

JEC Assessment: Mato Grosso. 2021

November 8th, 2021



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1. Macroeconomic Outlook

Mato Grosso is Brazil's third largest State by area (903,357 km², about the same as France and Germany combined) but home to only 3.57 million people¹ (1.6 percent of the Brazilian population). Its GDP-per-capita (as of 2018) is the sixth highest among Brazilian states at BRL 39,931.13. The state is Brazil's leading producer of soy, corn, cotton and cattle. GDP of Mato Grosso is expected to grow 4.97% in 2021, with an increase of 4.97%, driven mainly by agribusiness. The state is the main grain producer in the country and is expected to contribute with 30% of the national harvest in 2021².

National GDP and Covid-19 impacts

In 2020, Brazil's GDP dropped 4.1%, totaling R\$7.4 trillion. It was the biggest annual drop in the IBGE series, which started in 1996 and which interrupted the growth of three years in a row, from 2017 to 2019, when the GDP accumulated an increase of 4.6%³. Still, this figure is lower than in most advanced and emerging economies and the smallest contraction among the major Latin American economies.

Economic performance has been better than expected, in part due to the authorities' forceful policy response. GDP regained its pre-pandemic level in 2021Q1 and momentum continues to be favorable, supported by booming terms of trade and robust private sector credit growth. Real GDP is projected to grow by 5.3 percent in 2021. An improving labor market and high levels of household savings will support consumption and, as vaccinations continue, pent-up demand will return for in-person services. Depleted inventories will be rebuilt and the upswing in commodity prices will support new investment. Inflation is expected to fall steadily from recent peaks toward the mid-point of the target range by end-2022.

The fall in private consumption was cushioned by about 4 percent of GDP in cash transfers to vulnerable households and informal workers. At the same time, substantial liquidity support and capital relief measures ensured the financial system was resilient and banks remained profitable. Private sector credit grew robustly, buoying housing demand and residential construction, while a sharp decline in imports led to a positive contribution to growth from net exports. After contracting by 6.1 percent in Q1 2020, the economy returned to its pre-pandemic level by Q1 2021. The recovery has been led by industry and agriculture, with the service sector still struggling (Figure 1).

Real GDP is projected to grow by 5.3 percent in 2021. Inflation is forecast to fall steadily from the July peak toward the mid-point of the target range by end-2022. After jumping to 99 percent of GDP in 2020, public debt is expected to drop sharply in 2021 and remain around 92 percent of GDP over the medium-term. Uncertainty around the outlook is exceptionally high but risks to growth are viewed as being broadly balanced⁴.

¹ As of 2021. Source: [IBGE](#).

² [Mato Grosso leads the recovery of Brazilian economy, shows the study](#). May 2021.

³ [Atividade econômica cai 0,15% em agosto, diz Banco Central](#). October 2021.

⁴ [Brazil: 2021 Article IV Consultation-Press Release](#). IMF, September 2021.

Figure 1. Contribution to GDP Growth and Economic Activity Indicators. Source: [IMF](#), 2021.

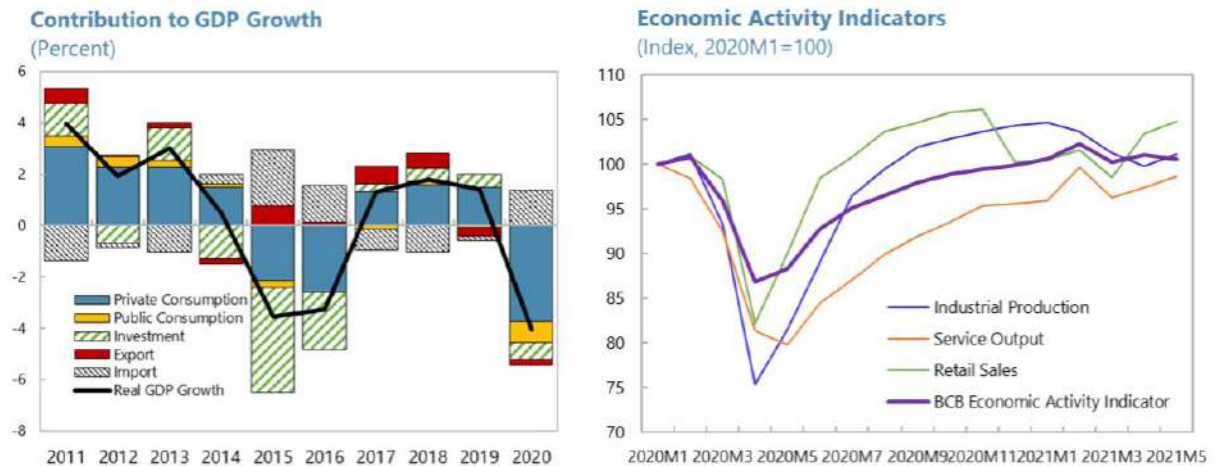


Figure 2. Brazilian Covid-19 vaccination campaign. Source: [Brazil's Economic Outlook and Agenda BC#](#) (Sep.08, 2021)

Brazilian vaccination campaign is advancing.

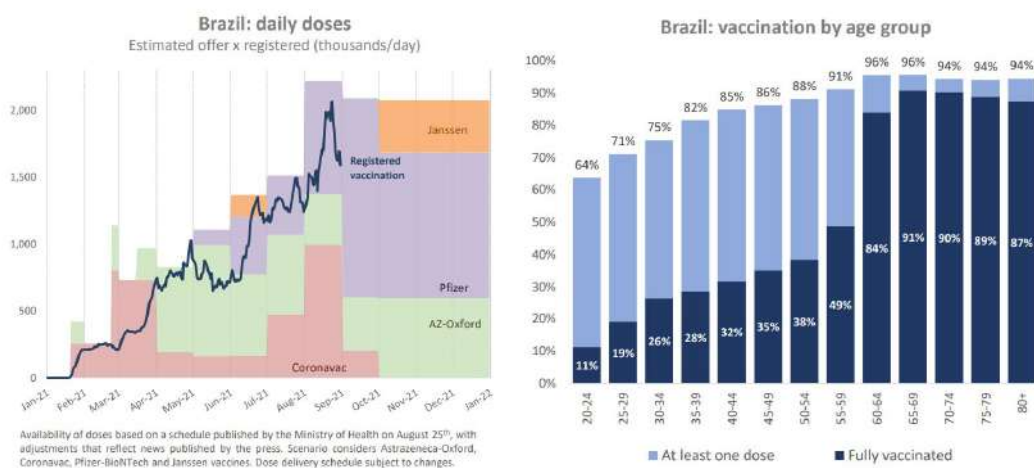


Figure 3. Fiscal response to Covid-19 in global markets. Source: [Brazil's Economic Outlook and Agenda BC#](#) (Sep.08, 2021)

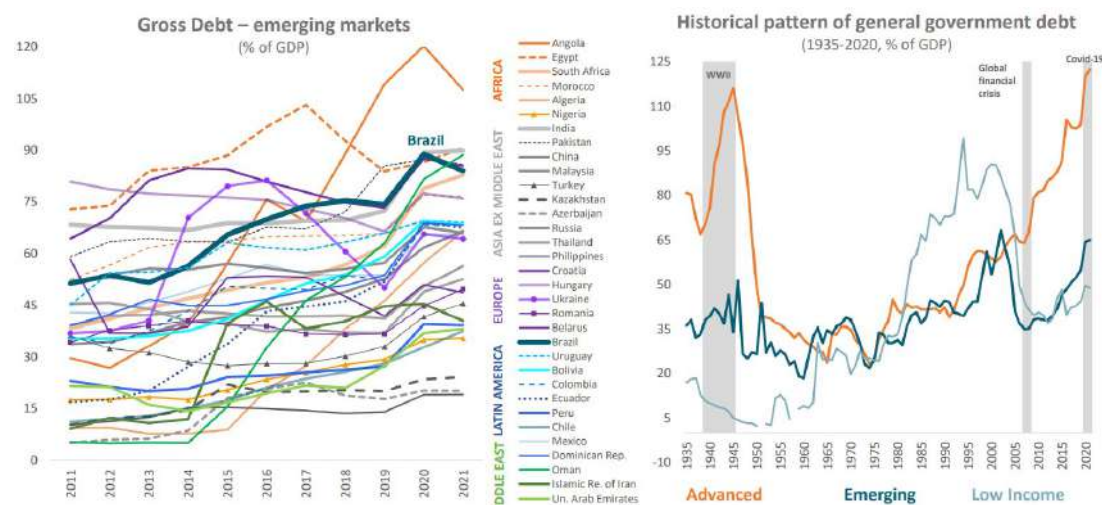
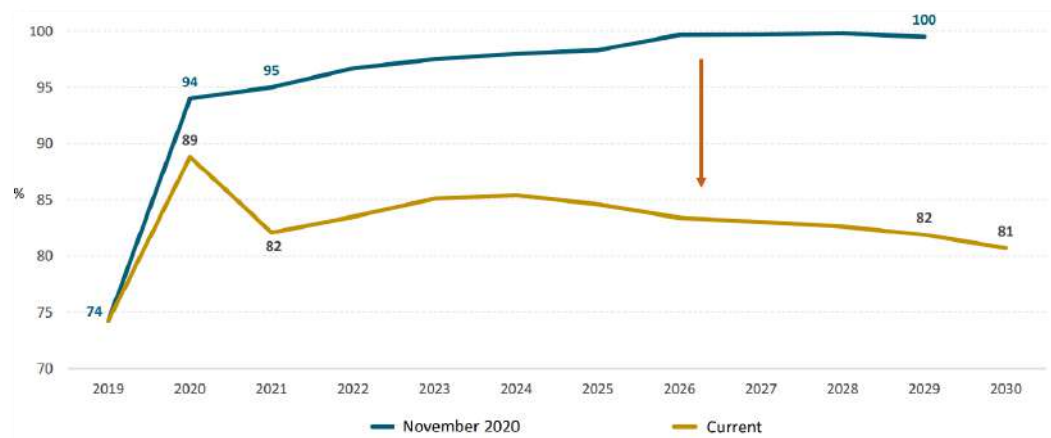


Figure 4. Evolution of GGGD/GDP forecast (median of market analysts forecast – Focus). Source: [Brazilian Central Bank](#) (Sep.2021)



Inflation and Interest Rate

The financial market forecast for the Extended National Consumer Price Index (IPCA), considered the country's official inflation, rose from 8.59% to 8.69% this year. This is the 28th consecutive elevation of the projection. The estimate is in today's Focus Bulletin (18), a survey released weekly by the Central Bank (BC), with the projection for the main economic indicators. For 2022, the inflation estimate was 4.18%. For 2023 and 2024, the forecasts are 3.25% and 3%, respectively.

In September of 2021, driven by electricity and fuel, inflation rose 1.16% , the highest for the month since 1994, according to the Brazilian Institute of Geography and Statistics (IBGE). With that, the indicator accumulates highs of 6.9% in the year and 10.25% in the last 12 months. The forecast for 2021 is above the inflation target that should be pursued by the BC. The target, defined by the National Monetary Council, is 3.75% for this year, with a tolerance interval of 1.5 percentage points up or down. That is, the lower limit is 2.25% and the upper limit is 5.25%. For 2022 and 2023 the targets are 3.5% and 3.25%, respectively, with the same tolerance range.

To achieve the inflation target, the Central Bank uses as its main instrument the basic interest rate, the Selic, set at 6.25% per year by the Monetary Policy Committee (Copom⁵). For the meeting at the end of this month, the Copom has already signaled that it intends to raise the Selic by another percentage point.

BC's projections for inflation are also slightly above the 2022 target and around the 2023 target. This reinforces the autarchy's decision to maintain the contractionary policy of raising interest rates.

⁵ When the Copom increases the basic interest rate, the purpose is to contain the heated demand, and this affects prices because higher interest rates make credit more expensive and stimulate savings. Thus, higher rates can also hamper the economy's recovery. In addition, banks consider other factors when defining the interest charged to consumers, such as risk of default, profit and administrative expenses. When the Copom reduces the Selic, the tendency is for credit to become cheaper, with incentives for production and consumption, reducing inflation control and stimulating economic activity.

2. Political developments in 2019-2021

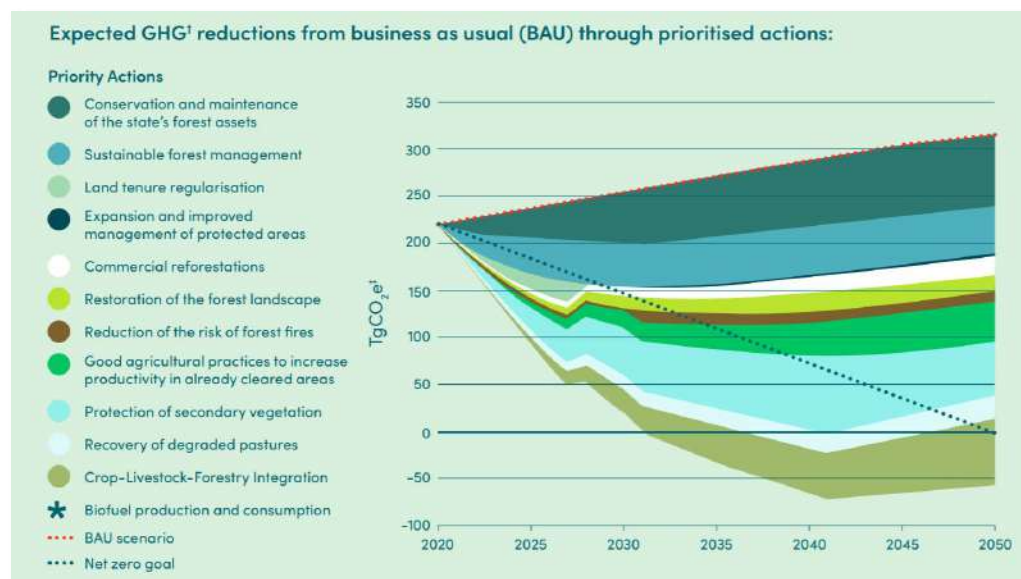
State Decarbonization Pathway

The State of Mato Grosso has recently developed its Decarbonisation Pathway in partnership with The Climate Group, Winrock International, Centre for Climate Strategies and the Governors' Climate and Forest Task Force. **It aims a zero net emissions landscape in 2031, as a result of the implementation of actions based on the control of deforestation, the intensification of agricultural and livestock production and the expansion of forest cover. By adopting new technologies and better managing natural resources, the state will reduce 95% of the net emissions from the last 10 years.**

The BAU planning scenario developed by the project revealed that in the base year of 2015, Mato Grosso's total greenhouse gas (GHG) emissions were 242 TgCO₂e, and it was projected that emissions would increase by 2030 to reach 257 TgCO₂e, continuing to grow until 2050, reaching 316 TgCO₂e. The analysis highlights the importance of the agriculture, forestry and other land use (AFOLU) sector in Mato Grosso, which contributes about 94% of the net emissions estimated in the BAU scenario of Decarbonization Pathway, followed by about 3% in the transport sector, 1.5% in the industry sector, and the rest distributed between energy supply, residential, commercial and institutional energy consumption; and waste management.

The priority actions to reduce the GHG emissions (Figure 5) were formalized in State *Carbano Neutro MT* Program on October 25, 2021⁶.

Figure 5. **Expected GHG reductions** from business as usual (BAU) through prioritised actions. “Decarbonization Pathway Mato Grosso”. BAU emissions per sector (TgCO₂e): Forestry & Land Use 108, Energy 2, Transport 18, Agriculture 172, Industry 13, Waste 2.5, RCI 0.63. Source: [The Climate Group](#), 2021.



⁶ [State decree 1.160](#), published on October 25, 2021.

State Program Carbono Neutro MT

At the end of October 2021, Mato Grosso institutionalized the priority actions of the Decarbonization Pathway and established the fourth Action Plan to Prevent and Control Deforestation and Fires (PCDIF/MT) for the period 2021 – 2024 through state-wide Carbono Neutro MT Program (State Decree 1.160/2021). It integrates the PCI strategy and builds upon its targets.

The Program defines a voluntary target to neutralize GHG emissions by 2035, with an intermediate target of 80% emission reduction by 2030. Carbono Neutro MT will deliver its target through implementation of 12 priority actions (Table 1), as well as of the PCI Strategy, the PCFID/MT and the development and implementation of REDD+ mechanisms.

The action plan to implement the priorities is expected to be ready by the end of the first quarter of 2022. It will contain targets for reducing GHG emissions by 80% by 2030, compared to the baseline established by the Decarbonization Pathways (Figure 5), and the neutralization of the state's net emissions by 2035.

Table 1. Priority actions of the Carbono Neutro MT Program. Source: [Decree 1.160/2021](#).

- I - maintenance of the State's forestry assets, with socioeconomic incentives for conservation;
- II – sustainable forest management;
- III - land tenure regularization and consolidation of legal rights to land ra;
- IV - implementation and improvement of the management of public and private protected areas;
- V – commercial reforestation;
- VI - restoration of the forest landscape;
- VII - forest fire reduction;
- VIII - increasing the productivity of agricultural activities in already converted areas, applying good agricultural management practices;
- IX – secondary vegetation protection;
- X – recovery of degraded pastures;
- XI - crop-livestock-forest integration; and
- XII - production and consumption of biofuels.

Approval of Mato Grosso to participate in LEAF Coalition

Mato Grosso has been recently approved as eligible for purchase agreement discussions with LEAF Coalition participants⁷. The state has successfully completed an initial technical screening process led by a panel of technical experts, following the submission of the Expression of Interest submitted by the State Secretary of Environment (SEMA). Its REDD+ program has state-wide coverage, with an area of forest cover I of 48.21 million hectares, above the required ART TREES standard threshold. The state will submit its concept note by July 2022 and relies on a compliance plan with actions that must be developed to bridge the gaps and prepare the Programme Registration Document, to be submitted by December 2022.

⁷ Other LEAF approved jurisdictions of Brazil include Acre, Amapá, Amazonas, Maranhão, Pará, Roraima and Tocantins. Source: [Leaf Coalition](#), 2021 (Retrieved October 21, 2021).

3. Institutional and other major developments in 2019-2021

REM MT Program

The REDD+ for Early Movers (REM) program is an essential element of Germany's bilateral involvement in REDD + (Reducing Emissions from Deforestation and Forest Degradation), commissioned by the Federal Ministry for Economic Cooperation and Development of Germany (BMZ) and implemented jointly by the German Development Bank, *Kreditanstalt für Wiederaufbau* (KfW) and German International Development Cooperation, *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ) GmbH. The REM program supports countries called Early Movers, rewarding "REDD pioneers" such as Colombia, Ecuador and Brazil for their success in reducing deforestation. KfW offers results-based financial cooperation for the REM program, while GIZ provides the technical cooperation necessary for the national counterparts to implement this financing scheme.

The Program's benefit-sharing is designed to leverage structures and unlock key bottlenecks for the state's advance in this transition to a low-carbon economy. In the institutional strengthening strategy, support to the State REDD+ System and the PCI Strategy stands out as complementary mechanisms capable of leveraging new investments for the State. While advancing PCI targets also represents an increase in the state's carbon assets, SisREDD is the instrument that allows the state to account for these assets for use in attracting new investments. SisREDD is legally responsible for official record of carbon credits from conservation and deforestation reduction, as well as implementation of REDD+ and safeguard monitoring programs.

The third mission for monitoring the Mato Grosso REDD Early Movers (REM) by KfW took place from the 17th to 25th March, 2020 to evaluate the general progress of the program, how it was moving forward and the operational and implementation challenges, as well as agreeing with the priorities and measures for making it effective in the state. **"We are highly satisfied with the Mato Grosso REM Program, which is in full swing. Most of the resources are reinvested at a local level and directly benefit the local farmers, indigenous groups, and forest peoples", said Klaus Köhnlein from KfW.** "The general objective of this new phase of Cooperation is to guarantee that the REM Program can strengthen the PCI's Inclusion goals in the State of Mato Grosso. As a result, it is expected that the investments should meet the specific needs of the indigenous peoples and traditional communities in Mato Grosso, that the PCI strategies in these territories will be strengthened and that other states in the Amazon region will be able to develop REDD+ mechanisms," explained Anselm Duchrow from GIZ⁸.

In 2021, GIZ has approved a new Project under its partnership with the State of Mato Grosso. The aim of this project is to support, over two years, actions that strengthen the implementation of inclusion targets of the PCI Strategy in the state. The investment of around BRL 2 million will boost assistance to indigenous peoples and communities and the strengthening of actions to include family farming socio-productive chains in territories in which PCI Regional Compacts are already in place. The new GIZ Technical Cooperation project brings additional resources to those of REM, and which will help ensure that

⁸ [The PCI Institute moves forward in talks with KfW and GIZ on new investments for the state of Mato Grosso](#). IDH, May 2020 (Access on November 1, 2021).

the program will directly benefit small-scale farmers, traditional populations, and indigenous peoples, resulting in support for the goals of the Produce, Conserve and Include⁹.

Mato Grosso World Bank Policy Development Loan

In 2020, the World Bank granted a US\$ 250 million loan¹⁰ to the State, for the priority given to sustainable production, with the PCI strategy and the PCI Institute's endorsement accepted as environmental collateral in return. This year, the Mato Grosso State Secretariat for the Environment (Sema-MT) has submitted to the World Bank monitoring mission the actions developed over 2020 to fight illegal deforestation, monitor compliance, promote environmental regularisation and make investments to improve services¹¹.

One of the figures presented was the **27% reduction in illegal deforestation between June and December 2020, thanks to the improvements in monitoring made possible by the implementation of the real-time deforestation detection system, which uses Planet satellite images, allowing quick and preventive actions, as well as greater accuracy in the infraction notices.** The system was acquired with funding from the REDD Early Movers Programme (REM).

The fourth supervision mission took place (virtually) in August 2021. Implementation status of the project was assessed to be moderately satisfactory (Table 2). The next supervision mission is expected to take place before the closing date of the operation in December 2021.

Table 2. The latest updates on the results indicators, related to support of the Government of Mato Grosso's efforts to regain fiscal sustainability, related to deforestation and CAR targets. Source: [Implementation Status & Results Report](#). World Bank, September 2021.

Increasing institutional capacity for sustainable agriculture, forest conservation and CC mitigation				
Indicator				
► Annual deforestation in Mato Grosso's portion of the Amazon biome (Square kilometer(km2), Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	1,490.00	1,767.00	1,438.00	1,241.00
Date	31-Dec-2018	31-Dec-2020	30-Jul-2021	31-Dec-2021
Comments:	Annual deforestation in Mato Grosso's portion of the Amazon biome as assessed and published by PRODES			
Indicator				
► Area of land for which CAR information has been validated by SEMA (cumulative total) (Hectare(Ha), Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	2,900,000.00	5,900,000.00	7,000,000.00	20,000,000.00
Date	31-Dec-2018	31-Dec-2020	30-Jul-2021	31-Dec-2021
Comments:	Area of land for which CAR information has been validated by SEMA (cumulative total)			
Indicator				
► Resources mobilized in coordination with the PCI Institute for the implementation of the PCI strategy (Amount(USD), Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	53,000,000.00	125,300,000.00	125,300,000.00	90,000,000.00
Date	31-Dec-2018	31-Dec-2020	30-Jul-2021	31-Dec-2021
Comments:	Resources mobilized in coordination with the PCI Institute for the implementation of the PCI strategy (cumulative total)			

⁹ REM approves new investment and will strengthen inclusion in the Mato Grosso PCI Compacts. IDH, June 2021 (Access on November 1, 2021).

¹⁰ This fiscal adjustment and environmental sustainability development policy loan (PDL) was approved in 2019.

¹¹ Sema-MT submits deforestation reduction data to the World Bank. IDH, March 2021 (Access on November 1, 2021).

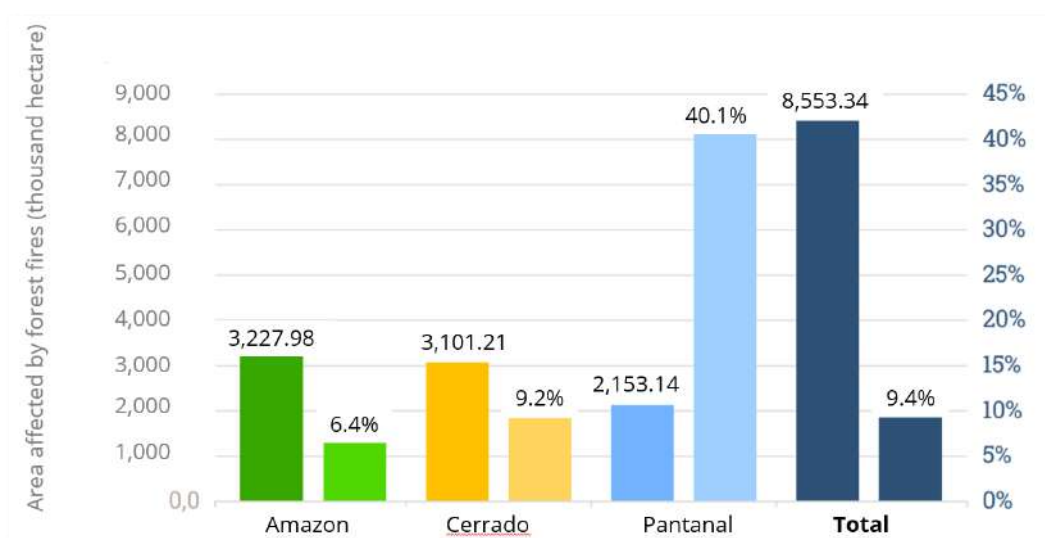
4. Current Challenges

Forest Fires dynamics

Between January and November 2020, the National Institute for Space Research (INPE) detected more than 47,000 hot spots in Mato Grosso, an increase of 54% comparing to the same period of 2019. The 2020 fires have mostly impacted the Pantanal biome of the state. As of November 16 2020, Mato Grosso had 8.5 million hectares affected by fires, or 9.4% of the state's total territory.

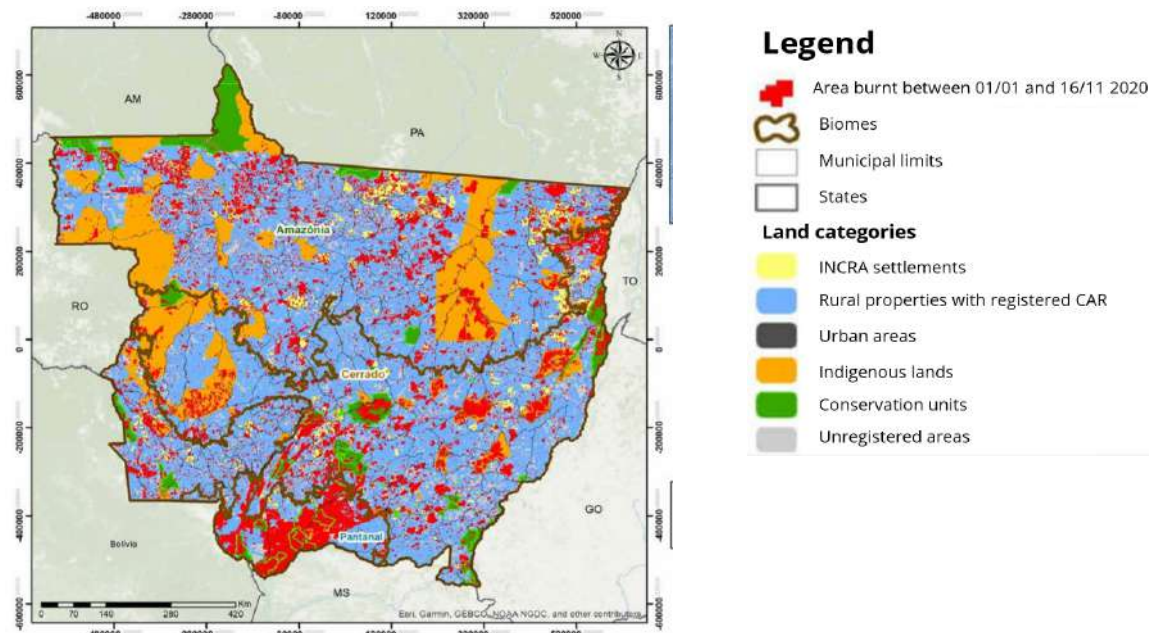
About 38% of these occurrences were concentrated in the Amazon biome, followed by the Cerrado, where more than 3.1 million hectares were burned (36% of the total). The areas with fire in the Pantanal, in turn, represented 25% of the total (Figure 7). The most critical months, that is, with the largest area affected by fire, varied between biomes. In the Amazon, the months with the largest area destroyed by the flames were between August and October (71%). In the Cerrado and Pantanal, the most critical months were between July and September, concentrating 73 and 86% of the burned area in each of the biomes. Although in absolute terms there are no major differences between the area affected in the biomes, considering the proportion between the area affected by fires and the size of the biome, the Pantanal was the most impacted, losing 40% of the entire biome area in the state. The Cerrado of Mato Grosso had 9% of its area affected and the Amazon, about 6%.

Figure 6. Area affected by fires per biome (thousand ha) and affected percentage of biome (%). Source: [Fire balance in Mato Grosso in 2020](#). ICV 2021.



The highest incidence of fires occurred at rural properties registered in the Rural Environmental Registry (CAR), responsible for half of the mapped fires (3.96 million hectares), followed by unregistered areas (1.92 million hectares). Indigenous Lands (TIs), third category most affected, had 1.3 million hectares hit by fire. The IT with the largest area affected by fires was the National Park of Xingu, with about 0.22 million hectares burned.

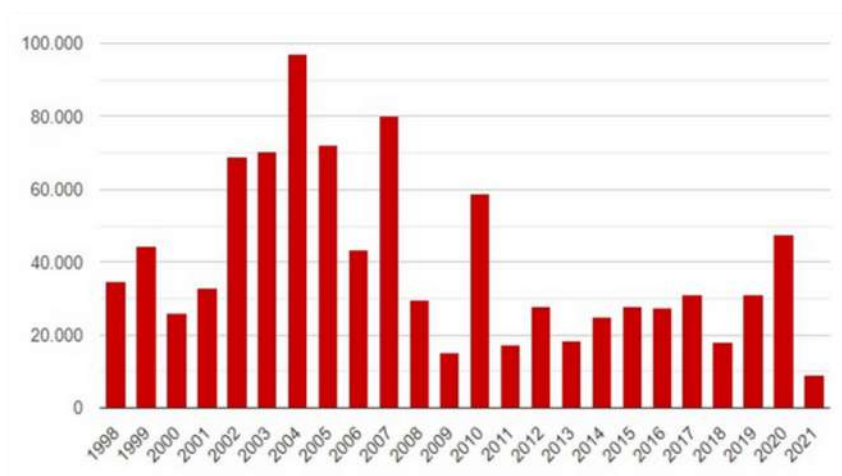
Figure 7. Distribution of fires per land category. Source: [Fire balance in Mato Grosso in 2020](#), ICV 2021.



In 2021, Mato Grosso State R\$ 43 million in fire fighting and prevention. The state government acquired an exclusive helicopter to fight environmental crimes and invested in trucks and drones. There were also firebreaks at strategic points and road signs with guidance plates against fires. To deal with forest fires, the State also anticipated the prohibitive period of forest fire by 15 days starting on July 1st until October 30th.

The response phase to the forest fire season and illegal deforestation involves the use of 80 vehicles, R\$ 2.2 million investments in safety equipment and reinforcement of the operations of the Military Fire Department in the locations most affected by fires. The efforts resulted in 92% reduction in forest fires identified in the Pantanal of Mato Grosso, compared to the same period last year. In the Cerrado Biome the reduction was 19.4%, and in the Amazon, 8.58%.

Figure 8. Forest fire alerts statistics for Mato Grosso. Source: *Relevant Facts on Deforestation, Forest Fires and Environmental Regularization in Mato Grosso*. September 2021. [PCI Institute](#).



Deforestation dynamics

Between August/2020 to July/2021 Mato Grosso had an 21.7% reduction in deforestation alerts when compared to the previous period (Figure 10). The alerts appointed to approximately 1,452 km², while in the previous year this number was 1,856 km². In addition, in July alone, Mato Grosso reduced deforestation alerts by 60%, and in August, by 42%¹².

Figure 9. Between August/2020 and July/2021, Mato Grosso reduced deforestation alerts by 21.7%, when compared to the previous period. Source: Relevant Facts on Deforestation, Forest Fires and Environmental Regularization in Mato Grosso. September 2021.

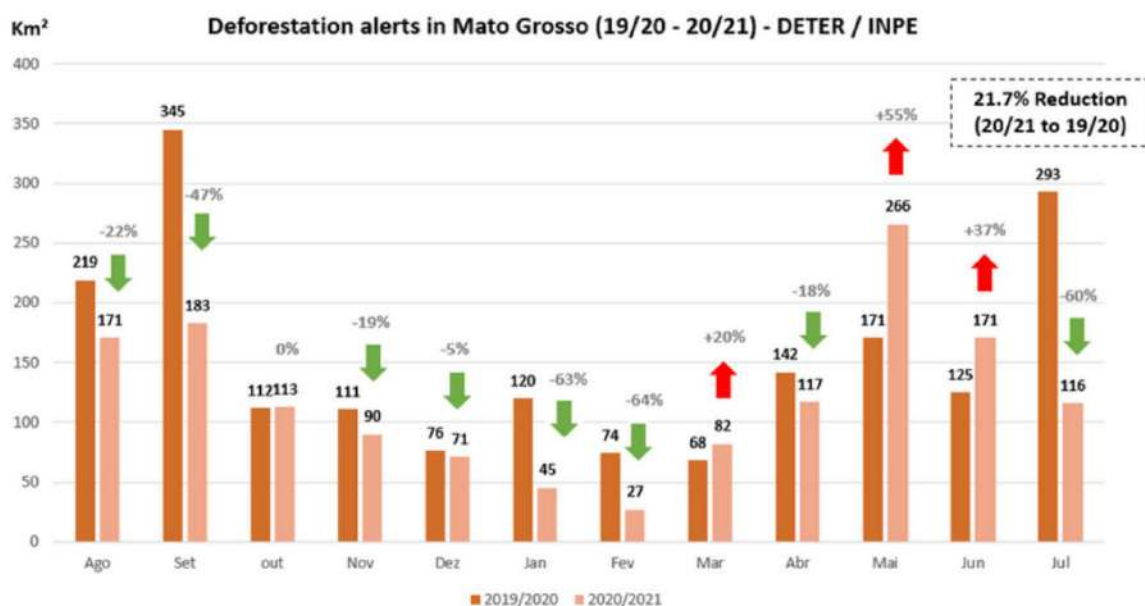
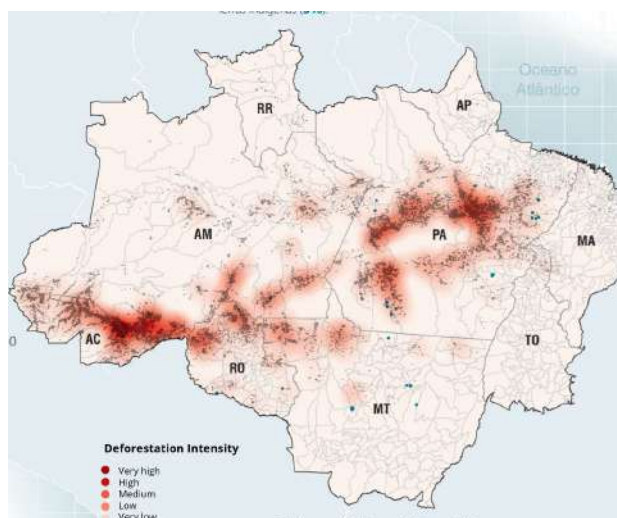


Figure 10. Deforestation intensity in Brazilian Legal Amazon. August 2021. Source: Imazon.



¹² [Mato Grosso reduz em 21% alertas de desmatamento, número superior ao restante da Amazônia Legal](#). August 2021 (Access November 3, 2021).

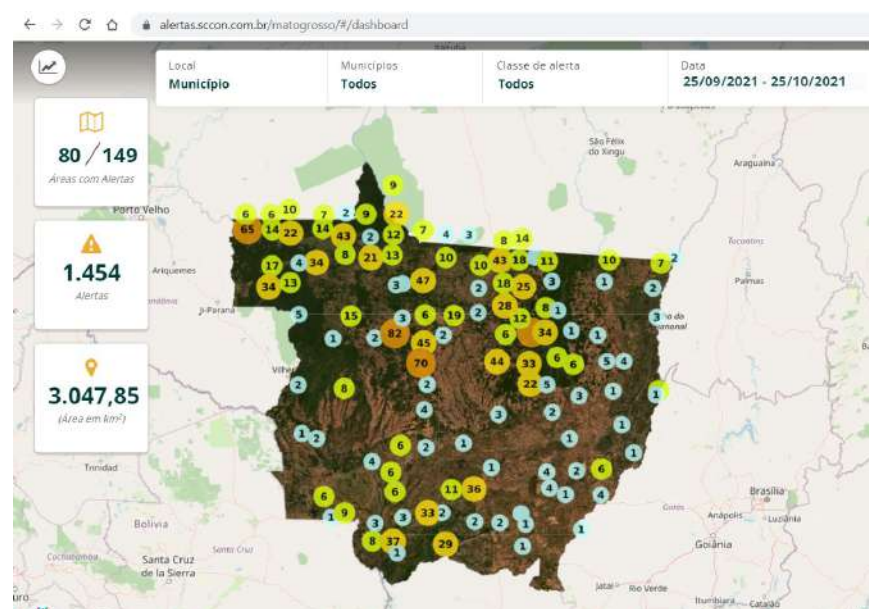
In 2021, Mato Grosso State has invested R\$ 73 million in actions to prevent forest fires and illegal deforestation. This is the largest investment ever made in the environmental area.

The Amazon operation integrates state and federal agencies, under the coordination of SEMA-MT. The objective is to curb environmental crimes, monitor and inspect land-use changes, promote the embargo of areas, seizure and removal of machinery used by criminals, and the accountability of offenders.

Planet-based satellite monitoring system, used by SEMA since 2019 and financed by REM, is an important contribution to the systemic deforestation reduction efforts. It provides daily and allows for quick action through generated alerts from the monitoring of satellite images of high spatial and temporal resolution (it is complementary to the INPE alerts).

A public version of the deforestation alerts is available at the dedicated [web-platform](#):

Figure 11. Publicly available web platform to detect deforestation in Mato Grosso state.



Slow validation of the Rural Environmental Registry

The Native Vegetation Protection Law (Law No. 12.651/2012), known as the Brazilian Forest Code, mandates minimum conservation standards for private landholdings. This represents a cornerstone of Brazil's approach to promote climate change mitigation and adaptation through its agriculture, forest and land use sector.

Mato Grosso's Rural Environmental Registry (SIMCAR), adopted in 2017, aims at verifying whether properties comply with the Brazilian Forest Code. Following validation of the information by the State Secretariat for the Environment (SEMA) and if an environmental liability is detected, properties can enter a process of environmental regularization which entails a Terms of Conduct Adjustment (TAC) with the State Public Prosecutor (*Ministério Público do Estado*).

In 2019, the state created a task force was created in the Environmental Secretary of Mato Grosso (SEMA-MT) to streamline the analysis of CAR records so that producers can start the regularization and restoration process.

The World Bank's Fiscal Adjustment and Environmental Sustainability Development aims to facilitate faster and more transparent SIMCAR implementation. One of the targets related to the loan is to increase the number of validated CAR. Still, the process still suffers significant delays, with 7.6% validated area out of the total registered in the SIMCAR system:

Figure 12. Progress of CAR validation in. Latest update in August 2021. Source: Relevant Facts on Deforestation, Forest Fires and Environmental Regularization in Mato Grosso. September 2021. [PCI Institute](#)

Mato Grosso state area	90.302.535 HECTARES	Number of registries analyzed	51.422
Registerable area	73.236.203 HECTARES	Area of analysed recorded	29,470,575.77 HECTARES
Registerable area in relation to the total area of the State	81,10%	Area analyzed in relation to the registerable area of the State	40,24%
Number of registries in the SIMCAR database	112.536	Number of validated registries	2.703
Registered area	54,761,938.21 HECTARES	Area of validated registrations	2,475,085.17 HECTARES
Registered area in relation to the registerable area of the State	74,77%	Area validated in relation to the area of analyzed registries	7,6%
		Area validated in relation to the registerable area of the State	4,7%

Registries analyzed by property size	Number of registries	% in relation to total registrations	Area in Hectares	% of the Registration area in relation to the registerable area
Up to 4 fiscal modules	36.875	71,76%	3.341.587,52	11,27%
From 4 to 15 fiscal modules	8.837	17,2%	5.787.784,92	19,52%
More than 15 fiscal modules	5.672	11,04%	20.526.918,88	69,22%

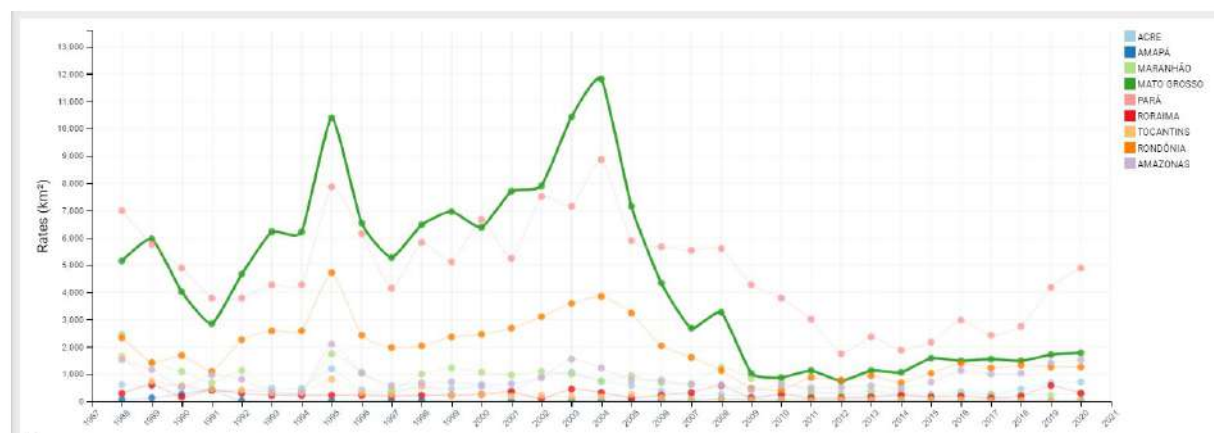
5. Analysis of Progress on deforestation rates versus targets

Mato Grosso has featured historically high levels of deforestation in the 1990s and early 2000s. **During the last two years, there was a slight increase of 12.5% in deforestation rate of 1,702 km² in 2019 (comparing to the 2018 value of 1,490 km²), followed by of 1,779 km² in 2020 (Figure 13). The PCI Strategy has shown certain progress in delivering the initial targets, though not reaching the exact figures. In 2021, it updated the targets which now incorporate the State's emission reduction target and have priority actions defined to assure their delivery.**

Figure 13. Annual deforestation rates in the State of Mato Grosso (Legal Amazon) since INPE started monitoring the figures in 1998. Source: [INPE](#) (retrieved October 20, 2021).



Figure 14. Deforestation rates in Legal Amazon states (Mato Grosso shown in green). Source: [INPE](#) (retrieved October 20, 2021).



Decarbonization Pathway Targets. Methodological background

Between 2019 and 2021, the State of Mato Grosso developed the [Decarbonisation Pathways Project](#) led by the Mato Grosso State Secretariat for the Environment (SEMA-MT) and a team of international technical experts, including The Climate Group (TCG), Winrock International, Center for Climate Strategies (CCS) and the Governors' Taskforce for Forest and Climate (GCF Taskforce). This project was a result of a participatory process with the Mato Grosso Forum on Climate Change (FMMC) and other stakeholders from the public and private sectors.

For the estimates of the land use and forestry sector (AFOLU), Mapbiomas was employed as a reference base to calculate baseline emissions and generate future scenarios for the state (2030/2050) from some priority actions that were listed for decarbonisation of the state. According to the analyses produced for the project baseline (2010-2019), forest loss estimates range on average 45% more for the Amazon and 22% less for the Cerrado when compared to the data provided by PRODES.

According to the methodology adopted, raster data of land cover and land use for the state of MT in the period were used to generate the activity data, using the Google Earth Engine platform. The land use transitions matrix made it possible to estimate not only deforestation (forest conversions), but also natural regeneration (forest increments). For deforestation, the areas of natural forest that were converted into non-forest or planted forest classes were considered, and for regeneration¹³, the non-forest or planted forest areas that were converted into natural forest.

In the case of estimates for forest loss, emission factors obtained from past vegetation carbon maps from the Third National Communication were used. These data represent the spatial variability of carbon stocks in vegetation, according to the different phytophysionomies. Thus, in order to estimate emissions for land use change in the baseline, through geoprocessing tools, the spatial data of land use transitions from Mapbiomas was crossed with the carbon map, where each deforestation polygon was intersected with the spatially juxtaposed carbon stock polygons by phytophysionomy.

It is worth mentioning that, while the baseline developed by the Decarbonisation Pathways project uses Mapbiomas, the government plans/strategies use the mapping produced out by PRODES to define the targets, and therefore, a calculation method that contemplates the same logic of the State's proposed ambition had to be adopted.

To this end, the deforestation targets were estimated by taking the same percentage reduction rates established by the 4th phase of the PPCIDIF-MT, but applied to the annual values of forest loss estimated in the baseline of the project with data from Mapbiomas¹⁴. Thus, in the case of

¹³ Although it is possible to quantify deforestation and the natural regeneration of vegetation, there are still methodological gaps such as, for example, estimates of the carbon stock in the regenerated area, given that the age of such forests, known as secondary forests, is unknown. *Source: LEAF Application of Mato Grosso. 2021.*

¹⁴ To project the state's decarbonisation scenario, some assumptions were made such as: replicating the reduction rates throughout the study period (2030/2050) and; since the type of vegetation (phytophysionomy) that will be deforested in the future is not known, to convert jurisdictional targets into CO₂ emissions, the deforested area was multiplied by the average carbon stock per biome weighted by the observed deforestation per phytophysionomy between 2010 and 2019 and, lastly, by the conversion factor from tons of Carbon to tCO₂ equivalent. *Source: LEAF Application of Mato Grosso. 2021.*

the Amazon, a 15% reduction over the reference period of the plan (2016-2020) was assigned in the first year, and 15% for each subsequent year on the projected deforestation rate for the previous year. For the Cerrado, the percentage reduction in the first year is 28% over the same reference period, and 10% reduction for each subsequent year over the projected deforestation rate for the previous year.

Table 3. PPCDIF (PRODES) jurisdictional targets by biome adjusted on the basis of forest loss data from Mapbiomas between 2021 and 2024. Source: LEAF Application Submission, 2021.

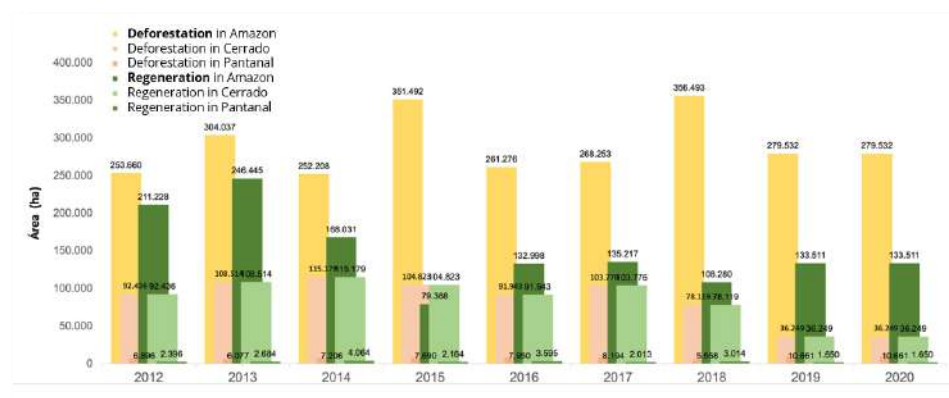
Biomes	Amazon region		Cerrado region	
Year/Targets	PRODES (ha)	Mapbiomas (ha)	PRODES (ha)	Mapbiomas (ha)
2021	136,170	243,397	70,776	61,215
2022	115,745	206,887	63,698	55,093
2023	98,383	175,854	57,329	49,584
2024	83,625	149,476	51,596	44,625

Even though Mapbiomas produces more accurate and comprehensive data than PRODES, it should be pointed out that the amount of effort involved to produce such emission reductions estimates is deemed costly and such simulation can only be carried out in the State of Mato Grosso because of the data that was generated by the Decarbonisation Pathways project. It is worth noting that, in all Brazilian states, the subnational plans and government strategies for reducing deforestation are grounded on information produced by official bases, that is, using data from PRODES/INPE.

Therefore, the decision to use Mapbiomas necessarily implies the structuring of a specific MRV system suited to produce such information, involving a technical team trained to work with this database. Hence, for the time being, a decision has been made to submit the expression of interest of the State of Mato Grosso based on estimates obtained through the official data from PRODES.

The Decarbonization Pathway estimates that the State will achieve by 2030, an average deforestation reduction over the project baseline (2011-2019) of 54% in the case of the Amazon, 53% in the Cerrado and 53% in the Pantanal, and for the 2031-2050 scenario such reduction is expected to be, respectively, 95%, 89% and 89% over the 2011-2019 baseline.

Figure 15. Deforestation per biome in Mato Grosso (1,000 x ha), based on MapBiomas data. Source: LEAF Application.



Country <i>Brazil</i>	Date of Report <i>5th of November, 2021</i>	Author <i>Natalia Pasishnyk</i>
Sub-national jurisdiction <i>Mato Grosso State</i>	Date of AB Decision <i>[...]</i>	Approval Status <i>Under review</i>

Version History

<i>Date</i>	<i>Version</i>	<i>Author</i>
<i>07/11/2021</i>	<i>V1</i>	<i>Natalia Pasishnyk</i>

Checklist JEC 1: Scope Re-assessment

Mato Grosso, Brazil

Item	Criteria	Analysis	Check	References
1.1	Amount of forest/peatland in the jurisdiction	<p><i>Summary conclusion: Primary forests, composed of Amazon and Cerrado biomes, cover 48.21 million ha, or 54%, of the Mato Grosso state. 62% of the state's area belongs to Amazon biome and 38% to Cerrado biome. During the reassessment period, Mato Grosso lost 1,779 km² of primary forests in 2020 and 1,700 km² in 2019 [3].</i></p> <p><i>Mato Grosso is Brazil's third largest State by area (903,357 km²) about the same as France and Germany combined) but home to only 3.57 million people (1.6 percent of the Brazilian population) [1]. Its GDP-per-capita (as of 2018) is the sixth highest among Brazilian states at BRL 39,931.13. The state is Brazil's leading producer of soy, corn, cotton and cattle. This agricultural expansion has historically taken place through clearing of forests, including in the Amazon biome. While average deforestation post-2010 has been 75 percent below its 2001-10 average, deforestation continues to be considerable.</i></p> <p><i>The State is successful in maintaining more than 60% of its cover under native vegetation (with a target of 60% and the last reference level of 62.3% in 2020) [4], [5].</i></p>	OK	<p>[1] IBGE, 2021.</p> <p>[2] PRODES/INPE, Accessed November 2, 2021.</p> <p>[4] Mato Grosso PCI Strategy Goals Update 2030 Vision. PCI Institute 2021.</p> <p>[4] Technical Note on Monitoring of PCI Strategy, year 4. ICV 2021.</p>
1.2	Quality of forest/peatland in the jurisdiction	<p><i>Summary conclusion: Mato Grosso state's biomes of Amazon, Cerrado and Pantanal are highly valuable in terms of biodiversity conservation. Both Amazon and Cerrado are significant as per High Conservation Value criteria (HCV1, HCV 3 and HCV 4). Areas subject to restoration within Produce, Conserve, Include strategy (PCI) belong to HCV4 and represent one quarter of committed in Brazil's NDCs 12 million ha to be restored and reforested.</i></p> <p><i>Proposed protection and restoration areas within the Mato Grosso state are defined in PCI Strategy:</i></p>	OK	<p>[5] Alto valor de conservação: uma avaliação em três escalas. Balistieri, Leandro. USP, 2017.</p> <p>[6] HCV Resource Network. Search results for Brazil. Retrieved November 2, 2021.</p>

Item	Criteria	Analysis	Check	References
		<p><i>Protection: these areas correspond to 60% of the total area of Mato Grosso, or 540 million ha. Such areas are covered by native vegetation of any of the three biomes located in the state. They include both the primary vegetation and secondary one on diverse stages of restoration.</i></p> <p><i>Restoration: these areas include degraded APP areas¹⁵ (1 million ha) and Legal Reserve areas subject to restoration (1.9 million ha).</i></p> <p><i>Brazil still does not have specific HCV criteria, the generic approach is applied [5]. No private companies assessments yet made for Mato Grosso state [6]. They can be considered of high conservation value, combining three categories of High Conservation Values (HCV):</i></p> <p><i>HCV1. Mato Grosso is home to three highly valuable and internationally renowned biomes in terms of biodiversity concentration – Amazon (53% of the state's area), Cerrado (savannahs, 40%) and Pantanal (flooded plains, 7%) . There are 11 Key Biodiversity Areas [7] and one UNESCO Heritage site within the State [8] .</i></p> <p><i>HCV3: From the global perspective, all three biomes located in Mato Grosso are threatened and endangered due to human activities, and are considered the most exceptional ecosystems and habitats by WWF [9]. Besides, the Amazon's southwest including Mato Grosso state, is especially vulnerable and under great climatic influence from the rest of the Amazon forest, as a large proportion of its rainfall originates from transpiration of the trees located in the entire Amazon basin. As the region is already very vulnerable to drought due to its relatively long dry season, a small rainfall reduction due to deforestation has drastic ecological impacts [10].</i></p>		<p><i>[7] Annex 2 of the Initial Assessment Report.</i></p> <p><i>[8] <u>World Heritage List of UNESCO</u>. Retrieved November 2, 2021.</i></p> <p><i>[9] <u>Critical Regions of the World - Amazon</u>. WWF. Retrieved September 12, 2019.</i></p> <p><i>[10] <u>Deforestation effects on Amazon forest resilience</u>. D. C. Zemp C.-F. Schleussner H. M. J. Barbosa A. Rammig. American Geophysical Union, 2017.</i></p> <p><i>[11] <u>Amazon deforestation has a significant impact on the local climate in Brazil</u>. University of Leeds. ScienceDaily, August 2019.</i></p>

¹⁵ Environmentally sensitive areas near rivers and on hilltops and slopes that are designated as permanent protection areas.

Item	Criteria	Analysis	Check	References
		<p><i>HCV4: In terms of ecosystem services, a healthy intact Amazon forest helps regulate the local climate in Brazil and can act as a buffer to the warming effects of climate change, compared with disturbed forests. [11]</i></p> <p><i>Restored areas with secondary vegetation (i.e. APP¹⁶ areas, 1 million ha subject to restoration according to PCI) belong to HCV4 category due to the ecosystem services they provide. Considering planned restoration of both APP and Reserva Legal areas that sum up 2.9 million hectare, these represent one quarter of committed in Brazil's NDC 12 million ha to be restored and reforested [12].</i></p>		<p><i>[12] Brazil iNDC. UNFCCC, 2015.</i></p> <p><i>[1] Technical Note on Monitoring of PCI Strategy, year 4. ICV 2021.</i></p>

¹⁶ According to the Brazilian Law 12.651/2012, an APP (Permanent Preservation Area) is defined as a protected area, covered or not by native vegetation, with the environmental function of preserving water resources, landscape, geological stability and biodiversity, facilitating the genetic flow of fauna and flora, protecting the soil and ensuring the well-being of human populations. They are established in several situations such as hilltops, steep slopes, coastal shrublands, mangroves, wetlands, water springs etc.

Checklist JEC 2: Ambition and Strategy Re-assessment

Mato Grosso, Brazil

Item	Criteria	Analysis	Check	References
2.1	Quantitative target against historic rates of gross deforestation	<p>Summary conclusion: During the last two years, Mato Grosso suffered a slight increase of 12.5% in deforestation rate of 1,702 km² in 2019 (comparing to the 2018 value of 1,490 km²), followed by of 1,779 km² in 2020¹⁷. The PCI Strategy has shown certain progress in delivering the initial targets, though not reaching the exact figures. In 2021, it updated the targets which now incorporate the State's emission reduction target and have priority actions defined to assure their delivery.</p> <p>During the first half of 2021, PCI Strategy published its 4th Goals Balance [13]. At the same time, the Environment Secretary completed the construction of the new "Plan for the Prevention and Control of Deforestation and Forest Fires" (PPCDIF) and the "Decarbonization Trajectories" project. The latter incorporates PCI goals in 12 supply chain scenarios (referred as "trajectories") which can contribute to the climate neutrality of Mato Grosso by 2035.</p> <p>In the Conserve Area, the PCI Strategy aims to ensure that forest areas are recovered in accordance with legal requirements and the state's original remaining vegetation is preserved. Of the participants who evaluated the strategy, 20% consider the targets to have progressed a lot or a sufficient amount, however, 70% think the progress made is still not enough. <i>The advances include improvements in deforestation control, after the implementation of CEDIF, in the Action Plan against deforestation and investments aimed at monitoring. Another major step forward was taken in the implementation and expansion of the Rural Environmental Registry.</i> The main challenges pointed out referred to illegal deforestation control and slow analysis of records [13].</p>	OK	<p>[13] <i>4th Balance of PCI Goals</i>. PCI Institute. Retrieved November 2, 2021.</p> <p>[15] <i>Decarbonization Pathways Mato Grosso</i>. SEMA, 2021. English summary available at TheClimateGroup.</p> <p>[18] <i>DETER/INPE</i>. 2021.</p>

¹⁷ Estimated, to be confirmed by the end of 2021. The figure is usually confirmed by PRODES at the end of the next calendar year.

Figure 16. PCI Strategy Goals Balance. Source: Mato Grosso PCI Strategy Goals Update 2030 Vision, 2021.

Goal		Indicator	2015	2016	2017	2018	2019	2020
CONSERVE	Maintain 60% of the native vegetation cover in the State of Mato Grosso	Proportion of MT area covered by natural vegetation	63.7%	63.5%	63,3%	63%	62.7%	62,3%
		Secondary vegetation area	3.36%	3,58%	3,82%	4,04%	4,04%	-
	Reduce deforestation in the forest by 90% by 2030, 84% by 2024 based on the baseline: 2001-2010 (PRODES) of 5,714 km², reaching 571km²/year	Area of deforested vegetation mapped by Prodes Floresta	1.366 km²	1.313 km²	1.273 km²	1.363 km²	1.781 km²	1.779 km²
		Reduction percentage from baseline	76%	77%	78%	76%	69%	69%
	Reduce deforestation in the cerrado by 95% by 2030, with 83% by 2024 using the baseline of 3,016 km² (SEMA) as a reference, reaching 150 km²/year	Area of deforested vegetation mapped by Prodes Cerrado	1.695 km²	1.165 km²	1.104 km²	988 km²	930 km²	727 km²
		Reduction percentage from baseline	44%	61%	63%	67%	69%	76%
	Eliminate illegal deforestation by 2030	Amazon area deforested without authorization in the state	1.255 km²	1.207 km²	1.105 km²	1.143 km²	1.417 km²	1.543 km²
		Cerrado area deforested without authorization in the state	1.659 km²	1.153 km²	1.068 km²	932 km²	822 km²	619 km²
		% of unauthorized deforestation over the total	95,4%	96,4%	92%	89,5%	87%	89%
	Reduce 30% of hot spots compared to the 2010-2019 reference period (28,300 hot spots) by 2030	Hot Spots	-2%	-4%	9%	-36%	10%	69%
	Eliminate illegal logging by 2030	Percentage of illegal logging/year without	43%	40%	39%	36%	37%	38%
		authorization in the state						
	Preserve 1M ha of area susceptible to legal deforestation	Area subject to legal deforestation preserved	7 Mha	7 Mha	7 Mha	7 Mha	7 Mha	
		Area subject to legal deforestation receiving some economic incentive (in hectares)	-	-	-	-	-	-
	Register 90% of rural properties (CAR) by 2024	Registered CAR area in relation to the registerable area	69%*	80,4%*	28,4%	50,8%	59,8%	72,18%
	Validate 90% of CAR by 2024	Area of CAR validated in relation to registrants	-	-	-	6,98%	6,65%	12,1%
	Regularize 1M ha (100%) of degraded APP by 2030	Degraded Permanent Preservation Area (APPD) with signed TCR	-	-	-	57,93 ha	131,52 ha	1.852,46 ha
	Regularize 5.8M ha (100%) of Legal Reserve, with 1.9 M ha by recomposition, by 2030	Degraded Legal Reserve Area (ARLD) with signed TCR	-	-	-	160,71 ha	258,24 ha	1.048,16 ha

Item	Criteria	Analysis	Check	References																																																																																																								
		<p>Figure 17. Deforestation alerts dynamics between 2019 and 2021 in the Legal Amazon of Mato Grosso state. Unlike Brazil's PRODES system, which provides aggregate annual reports on deforestation totals, DETER provides frequent deforestation alerts to alert authorities. DETER data also helps identify possible deforestation trends. The latest figures suggest that the deforestation rates appear to be falling in 2021, especially compared to months of July – September that were extremely high in 2019. Source: DETER/INPE.</p> <table border="1"><caption>Estimated data for Figure 17: Deforestation alerts dynamics (Notices area in km²)</caption><thead><tr><th>Month</th><th>2015</th><th>2016</th><th>2017</th><th>2018</th><th>2019</th><th>2020</th><th>2021</th></tr></thead><tbody><tr><td>Jan</td><td>10</td><td>15</td><td>20</td><td>70</td><td>80</td><td>120</td><td>40</td></tr><tr><td>Feb</td><td>10</td><td>15</td><td>20</td><td>40</td><td>60</td><td>70</td><td>20</td></tr><tr><td>Mar</td><td>10</td><td>15</td><td>20</td><td>120</td><td>110</td><td>80</td><td>80</td></tr><tr><td>Apr</td><td>10</td><td>15</td><td>20</td><td>210</td><td>130</td><td>140</td><td>110</td></tr><tr><td>May</td><td>10</td><td>15</td><td>20</td><td>180</td><td>270</td><td>180</td><td>160</td></tr><tr><td>Jun</td><td>10</td><td>15</td><td>20</td><td>170</td><td>150</td><td>170</td><td>170</td></tr><tr><td>Jul</td><td>10</td><td>15</td><td>20</td><td>420</td><td>300</td><td>130</td><td>130</td></tr><tr><td>Aug</td><td>10</td><td>15</td><td>20</td><td>220</td><td>170</td><td>100</td><td>100</td></tr><tr><td>Sep</td><td>10</td><td>15</td><td>20</td><td>340</td><td>180</td><td>120</td><td>120</td></tr><tr><td>Oct</td><td>10</td><td>15</td><td>20</td><td>160</td><td>110</td><td>100</td><td>100</td></tr><tr><td>Nov</td><td>10</td><td>15</td><td>20</td><td>110</td><td>110</td><td>90</td><td>90</td></tr><tr><td>Dec</td><td>10</td><td>15</td><td>20</td><td>80</td><td>80</td><td>70</td><td>70</td></tr></tbody></table>	Month	2015	2016	2017	2018	2019	2020	2021	Jan	10	15	20	70	80	120	40	Feb	10	15	20	40	60	70	20	Mar	10	15	20	120	110	80	80	Apr	10	15	20	210	130	140	110	May	10	15	20	180	270	180	160	Jun	10	15	20	170	150	170	170	Jul	10	15	20	420	300	130	130	Aug	10	15	20	220	170	100	100	Sep	10	15	20	340	180	120	120	Oct	10	15	20	160	110	100	100	Nov	10	15	20	110	110	90	90	Dec	10	15	20	80	80	70	70		
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2.2	Ambition	<p>Summary conclusion: The initial ambition announced in 2015, has been updated and reinforced institutionally and legally through Carbone Neutro MT state policy, that in addition to PCI targets for 2030, now includes short-term deforestation targets based on PPCDIF/MT for 2021-2024. The targets continue ambitious, looking to reducing deforestation rates in the Amazon by approximately 53% compared to the baseline (2016-2020), reaching 836 km² by 2024. The state committed to reduce 80% GHG emissions by 2030 and neutralize net emissions by 2035.</p>	OK	[16] <u>Carbone Neutro MT program</u> . State Decree N° 1.160 25/10/2021.																																																																																																								

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		<p><i>Mato Grosso launched the Carbono Neutro MT Program, formalizing it as a State Decree 1.160 on October 25th 2021 [16]. The program aims at elimination of illegal deforestation by 2030 and established short-term (2021-2024) deforestation targets as per 4th edition of the Action Plan to Prevent and Control Deforestation and Forest Fires (PPCDIF/MT). The PPCDIF is a plan to combat deforestation and forest degradation by means of an innovative monitoring system and through enforcing environmental regularization. These short-term targets consider the average deforestation rate for Amazon and Cerrado biomes in the last 5 years (2016-2021). For Amazon biome the baseline is 1,602 km² with a target of 15% annual reduction against this baseline. In historical context (i.e. average of 2001-2010) that means that by 2024, Mato Grosso will reduce its rate by 85%. For Cerrado, the baseline is 983 km² with 28% reduction expected in 2021, followed by annual 10% reduction in the next three years. For the Cerrado, the goal is not to exceed 516 km² of deforested area by the end of the term of the plan.</i></p> <p><i>The PCI Strategy now incorporates the Carbono Neutro MT targets. The updated version passed through 17 changes in the PCI goals, of which six are additions, two deletions, two revisions and seven goal updates. Among the indicators, 16 changes included 10 inclusions and 6 exclusion [4].</i></p>		<p><i>[4] Mato Grosso PCI Strategy Goals Update 2030 Vision. PCI Institute 2021.</i></p>

Item	Criteria	Analysis	Check	References																																														
		<p>Figure 18. Updated version of the PCI targets. Source: Mato Grosso PCI Strategy Goals Update 2030 Vision, 2021.</p> <table><tr><th></th><th>Goal</th><th>Indicator</th><th>Data Source</th></tr><tr><td rowspan="17">CONSERVE</td><td>Maintain 60% of the native vegetation cover in the State of Mato Grosso</td><td>Proportion of MT area covered by natural vegetation</td><td>Mapbiomas</td></tr><tr><td rowspan="3">Reduce deforestation in the forest by 90% by 2030, and 84% by 2024 based on the baseline: 2001-2010 (PRODES) of 5,714 km², reaching 571km²/year</td><td>Secondary vegetation area</td><td>Mapbiomas</td></tr><tr><td>Area of deforested vegetation mapped by Prodes Floresta</td><td rowspan="2">PRODES / INPE</td></tr><tr><td>Reduction percentage from baseline</td></tr><tr><td>Reduce deforestation in the cerrado by 95% by 2030, and with 83% by 2024 as a reference to the baseline of 3,016 km² (SEMA), reaching 150 km²/year</td><td>Area of deforested vegetation mapped by Prodes Cerrado</td><td rowspan="2">PRODES / INPE</td></tr><tr><td>Reduction percentage from baseline</td></tr><tr><td rowspan="3">Eliminate illegal deforestation by 2030 2020</td><td>Amazon area deforested without authorization in the state</td><td rowspan="3">PRODES / INPE, SEMA (análise ICV)</td></tr><tr><td>Cerrado area deforested without authorization in the state</td></tr><tr><td>% of unauthorized deforestation over the total</td></tr><tr><td>Reduce 30% of hot spots compared to the 2010-2019 reference period (28,300 hot spots) by 2030</td><td>Hot Spots</td><td>INPE</td></tr><tr><td>Eliminate illegal logging by 2030</td><td>Percentage of illegal logging/year without authorization in the state</td><td>ICV e SEMA</td></tr><tr><td rowspan="2">Preserve 1M ha of area susceptible to legal deforestation</td><td>Area subject to legal deforestation preserved</td><td>IPAM</td></tr><tr><td>Area subject to legal deforestation receiving some economic incentive (in hectares)</td><td>IPAM (Conserv)</td></tr><tr><td>Register 90% of rural properties (CAR) by 2016 2024</td><td>Registered CAR area in relation to the registerable area</td><td>*SICAR (até 2016) / SIMCAR (2017 a 2019)</td></tr><tr><td>Validate 100% 90% of CAR by 2018 2024</td><td>Area of CAR validated in relation to registries</td><td>SEMA</td></tr><tr><td>Regularize 1M ha (100%) of degraded APP by 2030</td><td>APP area in regeneration Degraded Permanent Preservation Area (APPD) with signed TCR</td><td>SEMA</td></tr><tr><td>Regularize 5.8M ha (100%) of Legal Reserve, with 1.9 M ha by recomposition, by 2030</td><td>RL area in regularization by compensation and by recomposition Degraded Legal Reserve Area (ARLD) with signed TCR</td><td>SEMA</td></tr></table>		Goal	Indicator	Data Source	CONSERVE	Maintain 60% of the native vegetation cover in the State of Mato Grosso	Proportion of MT area covered by natural vegetation	Mapbiomas	Reduce deforestation in the forest by 90% by 2030, and 84% by 2024 based on the baseline: 2001-2010 (PRODES) of 5,714 km², reaching 571km²/year	Secondary vegetation area	Mapbiomas	Area of deforested vegetation mapped by Prodes Floresta	PRODES / INPE	Reduction percentage from baseline	Reduce deforestation in the cerrado by 95% by 2030, and with 83% by 2024 as a reference to the baseline of 3,016 km² (SEMA), reaching 150 km²/year	Area of deforested vegetation mapped by Prodes Cerrado	PRODES / INPE	Reduction percentage from baseline	Eliminate illegal deforestation by 2030 2020	Amazon area deforested without authorization in the state	PRODES / INPE, SEMA (análise ICV)	Cerrado area deforested without authorization in the state	% of unauthorized deforestation over the total	Reduce 30% of hot spots compared to the 2010-2019 reference period (28,300 hot spots) by 2030	Hot Spots	INPE	Eliminate illegal logging by 2030	Percentage of illegal logging/year without authorization in the state	ICV e SEMA	Preserve 1M ha of area susceptible to legal deforestation	Area subject to legal deforestation preserved	IPAM	Area subject to legal deforestation receiving some economic incentive (in hectares)	IPAM (Conserv)	Register 90% of rural properties (CAR) by 2016 2024	Registered CAR area in relation to the registerable area	*SICAR (até 2016) / SIMCAR (2017 a 2019)	Validate 100% 90% of CAR by 2018 2024	Area of CAR validated in relation to registries	SEMA	Regularize 1M ha (100%) of degraded APP by 2030	APP area in regeneration Degraded Permanent Preservation Area (APPD) with signed TCR	SEMA	Regularize 5.8M ha (100%) of Legal Reserve, with 1.9 M ha by recomposition, by 2030	RL area in regularization by compensation and by recomposition Degraded Legal Reserve Area (ARLD) with signed TCR	SEMA		
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		Area subject to legal deforestation receiving some economic incentive (in hectares)	IPAM (Conserv)																																															
	Register 90% of rural properties (CAR) by 2016 2024	Registered CAR area in relation to the registerable area	*SICAR (até 2016) / SIMCAR (2017 a 2019)																																															
	Validate 100% 90% of CAR by 2018 2024	Area of CAR validated in relation to registries	SEMA																																															
	Regularize 1M ha (100%) of degraded APP by 2030	APP area in regeneration Degraded Permanent Preservation Area (APPD) with signed TCR	SEMA																																															
	Regularize 5.8M ha (100%) of Legal Reserve, with 1.9 M ha by recomposition, by 2030	RL area in regularization by compensation and by recomposition Degraded Legal Reserve Area (ARLD) with signed TCR	SEMA																																															

Item	Criteria	Analysis	Check	References								
2.3	... equaling or exceeding national targets	<p><i>Summary conclusion: The Mato Grosso PCI Strategy and the state's Decarbonisation Pathway include targets that fully align with all land use and agricultural components of Brazil's NDC . Through the commitment officialized by Carboneo Neutro MT program, the State will contribute directly to the implementation of the established targets, dedicating its efforts and application of revenues.</i></p> <p><i>Table 4. Mato Grosso's PCI Strategy includes goals that align with all of the land-use components of Brazil's NDC 18. Source: LEAF Application.</i></p> <table><tr><th>Brazilian NDC targets</th><th>Jurisdiction's actions/targets</th></tr><tr><td colspan="2">Land use sector</td></tr><tr><td>Strengthening compliance with the Forest Code at the federal, state and municipal levels.</td><td>Registration of 100% of rural properties and consolidation of analysis and validation processes of the Rural Environmental Registry (CAR). Fostering the adjustment of environmental liabilities by monitoring the regularization after joining the Environmental Regularization Programme (PRA) and approving the Restoration Degraded Areas projects (Pradas).</td></tr><tr><td>Strengthening of policies and measures aiming at achieving, in the Brazilian Amazon, zero illegal deforestation by 2030 and the compensation of greenhouse gas emissions from legal vegetation suppression by 2030</td><td>Implementing the PPCDIF/MT¹⁹ by employing command and control tools through constant monitoring and surveillance, remote inspection, accountability and criminalization of offenders; strengthening the Terra a Limpo Program²⁰ by promoting land title regularization of 70% of rural settlement plots by 2030; expanding technical</td></tr></table>	Brazilian NDC targets	Jurisdiction's actions/targets	Land use sector		Strengthening compliance with the Forest Code at the federal, state and municipal levels.	Registration of 100% of rural properties and consolidation of analysis and validation processes of the Rural Environmental Registry (CAR). Fostering the adjustment of environmental liabilities by monitoring the regularization after joining the Environmental Regularization Programme (PRA) and approving the Restoration Degraded Areas projects (Pradas).	Strengthening of policies and measures aiming at achieving, in the Brazilian Amazon, zero illegal deforestation by 2030 and the compensation of greenhouse gas emissions from legal vegetation suppression by 2030	Implementing the PPCDIF/MT ¹⁹ by employing command and control tools through constant monitoring and surveillance, remote inspection, accountability and criminalization of offenders; strengthening the Terra a Limpo Program ²⁰ by promoting land title regularization of 70% of rural settlement plots by 2030; expanding technical	OK	[17] Mato Grosso submission for LEAF Application.
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¹⁸ The first theme, related to CAR, has an update since publication: The loan has a target of increasing the area of land for which CAR information has been validated by SEMA from 2.9 million hectares (2018) to 20 million hectares by 2021 (cumulative). Source: [Mato Grosso Fiscal Adjustment DPL](#).

²⁰ <http://www.intermat.mt.gov.br/terra-a-limpo>

Item	Criteria	Analysis		Check	References
			assistance and rural extension (ATER) for family agriculture by 100% by 2030; expanding the participation of family agriculture products in the domestic market by 70% by 2030, thereby improving logistics and outflow of production; encouraging the adoption of sectoral strategies and business commitments such as the Novo Campo (New Countryside) Program ²¹ and instruments to monitor the traceability of the production chain.		
		Restoration and reforestation of 12 million ha of forests by 2030, for multiple uses,	Development of a state payment for environmental services programme linked to the goals of restoring 1 million ha of permanent preservation areas (APP) by 2030 and; fostering the forest economy and the economic use of forests in order to reach the goal of regularising 5.8 million ha (1.9 million ha by restoring) of Legal Reserves (LR) by 2030.		
		Expansion of the scale of sustainable management systems of native forests by using georeferencing and traceability systems for the management of native forests, with the aim of discouraging illegal and unsustainable practices	Expansion of the area under sustainable forest management to 6 million ha by 2030, with a view to creating mechanisms for satellite monitoring and timber traceability, fostering production chains that work exclusively with legal timber, as well as encouraging the adoption of forest certification and verification of origin systems.		
		Agriculture and Livestock Sector			

²¹ https://www.icv.org.br/projeto_especial/programa-novo-campo/

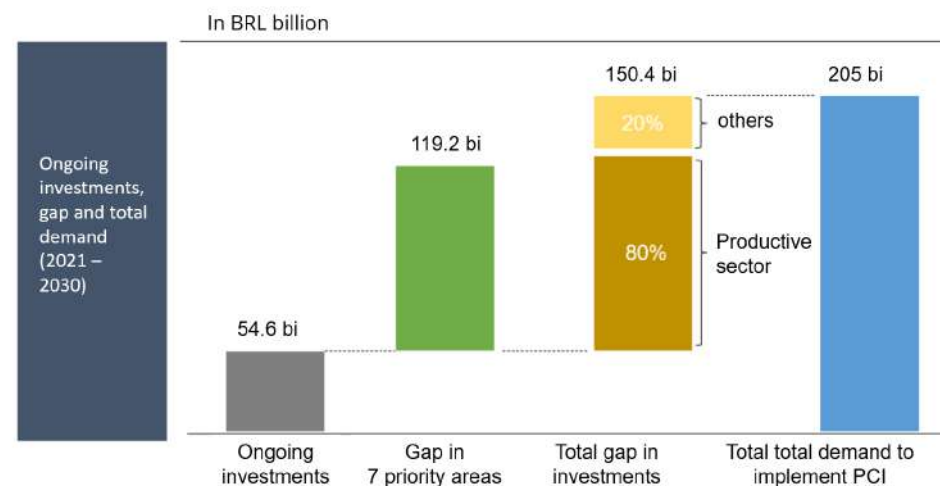
Item	Criteria	Analysis		Check	References
		<p><i>Strengthening the Low Carbon Emission Agriculture Plan (ABC Plan)²² as the main strategy for sustainable development in agriculture, thereby contributing to the additional restoration of 15 million hectares of degraded pastures by 2030 and;</i></p> <p><i>Increasing 5 million hectares of integrated crop-livestock-forest systems (iLPF) by 2030.</i></p>	<p><i>Expanding and increasing the efficiency of agricultural and livestock production through the recovery of 6 million ha of degraded pastures by 2030 (2/5 of the national target), through the intensification of livestock in 2.5Mha, and conversion to agricultural areas in 3 million ha and 0.5 million ha for forest plantations.</i></p> <p><i>Extending the area of integrated systems by 2 million ha by 2030²³, strengthening technical assistance and enabling technology transfer mechanisms, as well as ensuring the offer of compatible economic instruments.</i></p>		
2.4	Feasible Strategy	<p>Summary conclusion: Participatory evaluation of PCI Strategy identified, as the main results of its 5 years operation, its credibility as a state strategy and its continuity regardless of eventual changes in government, in addition to its capability to fundraise (BRL 16.04 billion raised along with REM-MT, World Bank loan, IDH etc.). The successful application to LEAF Coalition allows for implementation of REDD+ mechanisms.</p> <p><i>In 2020, the Board of Directors of the PCI Institute approved a Work Plan, which included a process of participatory evaluation of the Strategy and updating of PCI goals and indicators. The “Participatory Evaluation” process aimed at keeping PCI connected with market trends and projections and with state public policies. In addition, the process incorporated improvements of indicators and data sources for</i></p>		OK	[4] Mato Grosso PCI Strategy Goals Update 2030 Vision. PCI Institute 2021.

²² <https://www.gov.br/agricultura/pt-br/assuntos/sustentabilidade/plano-abc/plano-abc-agricultura-de-baixa-emissao-de-carbono>

²³ [Decarbonization Trajectories](#). State of Mato Grosso, 2021.

Item	Criteria	Analysis	Check	References
		<p><i>the monitoring process while maintaining the engagement of the multiple stakeholders interested in the Strategy. The evaluation process was conducted in the second half of 2020, with the support of ICV institute. According to the participants, the main results obtained in Mato Grosso state that are attributed to the PCI strategy include:</i></p> <ul style="list-style-type: none"> <i>i) Credibility of the PCI Strategy as a state strategy;</i> <i>ii) Positioning of the Mato Grosso as a leader in jurisdictional sustainability;</i> <i>iii) Improved understanding of the policies necessary for the sustainable development of the state;</i> <i>iv) Support for sustainable development in the different regions of the state;</i> <i>v) Building a consensus through goals and target areas;</i> <i>vi) National and international visibility of the State;</i> <i>vii) Attracting external resources to the state (public and private), with emphasis on the REM Program, World Bank and IDH and others;</i> <i>viii) Engagement of companies in the PCI Strategy;</i> <i>ix) Combating illegal deforestation as a priority policy;</i> <i>x) Reducing deforestation illegality;</i> <i>xi) Advances in the structure and validation of the CAR registry;</i> <i>xii) Advancement of the family farming agenda;</i> <i>xiii) Recognition of the need for participatory inclusion of indigenous peoples, traditional communities and family farmers - in the most important strategies of the state;</i> <i>xiv) Continuity of the PCI Strategy regardless of changes in government.</i> <p><i>To estimate the financial feasibility of the strategy in the coming years, PCI Institute with assistance of Tropical Forest Alliance (TFA), REM-MT and International Institute of Sustainability (IIS) analyzed the resources needs to deliver the 2030 targets. The analysis demonstrated a need of BRL 205 billion (139 billion, or 68% of these just for the Conservation part). The available foreseen amount constitutes 54.6 billion (26%):</i></p>		

Figure 19. Total investment demand and gap for PCI Strategy implementation between 2021 and 2030 (BRL billion). Source: PCI Institute, Source: PCI Institute, Policy Brief on Policy Brief on Economic analysis and investment opportunities in frames of PCI Strategy in Mato Grosso, 2021.



One of the great challenges of the Strategy's financial resource mobilization plan PCI is to make all these investments temporally and spatially coherent, to promote the reduction of greenhouse gas emissions and ensure management integrated landscape. In terms of private investments, the internalization of sustainability despite gaining strength in the official banking system, still needs to reach other loan segments. For example, in the case of grains, it can represent around 75% of the loan offer.


The strategy will still need to rely on donations to conserve and sustainably use natural resources and support indigenous peoples, quilombolas and other traditional communities. However, the supported public policies for these contributions must also set ambitious goals for their exit strategies and future financial sustainability as the fiscal environment is not yet favourable. The investment models that use external contributions to develop enabling conditions for favourable market mechanisms, are very important.

Item	Criteria	Analysis	Check	References
		<p>Figure 20. Distribution of required sources per activity and priority area of PCI Strategy. Source: PCI Institute, Policy Brief on Economic analysis and investment opportunities in frames of PCI Strategy in Mato Grosso, 2021.</p> <p>Activity types</p> <ul style="list-style-type: none"> Land Regularization: 3,050 Supply Chain: 4,453 Technical assistance (ATER): 18,023 Loan: 811 Forest Management: 863 Pasture restoration: 15,145 Planned forests: 6,877 Agriculture on pastures: 7,935 Cattle productivity: 8,333 Deforestation reduction: 546 Restoration of APPs: 11,370 Compensation of areas: 15,085 Regularization of Legal Reserve: 31,960 <p>Priorities</p> <ul style="list-style-type: none"> I R\$ 25 bi P R\$ 40 bi C R\$ 139 bi <p>Activities for Priorities:</p> <ul style="list-style-type: none"> CAR <ul style="list-style-type: none"> CAR validation CAR module in SIMCAR Acceleration of PRA process Land Regularization <ul style="list-style-type: none"> Family agriculture Agrarian reform Deforestation <ul style="list-style-type: none"> Conclusion of REDD Readiness and implementation of the next part of result-based payments Conservation Units and Indigenous Lands <ul style="list-style-type: none"> MT PRA Enforcement of extractivism in Conservation Units and Indigenous Territories Family Agriculture <ul style="list-style-type: none"> Use of ATER for family agriculture Distance learning FIES Fund Agriculture and Forest <ul style="list-style-type: none"> Integrated systems of crop-cattle-forest (i.cPF) jurisdictional approach + forest restoration Technologies <ul style="list-style-type: none"> CAR validation CAR module in SIMCAR Acceleration of PRA process <p>Successful application of Mato Grosso for participation in LEAF Coalition as an approved jurisdiction enables future jurisdiction's engagement with private capital for ecosystem services.</p>		

Checklist JEC 3: Progress Update

Mato Grosso, Brazil

Item	Criteria	Analysis	Check	References
3.1	Timely progress towards milestones of the strategy...	<p><i>Summary conclusion: Mato Grosso state has been demonstrating a clear process in implementation of the PCI Strategy. The time-bound goals are monitored according to the publicly disclosed methodology and are being publicly reported on the dedicated web-platform developed by Earth Observation Institute (PCI Monitor), using a dashboard for each indicator. In 2021, PCI Institute conducted a 5-year Participatory Evaluation of the strategy, the results of which along with the balance of performance indicators, are publicly available.</i></p> <p><i>PCI Strategy runs an <u>online monitoring platform</u>, developed by Earth Innovation Institute, supported by IPAM and Instituto Centro de Vida (ICV) as well as by the Monitoring Group composed of 16 public, private and non-governmental institutions. The digital space aims to show the progress toward the goals and ensure the credibility and transparency of the Strategy for stakeholders. The database is be updated annually, allowing an assessment against the 2015 baseline [13].</i></p> <p><i>Besides the dashboard, PCI Strategy publishes a bulleting of Goals' Progress, available online on PCI Monitor.</i></p>	OK	[18] <u>PCI Monitor</u> . Retrieved November 2, 2021.

Item	Criteria	Analysis	Check	References
		<p>Figure 21. PCI Monitor: Dashboard with "Conserve" indicators and goals (it still does not reflect the recently launched updated targets). Source: PCI Monitor</p> 		
3.2	... measurably on a trajectory towards the targets for reduced deforestation	<p>Summary conclusion: PCI Strategy measures the progress of the deforestation-related targets and indicators based on PRODES/INPE and SEMA methodologies, detailed and disclosed on the web-platform PCI Monitor. The datasets used in these methodologies are publicly available both at PCI Monitor (secondary data) and PRODES/INPE, MapBiomas and SEMA websites (primary data).</p> <p>PCI Strategy publicly discloses the Monitoring Criteria along with Technical note on monitoring on the website of ICV, responsible for monitoring consolidation. Each</p>	OK	<p>[2] PRODES/INPE. Retrieved November 2, 2021.</p> <p>[18] PCI Monitor. Retrieved November 2, 2021.</p> <p>[15] Website of Environmental Secretary of Mato Grosso.</p>

Item	Criteria	Analysis	Check	References
		<p><i>“Conserve” target (i.e. related to deforestation/conservation) has a related indicator along with specification of the dataset used and a measurement methodology. The new version of updated indicators continues to rely on publicly available data [16]</i></p> <p><i>The methodology used by the federal system, PRODES, is publicly available on the INPE’s website [4]. In addition to the federal instruments for monitoring deforestation in the Amazonian forest areas), the State of Mato Grosso through the State Environmental Secretariat (SEMA) has a monitoring system and quantification of deforestation in the entire territory of Mato Grosso including forest and non-forest areas. The methodology along with annual reports on deforestation rates used by SEMA, are publicly available on the website of SEMA [15].</i></p>		<p><i>[16] Mato Grosso PCI Strategy Goals Update 2030 Vision.</i></p>
3.3	Verifiable improvement of the enabling environment	<p>Summary conclusion: <i>With successful 5-year implementation of the PCI Strategy, Mato Grosso has integrated it into the recently launched Carbono Neutro MT public policy. The 4th Action Plan for the Control and Prevention of Deforestation and Forest Fires in Mato Grosso state (PPCDIF) with short-term quantitative targets for deforestation also became a part the policy. The State Committee for Combatting Illegal Deforestation, Illegal Logging, and Forest Fire (CEDIF-MT), created in 2020, improves the collaboration between the agencies and secretariats. These institutional improvements along with full deployment of the real-time high resolution satellite monitoring system Planet substantially improved the enabling environment of the Strategy.</i></p> <p><i>Mato Grosso has recently developed the Decarbonization Pathways which sets emission reduction targets and priority actions to achieve them [15]. The Pathways are the basis of the recently launched state policy Carbono Neutro MT, with expected detailed action plan for the priority actions (including the PCI strategy) to be published by the end of Q1 2022. The state is currently completing the review of the 4th Phase of the PPCDIF, which will guide actions to control and combat deforestation and forest fires by 2024.</i></p>	OK	<p><i>[15] Decarbonization Pathways Mato Grosso. SEMA, 2021. English summary available at TheClimateGroup.</i></p> <p><i>[16] Carbono Neutro MT program. State Decree N° 1.160 25/10/2021.</i></p> <p><i>[19] Amazon deforestation declines by one third in Mato Grosso state. March 2021.</i></p>

Item	Criteria	Analysis	Check	References
		<p><i>These action plans, in combination the Planet platform for real-time deforestation monitoring, fully deployed by SEMA and with a public version available since 2021, are expected to have an important positive environmental impact on forest protection.</i></p> <p><i>The jurisdiction conducted a detailed analysis of resources needed to deliver the targets, identified the priorities and gaps, to enable the effective fundraising. Recent approval by LEAF Coalition will provide access to REDD-related international finance.</i></p> <p><i>The participative evaluation of the PCI strategy confirmed that its five-year operation delivered important milestones such as credibility, building a consensus through goals and target areas, engagement of companies and continuity of the PCI Strategy regardless of changes in government (see 2.4).</i></p> <p><i>To improve efficiency of collaboration of different actors involved in deforestation and fires combat, Mato Grosso created the State Committee for Combatting Illegal Deforestation, Illegal Logging, and Forest Fire (CEDIF-MT) in March of 2020. The committee brings together official agencies including civil and military police, fire brigades and the Environment and Security secretariats. Drawing on alerts from high resolution planet data, the state is able to more effectively plan and mobilize resources to protect forests [19].</i></p>		

Checklist JEC 4: Monitoring, Reporting and Verification (MRV) Update Mato Grosso State, Brazil

Item	Criteria	Analysis	Check	References
4.1	Transparent system operational	<p><i>Summary conclusion: The annual deforestation rates in Mato Grosso are monitored at the federal level with data publicly available at PRODES/INPE for Amazon and Cerrado biomes. Mato Grosso's Secretary of Environment annually publishes summary reports on deforestation within the state. Besides, PCI Monitor tracks progress toward PCI targets.</i></p> <p><i>On the national level, the official data is provided by PRODES/INPE, with both the methodology and data publicly available. The same is true for SEMA methodology and reporting (see JEC 2.1 for details).</i></p> <p><i>The National REDD + Strategy through the resolutions of CONAREDD + (National Commission for REDD +) on "Payment for REDD + Results", defined that the process of verification of emission reductions takes place on the federal level (Ministry of Environment). The accounting control of the payments by results is ensured through InfoHub Brasil [20], which records the emission reductions, at the national level, and integrates the subnational efforts based on the legislation and regulation established by the National Policy on Climate Change (Law 12.187/2009) and CONAREDD resolutions.</i></p> <p><i>With the creation of the National REDD+ Strategy (ENREDD+) and the National REDD+ Commission in 2015, the State is integrated into the national REDD+ policy. Federal Decree No. 10,144 of 2019 , Article 2, regulates the payment for REDD+ results in recognition of measured, reported and verified emission reductions from policies, programs, projects and actions undertaken at multiple scales. According to the aforementioned Decree, Article 3, CONAREDD+ defines guidelines, through resolutions on eligibility, allocation of emission reductions, raising and use of resources from payments for results.</i></p>	OK	[20] InfoHub Brasil . MMA.

Item	Criteria	Analysis	Check	References
4.2	Progress towards implementation of the MRV system	<p>Summary conclusion: Mato Grosso has been recently approved as eligible for purchase agreement discussions with LEAF Coalition participants. The State is willing to use the ART TREES registry to ensure traceability to verified emission reduction units (VERs), while informing, in parallel, the federal government of the use of reductions for its corresponding reporting via InfoHub Brasil, keeping a mirror of the registry of all uses of emission reductions in both systems.</p> <p>In order to ensure the comprehensiveness and effectiveness of the State Climate Change Policy, in line with the State REDD + Policy and in frames of the REM-MT Program, Mato Grosso will implement the State REDD+ Accountability System, with the objective to avoid double carbon emission counting as well as evaluate the performance of the Subprograms in their respective areas of coverage.</p> <p>The state makes use of the national instruments for calculating national and state emissions reductions (FREL) nationwide, which allows for the structuring and definition of a sound methodology and integration of national accounting. This system is used for the purposes of payment by results of the REM MT Programme.</p> <p>Under the State REDD+ System, the Law that established it, in Article. 12, defines among the instruments of the system:</p> <ul style="list-style-type: none"> • Registering REDD+ Projects and Actions; • REDD+ State Accounting; • REDD+ State Registry and • REDD+ State System Reserve; <p>With new demand opportunities on jurisdictional claims, to avoid double counting whether these are: i) Double Issuance, ii) Double Use and iii) Double Claims, mitigation measures will be designed in addition to the implementation of the SisREDD+ instruments mentioned above.</p>	OK	<p>[17] Mato Grosso submission for LEAF Application.</p> <p>[20] InfoHub Brasil. MMA.</p>

Item	Criteria	Analysis	Check	References
		<p><i>The accounting system will consider the following potential uses for corresponding deductions in the calculation of the total volume of emission reductions to be issued:</i></p> <ul style="list-style-type: none"> <i>• by the state government to meet the NDC targets;</i> <i>• by the state government for results-based payments;</i> <i>• by the state government or for jurisdictional compensation for the voluntary market, by means of a public-private company,</i> <i>• by private REDD+ projects;</i> <i>• as a buffer to cover potential own contributions;</i> <i>• as a buffer to cover the integration of private projects and any data inconsistency or leaks.</i> 		

Checklist JEC 5: Social and environmental safeguards Update

Mato Grosso, Brazil

Item	Criteria	Analysis	Check	References
5.1	Safeguards against social and environmental risks associated with the strategy in place	<p>Summary conclusion: The jurisdiction satisfies the ART/TREES requirements for REDD+ safeguards. This was a conclusion of the task force established under the Mato Grosso Forum on Climate Change (FMMC) who analyzed the assessments carried out by experts at request of the Earth Innovation Institute (EII) and the United Nations Development Programme (UNDP).</p> <p>In 2018, Brazil submitted to the UNFCCC its 2nd Safeguards Summary [21]. This document presents information on the implementation of REDD+ safeguards in Brazil throughout the deployment of initiatives to reduce emissions from deforestation in the Amazon biome, aligned with REDD+ Technical Annex to the Second Brazilian Biennial Update Report (BUR), submitted to the UNFCCC in March 2017. It lays out information about the national circumstances, describes each safeguard in the Brazilian context, as well as the relevant systems and processes to implement the safeguards and the safeguards information system. The dedicated portal aims at sharing the detailed information on the implementation of Cancun safeguards in Brazil and the full development of its system.</p> <p>REDD+ safeguards in Mato Grosso are implemented as per State's Climate Change Policy and REDD+ System (SISREDD/MT). SEMA is responsible for operation and monitoring of the safeguards under REM/MT's coordination. The participation of other instances, such as the REDD+ Steering Committee, the Indigenous Governance of the REM/MT Programme and the safeguards, is always in line with the National REDD+ Strategy (ENREDD+) and the National REDD+ Commission (CONAREDD) resolutions.</p>	OK	<p>[17] Mato Grosso submission for LEAF Application.</p> <p>[21] <u>Second summary of information on how the Cancun Safeguards were addressed and respected by Brazil throughout the implementation of actions to reduce emissions from deforestation in the Amazon biome.</u> MMA, 2018.</p>
5.2	Progress	<p>Summary conclusion: In 2018, Brazil submitted to the UNFCCC the <u>2nd Safeguards Summary</u> containing the analysis of the relevant actions, instruments and policies to the application of safeguards in the Brazilian context from 2011 on.</p>	OK	<p>[21] <u>Second summary of information on how the Cancun Safeguards were</u></p>

Item	Criteria	Analysis	Check	References
		<p><i>On the state level, with the successful submission of application to LEAF Coalition, Mato Grosso is committed for the next steps:</i></p> <ul style="list-style-type: none"> <i>• The first REDD+ socio-environmental safeguards monitoring report through a specialized consultancy (2021);</i> <i>• The implementation of a REM Programme-specific communication strategy to improve access to REDD+ information with active participation of beneficiaries in information dissemination (2021);</i> <i>• The implementation of the Socio-environmental Risk Management System for REDD+ programmes (2022);</i> <i>• The structuring of a participation process for traditional populations and communities that can ensure better participation in governance instances (2022).</i> 		<p><i><u>addressed and respected by Brazil throughout the implementation of actions to reduce emissions from deforestation in the Amazon biome.</u> MMA, 2018.</i></p> <p><i>[17] Mato Grosso submission for LEAF Application.</i></p>

