CLIMATE ACTION TRACKER

Brazil

Last updated: 6th November 2017

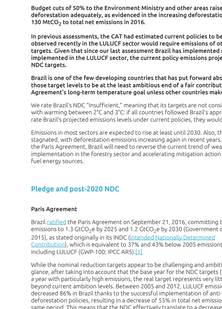
History: 2017 | 2016 | 2015 | 2014 | 2013 | 2012 | 2011

Rating

CRITICALLY INSUFFICIENT | HIGHLY INSUFFICIENT | INSUFFICIENT | 2°C COMPATIBLE | 1.5°C PARIS AGREEMENT COMPATIBLE | ROLE MODEL

Current Rating: INSUFFICIENT

Basic | Intermediate



Assessment

While economic recession has resulted in slower than expected emissions growth in Brazil's energy and industry sectors, recent developments in energy infrastructure planning and the reversal of deforestation policies are evidence of a worsening of Brazil's national climate policy implementation - the opposite direction from what is needed to achieve the Paris Agreement goal.

Budget cuts of 50% to the Environment Ministry and other areas raise issues of concern around the Government's ability to monitor deforestation adequately, as evidenced in the increasing deforestation levels observed since 2016, which have added an estimate of 130 MtCO$_2$ to total net emissions in 2016.

In previous assessments, the CAT had estimated current policies to be in line with the NDC targets. However, the negative developments observed recently in the LULUCF sector would require emissions of other sectors to decrease further for Brazil to be able to reach its targets. Given that since our last assessment Brazil has implemented no new policies, instead reversing some policies already implemented in the LULUCF sector, the current policy emissions projections for Brazil are no longer in line with the achievement of the NDC targets.

Brazil is one of the few developing countries that has put forward absolute emission reduction targets in their NDC, but the CAT finds those target levels to be at the least ambitious end of a fair contribution to global mitigation, and not consistent with meeting the Paris Agreement's long-term temperature goal unless other countries make much deeper reductions and comparably greater effort.

We rate Brazil's NDC "Insufficient," meaning that its targets are not consistent with limiting warming to below 2°C and instead are consistent with warming between 2°C and 3°C if all countries followed Brazil's approach, warming would exceed 3°C and up to 3°C if the CAT were to rate Brazil's projected emissions levels under current policies, they would also be rated "insufficient."

Emissions in most sectors are expected to rise at least until 2030. Also, the remarkable progress in forestry emissions mitigation seems to have stagnated, with increased deforestation emissions increasing again in recent years. The recent weakening of policies and rapidly decreasing budgets allocated by the Paris Agreement, Brazil will need to reverse the current trend of weakening climate policy, by sustaining and strengthening policy implementation in the forestry sector and accelerating mitigation action in other sectors - including a reversal of present plans to expand fossil fuel energy sources.

Pledge and post-2020 NDC

Paris Agreement

Brazil ratified the Paris Agreement on September 21, 2016, committing to reduce emissions to 1.3 GtCO$_2$e by 2025 and 1.2 GtCO$_2$e by 2030 (Government of Brazil, 2015), as stated originally in its NDC (Intended Nationally Determined Contribution), which is equivalent to 37% and 43% below 2005 emissions levels including LULUCF (UNFCCC, 2015).

While the nominal reduction targets appear to be challenging and ambitious at first glance, after taking into account that the base year for the NDC targets (2005) was a year with particularly high emissions, the real targets imply emissions increases above 2005 levels beyond current ambition levels. Between 2005 and 2012, LULUCF emissions decreased by 80%, due to the successful implementation of forestry and other deforestation policies, resulting in a decrease of 55% in total net emissions in the same period. This means that the NDC effectively translate to a decrease of only 7% in emissions incl. LULUCF below 2012 levels by 2030.

The CAT assesses emissions excluding LULUCF, and shows emissions from LULUCF separately, to prevent creating policy based on emissions excluding the forestry sector. Taking into account the strong decrease observed in LULUCF emissions between 2005 and 2012 and the projected emissions from the agriculture (Ministério da Ciência Tecnologia Inovações e Comunicações Brasil, 2017), the CAT estimates that the NDC targets translate to an increase in non-LULUCF emissions above 2005 levels (GWP-100; IPCC SAR) of 15% in 2025 and 3% in 2030 (equivalent to 73% and 55% when excluding LULUCF; IPCC SAR).

These values are lower than in our previous assessments due to changes in LULUCF projections: In previous versions of our assessment we used LULUCF emissions projections consistent with the REDD PAC model, as used originally by the Brazilian Government for the formulation of the NDC (REDD and Policy Assessment Centre, 2015). However, due to methodological differences and modelling assumptions, the Brazilian Government has abandoned the REDD PAC model in its discussion on how to implement the NDC. For our assessment we have updated our LULUCF emissions projections to reflect the Brazilian Government's most recent modelling exercise (Ministério da Ciência Tecnologia Inovações e Comunicações Brasil, 2017), which has higher emissions projections from this sector than in the REDD PAC model.

Copenhagen Pledge for 2020

Brazil was one of the first major developing countries to put forward an emissions reduction target with its Copenhagen pledge in January 2010. It committed to reducing its emissions incl. LULUCF by between 36.1% and 38.9% in 2020, compared to BAU emissions. This target is equivalent to a 117–124% increase on 1990 levels excl. LULUCF. The target was put in national law in December 2012, which contained the conditionality on international funding, making it more stringent than Brazil's international target (Presidência da República, 2010).

However, there was also a difference in the proposed BAU: it increased. Whereas Brazil's Copenhagen Pledge suggested a BAU level of 2.7 GtCO$_2$e/yr, Brazil's national law includes a BAU level of 3.2 GtCO$_2$e/yr with the same percentage reduction. That translated into a 20% increase of 2020 emissions levels compared to the Copenhagen Pledge.

To achieve its pledge, Brazil has proposed a series of measures and policies targeting the LULUCF sector and, notably, the government has committed to reducing annual deforestation rates by 80% below average levels from 1996–2005 by 2020 (by 2022, Brazil already achieved most of those reductions, leading to an abrupt and significant decrease in LULUCF emissions of about 86% from 2005–2012.

Copenhagen pledge	
2020 target	36.1% to 38.9% below BAU including LULUCF [117–134% above 1990 excl. LULUCF]
Paris Agreement target	
Ratified	Yes
2025 target	1.3 GtCO$_2$e by 2025 incl. LULUCF [73% above 1990 levels - GWP100; IPCC SAR- excl. LULUCF]
2030 "Indicative" target	1.2 GtCO$_2$e by 2030 incl. LULUCF [55% above 1990 levels - GWP100; IPCC SAR - excl. LULUCF]
Coverage	Economy-wide, incl. LULUCF
LULUCF	• Zero illegal deforestation in the Brazilian Amazonia by 2030. • Restoring and reforesting 12 million ha of forests by 2030. • Enhancing sustainable native forest management.
Long term goal(s)	
Strive for a transition towards energy systems based on renewable sources and decarbonisation of the global economy by the end of the century.	

Footnotes

[1] On April 2016, the Brazilian government submitted a new GHG inventory with revised historical data up to 2010 (Ministry of Science Technology and Innovation of Brazil, 2016b), which includes significant changes in historical data for the LULUCF sector compared with the last available data of the Second Biennial Report of Brazil to the UNFCCC (Ministry of Science and Technology of Brazil, 2014). For more details about the implications of the updated historic data for the emissions targets see **Box 1** in CAT 2016 Brazil assessment.

Fair Share

We rate Brazil's NDC for 2025 and 2030 as "Insufficient." The "Insufficient" rating indicates that Brazil's climate commitment in 2017 is not consistent with holding warming to below 2°C, let alone limiting it to 1.5°C as required under the Paris Agreement, and is instead consistent with warming between 2°C and 3°C, if all countries were to follow Brazil's approach, warming would reach over 3°C and up to 3°C. This means Brazil's climate commitment is at the least stringent end of what would be a fair share of global efforts, and is not consistent with the Paris Agreement's 1.5°C limit, unless other countries make much deeper reductions and comparably greater effort.

If the CAT were to rate Brazil's projected emissions levels in 2030 under current policies, Brazil would also be rated "Insufficient."

For further information about the risks and impacts associated with the temperature levels of each of the categories click here.

Current policy projections

According to our most recent assessment, with currently implemented policies Brazil will reach emissions levels (excluding LULUCF) of 1.079 MtCO$_2$e, in 2025 and 1.134 MtCO$_2$e by 2030 (respectively, 30% and 35% above 2005 levels and 104% above 1990 levels). Brazil will need to implement additional policies to meet its NDC targets. In its previous assessment, using higher estimates for the land use sector (compare section "Pledge and post-2020 NDC"), the CAT estimated that Brazil would meet its NDC targets.

Recent economic and political turmoil has resulted in an economic recession and non-LULUCF emissions growing at a slower pace than in the last decade and even decreasing slightly in 2015. However, under currently implemented policies, emissions in most sectors are expected to rise at least until 2030 and beyond. Remarkable progress in forestry emissions mitigation observed over the last decade seems to have stopped with deforestation emissions reverting to an upward trend. Recent developments in energy infrastructure planning and the reversal of LULUCF policies already in place reflect a worsening of national climate policy implementation and action.

The main policy instruments included in our current policy projections pathway are the energy efficiency national plans and the incentives for the uptake of renewables in the energy sector, including capacity auctions in the power sector and the ethanol and biodiesel mandates in the transport sector (EIA, 2016).

Brazil has enacted other sectoral plans to reduce emissions in other sectors of the economy, including the Mitigation and Adaptation to Climate Change for a Low-Carbon Emission Agriculture (ABC Plan), the Steel Industry Plan, the Low Carbon Emission Economy in the Manufacturing Industry Plan, the Sectorial Transport and Urban Mobility Plan and the Low Carbon Emission Mining Plan. Most of those policies and instruments, however, are still not part of national development planning and are therefore not included in our current policy projections emissions pathway. This section outlines the most recent policy developments in Brazil's two largest emissions sectors – LULUCF and energy - and the different challenges ahead in each of those sectors.

Land Use and Land Use Change sector

Inventory emissions data available shows that the land use and forestry sector had been by far the largest source of GHG emissions in Brazil since the early 1990s. This picture changed significantly after 2004, when the federal deforestation policies, including the National Forest Code, the Action Plan for Deforestation Prevention and Control in the Legal Amazon (PPCDAm) and the Cerrado (PPCerrado), were implemented and resulted in a reduction on LULUCF emissions of about 86% between 2005 and 2012 (Ministry of Science Technology and Innovation of Brazil, 2016a).

While this is a very positive development, the remarkable progress in forestry emissions mitigation seems to have stopped, with deforestation increasing in recent years (Observatório do Clima, 2017a). Recent data shows that the deforestation rate in the Amazon increased almost 30% in 2016 compared to 2015 and more than 50% in the Amazon region (IPAM, 2017) (Observatório do Clima, 2017a). Experts have estimated that deforestation alone has added over 130 MtCO$_2$ to total net emissions in 2016 (Observatório do Clima decides, 2016), endangering the achievement of the national targets for the Paris Agreement, which include a target of zero illegal deforestation in the Brazilian Amazonia by 2030.

This recent increase in deforestation represents a reversal of the trend over the last decade and local authorities have declared they lack the resources to control illegal deforestation in the entire national territory (Jornal Hoje, 2017). The enforcing capacity of national authorities has deteriorated due to sharp spending cuts under the recent fiscal austerity principle implemented as a response to the spiralling fiscal deficit. In 2017, the Government cut Brazil's environmental budget by more than 50% (Climate Home, 2017a).

Not only has the enforcing capacity of authorities been reduced, but the Government has also started to reverse LULUCF policies already in place. Last July, President Temer signed legislation, previously approved by Congress, to regularise more illegal land-grabbing practices and sent a bill to Congress that also would remove protection from 349,000 hectares (862,000 acres) of Jamanxim National Forest, in the Amazon state of Pará (Climate Home, 2017b).

This, combined with the economic recession that pushes low income populations to undertake deforestation as an economic activity, could result in greater deforestation emissions in the future, unless consistent and effective levels of deforestation policies are enforced and additional policies are implemented to achieve even lower levels (Observatorio do Clima, 2016a).

One of the most negative consequences of the lack of progress in deforestation policies is the endangerment of the multilateral Amazon Fund that provides REDD+ finance in the Amazonian. In June, Norway announced its contribution to the fund by $60 million and funds could drop even further if current deforestation trends continue (World Resources Institute, 2017). This could result in a downward spiral that could put the NDC targets out of reach, as illegal deforestation in the Brazilian Amazon is the largest source of GHG emissions.

Given the key role of the LULUCF sector in Brazil's NDC and the huge importance of its forests for environmental services, biodiversity, and carbon sequestration, the Brazilian government needs urgently to strengthen mitigation action in the sector instead of weakening it.

Energy supply sector

Brazil's energy mix has been characterised by a high share of renewables, especially large hydroelectric generation in the electricity sector. However, mainly due to increasing transportation activity and fossil-fuel electricity generation, the energy sector is Brazil's fastest growing emissions source (Observatório do Clima, 2017b). Taking into account that Brazil's energy market is expanding and will continue to do so at least until 2030 (EIA, 2015), the renewable energy NDC targets of a 45% share in the primary energy mix and a 23% share of renewables (other than hydroelectric power) in the electricity mix by 2030 would, if met, contribute to an improvement in Brazil's carbon intensity.

However, plans to decarbonise the Brazilian power sector appear to be contradicted by recent policy developments. In fact, the share of fossil fuels in the Brazilian energy matrix is increasing while the share of renewable energy sources in the energy supply has been declining - from around 50% in the 1990s to only 39% in 2014 (Observatório do Clima, 2016a). This trend has been driven by an increase in energy demand and challenges the hydroelectric sector has faced in times of scarce water resources (US Energy Information Administration, 2016). Special concern is raised by the current government energy infrastructure planning, which seems to continue favouring fossil fuels, including coal and gas, as opposed to what is required under the Paris Agreement (Kuramochi et al., 2016).

To meet the increasing energy demand, the government is planning to diversify the energy mix and lower dependency on hydroelectric power by increasing investments in fossil fuels. The Ten-year Plan for Energy Expansion has planned an increase in the share of investments in fossil energy sources to 70.6% of total energy investments in 2024 (Ministério de Minas e Energia, 2015).

In the second half of 2016 the Senate approved a provision on a bill on electricity sector privatisation that could result in subsidies for the modernisation of the coal fleet and the addition of new coal plants from 2023 onwards (Senado Federal, 2016). Finally, the government sent negative signals to the wind and solar industry by cancelling its only reserve energy auction for wind and solar in December 2016, arguing for an expected power oversupply in the country (Reuters, 2016).

These recent developments may ultimately limit the options for long-term deep decarbonisation of the Brazilian economy as a consequence of unnecessarily locking in a high level of carbon-intensive energy infrastructure. Under current policy projections, the indicative NDC target of a 45% share of renewables in the total energy mix by 2030 will be achieved although the share of renewables will stagnate at 43%. Unless additional policies are put in place, emissions in the energy sector will continue to rise in the coming decades (EIA, 2015), leaving the huge national potential for renewable power generation untapped.

Data Sources and Assumptions

Historical emissions

Historical data until 2010 is based on the latest inventory data submitted to the UNFCCC (Ministry of Science Technology and Innovation of Brazil, 2016b). Historical data between 2010 and 2015 we use the most recent estimates of emissions from Observatório do Clima (Observatório do Clima, 2017b) and harmonise to the emissions levels from the Third National Communication.

The only important difference between the two sources comes from the LULUCF sector, and is explained by the fact that Observatório do Clima is based on an activity data inventory methodology that is not consistent with the approach of the official inventory (Tier 1 methodology due to lack of public data: "The methodological basis of the estimates of SEEG is the Brazilian Inventory of Anthropogenic Emissions and Removals of Greenhouse Gases not Controlled by Ministry of Science and Technology (MCTI), for Energy, Industrial Processes and Waste sectors SEEG used 3rd inventory methodology, which underwent public consultation in 2014/2015 and is awaiting publication. As for Land Use Change was followed by the second inventory methodology since without the publication of land cover transition maps it's not possible to migrate to the new methodology" (idem).

NDC

In the absence of a clear split between LULUCF and non-LULUCF emissions, the CAT estimates the NDC for Brazil on emissions excl. LULUCF as follows: We calculate the 37% and 43% reduction below 2005 levels suggested in the NDC (including LULUCF) and subtract from these levels the most recently projected LULUCF values (Ministério da Ciência Tecnologia Inovações e Comunicações Brasil, 2017) from these levels. After a harmonisation with historical data, in order to estimate the emissions reduction target excluding LULUCF. Given that the target emissions levels provided in the NDC use Global Warming Potentials (GWP) consistent with the IPCC fifth assessment report (AR5) we convert those target levels to GWP-SAR by applying the reduction rates to historical 2005 emissions levels in GWP from SAR.

2020 Pledge

BAU emissions were taken from the levels provided in the Decree No. 7390, of 2010 (Presidência da República, 2010), as basis for calculating the % reduction including LULUCF. The pledge excluding LULUCF was calculated by applying the target to our estimated and subtracting LULUCF levels in 2020 consistent with the achievement of the targets in the deforestation sector, which were calculated making use of the information provided in the Decree No. 7390 for the LULUCF sector.

Current policy projections

The current trend projections are based on the World Energy Outlook 2016 Current Policy scenario projections for CO_2 only (IEA, 2016). For other CO2 emissions we assume the average growth rate of the last ten years will be maintained until 2030. For non-CO_2 emissions we base our estimates on the US EPA projections until 2030 (US-EPA, 2012). To ensure consistency we harmonise the results of our current policy projection to the last available historical data point. For the LULUCF pathway the quantification is based on the latest national projections (Ministério da Ciência Tecnologia Inovações e Comunicações Brasil, 2017).

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