

The Cerrado Initiative

1 WHAT'S AT STAKE?

Known for its rich biodiversity, Brazil's Cerrado biome is currently undergoing one of the planet's most rapid human-use transformations. The natural ecosystems are being cleared to create pasture and agricultural lands. According to recent estimates, 45.4% of the Cerrado has already been deforested to make way for agricultural activity. Yet, this agricultural production is of tremendous economic importance to Brazil and the rest of the world.

Land use refers to the human activities such as deforestation or crop and pastureland plantation that lead to the modification of the biophysical properties of ecosystems. Even though clearing the Cerrado has increased agricultural production, it has also degraded the Cerrado ecosystem services that support agricultural production. This degradation jeopardizes food production, bioenergy, the integrity of habitats and biodiversity, climate and water regulation, and carbon stocks.

Only an innovative approach – one that takes into account the economic benefits of agricultural production as well as its effects on ecosystems, while considering the variety of perspectives of those concerned – can bring sustainable solutions to the Cerrado as a whole.

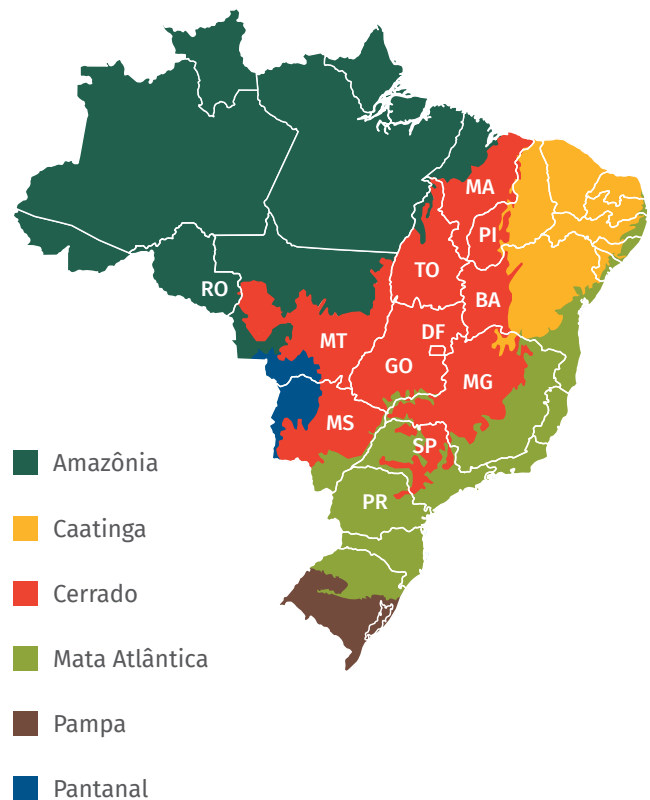


Figure 1. The Cerrado biome in Brazil.

Source: adapted from the Brazilian Forest Service, *Biomes and Their Forests*. www.florestal.gov.br/snif/recursos-florestais/os-biomas-e-suas-florestas. 2018.

2 BUILDING A MUTUAL SOLUTION

The Cerrado Initiative emerged from the desire for an unprecedented dialogue among the primary parties involved in the Cerrado: the business sector, foundations, public policy makers, researchers, rural farmers, and civil society. Our goal is to find concrete solutions to ensure that economic growth and environmental conservation are both taken into account during investment decisions for land-use planning.

This is a joint project between the University of Brasilia (UnB) and Climate Policy Initiative (CPI-Rio), bringing together solid scientific knowledge with the

experience of those who face the challenges of this biome on a daily basis.

Now is an opportune moment for discussions about ecosystem services. Environmental legislation is beginning to gain traction in Brazil with the Forest Code and in the world with the UN's declaration of the "Decade on Ecosystem Restoration" from 2021-2030. At the same time, the business sector is becoming more engaged in climate change and low-carbon agriculture as they recognize what's at stake for their livelihoods.

Instead of simply pointing out problems, the Cerrado Initiative seeks to build mutual solutions among the Cerrado's stakeholders that optimize existing public policy. We focused on putting data to practical use, analyzing changes to the ecosystems, and identifying opportunities for land use.

3 ECOSYSTEM SERVICES: AN EMERGING AGENDA

It has already been proven that the thoughtfully managed use of agricultural lands, with an increase in technology and productivity, can have a favorable impact on environmental conservation.

Several countries have successfully implemented long-term economic and environmental strategies

for their ecosystem services. In China, for example, environmental issues such as pollution and deforestation were handled efficiently by a massive program that prioritized those services. By means of appropriate policy, the country has managed to ensure uninterrupted economic growth.

In the last twenty years, agricultural expansion in the Cerrado – in the states of Maranhão, Tocantins, Piauí, and Bahia (known by their acronym, Matopiba) – has become especially important for soy, corn, and cotton

farming. A partnership between Conservation International and the Brazilian Foundation for Sustainable Development has resulted in the creation of a program to prevent deforestation in the chain of soy production.

4 A WIN-WIN MODEL

The Cerrado Initiative's vision is that land use solutions must be reached by all parties, based on an assessment of risks and opportunities. To achieve the economic benefits of short-term production, the minimization of negative long-term effects to the ecosystems must be addressed.

Land use planning does not have to lead to choices that pit the need for agricultural productivity against the protection of ecosystem functions. Agricultural production can be increased, raising harvests and export sales, without causing environmental degradation.

The Cerrado Initiative seeks to support effective decision-making about what parameters and limits should be considered when making investment decisions.

In the land use decision-making process, communities should balance their assessment of the immediate advantages of transforming the Cerrado's natural habitats with the possibility of losses to ecosystem services.

To carry out such an analysis, the Cerrado Initiative helps combine a deep scientific understanding of ecosystems with effective communication and collaboration among stakeholders.

5 WATER AND FIRE: WHEN CONSERVATION AFFECTS PRODUCTION

Water and fire management present two more critical issues for collaboration in the Cerrado. Everyone agrees that good-quality water is critical to food production and bioenergy in Brazil. Scientific studies have shown that changes in land use can have an effect on

hydrology as well as on wildlife and the soil. When land is used for monoculture farming of crops, such as soy, cotton, corn, and eucalyptus, the effects are reduction in interception and infiltration rates of water into the soil.

But who better to understand the consequences of ecological changes in the Cerrado than the rural farmer? Lack of water has direct consequences on production. In the case of soy, an excessive reduction in natural vegetation removes water from the biome, leading to higher air temperatures and posing a threat to entire crops.

Fire is another challenging issue in the Cerrado where it plays an important role for rural farmers and

indigenous people. The misuse of techniques involving excessive controlled burns can cause undesirable changes to the vegetation and ecosystems, as well as a dramatic increase in production costs. However, not all methods that make use of fire are necessarily bad for the environment. The effectiveness of burning a particular plot of vegetation depends on several factors, including climatic conditions at the time of the burn. This is why rural farmers and indigenous people must be part of creating solutions in the Cerrado.

6 LEADING THE WAY

It is time for Brazil to launch a focused and serious conversation on the importance of ecosystem services in the Cerrado. The country has everything

at its disposal to lead the world on this issue. Growth in agricultural production and advances in ecological conservation can occur together.

*The **Cerrado Initiative** aims to increase awareness about ecosystem services and incorporate them into decision-making on public and private land use. The project is a partnership between the Department of Ecology of the University of Brasilia (UnB) and Climate Policy Initiative (CPI/PUC-Rio) and is supported by Children's Investment Fund Foundation (CIFF).*