



SUBMISSION BY SWEDEN AND THE EUROPEAN COMMISSION ON BEHALF OF THE EUROPEAN UNION AND ITS MEMBER STATES

Stockholm, 6 March 2023

Subject: Submission of views on activities involving removals, as referred to in paragraph 19 of the CMA4 decision on Guidance on the mechanism established by Article 6, paragraph 4, of the Paris Agreement

The EU welcomes the opportunity to submit our views on activities involving removals, as referred to in paragraph 19 of CMA4 decision on Guidance on the mechanism established by Article 6, paragraph 4, of the Paris Agreement. The EU believes that it is important that the Supervisory Body provides clear guidance on both emission reductions and removals, to provide clarity to market participants on key requirements. This is also critical for the development of robust methodologies for different types of mitigation activities.

What role should removals play in the transition to net zero emissions?

The EU believes that it is important that the Supervisory Body, in developing guidance on removal activities, considers the role that emission reductions and removals will have to play in achieving the goals of the Paris Agreement. A key goal of Article 6 is to enable Parties to enhance ambition. This includes enhancing immediate actions and getting on a pathway to achieve the long-term goals of the Paris Agreement.

Limiting global warming to 1.5°C will require rapid, deep and sustained reductions in global greenhouse gas emissions and reducing global carbon dioxide to net zero around mid-century, as recognized in the Glasgow Climate Pact and the Sharm-El-Sheikh Implementation Plan. It will also require realizing net negative emissions in the second half of this century. Achieving these goals thus requires drastic emission reductions and enhancing removals to a scale that they can balance residual emissions by mid-century and deliver net negative emissions thereafter. This has implications for the guidance on removals. Enhanced removals cannot be used to defer the necessary deep cuts in emissions in the short term. This would lock into higher emissions pathways which would accelerate climate change, including through dangerous feedback loops, and could reduce our ability to achieve removals in the future.

Moreover, it is important to bear in mind that the potential for removals is limited and that many removal activities are implemented on land, which competes for other uses such as food production and have a saturation point for how much carbon they can absorb, such as soils saturated with organic matters.

However, well designed removal activities on land, based on nature-based solutions as defined by UNEA 5 with all appropriate safeguards, could be key contribution to tackle the climate and biodiversity crisis at the same time. As indicated in the IPCC AR6 WG3 report, the volumes of future global carbon dioxide removal (CDR) deployment assumed in IAM (Integrated Assessment Models)-based mitigation scenarios are largely compared to current volumes of deployment, which presents a challenge since rapid and sustained upscaling from a small base is particularly difficult. All Illustrative Mitigation Pathways (IMPs) likely to limit warming to 2°C or lower use some form of CDR.

Another important cross-cutting consideration for the guidance is that removal activities are associated with significant reversal risks, including those due to the impacts of climate change. Relying on removals with a high risk of being reversed could seriously undermine our efforts to keep the 1.5°C goal within reach.

Lastly, it is important that the Supervisory Body's guidance on removals ensures that removal activities do not counteract but promote other important goals, such as reversing the loss of biodiversity and ensuring food security. Removal mitigation activities should create synergies and avoid trade-offs with other policy objectives, and appropriate environmental and social safeguards should be put in place.

What type of removals should be eligible under the Article 6.4 mechanism?

In principle, a broad range of removal activities could contribute to the long-term goal of the Paris Agreement and might thus be eligible under the Article 6.4 mechanism. Based on the above considerations, the EU believes that the Supervisory Body should carefully consider which type of removals activities aligned with the goals of the Paris Agreement and fulfill all requirements of the Article 6.4 mechanism. We believe that the following principles should guide these considerations:

- **Anthropogenic removals:** Consistent with the Paris Agreement and relevant decisions thereunder, only *anthropogenic* removals are eligible under the Article 6.4 mechanism. This is an important consideration, as some land areas and oceans are a large natural sink, where significant removals occur without any anthropogenic intervention (e.g., in existing stocks of natural forests). It is thus important that any eligible activities involve an anthropogenic *enhancement* of removals.
- **Additionality and quantification:** Ensuring environmental integrity requires, inter alia, that removals are additional and robustly quantified. For some removal activities, additionality and robust quantification can pose serious challenges. Removals in the land-use sector are driven by both mitigation actions and various exogenous factors, such as changes in prices for agricultural commodities. Distinguishing between the impacts from mitigation actions and from exogenous factors can be very challenging and associated with very high uncertainties, an issue sometimes referred to as “signal-to-noise” problem (the signal being the mitigation actions and the noise exogenous factors affecting emissions or removals). This holds, for example, for some improved soil management activities. Additionality also means that the activity involves an actual removal from the atmosphere; an activity that simply changes the form in which carbon is stored, should not qualify under the Article 6.4 mechanism. The quantification of removals must appropriately account for any unavoidable leakage (see further elaborations below).
- **Long-term impacts and reversal risk:** The enhancement of removals only contributes to achieving the long-term goals of the Paris Agreement if the increase in carbon storage due to mitigation activities is maintained over very long timespans. Therefore, only activities that are designed to achieve long-term storage should be eligible under the mechanism. For example, long-term storage of carbon in geological reservoirs or in long-lived products should be eligible, whereas storage in short-lived products should not. Activities with very high reversal risks (e.g. certain practices to enhance soil carbon) or activities where reversal risks are very uncertain (e.g., storage in oceans) should not be eligible. Moreover, reversal risks must be appropriately addressed (see further elaborations below).
- **Alignment with the nationally determined contribution (NDC) and Long-term Low Emission Development Strategy (LT-LEDS) of the host country:** Alignment of mitigation activities with the host country NDC and LT-LEDS, or any national removal, biomass or adaptation strategies, is critical to ensure that mitigation activities contribute, and do not undermine, the ability of the host country to implement its own NDC and LT-LEDS. For the host country to achieve its own balance of emissions and removals by mid-century, this implies that not all removals may be internationally transferred. To ensure that host Party action is not undermined, it will be important that mitigation outcomes, including removals, be shared between the host country and the users of the Article 6.4 emission reductions.
- **Positive environmental and social impacts:** Removal activities should have overall positive environmental and social impacts beyond mitigating climate change. Activities that pose environmental or social risks, in particular for biodiversity, food security or human rights, should not be eligible. In the light of the biodiversity crisis, all eligible mitigation activities need to be consistent with the Kunming-Montreal Global biodiversity framework and the SDGs. Land-based removal activities should contribute to enhance the resilience of ecosystems, halt and reverse land degradation, and be oriented towards long-term sustainability (see further elaborations below).
- **Maturity of the technology:** Some technologies, such as ocean-based removals, are not mature enough and may pose significantly environmental risks. These technologies would require further research before they should be considered under Article 6.4.

We note that some mitigation activities that do not fulfil the requirements of the Article 6.4 mechanism may still be valid to pursue through other funding support. This may, for example, apply to land-use activities implemented in countries with particular national circumstances, such as countries with high forest cover and low deforestation (HFLD).

These activities could be supported through various other bilateral or multilateral processes. They could also be

further considered as non-market based approaches under Article 6.8.

Defining and categorizing removals

The EU suggests that the Supervisory Body clearly defines removals and may classify different type of removal activities. The definition should be consistent with that use by the IPCC where carbon dioxide removal refers to “anthropogenic activities that remove CO₂ from the atmosphere and store it durably in geological, terrestrial, or ocean reservoirs, or in products”.

The Supervisory body may also wish to define different types of removal activities. A high-level categorization could include the following two broad categories:

1. **Increasing the natural uptake of carbon in biogenic reservoirs:** This may include living biomass, dead organic matter), soil organic carbon and harvested wood products (IPCC pools). It may involve different types of activities, such as afforestation/reforestation or restoration of degraded ecosystems. The extent to which carbon pools may qualify to generate credits under Article 6.4 needs to be carefully assessed.
2. **Long-term storage of carbon in geological or other non-biogenic reservoirs:** This may include, inter alia, direct air capture and storage (DACCS), bioenergy carbon capture and storage (BECCS), storage of carbon in products or enhanced weathering.

These two broad categories could be further subdivided by types of mitigation activities.

How should the Supervisory Body structure the guidance?

The EU is of the view that the topics referred to in paragraph 19 of the Article 6.4 decision at CMA4 are relevant for both the enhancement of removals and the reduction of emissions. We therefore believe that most these matters should primarily be addressed in broad general guidance, applicable to both the enhancement of removals and reduction of emissions. This holds for monitoring, reporting and accounting, for addressing reversals, for addressing leakage, and for the avoidance of negative environmental and social impacts.

Irrespective of the categorization of mitigation outcome as reductions in emissions or enhancements of removals, we believe that specific guidance is necessary for certain types of activities. For example:

- Some type of mitigation activities are associated with material reversal risks, such as activities in the land-use sector or the geological storage of CO₂. This holds for both emission reductions (e.g., reducing emissions from deforestation) and removals (e.g., afforestation). Guidance by the Supervisory Body on non-permanence should thus apply to all mitigation activities with material reversal risk, irrespective of whether these reduce emissions or enhance removals.
- CCS in geological formations requires provisions for the selection and risk management of geological reservoirs, such as in the modalities and procedures for CCS activities under the Clean Development Mechanism (decision 10/CMP.7). This guidance should, however, equally apply to CCS activities that reduce emissions (such as the capture and storage of CO₂ from cement plants) and that enhance removals (such as DACCS).

For these reasons, we recommend that the Supervisory Body adopt general guidance that is applicable to *all* types of mitigation activities, including emission reductions and removals. This guidance may contain sections that are only applicable to certain types of mitigation activities (e.g., mitigation activities involving CCS or mitigation activities involving material reversal risks or both). Each section in the guidance could clarify to what type of mitigation activities it applies. As this is a more nuanced approach than only distinguishing between emission reductions and removals, we believe that this fulfills the overall mandate provided by the CMA.

Monitoring, reporting and accounting for removals

The EU believes that “monitoring, reporting and accounting” is not a helpful summation of activities in the context of carbon crediting mechanisms. It is common practice for carbon crediting mechanisms to refer to the “quantification of emission reductions or removals” which includes the quantification of baseline emissions, emissions from the mitigation activity (often referred to as project emissions) and the quantification of leakage. All these elements may be partially determined through measurements or surveys but partially also through the use of default values or values from the literature. All the information on the mitigation activity should be reported. By

contrast, accounting is usually understood as to how emission reductions and removals are accounted towards climate mitigation goals or in the context of international transfers.

We believe that these matters are not unique to removals and should be addressed in general guidance. Which specific approaches towards quantification are most appropriate, depends also strongly on the type of mitigation activity. Nevertheless, we would like to highlight here a number of general principles that are in our view critical for ensuring environmental integrity and should be included in general guidance.

Baselines

The establishment of baselines must follow the approaches set out in the Glasgow decisions. The EU believes that these approaches constitute a paradigm shift with regard to how baselines have been established under the Kyoto Protocol and how forest reference levels have been established under the Kyoto Protocol or under the Warsaw framework for REDD+. Establishing ambitious baselines, set below the most likely business as usual emissions or net removals and decreasing over time, is critical to ensure ambition over time, in particular to enable host countries to use part of the emission reductions or removals to achieve their own NDCs and long-term low emission development strategies.

We recommend that the guidance addresses specifically the following matters:

- The alignment of baselines with NDCs and long-term low emissions strategies of host countries, by reflecting any targets and actions specified in NDCs in the baseline determination;
- An approach to ensure that emissions baselines are aligned with the long-term goals of the Paris Agreement, for example through a contraction coefficient that ensures that they are lowered towards zero by mid-century;
- The establishment of baselines below BAU emissions;
- The conservativeness of baselines in the light of the uncertainty associated with establishing baseline scenarios and baseline emissions or removals;
- The incorporation of existing government policies and legal requirements in baseline levels;
- The avoidance of any perverse incentives (e.g., management of landfill in a way to generate more landfill gas which is subsequently flared).

Leakage emissions

Leakage should be avoided and minimized, where possible, and any remaining leakage should be deducted in the calculation of emission reductions or removals. The EU believes that all potential sources of leakage should be considered, including, inter alia, upstream and downstream emissions, activity-shifting, rebound effects or ecological leakage (mitigation activities that affect other areas that are hydrologically connected). Similarly, we believe that the consideration of leakage should not be geographically confined. Jurisdictional or sectoral approaches can reduce leakage risks, as any leakage within their scope would be fully accounted for; however, they do not address leakage beyond the scope of the jurisdiction, which can, for some type of activities, be significant.

We further believe that smaller leakage sources may be excluded in the calculation of emission reductions or removals if overall conservativeness is ensured (for example, because some baseline emission sources are also excluded). This is common practice under all carbon crediting programs.

Moreover, only net positive leakage should be accounted for, i.e., no additions should be made to emission reductions or removals to account for negative leakage.

Uncertainty and conservativeness

Uncertainty is a major challenge in quantifying emission reductions and removals from mitigation activities. A key lesson learned from the Kyoto Protocol is that uncertainty has not been addressed in a systematic manner, which led to overestimation of emission reductions for some type of mitigation activities. We believe that the degree of conservativeness should depend on the overall uncertainty of emission reductions or removals. Where emission reductions or removals have low uncertainty, a lower degree of conservativeness is required than in cases of large uncertainty. We therefore recommend that the Supervisory Body establishes general guidance that:

- Uncertainty of emission reductions and removals be systematically assessed in approving methodologies. The

assessment shall include uncertainty in assumptions (e.g., the baseline scenario), models (e.g., the first-order decay model for methane emissions from landfills), parameters (e.g., default values) and measurements. Uncertainties from individual causes should be combined to arrive at an assessment of the overall uncertainty of emission reductions or removals.

- The overall uncertainty be taken into account in assessing whether the methodologies are conservative under different assumptions and scenarios, i.e., whether it is very likely that the emission reductions or removals from a mitigation activity are not overestimated.

Governance

Lastly, we recommend that the Supervisory Body ensures that sufficient technical expertise is secured in both the development of general guidance and the approval methodologies. The establishment of panels or working groups of technical experts, as under the CDM, REDD+ and most carbon crediting programs in the voluntary carbon market, is important for ensuring that guidance and methodologies are robust. We recommend that the Supervisory Body draws upon this experience and establishes respective arrangements, ensuring that all experts serving the body are free of conflict of interest.

Addressing reversals

To appropriately address reversals, we recommend that the Article 6.4 Supervisory Body develops guidance in three main areas:

1. Clarifying what type of mitigation activities are associated with material reversal risks;
2. Establishing rules that set safeguards and establish incentives for preventing reversals from occurring;
3. Establishing rules that ensure that any reversals are identified through monitoring, reported, and compensated for.

What type of mitigation activities are associated with material reversal risks?

Material risks for reversals occur for any measures that preserve or reduce losses from biogenic carbon stocks. This holds for activities in the land-use sector, such as afforestation, forest landscape restoration, reducing emissions from deforestation or forest degradation, improved management of forests, rewetting of peatlands, enhancement of soil carbon, and so on. Moreover, reversals risks are material where carbon is stored in geological reservoirs, including different types of carbon capture and storage (CCS) activities, or in other types of reservoirs (e.g., in rocks through enhanced weathering). By contrast, the destruction of non-CO₂ gases or the reduction of fossil fuel consumption is not associated with material non-permanence risks within the horizons to address climate change.

Establishing rules that set safeguards and establish incentives for preventing reversals from occurring

The EU believes that incentives for preventing reversals from occurring is critical for ensuring that mitigation activities contribute to the long-term goals of the Paris Agreement. We recommend that the Supervisory Body puts appropriate safeguards in place. These could, depending on the type of mitigation activity, include different measures, such as:

- Requiring mitigation activity proponents to conduct a reversal risk assessment for the specific mitigation activity, including an assessment of the impact of climate change, following a methodology to be developed by the Article 6.4 Supervisory Body;
- Using the outcome of the risk assessment to determine the stringency of the measures to prevent and compensate for reversals, such as (i) excluding mitigation activities with high reversal risks from eligibility under the mechanism or (ii) using the results from the risk assessment for determining the share of Article 6.4 emission reductions that must be set aside in a pooled buffer reserve, with higher shares for mitigation activities with higher reversal risks;
- Requiring mitigation activity proponents to have legal titles to the land and/or relevant carbon reservoirs on the land (e.g., timber rights), or requiring that legally binding agreements between the mitigation activity proponent and third parties require the mitigation activity proponent's consent to undertake any measures that may lead to intentional reversals;
- Assessing whether there are national or sub-national laws or regulations that would prevent carbon stocks from being lost (e.g., laws that prohibit forest land, once established, to be converted to non-forest land in some

areas, such as conversation easements or trusteeships).

Not all of these measures may need to be place at the same time, depending on the type of mitigation activity. How many of these measures are in place could also inform the approaches required for compensating for reversals, as laid out in the following (e.g., where more of these measures are in place, lower contributions to a pooled buffer reserve may be necessary).

Establishing rules that ensure that any reversals are identified through monitoring, reported, and compensated for

It is essential for the integrity of Article 6.4 emission reductions that any reversals are identified, reported, and fully compensated for.

In this context, a first important question is the connection to host country reporting and NDC accounting. In principle, one could argue that reversals will be reported by countries in tracking progress towards their NDC and thus also be compensated for by the host countries. If they report higher emissions due to reversals, host countries would need to engage in more other mitigation actions to achieve their NDC. The reversals would thus be automatically compensated for. There are, however, several caveats to this line of argument.

First, whether reversals are reported by the host country in its national GHG inventory, depends on the granularity of the national GHG inventory, an issue also referred to *GHG inventory visibility*. Some activities may not be visible in GHG inventories, in particular if they do not involve a land-use change or if different methodological approaches are used to report emissions or removals at national level than under the Article 6.4 mechanism methodologies. This applies in particular to the land sector.

More importantly, even if reversals are reported in GHG inventories, they are not necessarily *accounted* towards the host country's NDC, for two reasons: first, some sectors, emission sources or carbon pools may not be covered by the NDC. Second, most countries have communicated single-year targets in their NDCs. This means that any reversals that occur in calendar years that are not a target year, would be reported but have no bearing on NDC achievement. In this case, in the event of reversals the host country would not need to take more climate action to achieve its NDC and the reversals would thus not be compensated for.

Lastly, even if the reversals are covered by the NDC and occur in the target year, large-scale reversals without mechanisms to compensate for them could seriously undermine the ability of host countries to achieve their NDCs. Reversals are not foreseeable; they may occur for example due to wildfires or earthquakes. Once these reversals occur, it may be too late for the host country to take other action to compensate for these reversals and still achieve its NDC.

The EU therefore believes that the Article 6.4 mechanism should establish approaches to monitor, report and compensate for reversals, as it is common practice in other carbon crediting programs.

Under the CDM and in voluntary carbon market programs several approaches towards addressing reversals were developed. This mostly includes temporary crediting (CDM afforestation), host country liability (CDM afforestation and carbon capture and storage), responsibilities for mitigation activity proponents, and buffer pool reserves. Some of these approaches can be combined.

The EU believes that the most appropriate approaches are monitoring and compensating reversals through clearly assigned responsibilities for compensating for reversals or pursuing temporary crediting similar to the approach adopted under the CDM. We believe that the Supervisory Body could offer both as alternative options that mitigation activity proponents could choose from. In the following, we focus on approaches to monitoring and compensate for reversals.

Time horizon for monitoring and compensating for reversals: In monitoring and compensating for reversals, a first important question is for how long reversals should be monitored and compensated for. Ideally, emission reductions or enhancement of removals should last indefinitely to keep global emissions within a carbon budget compatible with limiting global warming to 1.5°C. In practice, however, no risk can be insured against in perpetuity, including reversal risks. If significant reversals were to occur later on, and would not be compensated for, this could constitute significant risks for the climate system. From an economic perspective, it is also important to set incentives for a long-term storage, as this ensures that the cost of preserving carbon stocks is adequately reflected in the prices of carbon credits and that the costs is not externalized to society. We therefore believe that the

Supervisory Body should define a minimum long-time horizon over which any reversals must be monitored and compensated for, beyond the combined crediting periods of 45 years, acknowledging the need for more complex domestic solutions as the responsibility cannot be held by the activity participants only. Further assessment should be carried out for how long monitoring and compensation should be required, and how this can be reconciled with company and country responsibilities. We further recommend that this time horizon be defined as the period that monitoring and compensation must continue after the vintage of the Article 6.4 emission reductions. For example, if monitoring and compensation must be conducted for X years, and Article 6.4 emission reductions or removals occurred in the year 2024, monitoring and compensation should take place until the year 2024 + X.

Type of reversals that must be compensated for: It is important that all types of reversals are compensated for, including intentional reversals or unintentional reversals (e.g., wildfires and seepages from geological reservoirs).

Responsibility for compensating for reversals: A key design question of any compensation approach is which countries or entities should assume the responsibility for compensating for any reversals. Generally, liability is best placed on those entities that can best influence the risk. The EU is therefore of the view that the mitigation activity proponents should be the primary responsible entity for compensating for reversals (or at least for intentional reversals). This also addresses moral hazard issues that may occur if other entities would be the primary responsible entity. Having only a responsibility for mitigation activity proponents is, however, not sufficient, as private or public entities could go bankrupt or it may not be possible for the Supervisory Body to legally enforce obligations upon them. Moreover, in the case of catastrophic unintentional reversals, such as wildfires burning large amount of biomass or earthquakes breaching the seal integrity of a geological CO₂ reservoir, the mitigation activity proponents may not be able to compensate for the reversals. Therefore, in the view of the EU, there should be appropriate back stops for compensating for reversals. A diversification of compensation responsibilities can also reduce the risk for all entities involved in the Article 6.4 mitigation activity. We recommend specifically that the Supervisory Body:

- Requires mitigation activity proponents to sign legally enforceable agreements in which they commit to monitoring the relevant carbon stocks for the required time horizon and to compensating for any reversals;
- Establishes a pooled buffer reserve to which all mitigation activities with material reversal risks must contribute (except if they opt for temporary crediting), noting that it is important that the pooled buffer reserve will be sufficiently capitalized in the light of the reversal risks of the mitigation activities;
- Allow, as a complementary means, States to assume the responsibility for compensating for reversals (similar to the CDM CCS rules), in which case a lower contribution to the pooled buffer reserve may be applicable;
- Allows, as a complementary means to the above measures, insurance companies to cover the risks for mitigation activity proponents to compensate for reversals, in which case a lower contribution to the pooled buffer reserve may be applicable.

Course of action in the case that monitoring discontinues: Another important consideration is what should happen in cases where monitoring of reversals discontinues prior to the required time horizon. In this case, the reversals occurring thereafter may not be accounted for. As it is possible that the mitigation activity proponents terminate monitoring due to a significant reversal, we recommend that if a monitoring report is lacking after a certain due date, all Article 6.4 emission reductions previously issued to the mitigation activity should be compensated for. This would be consistent with the approach under the Clean Development Mechanism for afforestation or reforestation activities as well as for carbon capture and storage activities.

Prevention of negative environmental and social impacts

The EU believes that negative environmental and social impacts should be addressed through a variety of measures, in particular by establishing a framework for environmental and social safeguards and by ensuring appropriate stakeholder consultation. These measures should be included in general guidance that is applicable to all mitigation activities.

We recommend that the Supervisory Body establish the following requirements for addressing negative environmental and social safeguards:

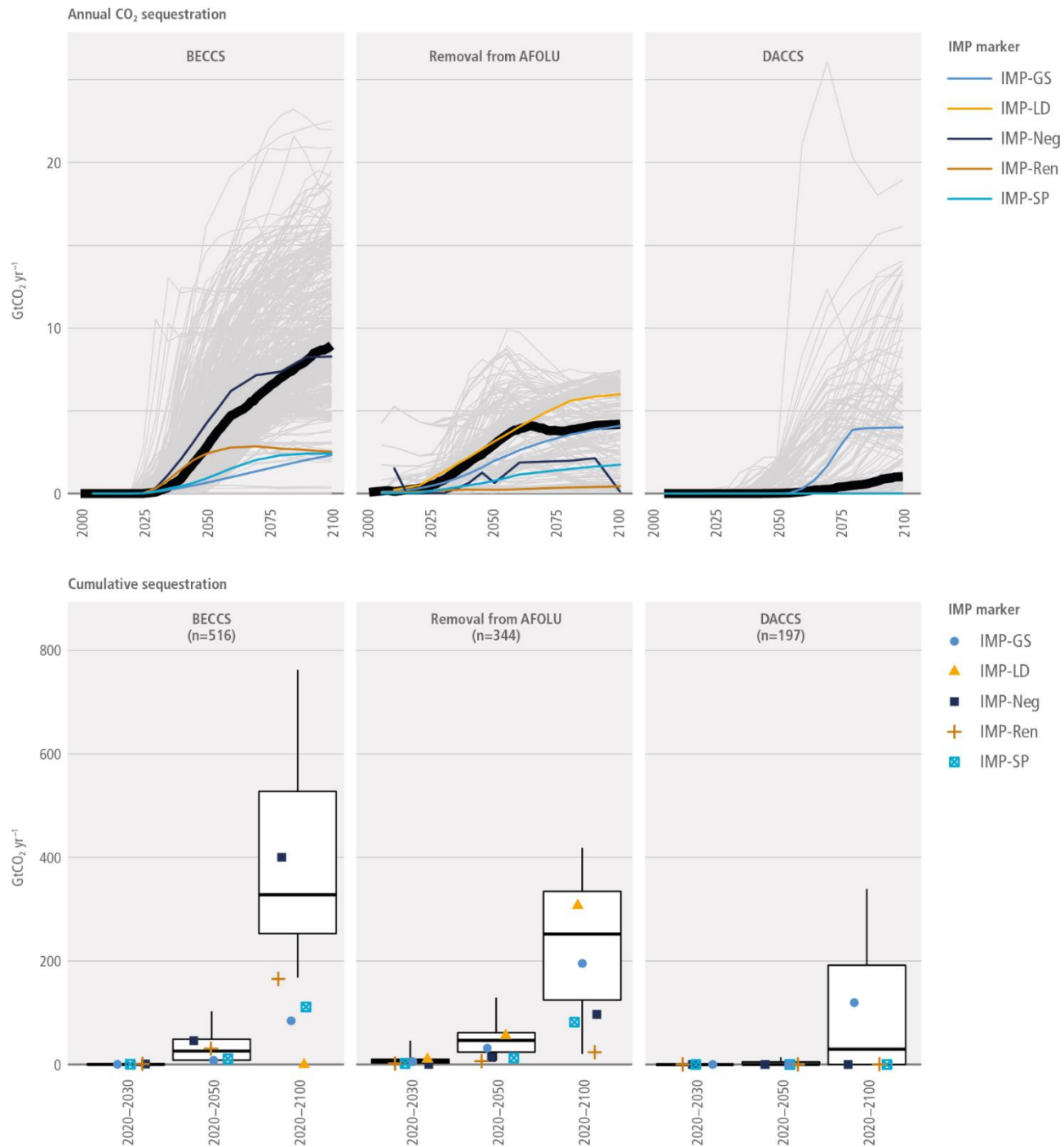
- Establishing a list of specific safeguards that must be considered by mitigation activity proponents in identifying, monitoring and mitigating potential negative environmental and social impacts, including with regard to:

- Violation of human rights;
- Gender and women empowerment;
- In the case of mitigation activities affecting Indigenous Peoples and Local Communities, ensuring their free, prior and informed consent to the mitigation activity;
- Preserving and protecting cultural heritage;
- Health, safety and security;
- Physical and economic displacement;
- Labour rights;
- Environmental issues, such as air pollution, water pollution, soil and land protection, waste management, and biodiversity;
- Introduction of invasive non-native species;
- Clearly excluding from eligibility activities that do not fulfil these requirements (e.g., short-term rotation monoculture plantations);
- Requiring mitigation activity proponents, prior to the registration of the mitigation activity, to systematically identify potential negative environmental or social impacts, using a methodology to be developed by the Supervisory Body. The assessment should be audited by a designated operational entity and be made publicly available and address the safeguards described above;
- Requiring mitigation activity proponents to develop an environmental and social management plan to monitor and mitigate any identified potential negative environmental or social impacts, including by including relevant parameters on important potential negative impacts in the monitoring plan of the mitigation activity. The mitigation activity proponents should also be required to assign roles and responsibilities for implementing the plan and managing the relevant risks;
- Requiring mitigation activity proponents to demonstrate, prior to each issuance, that important potential negative impacts have been appropriately monitored and mitigated to the extent possible;
- Requiring mitigation activity proponents to identify and adhere to any national or local legal requirements which may be relevant to the project; and
- Establishing an appropriate grievance mechanism that allows stakeholders to submit grievances throughout the lifetime of the project without any barriers (e.g., liability for expenses associated with the investigation). Such grievances should be duly considered by the Supervisory Body.

Next to the above safeguards, ensuring full and effective participation of relevant stakeholders is key for avoiding potential negative environmental and social impacts. This can be ensured through a number of specific provisions on how stakeholder consultations must be conducted. We recommend specifically:

- Requiring mitigation activity proponents to conduct an assessment of *which* local stakeholders will be impacted by the project and/or requiring an independent assessment of this;
- Requiring that mitigation activity proponents make key information on the mitigation activity available to local stakeholders prior to conducting the local stakeholder consultation, such as the mitigation activity design documents and any supplemental documentation.
- Establishing provisions to ensure that stakeholder consultations are conducted in an inclusive and culturally appropriate manner for local communities (taking into account literacy, culture and language);
- Requiring that the local stakeholder consultations be conducted before the decision of the mitigation activity proponents to proceed with the activity and before the validation of the activity;
- Requiring mitigation activity proponents to take due account of any input received in the local stakeholder consultation and to publicly document how inputs received were addressed;
- Requiring that a designated operational entity (DOE) assesses whether the mitigation activity proponents have taken due account of all inputs received in the local stakeholder consultation;
- Requiring mitigation activity proponents to establish mechanisms for ongoing communication with local stakeholders (e.g., periodic consultations) in a manner appropriate to the context of the stakeholders (e.g., literacy, culture and language) and take due account of input received.

ANNEX



Across the full range of similarly ambitious IAM scenarios, the annual net CO₂ removal on managed land reaches 0.86 [0.01–4.11] GtCO₂ yr⁻¹ by 2030, 2.98 [0.23–6.38] GtCO₂ yr⁻¹ by 2050, and 4.19 [0.1–6.91] GtCO₂ yr⁻¹ by 2100 (values are the medians and bracketed values denote the 5-95 percentile range). The annual BECCS deployment is 0.08 [0–1.09] GtCO₂ yr⁻¹, 2.75 [0.52–15 9.45] GtCO₂ yr⁻¹, and 8.96 [2.63–16.15] GtCO₂ yr⁻¹ for these years, respectively. The annual DACCS deployment reaches 0 [0–0.02] GtCO₂ yr⁻¹ by 2030, 0.02 [0–1.74] GtCO₂ yr⁻¹ by 2050, and 1.02 [0–17 12.6] GtCO₂ yr⁻¹ by 2100. Cumulative volumes of BECCS, net CO₂ removal on managed land, and DACCS reach 328 [168–763] GtCO₂, 252 [20–418] GtCO₂, and 29 [0–339] GtCO₂ for the 2020-2100 period, respectively.