the Paris Agreement temperature goals and a baseline pathway. The overall impact of GCF mitigation support would then be measured by the degree to which the real development would move from the baseline pathway towards the target pathway. This would be done at the end of each GCF replenishment cycle and for the GCF mitigation portfolio as a whole.²²

A similar approach will be used on the activity level through indicators for “contributions to the shift in low-emission sustainable development pathways”. These indicators include volume of achieved emission reductions, sector specific indicators such as MW of installed low emission power generation capacity, energy efficiency indicators for buildings, change of waste recovered through recycling etc., and indicators of a more qualitative nature such as “degree to which activity avoids lock-in of long-lived, high-emission infrastructure”.²³

In addition, GCF uses a criterion “degree to which the proposed activity can catalyze impact beyond a one-off project or program investment”. It basically asks for a theory of change on scalability and replicability. This is similar to the basic idea behind the suggested indicators on transformative quality of TCAF programs focusing on the pilot character of the operations to enable replication and market uptake instead of focusing exclusively on the size impact.

NAMA Partnership

The NAMA Partnership follows a different and complementary approach to establishing indicators of transformational change. Starting point there are some concrete cases that are widely accepted as cases where transformational change has happened or is in the process of happening such as the rise of wind power in Denmark, Bogota’s change in urban transport or Brazil’s reduction of deforestation). From there a taxonomy of transformational change is developed resulting in 48 indicators.²⁴ This taxonomy reminds of the holistic, systemic character of transformational change with a particular focus on the political process in all its dimensions. The indicators are then primarily qualitative in nature and mostly phrased as questions for assessing the transformative quality of NAMAs.

Such taxonomies as well as even more generic work on transformational change aiming to use a more deductive, theory-led approach such as the work underway by the Initiative for Climate Action

²² http://www.greenclimate.fund/documents/20182/226888/GCF_B.13_26_-_Further_development_of_some_indicators_in_the_performance_measurement_frameworks.pdf/0ad22e10-703d-49ae-baad-eb87669d0223. Note that at current capitalization even the mitigation impact of the total of a potential GCF mitigation portfolio would necessarily be marginal at a global scale.

²³ http://www.greenclimate.fund/documents/20182/239759/Investment_Criteria.pdf/771ca88e-6cf2-469d-98e8-78be2b980940. Note similarity to the heuristic approach as outlined above.

²⁴ Transformational Change Taxonomy - Methodological framework for the assessment of transformational change in NAMAs, NAMA Partnership 2016, <http://www.namapartnership.org/>

Transparency²⁵ can be of use as a reference when formulating the concrete indicators for assessing the transformative quality of TCAF operations safeguarding against omission of possibly relevant criteria.

International Energy Agency (IEA)

Recent work undertaken by IEA can further inform the development of concrete operations-based indicators for transformational change. IEA is providing a catalogue of indicators and related metrics on energy sector transition such as emissions per unit of value added in industry, energy demand per unit of new buildings, emissions per vehicle-kilometers of new cars or emissions per MWh of electricity produced.²⁶

²⁵ <http://www.climateactiontransparency.org/>

²⁶ Energy, Climate Change and Environment – 2016 insights, IEA, <https://www.iea.org/publications/freepublications/publication/energy-climate-change-and-environment-2016-insights.html>.

Annex 2: Attribution of emission reductions to TCAF operations

As per the core parameters for TCAF operations and following TCAF's approach to additionality TCAF will only purchase emission reductions going beyond host countries' NDC targets and mitigation efforts funded by international climate finance. The latter requires proportional attribution of emission reductions achieved by a concrete TCAF program to the TCAF ERPA and the international funding received and to exclude the later part from the TCAF purchase. This note provides the operational guidance for such proportional attribution.

Step 1: Accounting of international climate finance relevant for attribution

Attribution relevant international climate finance fulfills each of the following criteria:

- Finance directly provided inside program boundary;
- Finance reported as climate finance;
- Positive concessionality (grant equivalent above zero).

According to the first criterion, investment finance supporting the credited mitigation activity will be accounted for attribution but not general budget support or technical assistance. Within a broader investment finance program, the share of investment finance supporting the credited mitigation activity needs to be determined and will be used for attribution.

According to the second criterion (the share of) finance reported as climate finance will be accounted for attribution but not international (development) finance that is unrelated to mitigation. Biennial reporting of providers and recipients of climate finance under the Paris Agreement can be used to identify reported climate finance as well as the reporting of International Financial Institutions following the MDB methodology on accounting for mitigation finance.²⁷

The third criterion ensures that only concessional finance is accounted for attribution purposes and not finance at commercial terms. Most international climate finance can be expected to be concessional and to calculate the grant equivalent of concessional finance key parameters such as interest rate, grace period, and tenure of loans provided need to be identified.

Accounting of international climate finance relevant for attribution according to the criteria above will be done by the TCAF host country with support of the TCAF project team.

Step 2: Calculation of the grant equivalent of concessional finance and the TCAF ERPA

Grant equivalents will be calculated using the IDA grant element calculator where possible.²⁸ If the calculator cannot be applied a custom spreadsheet will be developed using the IDA grant element calculator default discount rate (5%). In cases where information on financial parameters is lacking, conservative assumptions will be used. All grant equivalents will be ex-ante values only.

²⁷ For the MDB methodology see: Joint report on MDBs climate finance 2017, <http://www.eib.org/attachments/press/2017-joint-report-on-mdbs-climate-finance-48p.pdf>

²⁸ <http://ida.worldbank.org/financing/resource-management/grant-element-calculator>

For the TCAF ERPA the grant equivalent is the net present value (NPV) of the promised payments against delivery of emission reductions. To calculate this NPV the same discount rate for calculating the grant equivalent of climate finance will be used (5%).

Step 3: Proportional attribution of emission reductions and maximum TCAF ERPA volume

Under current practice climate finance providers do not typically condition their support to achievement of emission reductions beyond NDC targets as is the case for TCAF. A conservative assumption under these circumstances is that climate finance supports the full mitigation effort relative to business-as-usual emissions (BAU), i.e., not just the host country effort to achieve its NDC target. This means that in all cases where climate finance is involved a share of it supports emission reductions beyond the NDC target.

This attribution relevant volume of climate finance will be determined by default by the share of the emission reductions relative to the TCAF crediting line in overall emission reductions (emission reductions relative to BAU emissions). This is reflected in the term $(CL-AE)/(BAU-AE)$ in the equation below.

In the hypothetical case a climate finance contribution was conditional to overachieving the NDC target, the attribution relevant volume of this conditional climate finance will be determined by default by the share of the emission reductions relative to the TCAF crediting line in emission reductions relative to the NDC target. This is reflected in the term $(CL-AE)/(NDC -AE)$ in the equation below.

The maximum TCAF ERPA purchase volume in tons of emission reductions (Max TCAF_ERPA) will then be determined in applying the share of the grant equivalent of the TCAF ERPA in the total grant equivalent (sum of TCAF ERPA grant equivalent and grant equivalent of attribution relevant volume of climate finance) to the emission reductions achieved beyond the NDC target:

$$\text{Max TCAF_ERPA} = \left[\text{TCAF_GE} / (\text{TCAF_GE} + \text{CF_GE} \times (\text{CL-AE})/(\text{BAU-AE}) + \text{CF_GE}^* \times (\text{CL-AE})/(\text{NDC -AE}) \right] \times (\text{CL} - \text{AE})$$

With

TCAF_GE: grant equivalent of TCAF ERPA in \$

CF_GE: grant equivalent of unconditional climate finance provided in \$

NDC: emissions under NDC target in tons of CO₂e

BAU: emissions under BAU in tons of CO₂e

CL: emissions under TCAF crediting line

CF_GE*: grant equivalent of climate finance conditional to NDC overachievement in \$

AE: actual emissions in tons of CO₂e.

An example is provided in the table below:

TCAF_GE [\$]	CF_GE [\$]	CF_GE* [\$]	BAU [tCO2e]	CL [tCO2e]	NDC [tCO2e]	AE [tCO2e]
20	40	6	100	70	80	50

In this example BAU emission are 100 t and the TCAF crediting line stands at 70 t over the considered period (for example 5 years). Actual emissions amount to 50 t. Without attributing a share of the achieved emission reductions to climate finance TCAF could credit and purchase a maximum of 20 t (TCAF crediting line emissions (CL) minus actual emissions (AE)).

With attribution to climate finance the maximum TCAF ERPA volume will decrease. To determine this new ceiling for the TCAF ERPA volume the two types of climate finance supporting the program need to be considered: the one that comes without conditionality (grant equivalent of 40 \$) and the one that is conditional to overachieve the NDC target (grant equivalent of 6 \$).

The unconditional climate finance is for all emission reductions achieved relative to BAU. The share of this unconditional climate finance supporting emission reductions relative to the TCAF crediting line is by default identical to the share of emission reductions achieved relative to the TCAF crediting (CL-AE) in overall emission reduction achieved relative to BAU (BAU-AE). In this example this share is $0.4 = ((70-50)/(100-50))$. Therefore 40% of the unconditional climate finance need to be accounted for attribution, i.e. $16 \$ = (0.4 \times 40 \$)$.

The conditional climate finance is only for emission reductions achieved relative to the NDC target. The share of this conditional climate finance supporting emission reductions relative to the TCAF crediting line is by default identical to the share of emission reductions achieved relative to the TCAF crediting (CL-AE) in emission reductions achieved relative to the NDC target (NDC-AE). In this example this share is $2/3 = ((70-50)/(80-50))$. Therefore 2/3 of the conditional climate finance need to be accounted for attribution, i.e. $4 \$ = (2/3 \times 6 \$)$.

The overall international financial support expressed in grant equivalent the program receives is 40 \$ (the 20 \$ grant equivalent of the TCAF ERPA plus the 4 \$ grant equivalent of the conditional climate finance plus the 16 \$ grant equivalent of the unconditional climate finance supporting emission reductions relative to the TCAF crediting line). The TCAF ERPA share in this total is 50%. Consequently, 50% of the emission reductions achieved beyond the TCAF crediting line can be attributed to the TCAF ERPA, i.e. 10 t CO2e.

In this example applying proportional attribution has reduced the maximum ERPA purchase volume by half, from 20 t to 10 t.

Annex 3: Market mechanisms and Climate finance – accounting and reporting implications for TCAF operations

TCAF operations are defined in terms of the purchase of verified emission reductions (VERs). TCAF contributors will decide on how to use their shares of the VERs. Under the Paris Agreement, and depending on final usage of purchased VERs, TCAF operations will need to be either reported as climate finance or accounted for as market mechanism transactions or potentially both. It is therefore important to understand the nature of TCAF operations and the respective accounting and reporting requirements.

TCAF operations will support large scale transformative mitigation programs in host countries. Such programs might not exclusively be supported by TCAF but also by other providers of climate finance and users of market mechanisms. This raises the question how accounting and reporting of TCAF operations are affected by such third party support.

This note will discuss these questions and their implications for TCAF operations recognizing that final answers cannot be provided before the accounting and reporting requirements under the Paris Agreement are specified and available.²⁹

The note is organized in four parts:

- 1) Accounting and reporting requirements under the Paris Agreement;
- 2) Accounting and reporting requirements for TCAF operations;
- 3) Implications for the design of TCAF operations;
- 4) Accounting and reporting implications of third party support provided to a TCAF program.³⁰

1) Accounting and reporting requirements under the Paris Agreement

The Paris Agreement refers, in two instances, to accounting and to required UNFCCC guidance on avoidance of double counting:

- Article 4.13 requires Parties to account for NDCs and to ensure the avoidance of double counting related to GHG emissions and removals;
- Article 6.2 requires Parties to ensure robust accounting and avoidance of double counting when using international market mechanisms.

In addition, Article 6.5 rules out double counting for the Art 6.4 mechanism using different terminology.

In the context of Article 4.13 and 6.2 UNFCCC guidance on avoidance of double counting will be adopted by the CMA.

In addition to these provisions on accounting and avoidance of double counting Article 13 of the Paris Agreement establishes an “enhanced transparency framework for action and support”. The CMA will

²⁹ Consequently the note will understand all TCAF operations as results-based climate finance (RBCF) irrespective of the final usage of VERs and not distinguish a market mechanism logic from a climate finance logic in the TCAF narrative and the respective theories of change for each individual TCAF operation. Therefore the limitation to accounting and reporting.

³⁰ Here and in the following the term TCAF operation is used for TCAF’s VER purchase whereas the term TCAF program is used (for convenience) for the mitigation activity TCAF supports through its operation. The latter could, e.g., be an energy sector reform program that might be supported by various providers of climate finance and users of market mechanisms including the TCAF VER purchase.

adopt modalities, procedures and guidelines for this framework (Article 13.13). The framework will consist of a part on action and in a different part on support.

The purpose of the transparency framework for *action* includes providing: “clarity and tracking of progress towards achieving Parties’ individual NDCs” (Article 13.5). The purpose of the transparency framework for *support* includes providing “clarity on support provided and received by relevant individual Parties in the context of climate change actions under Articles 4 [NDCs], 7 [adaptation], 9 [climate finance], 10 [technology transfer] and 11 [capacity building]” (Article 13.6).³¹

In summary the Paris Agreement introduces the concepts of accounting and avoidance of double counting for units (emissions, removals, mitigation outcomes, emission reductions,) and for usage of mitigation outcomes and emission reductions for NDC compliance. This is required to safeguard environmental integrity of NDCs and international market mechanisms. Different from the unit accounting is progress reporting on provided and received international support including climate finance.³² The Paris Agreement does not include provisions on the relationship between accounting and avoidance of double counting for units, and progress reporting on provided and received international support including climate finance.

2) Accounting and reporting requirements for TCAF operations

TCAF will purchase verified emission reductions (VERs) and aim for recognition of those VERs under Article 6 of the Paris Agreement. The TCAF Framework envisions maximum flexibility in using VERs generated through TCAF programs:

“The Verified Greenhouse Gas Emission Reductions generated by a Program will be distributed among the Facility Contributors pro rata of their Contributions, and can be either transferred to the Facility Contributor or cancelled by the Trustee on behalf of a Program Entity and/or a Facility Contributor, or a Facility Contributor and the Trustee may decide on any other act regarding the Verified Greenhouse Gas Emission Reductions, or any combination thereof.”

The following options are therefore included: host country NDC compliance, contributors’ NDC compliance, and net mitigation in case of cancellation.³³ In terms of the Paris Agreement transparency framework (see above) the first case would fall under the framework for transparency of support and be reported by contributors and recipients as climate finance. The second case, usage of VERs (if recognized under Article 6) for contributor’s NDC compliance, would fall under the transparency framework for action and Article 6 accounting rules for transfer of compliance assets under market mechanisms.³⁴ The third case, net mitigation, is more difficult.

³¹ REDD+ is not mentioned in Article 13. Article 5.2 relates results-based payments to support and is the only instance where the Paris Agreement refers to results-based payments. If REDD+ can also be part of market mechanisms and would then need to be accounted accordingly remains an open issue debated by parties.

³² The term progress reporting is not used in the Paris Agreement which rather uses language such as “providing clarity” or “providing overview”. It is used in this note for convenience.

³³ There are further options such as using VERs for compliance with voluntary targets or banking of VERs.

³⁴ In principle parallel reporting of market transactions as climate finance is not explicitly excluded under the Paris Agreement but does not seem intended by Parties and would deviate from ODA reporting practice under the CDM (acknowledging that the relation climate finance – ODA is not defined under UNFCCC) and is therefore not considered in this note).

Under the Kyoto Protocol and the CDM pre-2020 purchases of CERs for the purpose of cancellation can be considered as provision of climate finance. Under the Paris Agreement, i.e. post-2020, this logic does not necessarily hold as host countries have targets and transfer of units for the purpose of cancellation excludes accounting emission reductions achieved against targets. This speaks for accounting such units as market mechanism transfers and under the framework for action requiring corresponding adjustments on the side of the implementing country.³⁵ The transaction does not however impact the compliance position of the purchaser, which would fall into reporting as climate finance. A solution could be to do both. These considerations would lead to the following:

Table 1 Required accounting and reporting of TCAF operations³⁶

VER usage	Host country NDC	Contributor NDC	Net mitigation
Nature of operation	Climate finance	Market mechanism	Climate finance and market mechanism
Accounting/reporting	Framework for transparency of support ³⁷	Framework for transparency of action, Art. 6 accounting	Frameworks for transparency of support and action, Art. 6 accounting

Accounting under Article 6 and under the framework for action (for TCAF contributors) only becomes relevant once VERs purchased by TCAF are recognized as NDC compliance assets under Article 6. Until then all TCAF operations fall in the climate finance sphere as results-based climate financing (RBCF).³⁸ The intended final usage of the purchased VERs will however have implications on the design of the operation.

3) Implications for the design of TCAF operations

Clearly, VERs to be used for TCAF contributor's NDC compliance need to be recognized under either Article 6.2 or Article 6.4 Paris Agreement. The same was suggested above for VERs to be used for net mitigation.³⁹

Less clear however, is the case of VERs to be used for host country NDC compliance. In this case, unit transfer and recognition under Article 6 is not required. However TCAF contributors may wish to ensure that the achieved emission reductions are indeed used for host country NDC compliance and excluded from transfers to third parties. In principal this could be done through contractual requirements. A

³⁵ Note: This follows a purely technical consideration. Negotiations are not yet conclusive if voluntary cancellation would require corresponding adjustments on the side of implementing countries or if such adjustments would only be required in case transferred units are used for compliance purposes.

³⁶ Note, this is only one possible scenario. No accounting/reporting principles are provided under the Paris Agreement so far.

³⁷ It will be argued below that for TCAF operations even in the case of using VERs for host country NDC compliance it might be preferable to seek recognition of units under Article 6 and to transfer such units what. This would then add framework for action and Article 6 accounting to this case as well.

³⁸ Qualification of pure VER purchases as RBCF is in line with the terminology chosen in the TCAF framework.

³⁹ In theory one could alternatively require host countries to simply not account emission reductions purchased by TCAF against their NDC, i.e., tighten the target by the purchase volume. Transfer of units under Article 6 and cancellation seems however to be the superior approach from a perspective of safeguarding achievement of the intended objective.

preferred solution from a safeguards perspective might be to aim for recognition of VERs under Article 6 and potentially even transfer of units to an account to be held in trust for host country compliance.⁴⁰

Aiming for recognition (and transfer) of all VERs purchased under TCAF, irrespective of the ultimate usage of these VERs, has the advantage of keeping usage options flexible over time and of simplifying contractual relationships.⁴¹ The suggestion is therefore that TCAF aims for recognition of all purchased VERs under Article 6 Paris Agreement (either Article 6.2 or 6.4).

4) Accounting and reporting implications of third party support provided to a TCAF program

Transformational programs supported by TCAF (TCAF programs) might also receive support through third party users of market mechanisms and providers of international climate finance. How will these cases of co-purchase and/or co-financing affect the TCAF VER purchases (TCAF operations)?

Cases of co-purchase under Article 6 market mechanisms are perfectly possible and might even be considered as desirable to enable scaling-up and replication of TCAF operations. The guidance on accounting for Article 6.2 and the modalities and procedures for Article 6.4 can be expected to enable robust accounting covering cases of co-purchases. Key in this context is avoidance of double counting. This topic was already discussed in the main text of the note “Core parameters for TCAF operations” which also recommended an approach to safeguard against double counting in a pilot phase.

What was not yet discussed is how to deal with climate finance contributions TCAF programs might receive from third parties. As stated under (1) above it has not yet been clarified how such climate finance contributions might need to be reflected in accounting and reporting of TCAF operations under the Paris Agreement.

Under the CDM of the Kyoto Protocol, consideration of international support (through Official Development Assistance, ODA) is outlined in the CDM modalities and procedures and in decisions taken by the CDM Executive Board. The following CDM rules apply: All public funding of a project activity (including ODA) needs to be reported in the CDM Project Design Documents; ODA providers need to confirm “non-diversion” of ODA to the CDM project activity.

A further provision by the OECD Development Assistance Committee (DAC) excludes funds used for the purchase of CERs for compliance purposes to be reported as ODA. Despite lack of clarity on third party climate finance reporting for TCAF operations the recommendation is to follow in the piloting phase the CDM rules and the DAC rule.

⁴⁰ Depending on potential UNFCCC accounting or registry guidance/infrastructure different technical solution might be possible. For further technical options discussed for the Forest Carbon Partnership Facility (FCPF) see: <https://www.forestcarbonpartnership.org/sites/fcp/files/2016/Dec/4b.%20Double%20Counting.pdf>

⁴¹ However, flexibility on usage options has implications for TCAF implementing countries as they will need to know if they need to undertake corresponding adjustments or not. At what point these countries will need certainty will depend on the respective circumstances and will need to be agreed on a case-by-case basis.

Annex 4: Ensuring that crediting allows for higher mitigation ambition – CDM versus TCAF

Under the Kyoto Protocol, developing countries host CDM projects that can generate certified emission reductions (CERs) that developed countries may use toward achieving their Kyoto targets. The revenues from CDM crediting are intended to enable projects that generate mitigation outcomes additional to what would otherwise have occurred in the host country Party, replacing domestic mitigation by the developed country Party that acquires them. One criterion used to assess additionality is prior consideration: a project that has already started and never considered the CDM revenues is unlikely to be considered additional, as the emission reductions would occur regardless of whether the project generated revenues from the sale of CERs.

To demonstrate additionality, CDM regulation defines the ‘start date of the CDM project activity’ as start of procurement of equipment or site preparation (in case of forestry projects). For Programmes of Activities (PoAs), the start date is defined as the ‘expressed intent to use the CDM or publication date of the project design document (PDD) for global stakeholder consultation whichever comes earlier’.⁴²

If the start date of a proposed CDM project activity is prior to the date of publication of the PDD for global stakeholder consultation, the project participants must demonstrate that the CDM revenues were considered necessary in the decision to implement the project.⁴³

In the context of the Paris Agreement, all Parties have committed to preparing and communicating NDCs that they intend to achieve as well as pursuing domestic mitigation measures with the aim of achieving them, regardless of any international crediting programs they may authorize. Article 6 of the Paris Agreement requires, inter alia, that any cooperative approaches involving internationally transferred mitigation outcomes (ITMOs) ensure environmental integrity and transparency and prevent double-counting. Since a Party must apply a corresponding adjustment for all ITMOs it transfers out, ITMOs should represent mitigation that goes beyond what the host Party would implement to achieve its NDC, provided the NDC is able to demonstrate higher ambition than the “BAU”-scenario.

To generate verified emission reductions that are likely to be considered credible when transferred as ITMOs under the Paris Agreement, TCAF programs must therefore move beyond the CDM approach to demonstrating additionality by showing that they incentivize the achievement of mitigation outcomes beyond own contributions of host countries and beyond what can be achieved by international support through concessional climate finance.

Under policy crediting, e.g., a country might decide to use all expected mitigation outcomes of a particular policy for its own NDC achievement and rule out international transfers but then change the approach, for example, in light of first experiences going beyond expectations. Such a policy would be eligible for crediting as long as it can transparently demonstrate that the mitigation outcomes exceed those consistent with NDC achievement in the relevant sector(s). This is also the case for sectoral crediting that directly credits overachievement of a sectoral target contributing to the NDC target, without attribution of mitigation outcomes to pre-defined individual mitigation activities.

⁴² See CDM glossary.

⁴³ See CDM project standard and CDM EB 41, annex 46.