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# Cerrado: The Brazilian savanna's contribution to GHG emissions and to climate solutions

## To prevent a 3.2 $GtCO_2e$ emission from the second largest biome in South America, politics, market and society must act.

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Cerrado is a savanna-like biome which plays an important role in Brazil's GHG emissions profile: because of its large area, and the increasing tendency in agricultural expansion associated with the low levels of protected areas, it is the second largest source of GHG emissions in Brazil's land-use change sector, outranked only by the Amazon. It is important to increase the level of legal protection, to promote incentives for sustainable agriculture, to ensure traditional people's rights, and to include the biome in Brazil's official NDC goals in order to cut Cerrado's GHG emission.

## 1. WHAT IS THE CERRADO?

Cerrado is the second largest biome in South America, after the Amazon, with 2 million $km^2$, bearing critical importance for climate regulation, biodiversity preservation, hydrological balance and agricultural production. This tropical savanna stocks 9 GtC in its primary vegetation[1], hosts 4,200 endemic species[2], is the birthplace of two-thirds of Brazil's hydrographic regions[3] and is responsible for 12% of the global soybeans production[4]. The biome also shelters more than 221 thousands $km^2$ of communal lands - including indigenous peoples, quilombolas areas (Afro-Brazilian settlements) and traditional communities - which are critical for conserving native vegetation and maintaining carbon stocks[5]. Thus, Cerrado bears a fundamental importance for environmental conservation, sociocultural diversity, economic growth and international food security.

## 2. WHAT IS BUSINESS AS USUAL IN CERRADO?

Cerrado has a particular importance for the climate change debate due to its land-use change dynamics. Around 45% of Cerrado's original area has become mostly pasture and croplands[6]. Its present conversion rates have still been ranging at about 10,000 $km^2$ per year in the last seven years[7]. This is higher than the deforestation rate happening in the Amazon in the same period - a biome two times larger than the Cerrado[8].

Between 1990 and 2017, Cerrado was responsible for an aggregated gross emission of 7 $GtCO_2e$ from land-use changes[9]. Taking 2017 alone, Cerrado was responsible for 159 $MtCO_2e$ in land-use change emissions, accounting for 17% of Brazil's emissions in the land-use sector in that year[10,11] – in comparison, land-use change in the Amazon has accounted for 530 $MtCO_2e$, or 56%, in the same year.

Furthermore, the remaining native vegetation areas are not satisfactorily protected. In addition to these already cleared lands, the Brazilian law that regulates the use of native vegetation in private lands, the Forest Code, allows for another 325 thousand $km^2$ of legal deforestation and native vegetation clearing in Cerrado. That could lead to an extra 3.2 $GtCO_2e$ emissions to the atmosphere, officially allowed by the Brazilian environmental legislation[12].

Also, there are 25.6 thousand $km^2$ of undesignated public areas in this biome, which bear no clear land tenure definition and can be easily targeted by irregular conversion of native vegetation and land grabbers[13]. This process tends to occur very rapidly, as an area this large was deforested just in the last three years[7]. That could lead to more 0.2 $GtCO_2e$ emissions. Another problem is the lack of public areas under full protection to conserve natural habitats - only 7.7% of Cerrado's territory, and many traditional and local communities' territories, which contribute to conserving native vegetation and preventing further emissions, are not officially recognized yet.

Finally, there is no multi-sectorial agreement in place to promote zero deforestation private commitments and sustainability in the commodities supply-chains in the biome - as there is, for example, in the Amazon, with the Soy Moratorium and an agreement for cattle ranching with the Public Prosecutor's Office.

*Cerrado and the Brazilian NDC*

As part of the Climate Change National Plan, Brazil has

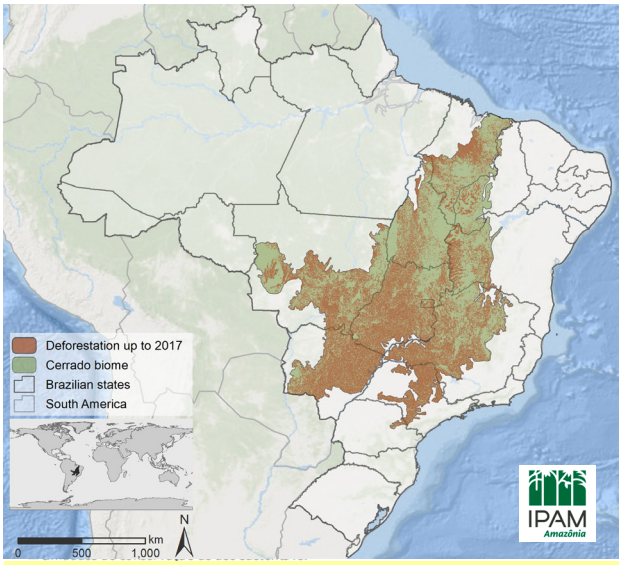


Figure 1: Map of the Cerrado biome and native vegetation remnants. Source: IPAM

established a voluntary goal to curb Cerrado deforestation in 40% until 2020 in comparison to 1999 to 2008 average rate[14] – according to the official data, it amounts to 15,700 km², setting the goal as 9,420 km²/year, a target which has already been reached. Yet, the official historical data may be overestimated. According to MapBiomas, an independent land-use monitoring project, between 1999 and 2008, Cerrado deforestation rate averages 6,581 km², which would set the goal as a 3,948 km² year rate[15].

## 3. HOW CAN WE CHANGE THAT?

According to the IPCC Special Report[16], in all the scenarios global society will need to zero emissions from the agriculture, forestry and other land use sector (AFOLU), and also capture carbon from the atmosphere through carbon dioxide removal (CDR) initiatives, which encompass substantial afforestation efforts.

In this sense, preventing further conversion of Cerrado's native vegetation and its associated GHG emissions is crucial for mitigating climate change. Governments, private sector, financial institutions, domestic producers, international consumers and civil society should come together to foster the following measures:

- Include a specific goal for eliminating conversion of native vegetation in the Cerrado biome in the revision of Brazil's NDC;
- Invest in restoring Cerrado's original areas, to contribute to the NDC's 12-million hectares restoration goal and increase the biome's carbon stocks;
- Maintain the official deforestation monitoring program in Cerrado with regularity;
- Review the Brazilian plan to curb deforestation in Cerrado, in order to set new and more ambitious goals in accordance of the newest data and methodologies;
- Develop and implement market-based mechanisms to remunerate land owners who conserve native vegetation beyond the Forest Code requirements;
- Strengthen the recognition of traditional and local peoples rights to foster native vegetation conservation through sustainable uses; and
- Enhance public areas under full protection through the designation of undesignated public lands considering positive conservation outcomes.

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