Initiative for Climate Action Transparency - ICAT -

Achievements and Lessons Learned in the First Phase of ICAT Brazil

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1. Introduction

1.1 The country context

Brazil is a developing country with continental dimensions, a growing population and an agricultural sector that plays a significant role in the global economy. The country has been an active player in the international climate regime, ratifying the Paris Agreement in 2016, and committing to implement an ambitious Nationally Determined Contribution (NDC) aiming to reduce greenhouse gas (GHG) emissions by 37% below 2005 baseline levels in 2025, with an indicative effort to achieve a 43% reduction below 2005 baseline levels in 2030. Brazil also ratified the Doha Amendment to the Kyoto protocol in 2017.

Brazil submitted three National Communications (NatComs) and three Biennial Update Reports (BURs) to the United Nations Framework Convention on Climate Change (UNFCCC). The NatComs were submitted in 2004, 2010, and 2016; whereas the BURs were submitted in 2014, 2017, and 2019. Further, the country has gone through two rounds of international consultation and analysis for the information provided in the BURs, which happened in 2016 and in 2019.

The focal point to the UNFCCC is the Ministry of Foreign Affairs, who is responsible for coordinating the preparation of BURs with the support of a task-force involving many other ministries. The coordination of the NatComs is under responsibility of the Ministry of Science, Technology, Innovation and Communications (MCTIC, the acronym in Portuguese). This ministry also coordinates the preparation of the national GHG inventory, convening different working groups and establishing partnerships for official statistics and data with government agencies. A key partner in the production of inventories is the Brazilian Research Network on Global Climate Change (Rede Clima, the acronym in Portuguese), which involves experts from different thematic areas, such as universities and research institutions. Centro Clima/COPPE/UFRJ, a research centre on climate change and environment of the Faculty of Engineering of the Federal University of Rio de Janeiro, is a member of Rede Clima and was responsible for the elaboration of the third and fourth national GHG inventory of the energy sector of Brazil.

The National Policy on Climate Change (law 12,187, enacted in 2009) and the law 12,114/2009, which established the National Fund for Climate Change, are the legal instruments for governance on climate change in the country. Under this legal framework, the country made a national voluntary commitment to reduce GHG emissions up to 38.9% compared to projected business as usual emissions in 2020. Moreover, the country established a governance structure for the implementation of the National Policy on Climate Change, which specifies mandates and assignments to governmental bodies and assisting roles to civil society organizations and academia, namely the Brazilian Forum on Climate Change (FBMC, the acronym in Portuguese) and the Brazilian Research Network on Global Climate Change (Rede Clima). The Forum is constituted by government and civil society, is chaired by the President of Brazil and includes government officials, private sector, NGOs and academia.

Through the Executive Decree 7,390/2010, later revoked by the Executive Decree 9,578/2018, Brazil established concrete action plans for mitigation and adaptation to climate change, with sectoral targets for the 2020 voluntary commitments, making the national GHG inventory a policy instrument (Bustamante et al., 2018) and the legal base for the measurement, reporting and verification (MRV) issues under the National Policy on Climate Change. The decree mandates the Ministry of Science, Technology, Innovation and Communication (MCTIC) to elaborate, review, and publish the estimates

of GHG emissions and removals, and for the enhancement of the methodology to calculate the projections of GHG emissions. The country also established a national registry system for GHG emissions (SIRENE, the acronym in Portuguese) through the Executive Decree 9172/2017, with the aim of conferring security and transparency to the process of preparation of the national inventory of GHG emissions.

However, the 2025 and 2030 commitments assumed in the NDC still need a legal framework to support the implementation of the NDC and the correspondent system for the transparent reporting of information necessary to track progress in implementing and achieving the NDC. Since March 2017 and until mid-2019, the instance for the discussion of a road map for the implementation of the Brazilian NDC was the Brazilian Forum on Climate Change (FBMC). Centro Brasil no Clima had a key role in activating the FBMC and in influencing the climate change agenda in this period.

The FBMC promoted a process of discussion for a road map for the implementation of the Brazilian NDC to be delivered to the President. As the result of the first round of discussion the Forum has selected 40 actions and included them in a proposal for the implementation of the NDC. This roadmap was delivered in person to the President Michel Temer, the Minister of Foreign Affairs, the Minister of Environment, the President of the Congress, and was presented at a meeting of the Executive Group of Climate Change. This executive group is composed of representative of eight ministries and the FBMC. Afterwards, the road map was translated to English, had large dissemination at the Conferences of Parties to the UNFCCC in 2018 and 2019, and was distributed to several international partners.

The work towards the implementation of the NDC is continuing and the focus is now on the possibility of implementation at the level of the states, engaging also the private sector and civil society. The possibility of articulation of this work with the federal government is viable through the MCTIC. The 27 Brazilian states have very different governments and contexts.

1.2 Objectives and outcomes of ICAT Brazil Phase 1 project

In 2019, Centro Brasil no Clima (CBC), with technical support from Centro Clima/COPPE/UFRJ , completed the first phase of a project funded by the Initiative for Climate Action Transparency (ICAT) aiming to establish indicators to monitor the implementation of Brazil's NDC. The indicators resulting from the work done under the ICAT-funded project are an initial step towards a robust and transparent MRV process, capable of assessing the various actions that will lead to the desired achievement of the Brazilian NDC mitigation targets in a transparent and participatory process.

The ICAT Brazil Phase 1 project estimated a baseline scenario (Scenario A) representing current GHG emission trends in the country by 2030, considering pre-NDC commitments and policies, as well as current mitigation actions that support the NDC commitment. This assessment resulted in more realistic assumptions for the BAU scenarios in 2025 and 2030, and estimation of the real effort necessary to meet the NDC goals.

Subsequently, the quantified mitigation actions necessary to meet the NDC targets were grouped into two other scenarios: scenario B, which includes mitigation actions with more emphasis in agriculture, forestry and land use (AFOLU) sector; and scenario C, a scenario that includes a more balanced set of mitigation actions with substantial reduction of GHG emissions coming from other sectors than AFOLU.

For each scenario, three types of MRV indicators were designed in order to monitor and evaluate the progress made in each sector and subsector to achieve the NDC goals: absolute emission indicators, emission driver indicators, and emission intensity indicators. With respect to emission intensity indicators, the project only provided few illustrative examples for the following selected sectors: land use change and forestry; agriculture; transportation; industry; energy supply; and energy use. For absolute emission indicators and emission driver indicators, the project provided a complete set of indicators in line with the scenarios A, B and C developed.

In what concerns the absolute emission indicators, these are the country's GHG emissions pathway, disaggregated by sectors and subsectors according to the IPCC guidelines for GHG inventories. The effect of the mitigation actions in each scenario results in absolute levels of GHG emissions in each sector. The monitoring of these absolute levels of sectoral GHG emissions enables the tracking of progress in the achievement of NDC targets for the various sectors. These indicators empower the policy planner to check in which sectors and subsectors the mitigation actions are: on track to meet NDC targets (green lights); are going in the good direction but are still insufficient (yellow lights); and are actually not conducive to the expected NDC emissions pathway (red lights).

As to the emission driver indicators, these indicators track the evolution of key driving forces determining the annual GHG emission levels of each sector or subsector. For example, the annual deforested area (million hectares per year) is a key driver force of growing emissions in the land use sector. This kind of indicators therefore enables the policy planners to check the effect that driving forces of mitigation actions have on NDC targets. Concretely, the policy planner can check: why mitigation actions are on track to meet NDC targets (green lights); why they are going in the good direction but are still insufficient (yellow lights); and why they are not able to prevent the emissions pathway in going the opposite direction of the expected NDC emissions pathway (red lights).

These set of indicators are a starting point to bridge the gap between the national GHG inventories provided by the MCTIC and the implementation of the NDC. Further, the set of indicators provides sectoral targets for an economy-wide NDC target and can be used by MCTIC in the Brazilian Biennial Transparency Report to inform the UNFCCC about the country's progress in implementing and achieving the NDC.

To sum up, the outputs of the ICAT Brazil phase 1 project were:

Output 1: An assessment and analysis of current status of NDC implementation, including ongoing mitigation actions and its expected results related to GHG emission levels (scenario A).

Output 2: An assessment of additional mitigation actions necessary to meet the NDC targets, as suggested by the Brazilian Climate Change Forum: a scenario B, with more emphasis in AFOLU sector; and a scenario C, with more balanced contributions from different sectors.

Output 3: A report proposing a methodology with indicators of progress that will contribute to the design of an MRV system to track the implementation of the NDC of Brazil; and a draft of an executive decree with technical and transparency guidelines for the Brazilian MRV. This executive decree was produced in the form of a draft bill for a national MRV system.

2. Approach and key results

The objective of the ICAT phase 1 project in Brazil was to promote the first steps towards establishing a robust, transparent, and participatory MRV process to assess options for mitigation measures that enable the achievement of Brazil's NDC targets. The NDC of Brazil has an economy-wide target of 37% reduction in GHG emissions in 2025, and an intended reduction of emissions in 43% in 2030, both in relation to the base year of 2005. These goals translate into an aggregated limit of 1.3 Gt CO2e in 2025 and 1.2 Gt CO2e in 2030 (considering GWP-100, IPCC AR5).

In simple terms, the methodology used for assessing mitigation options was the development of different mitigation scenarios for Brazil's GHG emissions up to 2030, and the translation of those scenarios into indicators to monitor the GHG reductions in each sector. Prior to the mitigation scenarios, a realistic baseline scenario for 2025 and 2030 was developed, based on Brazilian NAMAs and pre-NDC commitments such as the National Policy on Climate Change.

The different mitigation scenarios respect the economy-wide NDC targets for 2025 and 2030, and are the following:

- Scenario A: based on current GHG emission trends, including sectoral quantified targets and measures defined in the NDC ("Real path scenario")
- Scenario B: includes a set of mitigation actions proposed by the Brazilian Climate Change Forum, with more emphasis on the AFOLU sector ("AFOLU scenario")
- Scenario C: includes another set of mitigation actions proposed by the Brazilian Climate Change Forum, with substantial emission reductions resulting from less use of fossil fuels in transport sector and more balanced sectoral contributions ("Balanced scenario")

Each scenario associates the GHG emission levels with: a) the general GHG emission drivers (population and economic growth); and b) the specific sectoral GHG emission drivers (deforestation, agricultural production, cattle raising, energy demand, energy supply mix, among others). This is done through a set of emission factors that are compatible with the national emission factors used in the national GHG inventories.

There were no noticeable challenges or obstacles to the implementation of the ICAT phase 1 project, and indeed the deliverables were finalized three months earlier than the scheduled. However, the country context is complex, and the implementation of the ICAT phase 2 project may be more challenging. Centro Brasil no Clima has pivoted to interact with state level institutions in the ICAT phase 2 project.

3. Impacts of the project in the country

The project had impacts at different levels, which are explained in this section. A key contribution of ICAT phase 1 is that the project enabled the continuity of work and discussion on the implementation of the NDC in the country. Other more specific impacts are:

- Development of a new methodology for monitoring, report and verification (MRV) of greenhouse gas emissions;
- Publication of GHG emission scenarios, disaggregated at sector and sub-sector level, with quantification of the mitigation actions necessary to meet the NDC targets;
- Development of a draft law bill to create a national system for MRV of GHG emissions in line with the country's NDC.

The methodology developed for the process of monitoring, report and verification (MRV) of greenhouse gas emissions in Brazil is, to our best knowledge, new and unprecedented. The process of methodology development required training of staff and engaged students from Centro Clima/COPPE/UFRJ. The methodology can indeed be used at national and subnational (state) levels. Centro Brasil no Clima has been discussing with MCTIC, the ministry with mandate for preparation of national GHG inventories and MRV processes in general, about how to improve the MRV processes at national level, considering the methodology developed in the project.

A positive outcome of this discussion with MCTIC is that Centro Brasil no Clima has persuaded the team responsible for the national GHG inventory to prepare and publish inventory data disaggregated by state and by economic sector, starting in the next inventory. This information is crucial for advancing the efforts in pushing for the implementation of NDC at state level. The publication of disaggregated inventory data is important because it creates awareness about the source of GHG emissions in each state. Empowered with this information, the states can identify their potential for mitigation actions and for local policies, and the development of scenarios to understand the emissions' pathway that the states need to pursue.

This dialogue with MCTIC is also fruitful for discussion on data methodologies. The next inventory report to be published by MCTIC will refer to the year 2015, whereas the data used in ICAT project is already from 2018. The data sources for 2018 are secondary data, mostly from the System of Estimations of GHG Emissions and Removals (SEEG is the acronym in Portuguese) and other public sources (research studies for example). The use of alternative data sources and the engagement in discussions with MCTIC contributes to ameliorate data methodologies and to an additional layer of domestic data verification.

The ICAT phase 1 project developed three scenarios with sectoral and sub-sectoral targets. Prepared data with this level of detail did not exist before, and its availability is useful for any other projects related to the study of mitigation options at state or federal level, which depend on having this type of information. These scenarios can also be used to establish a more ambitious NDC. Whereas they have been prepared to realize the targets of the existing NDC, there could be a combination of actions in scenario B and C that enable more ambitious GHG emission reductions. However, it is not simply a combination because there are interdependencies between the sectors. The only actions that are to some extent independent are the ones related to deforestation. Therefore, a more ambitious scenario could combine the projections of deforestation in scenario B with the projections of scenario C, covering all sectors.

With regard to engagement of stakeholders, the ICAT phase 1 project engaged 108 participants from academy, government, civil society and private sector, 53 (49%) of which were women. The final seminar had coverage from national media by Globo News in one of its main programs.

Finally, the draft of a law bill for a national MRV system was developed in the phase 1 project and was hand delivered to the representatives of MCTIC and Office of Controller General at the final seminar of the project. However, this bill was not delivered to a legislative actor because the Commission of Environment of the National Congress had not been nominated yet. This commission only took office in 2020, and is not yet active. There is at the moment a discussion in the senate about changing the National Policy on Climate Change, and the law bill for the national MRV system could be included in this discussion.

4. Lessons learned and recommendations

The process of developing the road map for the implementation of NDC involved various stakeholders, including civil society, academy, private sector, and government. This deeply participative process promoted a large discussion in the country where everyone needed to think about how to contribute. With the ICAT phase 1 project, the discussion progressed into mapping what actually needs to be done in order to implement the NDC. The scenarios developed in the phase 1 project show where the country needs to be in the future in order to implement the NDC, with clear sectoral targets and a methodology for monitoring the progress on achieving the NDC.

The phase 1 project developed methodologies for GHG emission trajectories, identified emission drivers, and different types of indicators to track the implementation of NDC at the national level. These methodologies can be transposed to the subnational level. This is the logical next step because even before the current government had been elected there was already the impression that it was fundamental to start working at state level. Indeed the actual implementation of NDC happens at that level. Some states already started working on this front but there is no concerted action: some states developed GHG inventories and climate adaptation plans, other states established targets in line with the NDC, while even others have just started to give attention to the matter.

Hence, this ICAT phase 2 project will complement the work started in phase 1, engaging new actors and advancing the work on NDC implementation at state level. It is however more challenging, not only because the 27 states have a variety of political and economic contexts and different profiles of GHG emissions, but because they are not fully autonomous, depend financially of the federal government and do not have their own judicial system. Moreover, the states that have higher level of GHG emissions are the ones that typically show more resistance to climate change interventions.

Therefore, the strategy for the phase 2 project is to develop good results with the states that are more interested and advanced in the climate agenda and, based on those results, to encourage other states to reproduce similar successes. Indeed, some states have already elaborated their GHG inventory and their climate adaptation plan. Thus, a logical next step for these states is to develop an NDC with a state scope, to define targets that the states can pursue at sectoral level, and to develop the corresponding indicators to monitor the GHG reductions in the states. This is exactly what the ICAT phase 2 project will strive to do.

References

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