Preventing, controlling and monitoring fires in the Cerrado (BMU)

Project description

Title: Prevention, control and monitoring of bushfires in the Cerrado
Commissioned by: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)
Country: Brazil
Lead executing agency: Ministério do Meio Ambiente (MMA)
Overall term: 2011 to 2017

Context

With 12,000 native plant and animal species, the Cerrado is considered the biologically richest savannah region in the world. It is of great socio-economic importance to the local inhabitants, including many indigenous and traditional population groups. Covering an area of more than two million square kilometres, it is almost six times the size of Germany, and it is the source region of the three largest river basins in South America.

The Cerrado is exposed to enormous pressure from agriculture and livestock farming. Around half its area was being actively used in 2013; annual deforestation rates are higher than in the Amazon region. The Cerrado accounted for about 60 per cent of Brazil's land-use-related CO2 emissions in 2012.

Particularly in conservation areas – which cover approximately 8 per cent of the Cerrado –large-scale and destructive vegetation fires occur regularly, seriously threatening biodiversity and structural diversity and resulting in significant greenhouse gas emissions (GHG).

Objective

Improved fire management and new monitoring systems for fires and deforestation help to maintain the Cerrado as a global carbon reservoir and to preserve biodiversity.

Approach

GIZ supports the Brazilian Ministry of the Environment with achieving this objective. The measures are part of the national climate change plan and interministerial action plan on preventing and controlling deforestation and fires in the Cerrado. Other partners include the national environmental and conservation authorities and the National Institute for Space Research (INPE), as well as the secretariat for the environment, the nature conservation authority and the rural extension services of the state of Tocantins. The project is implemented in cooperation with the KfW Development Bank and with support from the German consulting firm AMBERO.

Cooperation focuses on the following areas:

- **Integrated fire management**
  Training courses for partners on planning and implementing controlled fires, the use of specially developed technologies for burned area ann fuel load mapping, development of fire-free alternatives for agriculture, and decentralisation of the licensing system for controlled fires.
- **Participatory conservation area management**
  Measures to promote effective management of conservation areas and participatory planning processes involving local residents geared to controlled fire application for Natural Resource Management
- **Accompanying research and development of monitoring instruments**
  Support to the development and improvement of satellite-based systems to monitor active fires and burned area as well as deforestation and estimated greenhouse gas emissions resulting from vegetation fires. The impact of vegetation fires on biodiversity and the potential for climate change mitigation in the Cerrado are scientifically analysed.
- **Knowledge management and the sharing of lessons learned**
  Systematising of tried-and-tested instruments and approaches for integrated fire management and

lessons learned from the project. They serve as a basis for policy design and nationwide institutionalisation of integrated fire management.

Results

There has been a paradigm shift and transformative change in the approach to fire management, which has entailed abandoning the “Zero fire” policy in favour of one that uses controlled fires at the end of the rainy season. This approach is reducing the number of destructive large fires in the late dry season, thereby improving biodiversity and reducing greenhouse gas emissions.

The intelligent planning of controlled fires is resulting in a mosaic-like habitat structure with various fire regimes, since fires occur in the different areas with varying degrees of regularity and intensity. This is giving rise to diverse landscapes and ecosystems with habitats for the individual plant and animal species.

Participatory management of the conservation areas involving indigenous and traditional communities and application of the integrated fire management approach are reducing conflicts of interest between conservation and land use.

Stakeholders are using automated burned area mapping and newly developed fire risk maps, available in the form of a mobile app. These are improving planning and implementation of controlled fires and management strategies for fire prevention and operations.

A Cerrado REDD baseline map was developed to help with implementing Brazil’s REDD+ policy.

A cooperation agreement between Brazil’s National Institute for Space Research (INPE) and the German Aerospace Center (DLR) is facilitating technology transfer of satellite technology in the field of fire and vegetation monitoringbetween the partner countries.