

Climate Action Teams

International Greenhouse Gas Mitigation

Climate Action Teams (CAT): mini-lateral cooperation to accelerate ambitious decarbonization November 2021

Emerging and developing economies will be the source of over 70 percent of CO₂e emissions by 2050¹. They present lower cost mitigation opportunities than developed countries because they lack the resources for aggressive rapid decarbonization. The use of international carbon markets to achieve and go beyond current NDC pledges could enable twice the mitigation with the same cost when compared to using only domestic mitigation for compliance². However, global carbon markets face numerous hurdles for implementation, including: concerns about environmental integrity; uncertainty about developing countries' abilities to supply credits and developed countries' commitments to purchase them at fair prices; and fear that allowing countries and companies to purchase credits will lead to slower domestic decarbonization. Currently there is no effective, credible international mechanism to support transformational economy-wide emission reductions and removals, but the cooperative approaches of Article 6.2 of the Paris Agreement provide space for innovation.

Climate Action Teams (CAT), are an innovative model for international transfers of emissions reductions and removals within small high-trust groups of countries, cooperating to increase their ambition beyond their current NDCs. Preliminary modelling for Chile as a potential CAT host country shows that even achieving NDC commitments will be challenging, but that Chile may be able to deliver even deeper emission reductions at a cost lower than US\$100 per tCO₂e.

What is a CAT?

A Climate Action Team (CAT) model is an agreement among a small group of cooperating governments, under the umbrella of Article 6.2³ of the Paris Agreement. Through a CAT, one or several governments from countries where GHG mitigation would entail high marginal costs ("partners") work with the government of a country with a potential for mitigation at relatively low marginal cost ("host"), through the transfer of resources in exchange for credible emissions reductions and removals - henceforth referred to as 'credits'⁴ - beyond the host's NDC. A CAT agreement is large-scale to more easily demonstrate the additionality of mitigation, avoid leakage, and enable flexible transformational change that is unlikely to be reversed⁵. It minimises transaction costs by building on existing commitments and monitoring frameworks and by adopting an economy-wide or multi-sector approach, as opposed to project-based approaches.

The main elements of a CAT agreement are:

- Multi-year **emissions crediting baseline** that uses the host's ambitious NDC as a starting point for negotiation about credit transfers;
- Pre-agreed **price range** for payments per credit, denominated in tonne CO₂e of mitigation beyond the NDC;
- Pre-commitment of total **funds available** for payments for credits from partners;
- Assessment of greenhouse gas (GHG) mitigation results relative to the baseline using the host's **national emissions inventory**;
- **Results-based payments** from the partners to the host and the transfer of credits from the host to partners;
- **Ambitious climate action and policies** to bring emissions below the NDC and emissions crediting baseline; and
- **Collaborative activities**, technical support agreements and finance.



What are the roles of the different parties in a CAT agreement?

The CAT structure includes a single host and a small number of partners. The choice of partners within a CAT is the first step for the agreement. A small team working closely together facilitates development of trust, makes the integrity of the credits and the effort exerted by each team member more transparent, thereby reducing moral hazard and free riding, and allows mutual learning.

Host countries have significant opportunities to mitigate beyond their NDC at a relatively low marginal cost, but insufficient resources to deliver that higher level of ambition. They will need to invest in infrastructure, and design and implement policies and regulations. Host countries benefit from the agreement because partners commit to pay for credits at a price above a defined floor price and now have strong incentives to help the host achieve and exceed their NDC commitment.

Partner countries' mitigation opportunities have higher marginal cost. Their resources could be used more efficiently to achieve greater mitigation internationally rather than to mitigate more of their emissions domestically in the short term. Partner countries will provide political, technical and financial support to the host country. The partner countries benefit from participation because they get first option on high-integrity credits at a price less than a defined ceiling and can use these credits to comply with ever more ambitious NDCs.

Private sector actors must comply with national climate change policies including emissions trading systems (ETS) in the countries where they operate. They may also be interested in purchasing CAT credits to meet corporate responsibility commitments. The private sector cannot directly be a party to a CAT agreement but can participate in two ways: helping to reduce emissions in the host country through their investments; and purchasing CAT credits from the host or partner countries for ETS compliance or voluntary offsetting. Those willing to invest in the host country will benefit from a host government that is more strongly committed to decarbonization and that has support from partners to help create a favourable environment for clean investment.

Figure 1 shows the roles of different stakeholders in a CAT agreement.

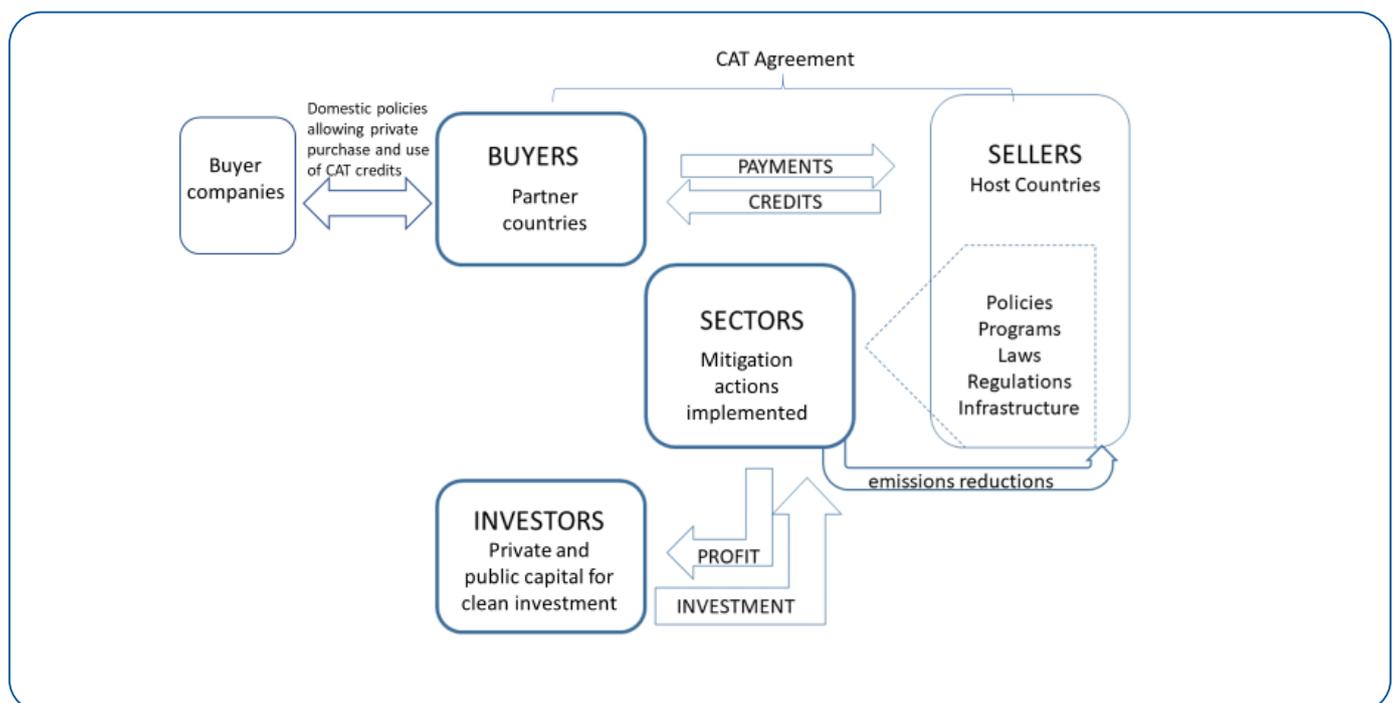


Figure 1- CAT agreement stakeholders and their relationships

How is environmental integrity ensured in a CAT?

The CAT will be guided by the principles and rules for international cooperation under the Paris Agreement, as set out in its Article 6 and subsequent decisions. Some key methodological criteria and principles for ensuring environmental integrity⁶ include: ensuring credits are real, additional, and verified; minimising the risk of non-permanence of mitigation; and promoting sustainable development in the host country. A CAT agreement primarily addresses these through economy-wide scale and multi-year agreements and through use of a stringent crediting baseline. By reducing the risk to the host country of selling non-additional credits (or 'low hanging fruit') it makes the 'no double counting' principle easier to apply.

A robustly set crediting baseline, well below BAU and below (unconditional) NDC, strongly modelled with the participation of diverse stakeholders, is the cornerstone of a CAT agreement. At a minimum, the CAT crediting baseline will be set at the level of emissions along a modelled pathway that meets the host's (unconditional) NDC. Cumulatively, over the period of the CAT agreement, credits to be authorized for transfer would be the difference between a pathway consistent with the observed emission levels as reported in the GHG inventories and the pre-defined crediting baseline. Under the CAT agreement the host country might retain a share of the credits to sell to other parties outside of the CAT or to use in future⁷. Figure 2 illustrates the relationship between the BAU, NDC and CAT crediting baselines and the host country's national GHG inventory with successful acceleration of mitigation. The CAT crediting baseline could be set at the level of the (unconditional) NDC compliance scenario or below it.

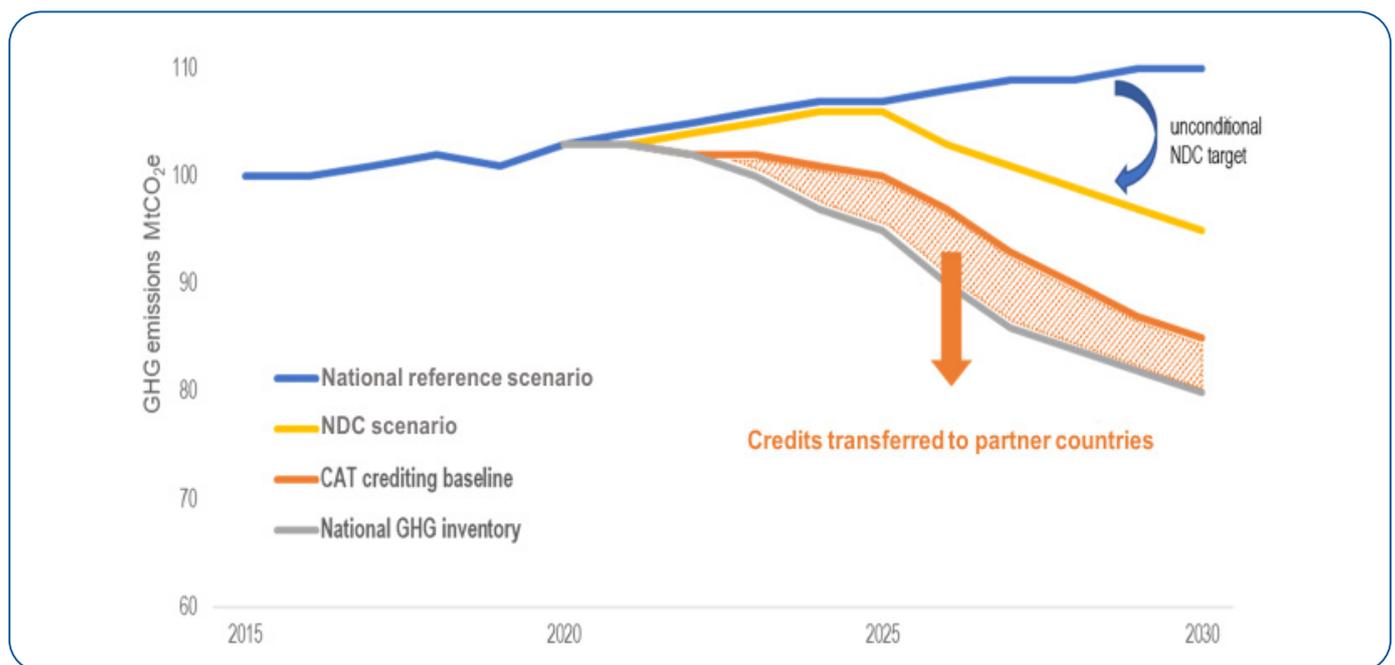


Figure 2- Climate Action Teams Agreement

Host countries will report on **the implementation of policies and actions along the accelerated mitigation pathway** facilitated by the CAT agreement, discussing with partners changes in mitigation strategy relative to that initially modelled. Jointly with robust crediting baseline setting, this flexible approach can reduce transaction costs while increasing confidence in the additionality of the host country's effort.

Credits available for transfer to CAT partners will be adjusted to avoid double counting and double claiming by applying corresponding adjustments to the emissions balance of NDCs by the host and partners. In addition, the CAT will not credit mitigation supported with international climate finance⁸.

A CAT agreement can include approaches to deal with the up and downside risks that affect actual emissions. Macroeconomic shocks impose risk on the host that despite strong effort they might not have credits to sell; and on partners that they may be unable to buy. They also alter the level of ambition of the crediting baseline relative to the BAU and could even lead to the transfer of non-additional credits. If additionality is a concern, there are two main options. First, the agreement could cover a period long enough to allow cycles to cancel out and can credit conservatively in early years. Second, if modelling supports it, the agreement could use a dynamic baseline that adjusts to changes in emissions fundamentals (e.g., international commodity prices) outside the host country's control.

Financing mitigation in a CAT

A CAT uses results-based finance, paying ex-post for mitigation in the host country beyond the crediting line, at a pre-agreed price range. However, most finance for implementation of mitigation activities will come from the private sector and is needed ex-ante. Capital needs for mitigation will also likely be higher than expected CAT payments. A CAT agreement can help ex-ante financing by reducing uncertainty about the host government's commitment to a net zero economy and hence their focus on overcoming non-financial barriers, increasing the demand for low carbon investments and improving their bankability. Specific pre-financing instruments could include:

- Loans from partner countries or development banks to the host country government or private entities securitized by the revenue flow from credit sales
- Partners' partial disbursement of committed funds as milestones set in the CAT Agreement are achieved, such as implementation of particular policies and measures.
- Host countries' issuance of sustainability-linked bonds, whose coupon and repayment is linked to the level of mitigation achieved by the country⁹.
- Private (green) bonds by companies making real investments in mitigation in the host country to support their low carbon investment, at a lower coupon than comparable bonds.

Piloting the CAT concept: the case of Chile-New Zealand-Switzerland

A CAT team with Chile as a host, and New Zealand and Switzerland as partners is fitting considering their size, history of collaboration, and learning opportunities arising from their GHG emissions profile.

New Zealand has committed to reduce net emissions by 50 per cent below gross 2005 levels by 2030 in its updated NDC submitted ahead of COP26. This equates to a 41 per cent reduction on 2005 levels using what is known as an 'emissions budget' approach. The New Zealand Government has pledged to meet its NDC through a combination of domestic emissions reductions, domestic forestry removals and offshore mitigation. The government's in-principle domestic emissions budget for 2021-2030 is 673 Mt CO₂e compared to an NDC budget of 571 Mt CO₂e, leaving an emissions gap of 102 Mt CO₂e to be met through offshore mitigation.¹⁰ The stated priority for international mitigation is to support developing countries in the Asia-Pacific region to meet their Sustainable Development Goals. New Zealand will likely aim to buy international mitigation at a lower cost than its domestic marginal abatement cost, which has been estimated by the NZ Climate Change Commission¹¹ at around US\$175/tCO₂e in the energy and IPPU sectors in 2050. This is equivalent to around 100 US\$/tCO₂e in 2030 using a 3% discount rate. As of November 2021, the New Zealand ETS price is around US\$47.

Switzerland aims to reduce its GHG emissions by 50% by 2030 compared to 1990, according to its NDC updated in 2020¹³. The NDC specifies that credits from cooperation under Article 6 of the Paris Agreement will partly be used. Currently, 40% of the Swiss 2030 reduction target can be achieved by import of offsets, or 50 MtCO₂e offsets in total. Switzerland has already signed bilateral carbon credit agreements with Peru, Ghana, Senegal and Georgia. These bilateral agreements are activity based, rewarding emission reductions achieved through specific activities. One indication of the price Switzerland may be willing to pay is the EU ETS price which covers a large share of Switzerland's emissions. It is currently nearly US\$70.

Chile is one of the fastest growing Latin American economies, and the first South American country to join the OECD. It is however, still classified as a developing country by the United Nations, as some of its human development indicators are below the required thresholds. GHG emissions have been growing steadily in the last decade but, at 4.6 tons, CO₂ emissions per capita stand just above the global average of 4.5 tCO₂ pc and well below the high-income countries' average of 10.3 tCO₂ pc¹⁴. In its NDC, updated in 2020¹⁵, Chile commits to a GHG emission budget not exceeding 1,100 MMton CO₂e (gross) between 2020 and 2030, with a GHG emissions maximum (peak) by 2025, and a GHG emissions level of 95 MMton CO₂e by 2030.

A modelling team from the Global Change Center of the Catholic University of Chile has built an open-access model to explore mitigation opportunities beyond Chile's NDC and inform a potential CAT agreement. The model covers all sectors included in the National GHG Inventory. The team modelled three mitigation scenarios in three potential futures (red, reference and green according to the trajectory of exogenous parameters influencing GHG emissions in the country)¹⁶.

Current Policies (CP)	Intermediate Mitigation (IM)	Accelerated Mitigation (AM)
Expected emissions under current regulation and incentives (12 Measures)	Implementation of all mitigation measures analyzed by the Chilean government to develop the NDC commitment (41 measures)	Adds enhanced mitigation measures in order to over-achieve the Carbon Budget (60 measures)

Results show that AM is the only scenario that can reduce gross emissions by 2030, peak before 2025 and meet the NDC emissions budget. The difference between Chile's 2020-2030 carbon budget and the AM scenario would represent the credits available for transfer to international partners.

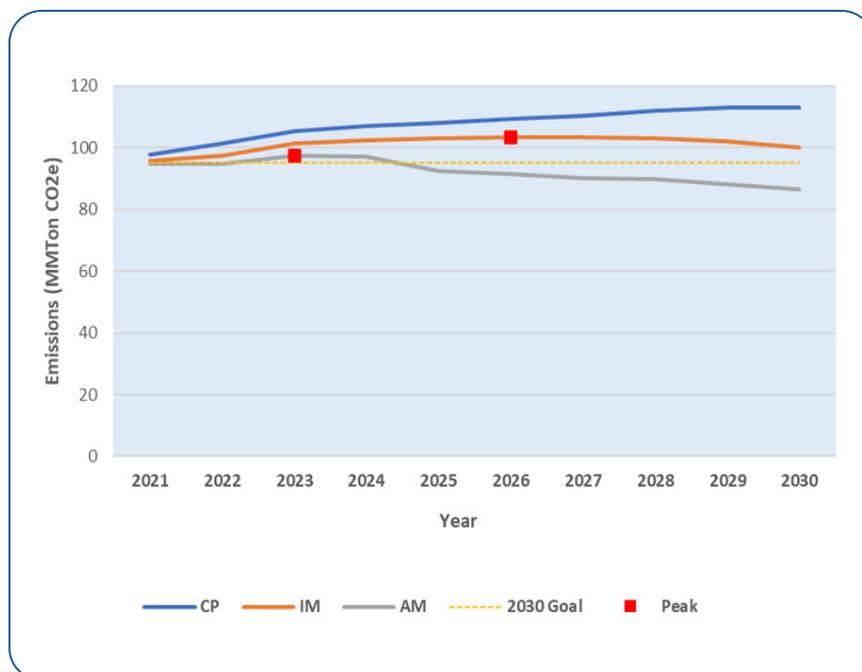


Figure 3- Total aggregated gross emissions of the carbon budget sectors in three different scenarios in the period 2020-2030.

The model presents a credible crediting baseline that would be placed between the IM and AM scenarios, meeting the two key NDC goals (single year and budget). The AM scenario could achieve a surplus of as much as 177 Mt CO₂e credits relative to the NDC budget in the period 2020-2030; this could be available for transfer to CAT partners. The single most important measure to reduce emissions beyond the NDC commitment is an accelerated phase out of coal power plants, with a mitigation potential of 92 Mt CO₂e at an average cost of US\$88/tCO₂e.

Endnotes

- 1 [IEA \(2021\) International Energy Outlook 2021](#) and [Seymour and Busch \(2016\)](#)
- 2 Hof, A. F. et al. (2017). “[Global and regional abatement costs of Nationally Determined Contributions \(NDCs\) and of enhanced action to levels well below 2°C and 1.5°C](#)”. Edmonds, J. E., et al. (2021). ‘[How Much Could Article 6 Enhance Nationally Determined Contribution Ambition toward Paris Agreement Goals through Economic Efficiency?](#)’; Environmental Defense Fund (EDF) (2018). ‘[Catalyzing Carbon Markets Globally to Realize the Promise of Paris: The Power of Markets to Increase Ambition.](#)’; and IETA (2019) “[The Economic Potential of Article 6 of the Paris Agreement and Implementation Challenges](#)”
- 3 Article 6.2 of the Paris agreement allows parties to use internationally transferred mitigation outcomes (ITMOs) to achieve their mitigation targets
- 4 In the language of the Paris Agreement, these are internationally transferred mitigation outcomes or ITMOs.
- 5 [Schwartzman et al \(2021\)](#) “Environmental integrity of emissions reductions depends on scale and systemic changes, not sector of origin” Environ. Res. Lett. 16 091001
- 6 UNFCCC (2019a): Draft text on matters relating to Article 6 of the Paris Agreement: Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement. Versions 1, 2 and 3 of 13, 14, 15 December, UNFCCC COP 25, Madrid
- 7 Some credits might be cancelled to achieve an ‘overall mitigation in global emissions’, dependent on the finalized rules for Article 6.2 cooperative approaches.
- 8 In the narrow sense used here, international climate finance refers to transfers of public resources from developed to developing countries, in light of their UN Climate Convention obligations to provide “new and additional financial resources”. Mitigation associated with such support does not represent additional mitigation that is eligible for crediting under the CAT. We propose estimating these ‘climate finance’ driven outcomes by dividing the amount of the concessionary climate finance received by the host by the CAT price floor.
- 9 At the corporate level, the first bond of this type was issued by Italian utility ENEL in 2019. The approach consisted in linking the terms of corporate debt to the achievement of pre-determined Sustainability Performance Targets within a pre-determined timeline. [Sustainability-Linked Bonds | Enel Group | Enel Group](#)
- 10 [Govt increases contribution to global climate target | Beehive.govt.nz](#)
- 11 He Pou a Rangi Climate Change Commission (CCC), is an independent Crown entity set to provide impartial advice to the Government about emissions budgets. These are the marginal costs implied when New Zealand meets those budgets.
- 12 Assuming that real marginal costs / emission prices in New Zealand would rise at 3% annually. In November 2021 New Zealand ETS prices are close to NZD\$65.
- 13 Swiss Government (2020) [Switzerland’s information necessary for clarity, transparency and understanding in accordance with decision 1/CP.21 of its updated and enhanced nationally determined contribution \(NDC\) under the Paris Agreement \(2021 – 2030\)](#)
- 14 The World Bank (2021) [CO₂ emissions \(metric tons per capita\) - Chile | Data \(worldbank.org\)](#)
- 15 Gobierno de Chile (2020) [Chile’s Nationally Determined Contribution. Update 2020.](#)
- 16 Pica et al. (2021). “Modelling accelerated mitigation in Chile for CAT”. Report by the Centro Global of Universidad Catolica de Chile.

