

## INTRODUCTION

The first uranium mine in Brazil (Fig. 1) is located in Caldas, Minas Gerais, at the Caldas Decommissioning Unit (UDC), a unit of *Indústrias Nucleares do Brasil* (INB) (Fig. 2). The installation of the unit took place around 1977, and productive activities began in 1982 and ceased at the end of 1995. Currently, the UDC is in the stage of mitigating environmental impacts and recovering degraded areas for subsequent availability for other uses by society.



Fig 1. First Brazilian uranium open-pit mine.

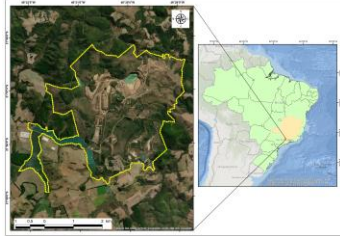


Fig 2. Location of the Decommissioning Unit in Caldas, Brazil.

While there isn't a fully consolidated decommissioning program at the UDC, several actions are being implemented. These actions are aimed at better characterizing the site and finding solutions for closure, decommissioning and mitigation of environmental impacts. Challenges related to the decommissioning of the UDC, especially in terms of stakeholder engagement, remain significant.

This work aims to present the actions that the UDC has taken to foster closer relationships with various stakeholders.

## GAPS AND WEAKNESSES IN STAKEHOLDER ENGAGEMENT

**LICENSING:** The installation and operation of the unit occurred before the establishment of a robust environmental regulatory framework. Subsequent difficulties in regularization have arisen due to the evolution of environmental and nuclear regulatory frameworks. The lack of licensing from the Brazilian environmental regulatory body - Brazilian Institute for the Environment and Renewable Natural Resources (Ibama), and the nuclear regulatory body - National Nuclear Energy Commission (CNEN), has resulted in gaps and weaknesses, hampering the strengthening of stakeholder relationships.

**SOCIO-ENVIRONMENTAL DIAGNOSIS:** The lack of a socio-environmental diagnosis hinders effective communication and the implementation of social actions that could foster closer relationships with stakeholders. The general public lacks access to information of significant social interest, such as environmental and radiological monitoring, radiological protection, dam safety, and radioactive waste storage. This deficit in information compromises public acceptance of decommissioning actions.

## ENGAGEMENT ACTIONS WITH STAKEHOLDERS

Key measures have been undertaken to enhance stakeholder engagement concerning the decommissioning of the facility:

- Regularizing licensing with regulatory bodies;
- Providing information about planned decommissioning actions;
- Implementing environmental programs focused on education and communication with society;
- Developing strategic plans for stakeholder relations.

## REGULARIZATION OF THE LICENSE

Since 1998, INB has engaged with regulatory bodies to define the process for obtaining environmental and nuclear licenses for the installation. Various institutional communications have taken place since then, some of which are noteworthy.

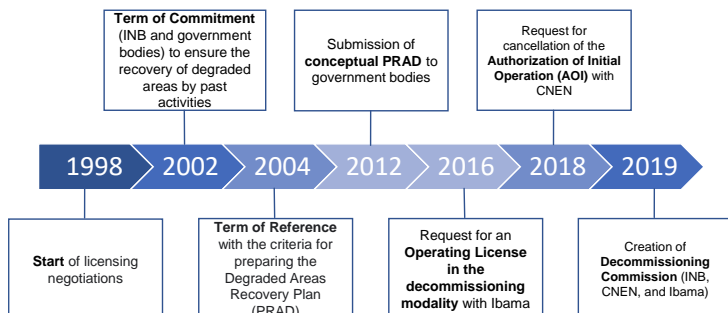


Fig 3. Stages of the licensing process over the years.

Indeed, there is a lengthy process for the regularization of licensing; therefore, the role of the Decommissioning Commission, established in 2019, is decision-making in a participatory manner, taking into account a gradual approach, aiming to comprehend the impacts of the regulatory process on the decommissioning planning.

## PLANNING OF ACTIONS FOR THE CURRENT DECOMMISSIONING PHASE

Actions planned and executed in the current decommissioning phase are outlined in two plans with the following focuses:

- 1st: Regularization of unit safety, involving environmental and nuclear management actions, development of environmental and nuclear plans and programs, and maintenance and improvement of structures to control environmental liabilities.
- 2º: Preliminary actions necessary for developing the Abandonment Plan (nuclear regulation) and the Environmental Plan for Decommissioning (environmental regulation).

These plans are annually reviewed and shared with government agencies and civil society representatives. Progress on these planned actions is reported semiannually to these oversight bodies.

## ENVIRONMENTAL EDUCATION AND SOCIAL COMMUNICATION PROGRAM

The Environmental Education Program (EEP) and the Social Communication Program (SCP) aim to:

**EEP:** Foster an open and dialogic relationship between the UDC and its stakeholders through environmental education activities. The EEP includes projects directed at the internal and external public, the following stand out:

- Visit to the UDC facilities;
- Teacher training on nuclear topics and decommissioning actions;
- Management of recyclable waste from the local community;
- Reforestation on rural properties in the area of influence.

**SCP:** Establish actions that enable the dissemination of knowledge about INB's activities, improving the perception that stakeholders have on the company. This ensures that both the decommissioning of the unit and its potential impacts are understood and collaboratively managed.



Fig 4. Student visit to the UDC facilities.



Fig 5. Planting seedlings with workers.



Fig 6. Visit to seedlings production.



Fig 7. Visit of government bodies representatives to the UDC facilities.

## STRATEGIC PLAN FOR RELATIONSHIP WITH STAKEHOLDERS

The Strategic Plan for Relationships with Stakeholders, established in 2023, aspires to incorporate effective measures to implement guidelines for obtaining social legitimization of the UDC and INB by stakeholders. This approach begins with strategies that empower the organization to take the lead in communication and relationship-building with stakeholders. The plan aims to dispel misconceptions about the company.

## CONCLUSION

Through these actions, heightened awareness and understanding of nuclear matters among the public, increased involvement of regulatory bodies in installation licensing, greater support from governmental agencies, and enhanced engagement with various stakeholders are expected. This integration will involve stakeholders in decision-making processes related to decommissioning actions.