

Structured call for Inputs on Activities involving Removals

Contribution for consideration by the A6.4 Supervisory Body

Dear Members of the A6.4 Supervisory Body, dear UNFCCC A6.4 Secretariat Team,

This contribution has been prepared to provide responses to the **“Call for input 2023 - structured public consultation: Further input - Removal activities under the Article 6.4 mechanism”**. Notwithstanding we propose to firstly improve our joint understanding about the **“Removals/Reversals accounting”** process in the context of the Paris Agreement framework, as compared with the Kyoto Protocol. We ask for your patience to consider the below introductory discussion; it demonstrates we need to rework fundamental concepts underneath the land based CDM Methodologies for carbon dioxide removals (CDR) before their utilization in the Paris mechanisms. In special, the **“permanence”** aspects and the consequential use of **“temporary”** versus **“long-term”** Certified Emissions Reductions (“t-CERs” and “l-CERs”) deserve revision, and this affects the entire Monitoring, Report and Verification – MRV process. Besides, the carbon offsets market in Paris framework, as compared to Kyoto mechanisms, impose changes to the role and responsibilities of host countries DNAs and to stakeholders/project participants: host countries will only issue authorization of **A6.4ERs¹** first transfers of internationally transferred mitigation outcomes – **ITMOs**, either for their utilization as an NDC achievement or for another mitigation purposes, after completing a **“corresponding adjustment - ca”** in the host NDC inventories, and this has consequences to the accounting of emissions accruing to reversals from activities based on removals.

1 Differences between Kyoto’s and Paris’ flexible mechanisms

The UNFCCC as a “Framework Convention” requires all participant countries to contribute to addressing GHG emissions that cause the global warming, however under the principle of “Common but Differentiated Responsibilities (CBDR)”. Both Kyoto and Paris have used this principle, but not in the same manner: Kyoto proposed to cap emissions from Annex-I countries in a progressive manner, while the non-annex I countries would only participate in the flexible mechanisms. Kyoto has not adopted any procedure to promote a party from non-Annex I to the Annex-I, changing its role and commitments to climate mitigation, and this was of course not acceptable in the long term. Paris, on the other hand, has set a target of

¹ We will use in this contribution the term “A6.4ERs” in equivalent manner as the Emissions Reductions, this parameter could also be read as “Emissions Removals”, if the reader prefers. In any case, this input tries to demonstrate that any A6.4 Project Activity based on removals can be considered for the mitigation outcomes in the exact same way as an emissions reductions project activity. The only difference is that the net effect on the national inventory and NDC implementation process has the opposite sign: the removals are counted as emissions subtractions (a ton of CO₂ is removed from the atmosphere), and the emissions reductions are counted as one ton of CO₂ that is saved to be emitted to the atmosphere, if compared with the scenario of the absence of the project activity. Consequently, the emissions reductions have a permanent effect in the climate mitigation: the one ton that is saved to be emitted has contributed the global stock take of anthropogenic emissions as a permanent outcome, while the removal of one ton, depending on the carbon pool or reservoir in which it has been stored, may be reemitted in the future, i.e., may be subject to a reversal.



“holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C” (Article 2)

and, to achieve this:

“Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty” (Article 4).

The way towards global emissions/removals neutrality was set in the NDC implementation process, by the Katowice’s Decision 18/CMA.1 “Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement”. The NDC implementation process requires the progressively more ambitious NDC targets from all parties, every five years a periodic global stock take is carried out (the first of which took place this year of 2023), the NDCs achievements are followed by the Biannual Transparency Reports (BTRs) and annual inventories, every five years the NDCs achievements for domestic mitigation and for the exchanged ITMOs based on the cooperative approaches (A6.2 and A6.4) are checked. Figure 1 below represents the process.

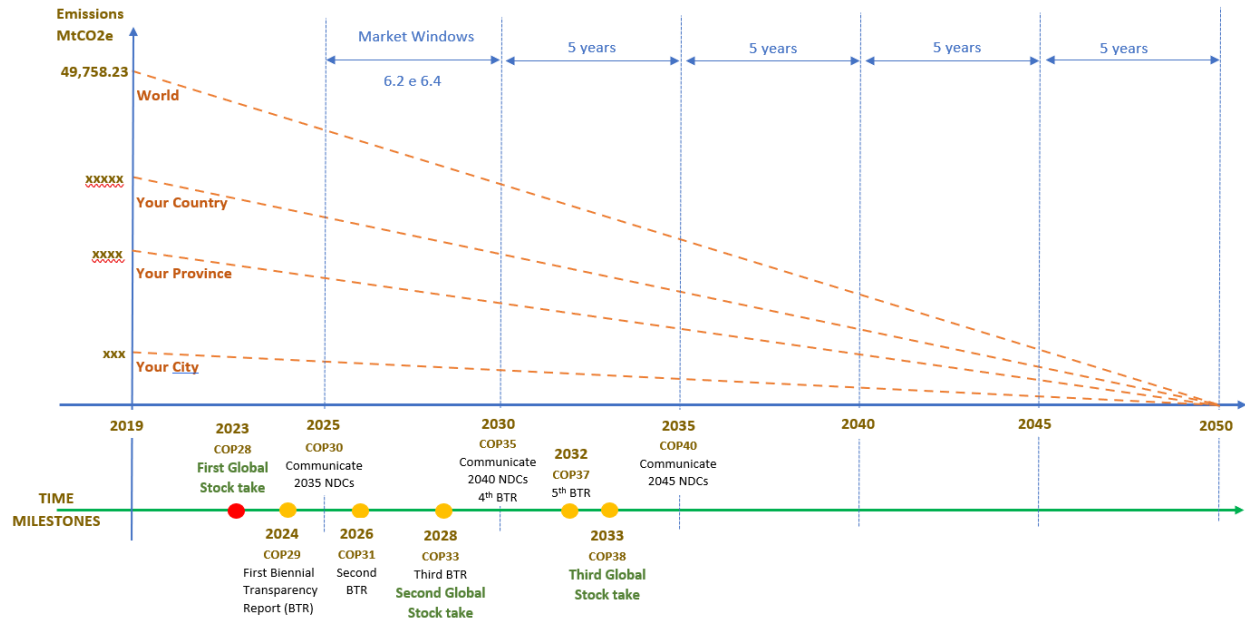


Figure 1: Representation of the Paris long-term implementation process. It is observed that that the global emissions are taken every 5 years at the stock takes and will be the basis for adjusting the national contributions (NDCs) in the joint challenge to reach the long-term stability of the net emissions/removals at the middle of the century. The NDCs may be seem like territorial contributions from the national countries, with targets set at each 5 years progressively more ambitious ‘commitments’ periods. The allocation of contributions/commitments is based on the common but differentiated responsibility principle. Biannual Transparency Reports – BTRs and yearly national inventories are submitted to the global administration (UNFCCC), in charge for the independent technical reviews of the BTRs. Mechanisms A6.2 and A6.4 are available for exchange ITMOs among the NDCs, under the implementation of



corresponding adjustments at the national inventories. Reliable reporting of the national inventories and ITMOs 'exports' (authorizations) and 'imports' (use) are verified at the BTRs reviews and at the global stock takes. It is also highlighted that the NDCs may also be formally or informally disaggregated internally in each country into provincial and local/citywide contributions. Sectoral, corporative, and even individual contributions disaggregation are in principle conceivable. It is worth noting that land-based removal activities, either for achieving NDCs or for international ITMOs generation under the A6.4 and A6.2 mechanisms are, essentially, local contributions where the communities, indigenous and public/private landowners or nature conservation managers at rural, urban and peri urban landscapes register the opportunities for afforestation and reforestation, up the saturation of the carbon pools ("conservation projects"). From this point onwards the sustainable forest management or other renewable biomass generation ("production projects") may be used to generate renewable energy (zero emissions reversals) or carbon geological storage (non-reversible removals). It is also to be noted that land-based removal projects may be registered for very long-lasting crediting periods (up to 45 years), i.e. they may remain under the A6.4 supervision even beyond the long term Paris goal for transiting towards the global emissions neutrality.

The major difference between Kyoto and Paris, in regard to the host countries contribution, is that in Kyoto the non-annex I countries did not have any commitments in the short or long term, while in Paris they have a progressively more ambitious target, although the developed parties do have the major contribution to be achieved either domestically (National Mitigation Outcomes) or by using the ITMOs from the cooperative approaches A6.2 and A6.4. Every party shall disclose its national inventory annually, and the Biannual Transparency Report – BTR about its achievements, demonstrating national mitigation outcomes or authorizing or using first transfers of ITMOs. However, for every ITMOs first transferred by a host country DNA, the national inventory is necessarily affected by implementing the "corresponding adjustment", as required by the Glaswegian Decision CMA.3 "Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement".

Now observe the major difference for accounting removal activities in Kyoto CDM (Afforestation and Reforestation A/R methods) and in Paris Para 6 Mechanisms, regarding the concept of **permanence**: in Kyoto, any t-CER or l-CER issued had an expiration time for its utilization by the annex-I party in the running or subsequent Kyoto commitment periods. This was necessary, because any CO₂ removed from the atmosphere for forest regrowth could be later lost by deforestation causing reversals at the host country: host countries, being non-Annex I parties, had not to account achieved removals in their inventories, they simply did not have any national inventory to report and had no commitment or contribution to mitigation to be demonstrated or accounted for. Now, in the Paris framework, this situation has changed. An A/R project causing CO₂ removals in an host country will be accounted for in this host country inventory, and if this removal is exported as an ITMO, it is still accounted as a removal achieved by the host party, and if at any point in time in the future this removed CO₂ is emitted back to the atmosphere as a consequence of a deforestation or land use change (intentional or not), the corresponding emissions/reversals will be necessarily reported and accounted for in the host country national inventory and BTRs. And this national inventory and BTRs are bound to the host country NDC, which is progressively more ambitious towards achieving its domestic mitigation. This means, if the host country increases emissions at the AFOLU sector through deforestation, these emissions will be reported in the national inventory, and the NDC will need to be made more ambitious by implementing other kind of mitigation outcomes, either in the same AFOLU sector, as domestically achieved without giving rise to "exportation" by ITMOs authorization, or by emissions reductions at other sectors. Of course, we may expect that less developed countries will take longer time to peak their emissions (as Article 4 of the Paris Agreement above mentions),



but this peak will arrive the sooner or the later, and the ITMOs issuance cannot be freely increased, because the global stock takes and BTRs will show whether the pace of the ambition increase of the NDC is proceeding in adequately manner as the host country expected progressive contribution within the common but differentiated responsibility principle.

The consequences for the designing of methodologies related to removals and reversals in the A6.4 mechanism, as compared to the CDM framework, are clear. The removal CERs are to be accounted in the same way as any other CERs for the emissions reductions. The use of the CERs for both the national domestic mitigation, or for the issuance of ITMOs, and the utilization of the CERs by another NDC as an achievement from foreign acquisition, or the use of removal ERs at any other international mitigation purpose (CORSIA, voluntary cancellation, etc.) are to be treated in the same way as any other A6.4ER units, without any distinction. Further, there will be no sense to define temporary or long-term CERs. The removal activity is permanently registered in the host country inventory, even if authorized for ITMOs transfers (in this case by implementing a corresponding adjustment), and any reversal that takes place in the future will be accounted for at the national inventory as an AFOLU emission and discounted from the national NDC in the national inventory and BTR at this future point in time. The concept of permanence loses most of its implications in Paris framework, as compared with Kyoto: any removals may be registered as national mitigation outcome.

This is especially important if we consider the probably much more long lasting A6.4 crediting periods for land based removal activities, which may be registered for up to three times fifteen years crediting periods (therefore up to 45 years of crediting, e.g., if a project is registered in first year of the A6.4 mechanism in 2025, it may generate ITMOS and be credited up to the year 2070), encompassing multiple NDCs implementation periods, and lasting up to the expected time when the global stock takes will have achieved the neutrality (hopefully!!).

2 Implications to removals/reversals accounting and reporting

Once we accept the A6.4 removal units being monitored in the same way as emissions reductions units, two questions need to be answered in the consideration of the fact that the removals (unlike the emissions reductions) may be subject to the reversals. First issue is how to report the removals in the national contributions and national inventory for the time series of the progressive accumulation of the carbon stocks, and, secondly, how to treat the situation when the accumulated carbon stocks, if reversals emissions occur for any reason, are accounted for in the national inventory and in the already authorized first transferred ITMOs that have been “exported” for international utilization, and eventually used by another NDC or final user.

The above demonstrated difference between the approaches of Paris and Kyoto are evidencing an important inconsistency on Kyoto approach to measure, report, verify (MRV) as well as to account for the removals of CO₂ by sinks in afforestation and reforestation projects, without taking care of host country emissions. The Kyoto A/R methodological approaches for removals disregard any pre-existing carbon stocks or carbon pools in the host country and in the project area where the A/R project activities is implemented. It just monitors the increased carbon stocks in the relevant pools (above ground, below ground, dead biomass and litter, and soil organic



carbon) that take place during (and because) of the project activity. All carbon stocks pre-existing are considered as having no contribution to the climate mitigation at all.

Observe that this MRV procedure results in the inconsistent accounting of carbon stocks at the project activity and cannot relate to the overall accounting on national inventories for the AFOLU sector, and for the generation and use of, for example, renewable biomass and biofuels. If, as in the A/R methodologies, only the increases in carbon pools during and caused by the project activity are deemed as removed from the atmosphere, all biomass stocks pre-existing in a land area are considered in the same way as a fossil based carbon pool: only the biomass that grew during the project activity do account as CO₂ removals and are subject to “reversals”. All other biomass stocks in the country, e.g. the biogenic content of the waste streams, the renewable biomass from cultivated crops, and carbon pools in the forests before the start of the project activity will be treated and counted as only causing “emissions”, and do not have any contribution to the climate mitigation, just because they are anterior to the time zero (the project start). This inconsistency is related to the definition and use of distinct “temporal boundary” (reference year for starting the time series to measure the removals and reversals. For national inventories, usually the year of the Kyoto baseline (1990) are chosen, and in the A/R CDM methods the project start is taken as the moment “zero”. This “project-by-project stopwatch resetting” system, and this country-by-country free selection of reference year for inventory reporting need to be changed now in Paris, otherwise the appropriate accounting of removals/reversals will not work.

To make it clear: using the definition of CO₂ removals by sinks as only the amount captured after the **time zero** as the project start (the biomass stocks pre-existing in the land area being considered as not having contributed to the climate mitigation) incurs to the conclusion that biomass stocks in any waste streams (e.g. the biogenic fraction in urban wastes) or the biofuels produced from biogenic cultivations before the project start had also not being originated from CO₂ removals themselves. Consequently, pre-existing wastes or biofuels, when used for energy generation, will not have the zero emissions calculations as currently practiced in CDM, and will need to be calculated as net CO₂ emissions in the same way as if they were fossil fuel. This would imply that “renewable biomass” (zero emissions at combustion) are only the biomass growths taking place during the project for its cultivation, and not any pre-existing biomass stocks. In the CDM and Kyoto approaches this had not been an issue, because the host countries were not required to make a consistent inventory report, and to proceed with a corresponding adjustment. But now, under the Paris framework, these two accounting systems are interlinked and need to be consistent to each other. This our contribution has therefore a proposal to be considered as fundamental for correctly addressing any removals methods in the NDC and A6.2 and A6.4 accounting systems:

We need a unique and universal reference time (zero o'clock point in time) to make all removals and reversals calculations comparable among themselves in terms of the climate mitigation effects: any CO₂ removal and storage do contribute to the climate mitigation, but this contribution depends on both: (i) the point in time where the removal occurred (i.e. its vintage), and (ii) the time interval during which the CO₂ has been kept out of the atmosphere, until it is reemitted to the atmosphere as a reversal.



The mitigating effects of removals and reversals need to be made consistent with each other, according to the moment the removal occur (vintage) and time duration where the biomass or carbon pool is kept out of its radiative forcing at the atmosphere: the longer the time interval between the removal and reversal, the larger the impact of the carbon removal on the climate mitigation. To develop such a tool to determine the time influence on the mitigation impact of a removal activity, we have proposed the use of a physical approach based on the GWP and time dependency (or the vintage) of the removal activity. This approach has been drafted by our last input before SB6 (see our June input to SB6, available at https://unfccc.int/sites/default/files/resource/Carbon_Recycling.pdf).

Our proposed approach is based on the simple and scientific sound assumption that **any CO₂ emission (fossil or not) is in fact a reversal** because the CO₂ has been previously removed from the atmosphere by a biogenic process (even the fossil fuel are resulting from biogenic removals in the pre-historic ages and are stored in geological reserves). The GWP/time dependency of the storage time is proposed to be taken by the measured Keeling curve (CO₂ content in the free atmosphere). Our proposed method thus calculates retroactively the mitigation impact at any time the CO₂ emission occurs, based on a physical quantity (the Keeling curve) to correct the GWP. We propose to adopt as the absolute “universal zero o’clock time” the year of 1850, which is the onset of the anthropogenic interference on the climate system. All biomass stocks (and all fossil fuel carbon stocks) pre-existing to this point in time are considered as equivalent, and have zero contribution to mitigation, and full contribution (full GWP) at the moment they are emitted. For all the biomass vintages after 1850 there is a climate mitigation effect at the removal time, and a contribution to the global warming at the reversal, when it occurs. As we have discussed before, we may demonstrate that, on one hand, the oldest biomass (e.g. very old trees) did not contribute to the mitigation, and will contribute largest to the emissions, if deforested or combusted. On the other hand, the youngest biomass stocks (starting with the current year cultivated biomass) are the largest contributors to the mitigation (deserving more preference, in case we want to achieve removals), but also providing the lowest impact to the warming (thus also deserving preference, if we aim to use renewable biomass to replace the fossil fuel energy or the deforestation from older biomass stands) if reemitted as reversals.

This our method is able to replace, with advantages, the method under discussion by SB and UNFCCC secretariat, based on defining prospectively a 100 years’ time horizon and an economic discount rate (2.0% is the proposed discount in the document under consideration by SB) for the speculative storage time interval for the activity removals starting at the project time (zero o’clock time at the project start) and its contribution to the climate mitigation until the point in the future when the reversal may be allowed to occur.

3 Call for input questions by element

Having provided our preliminary suggestions, and according to their implications to the removals/reversals accounting systems (projects, NDCs, and global stock takes), we may provide the following responses to the questions for which SB has sought for inputs at the public call.



2.1. Monitoring and reporting

5. Should the activity proponent be required to periodically update its monitoring plan every five years and/or at the end of the crediting period?

Yes. In our opinion, there might be also updates at the host country NDC review process, to confirm the ITMOs authorization process for the next NDC period will not require changes in the monitoring plan.

6. Should monitoring reports be submitted within the first [2] [5] [X] years of activity implementation? After the first report, at least once every [2] [5] [X] years?

This is at a case-by-case, maybe the host country DNA may set up the frequency for the monitoring reports submissions.

7. Do the "reversal notification" reports referred to in SB 003 recommendations involve, e.g. digital notification of an observed event that could lead to a possible reversal of removals; submission of notification within [90] [120] [X] days of the observation; follow-up submission of a full monitoring report within [6 months] [1 year] [X timeframe]?

As earlier described, the removals are part of the host country NDC achievements, and if authorized for ITMOs transfers, the DNA oversees issuing the authorizations and proceeding with the corresponding adjustments in the national inventory. Therefore, the occurrence of reversals shall be part of the DNA regulatory system for authorizing projects implementation and ITMOs first transfers, and for including the reversals occurrences as part of the national inventory and BTRs communications. The methodology approved by SB shall have provisions not only related to the rules and procedures to be followed by the project participants in the validation and verification, but also the conditions to be attended by host countries DNAs for issuing letters of authorizations for project implementation and for ITMOs first transfers. The arrangements to treat unintended reversals occurrences should be part of the DNA authorization process. There might be options for the DNA to decide, for example, if the authorizations are bound to guarantees from its side to implement buffer approaches, or to issue provisional ITMOs, with the obligations at the side of the project participants or the final users to replace the ITMOs in the case of unintended reversals, etc. In this sense, we believe the SB is not in charge of ensuring the final use of the ITMOs at NDC achievements or other international purposes, the SB is only responsible for the consistency of the reported removals/reversals occurrences, whenever they occur. The NDCs transparency framework process (BTR and national inventory, and technical reviews) will take care of the consideration of the achieved removals/reversals certificates in the national inventories and in the global stock take processes. These external processes, related to the 6.2 and Katowice NDC implementation process are to be in line with the A6.4 MRV, and all of them in line with the IPCC Guidelines for National Inventories, which is the basis to make the measurement and report (at projects, national inventories, and any other framework) about the mitigation impacts of removals by sinks, and emissions by sources (including the reversals, whenever they take place).



8. *To ensure and demonstrate the continued existence of removals, are activity proponents required to undertake monitoring and address reversals: (a) Only during active crediting period(s) or (b) Also [15] [X] years after the last active crediting period? (c) The longer of [9(a)] [9(b)] or a timeframe specified by the host Party (e.g. communicated in LoA or earlier)*

As mentioned before, the host country DNA shall be responsible for issuing the authorization of ITMOs related to the removals projects, and once a land area is included in the UNFCCC registration of A6.4 projects, the removals achieved in that area will be reported by the host NDC as achievements by the host country, and if ITMOs are first transferred for international utilization, the conditions for those issued ITMOs shall be set out by the arrangements between the host DNA and the project participants, and pertaining to the use of these ITMOs for foreign NDCs achievements or for other mitigation purposes. For example, if the ITMOs authorization are destined or only eligible for a voluntary market utilization, or for voluntary cancellation, the addressment of the reversals, if they occur, maybe a minor issue, and the conditions for this are engraved in the ITMOs letter of authorization. If the ITMOs are allowed to be used by a foreign NDC only for certain implementation period(s), this is also acknowledged by the host DNA when issuing the transfer authorization and will be known by the foreign NDC that acquire the ITMOs for its achievement. However, if the ITMOs are issued as permanent achievement, the DNA will be responsible for their replacement in case of intentional or unintentional reversal occur in the future. The arrangements for these replacements shall be set by the DNA and may involve the participation/co-responsibility by the project proponents, investors, or the depositary of the ITMOs after their issuance. Anyway, these arrangements will not be under the regulatory domains of the A6.4 SB, and more at the A6.2 and NDC implementation processes.

9. *Is simplified annual reporting required to ensure and demonstrate the continued existence of removals? In what cases and how long?*

As the previous response has indicated, the reporting will be during the crediting period in the frequency and level of report and verification to demonstrate the achieved removals amounts in consistent manner to the monitoring plan. The methodology will cover the technical aspects for mitigation outcomes reporting at the NDCs, and the conditions for the first transfers and ITMOs authorization are set by the DNAs and the project participants in regard to the use to be done by the ITMOs after their issuance, and these are not under the responsibility of the A6.4 SB, but under the technical review process related to the NDC BTR auditing processes.

10. *Are measures required to address the residual risk of reversals beyond the monitoring timeframe? If so, for how long, and what are the options for, e.g. the mechanism(s), responsible entity(ies), oversight.*

As mentioned before, the conditions for temporal boundaries and validity of the ITMOs are set in the authorization letters by host country DNA, and if the ITMOs are issued without an expiration date and without any limitation as to what is the final uses they may have, there will be a need to the host country to report in the national inventory at any time in the future the reversals, if and whenever it takes place, in intentional or unintentional manner, and making the corresponding adjustments/inventory report. For example, consider that the host country "A" has issued in 2028 the authorization of ITMOs for a removal project activity that demonstrated



"X" tons of CO₂ have been removed by the atmosphere by an A/R project in the area "H". If the authorization letter allows for the use of this "X" tons of CO₂ by any foreign NDC as its achievement at any NDC period (not only to the 2025-2030 period, but for any future NDC implementation period), the responsibility to the permanent validity of the ITMOs are at the responsibility of the host country NDC implementation framework. The foreign NDC that make use of such ITMOs are demonstrating the NDC achievement in permanent manner, in the same way as any emission reduction (A6.4ERs, which are additional and permanent at the global stock takes). Therefore, if a country "B" uses these ITMOs to demonstrate its achievement in the 2025-2030 period, this demonstration is finalized, and need not to be revisited in the future. However, if the host country has issued the ITMOs bound to an expiration date of 2035, the user NDC will be able to use them for the target's demonstration up to this year of 2035, and will be required to replace these ITMOs in that year by another ITMOs, either by implementing domestic mitigation to replace them, or by purchasing the replacement units at the ITMOs market. In other words, the arrangements related to permanence of the ITMOs are bound to their validity date, and the host country NDC may set a validity (expiration date) or not. This will of course be also part of the market valuation of the ITMOs: if they have a face stamp with limited application for final uses (e.g. they are only for voluntary corporate uses, and not for NDC achievements), and whether they have a limited validity in terms of temporal insurance by the host DNA, their market value will reflect this handicap. The way/process a host country uses to ensure the temporal validity of the removal activity in the long terms depend on the kind of remuneration/taxation, or internal system in the country to ensure there will be a continued enhanced ambitions to achieve national contributions to the global stock takes of mitigation outcomes, while not changing its AFOLU inventory on removal/reversals balanced accounting. For example, if a host country considers the area "H" may be kept as a forest area for long terms in the future (2070 or beyond), without the change in the land use at that point of the territory, it will be able to issue the "X" tons of CO₂ removals in the year 2028 as a permanent (guaranteed ITMOs, valid for any time in the future). What is worth to mention, is that any removal project related to A/R for forest conservation are natural candidates for being converted in the future in projects related to production of renewable energy/biomass by sustainable harvesting of forest based biomass, either to use for energy or for carbon removals in geological storages (e.g. BECCS or BCCS, see our [previous input available at https://unfccc.int/sites/default/files/resource/Carbon_Recycling.pdf](https://unfccc.int/sites/default/files/resource/Carbon_Recycling.pdf)). In other words, the issuance of permanent ITMOs for an afforestation or reforestation land area, may give rise in the future, when the saturation of the forest is achieved, in a production project where the sustainable forest management is adopted for the continued harvest of the net primary productivity of the forest stands, and the use of these harvests for bioenergy or biocarbon.

2.2. Addressing reversals

2.2.1. General

11. What type of risk rating is used to calculate an activity's buffer contributions? (a) The results of an individual activity's risk assessment; (b) A standard rate determined by the 6.4SB; (c) Either measure could be appropriate, depending on the circumstances (in this case, what factors should determine the use of an activity-specific or standard risk rating)?



As our previous responses indicate, these ratings are to be set up by the project proponents and the host country DNA and will be part of the conditions of validity of the ITMOs issued from removal projects: the ITMOs may be subject to limited validity in terms of the kind of final use it has been issued, and to the time limitation (expiration date). If the host country issues the ITMOs without any restriction of type of use they may have, and utilization time they keep valid, there will be a system in place by the internal arrangements either at the part of the DNA or by its coordinated action with the project participants (private investors, financing institution, foreign country NDC, insurance policy, buffer plots, etc.) to make the replacement of the ITMOs when there is an intended or unintended reversal. Any reversal taking place in the future will be acknowledged by the host country inventory as emissions and will need to be covered in the NDC implementation process and the host country progressive contribution to the global stock take.

12. What are the options for circumstances/triggers and/or periodic milestones for reviewing and possibly updating activity baselines, risk assessments (so, risk ratings), and monitoring plans, including in relation to: (a) Verified reversals of removals; and (b) The stages of activity cycle implementation?

As indicated before, the role of A6.4 SB is not related to the accounting of the removals and reversals in the national communications, because these are followed and enforced by the A6.2 and the Katowice Transparency Framework for transparency in the NDC implementation process, and the BTRs. Further, we also highlight that the A6.4 and A6.2 cooperative approaches for the project design, implementation, and MRV, are not only a matter for the regulation of private actors and stakeholders, there is in Paris also a framework for the financial flow of public assistance (Article 9), and these resources may be part of the technical and risk related investments. This is especially the case when the host countries are developing parties, and require assistance in keeping their progressive mitigation contributions, while also issuing authorization of ITMOs based on A6.4 and A6.2 project activities as an exchange for the financial flows received². It is also part of the Paris financial framework that the host countries as developing parties may implement a system to impose taxations and or tariffs or shares in the initiatives related to generating A6.4ERs or A6.2 units, thus, taking care of the consistent implementation of guarantees for the cases of unintended or intended reversals that the short, medium and long-term. As such, the national development planning of the developing parties, and the official development assistance from developed parties, and from multilateral facilities, may also be part of the A6.4 implementation process, assisting host countries to the abbreviation

² It is also interesting to note that the financial flows under Paris Agreement may be used to enhance the technical capacity of the host countries and of the host countries' DNAs to improve their management practices related to the implementation of the NDC (carrying out national inventories, BTRs, and authorizations for A6.2, A6.4 and ITMOs first transfers). Therefore, the financial flow may be used by the host countries, if they are developing parties, to improve their capacity to sovereignly decide on their mitigation targets and authorization (or not) for new A6.4 projects activities, for pushing the domestic mitigation projects, and taking into consideration the co-benefits the mitigation projects may have to the adaptation, the sustainable development goals, and other domestic decision process, or even, if they prefer, not to consider climate mitigation in the same level of priority as the outside world may be wanting to push them. In the same way, the developed parties, when deciding to invest in financing A6.2 and/or A6.4 projects implementation abroad, instead of investing in the domestic mitigation by more effective emissions reductions and/or removals projects, will take into the consideration the risks associated with the international cooperation with the other parties, when the strategic consequences of the decisions on the investments incurred and outcomes achievements are considered. Risk analysis and evaluations will thus be part of the consideration and decision making for all participants in an A6.4 project activity as an investor, host, authorizer, ITMOs holders and dealers, final users, etc..



of the time until their national inventories achieve the peaking of the rising emissions and reducing the time for the achievement of the Paris long term targets related to the global neutrality.

13. On what basis could requirements provide for the use of simplified / standardized elements or mandate the use of more frequent, full, or activity-specific elements and what are the requirements that may be relevant? (a) Activity type or category; (b) Risk rating level (e.g. above versus below a given %-based threshold); (c) Risk assessment contents (e.g. nature, number, variety of risk factors); (d) Monitoring plan (e.g. complexity, frequency, responsible entity).

The response to this question, in our view, is related to the previous. There is not a need for SB to regulate this system of accounting outside the project boundary, the project alone is not contributing to the global stock take. The project is just a part of the national contributions from the host party, and from the involved stakeholders, involved public or private institutions. The implications of the project to the NDCs outcomes (host or user parties) are enforced by the Katowice Modalities and Procedures for the NDCs and global stock takes, by means of the BTR and annual inventories of all parties to the Paris Agreement. The methods at the SB regulatory mandate are related to the appropriate technical MRV of the achieved A6.4ERs and of the reversals, whenever they occur during the crediting period. The issuance of ITMOs is part of the host DNA authorization process and requires the implementation of corresponding adjustments in the national inventories, and these will be assessed by the BTR and global stock takes regularly. Any reversals occurring during the crediting period will also be part of the project accounting and will give rise to national inventory reporting as emissions, affecting the already issued ITMOs in a manner that is not under the SB mandate to follow and correct for their consequences. The conditions of time and type of utilization for which the A6.4ERs are authorized as ITMOs are not followed by the SB, it is part of the arrangements between the DNAs and project proponents, and of the final users for that ITMOs.

14. Should procedures take the same or different approaches to instances of reversals that are (a) intentional/planned versus (b) unintentional / unplanned? (a) How/would other tools to address reversals involving direct credit replacement (including use of insurance / guarantees) be used in combination with a buffer pool?

We deem this question has been sufficiently answered by our previous responses.

2.2.2. Reversal risk tools—General: Buffer pools, direct credit replacement, insurance / guarantees

15. Regarding reversal risk buffer pools, direct credit replacement, and insurance / guarantees: (a) What is the current practice with these reversal risk tools, including the extent and nature of their use (respectively and in combination), transaction costs and how these are financed, and potential roles of the Host Party in multi-decadal compensation requirements; (b) The circumstances under which the use of a given tool may be required or supplemental—for example, for intentional versus unintentional reversals, or during versus beyond the last active crediting period—and rationales.

As we have previously elaborated, the risks associated to reversals should not be a necessary part of the A6.4 methods to determine the A6.4ERs achieved by a project activity based on



removals: the methods are used only to determine the ERs associated with the net removals achieved at any point in time during the crediting period. The reversals may be expected to occur at any point in time at the future, and if they occur, the associated emissions, not only accruing to the CO₂ removals achieved by the project activity, but also the emissions from the CO₂ removals that have taken place before the start of the project activity, will be monitored and reported as an AFOLU related emissions occurring at the host country, which is not attributable to the project activity, but caused by another drivers of the AFOLU emissions causing agents (e.g. deforestation for intentional or non-intentional causes, like for example land-use changes legally decided and implemented, wild fires, droughts, storms, floods, etc.). These emissions will be reported by the host country at its national inventory and at the Biannual Transparency Report – BTR as part of the NDC implementation process under the Katowice Modalities and Procedures, and at the global stock takes and technical reviews for the national communications that are implemented regularly to all parties of the Paris Agreement. Observe that the causes of the reversals, being not under control of the project participant, are to be identified by the DNA and reported as emissions, and need to be reflected in the progressive ambitions of the NDC, giving rise to the actions by the party to either make extraordinary efforts to implement further activities under the national contributions to mitigation, or as emissions reductions activities to compensate the emissions at the AFOLU sector³. If the land area where the reversals occur has been included in the boundary of an A6.4 project activity for CO₂ removals under, e.g. the category for Afforestation and Reforestation, and A6.4ERs have been issued for this project, and the host country DNA has given authorization for such A6.4ERs to be first authorized as ITMOs for the international transfer and use by other NDC, or for other international mitigation purpose, these A6.4ERs ITMOs will be cancelled out, and any final user of these will have to replace the used A6.4ERs by others. The A6.4ERs removals are always subject to reversals, this is engraved in all of them, and must be acknowledged by all players in the market, from investors, authorizers, holders and dealers, and final users. The face stamp must have an indication on the conditions to be sought by the holder of these A6.4ERs when the cancellation is declared by the UNFCCC tracking system. If there is no insurance or guarantee by the issuing DNA, or by any other player in the market, the risk is at the final user, and he/her has used this ITMOs knowing there is a risk about this utilization. When it occurs, the user/holder will either acquire replacement ITMOs in the market, or requesting the host country DNA or any guarantee or insurance policy (if there is one indicated) to replace the lost A6.4ERs by another ones, according

³ It is to be noted that if the universal vintage/retention time correction is adopted, like we are proposing, using the time/GWP mutual dependency by means of the Keeling curve adjustment (see our previous input under https://unfccc.int/sites/default/files/resource/Carbon_Recycling.pdf), the ITMOs issuance for a removal achievement is according to the year vintage where the removal has taken place: the longer the retention time of the removed carbon is postponed into the future before it is reverted, the larger the mitigation to global warming it has contributed, and the higher the amount of CO₂ will be necessary to compensate if they are emitted back as reversals. For example, the ‘X’ tones of CO₂ removed in the year 2028, and the same ‘X’ tones are removed ten years later, in the year 2038, and both are stored for more 10 years (up to the year 2048). If, in the year 2048, there is a need to revert one of these two land areas, and the host country will need to account for the associated emissions in their NDC, the local DNA will surely indicate to revert the youngest biomass stands (the from the vintage 2038), and not the older stands (from 2028). In spite of both cases attending the required service (land release for other utilizations, or biomass non-renewable energy generation, depending on the driving force to make the reversal occur), the older biomass stocks (from 2028) will have a higher GWP and require more CO₂ removals/or emissions reductions than if the younger biomass stocks (from 2038) which will be less ‘mature’ at any time in the future. As a rule of thumb: the youngest removals (the more recent vintages) are always more attractive for reversals than the oldest. Or, alternatively: let’s protect the oldies, in case of unavoidable sacrifices.



to the contractual agreement at the project implementation, and according to the conditions and formal statements of the host DNA at the issuance of the first transfer authorizations. Observe, however, that the A6.4ERs will be related to the removals and biomass and carbon pools regrowth at the project area after the project registration and achieved during the project crediting period. The previously existing carbon pools at the project area, which may have also been emitted as reversals together with the removal activities when this sinistration occurs, are not part of the A6.4ERs, and will be reported by the host country DNA and the project owner (private or public entities responsible for the land use at the project area) as their own and unique responsibility, and do not count as A6.4ER or ITMOs. For example, if an abandoned pasture is now showing carbon pools corresponding to 30% of its potential carbon pools as a mature forest. If this area is registered as an A6.4 project, and over next 20 years it reaches 100% of the carbon pools, this 70% increase will be A6.4ERs certificates under the ITMOs holder/final user. If this land in this point in time in the future is reverted as an urbanization area, and the 100% of carbon pools is lost, the ITMOs holder will have to negotiate his/her loss (which is 70% of the lost amount, and from different vintages since the project start). But the host country NDC and the project/landowner will report the 30% pre-existing biomass of the oldest vintage, plus the 70% emissions that are reported under the national inventory and BTR and will have to be considered as missing from the NDC targets in the ongoing NDC implementation period. Therefore, each host country and project participant will need to consider, at the time of project conception, what are the risks and measures to be put in place such as insurance, buffer carbon pools for protection of potential losses due to risks related to reversals events, etc. Those arrangements are not under the regulatory methods and do not have any implications on the liability from the side of A6.4 SB or from the UNFCCC bodies. The responsibility by SB regulatory role is only for the methods used to monitor, report, and verify the achieved removals, and any eventual reversals. The risks related to natural events and/or associated with drivers for land use changes (land tenure, opportunity costs, spatial planning) are to be used by the methodologies as parameters to determine the most appropriate frequency and methods to measure the changes in carbon pools during the crediting period.

However, if reversal events are detected, they are monitored and reported, but do not have any consequence or responsibility by the side of the approval of the project activity by the A6.4SB, the validating or verifying DOEs, or any stakeholder related to the UNFCCC process. All consequences of the reversals, all risks, and all damage and loss coverage for the already issued A6.4ERs certificates, or for losses to future issuance of A6.4ERs, are at the side of the project proponents, and their arrangements with the local and national and international entities and institutions participating or interested in the project activity. It is to be again reemphasized: the methods for removals activities are designed to set up conditions for validation, registration, monitoring, and reporting achieved removals for project activities. Once the credits are issued, they are officially adopted and included at the national inventory of the host country, and the authorization for ITMOs first transfers are issued by the DNAs, by making the corresponding adjustments to the NDC and national inventory reporting system. During the crediting period, the project participants will monitor and report to the DNA and the UNFCCC (by accredited DOEs) the removals and reversals monitored.

2.2.3. Reversal risk tools: Specific



16. What are options for robust buffer pool design, including conditions and procedures for its use, ER composition, replenishment, and administration.

We consider that in fact there are two different certificates related to the A6.4 project activities, and both emissions reductions A6.4ERs, or removals A6.4ERs will follow the same double layer certification: (i) the A6.4ERs issued after the monitoring has been completed by the verifying DOE and the certificates are issued by the A6.4SB underneath the UNFCCC modalities and procedures for the project activity; (ii) the ITMOs issuance as the authorization for first transfers of mitigation outcomes, by the side of the host country DNAs. The first layer of certification is related to the system in place for the registration and MRV as per the SB set rules, which are applicable during the crediting period (up to 3*15 years duration, in case of removals). The methods for monitoring the changed carbon stocks in the area, of course, can detect and assert the changes and enhanced carbon pools, which are deemed to occur under the prevailing conditions for the area during that crediting period. The risks associated with potential non-confirmation of the expected outcomes are used by A6.4 methodologies to determine the spatial and temporal frequency and measurements methods (field, remote sensing, etc.) to detect and report the outcomes. However, the regulatory risks, and the natural disasters risks, that may impose potential damages to the use of the mitigation outcomes by the final users (a foreign NDC, an international carbon offset mechanism like CORSIA, a corporate voluntary cancellation of emissions, etc.) are considered and disclosed by the host DNA when issuing the authorization that the national mitigation outcome is transferred for international use, giving rise of the ITMOs, under the annotation that the national inventory of the host country acknowledge these removals have been achieved by the host country. Once the A6.4ERs are authorized as first transferred ITMOs they cannot be part of the agreed national determined contribution (NDC) of the host country any more, because the international transfer has been authorized. This NDC corresponding adjustment is permanently registered, acknowledging the outcome has been achieved within the country, but the NDC has not accounted it as own mitigation contribution. If, at any point in time in the future, during the crediting period or beyond it, the regulatory conditions or any natural event is detected, such as the host country DNA reports these removed carbon stocks have been lost and the reversals emissions are reported, the A6.4ERs certificates and ITMOs are reported as having lost their currency backing. The final users are required to make the necessary changes in their inventory reporting, according to the system they have in place to make their emissions/removals reporting. If the final users are NDCs, the system is set by UNFCCC, e.g. the Sharm El Sheik Guidance relating to decision 2/CMA.3, annex, chapter VI (Tracking), and the Modalities and Procedures for the NDC implementation are in place to make the reversals accounting in the global stock take process. All actors and players (host country, project participants, investors, users, etc.) will have to review their contributions and their assets on mitigation outcomes and will have to replace or request the replenish of the losses, according to their market arrangements and contractual conditions. The financial implications of that losses, in terms of monetary costs, depends on the market value of the A6.4ERs and ITMOs at that time in the future, which, on their turn, depends on the offer and demand for climate mitigation outcomes, which, on its term, depends on how serious the political decision making, national and international judicial enforcements systems in place are able to achieve the emissions transition required by the Paris Agreement (please refer to Figure 1), which, finally, depends on how we as humans acting individually and locally, but also collectively and globally, are able to recognize our common but differentiated responsibilities, and address this challenging transition.



17. The need for additional procedures and guidance for the 6.4SB, PPs, insurers/ guarantors to implement options for direct ER replacement, including for insurance or guarantees. 2.2.4. Treatment of uncanceled/unused buffer ERs

As previously responded, this is beyond the A6.4 methodology framework under supervision by the A6.4 Supervisory Body.

18. Are uncanceled ERs in the buffer pool returned to the activity proponent to incentivize performance and/or automatically cancelled, and is this done periodically throughout activity cycle or only after the end of the activity lifecycle or the host Party NDC timeframe?

This is not a matter for the methodological framework by SB, in our opinion.

19. Whether the options for treatment and timing are mutually exclusive or could be applied in combination (e.g. returning some but not all ERs to proponent).

Same as before.

20. Possible basis for periodically returning ERs to proponents (e.g. metrics for activity performance, activity cycle milestones).

Same as before.

21. Procedures for the SB's periodic review and ongoing management of buffer contributions (e.g. buffer composition, stress-testing the sufficiency of risk coverage).

Same as before.

Vitoria, Espirito Santo, Brazil, July 31, 2023

Prof. Dr.-Ing. Gilberto Caldeira Bandeira de Melo
(cooperative member, founder director, www.carbon-recycling.eco)

Civil Eng. Mailla Virginia de Faria Soares
(cooperative member, founder director, www.carbon-recycling.eco)

