

CAMPO DE JURUÁ

Dossiê sobre a exploração de gás natural na bacia
do Médio Juruá



Realização



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1. INTRODUCTION

Efforts to identify fossil fuel reserves in Amazonian ecosystems are not new. In the Brazilian Amazon, the first initiatives date back to the beginning of the last century, but the lack of significant and immediate results was enough at the time to suspend the search¹.

A new cycle, this time characterized by a more extensive internalization of prospecting activities, began in the 1970s, as part of the Amazon colonization project implemented during the military regime. The advancement of telecommunication systems and the acquisition of new equipment allowed access to remote regions, which had previously only been possible by river².

In 1978, drilling carried out by Petrobrás near the Juruá River, in the Solimões Basin, led to the location of a series of natural gas fields in the region, including the *Juruá Field*, located between the municipalities of Carauari and Tefé, both in Amazonas. This discovery officially proved the accumulation of exploitable hydrocarbon reserves in the middle of the Brazilian Amazon rainforest¹.

Subsequently, seismographic surveys in Coari/AM determined the discovery of oil and gas fields in Urucu, whose characteristics for hydrocarbon exploration soon proved to be more favorable than those found in the Juruá region, both in terms of the areas of occurrence and the size of the reservoirs and in terms of the fluids discovered².

During this period, hydrocarbon exploration in Carauari was considered economically unviable basically due to three aspects: (i) the size of the volumes discovered², (ii) the dispersion of the fields and (iii) the considerable distance from the potential consumer markets¹.

The withdrawal of Petrobrás and the contractors hired by the state-owned company to obtain data on the underground structure of the gas and oil fields had a major social cost: the Carauari region was gripped by a deep economic crisis. In the words of João Derickx, in his book *No Coração da Amazônia: Juruá, o rio que chorar*, "it is sad to see

1 https://inis.iaea.org/collection/NCLCollectionStore/_Public/25/061/25061780.pdf

2 <https://acervo.socioambiental.org/sites/default/files/documents/Q2D00002.pdf>

that, after rubber, black gold, another of the country's economic riches, will marginalize the people of Jurua" (p. 34)³.

The presence of Petrobrás in Carauari created great expectations, causing an unprecedented flow of migrants to the municipality's headquarters, due to the arrival of residents from other municipalities and the emptying of the interior. With the departure of the state-owned company, Carauarians suffered from the loss of their jobs, the disorderly expansion of the city and an increase in prostitution and violence. To contain the chaos, part of the workforce was absorbed by the municipal government³.

On the other hand, over the last 30 years, local social organizations have taken the lead in strengthening one of the most successful production chains in the Amazon: the sustainable management of fish, especially pirarucu, carried out by riverside and indigenous communities, which was only possible because of the community's commitment to protecting water resources and dealing with local conflicts, allowing not only the re-establishment of species that were on the verge of extinction, but also the maintenance of ecosystem services and food security for those who live in the region⁴.

Like the disasters that occurred in Ecuador and Peru, the resumption of oil and gas projects in the Médio Juruá could compromise water resources by altering waterway dynamics, silting up and contaminating water sources.

In a context of profound regulatory changes that facilitate the exploitation of hydrocarbons in the Amazon, the Juruá field was auctioned off under the standing offer model by the National Agency of Petroleum, Natural Gas and Biofuels - ANP, and in 2020 it was acquired by Eneva. The company has been gaining ground in the oil and gas generation, exploration and production sectors, becoming the largest private natural gas operator in Brazil, with activities concentrated in onshore sedimentary basins, with concessions in Maranhão and Amazonas.

Faced with this new context of gas and oil exploration on Amazonian soil, this report aims to present the state of the art of the resumption of this exploratory activity in the Amazon, using Eneva's natural gas exploration in Carauari (AM - Middle Juruá Basin) as a motto. The report presents legal strategies

³ DERICKX, João. **In the heart of the Amazon: Juruá o rio que chorar**. Vozes, 1993.

⁴ <https://www.mamiraua.org.br/documentos/4163f5aaff5d05e1a9e1804bb5e06307.pdf>

institutional strategies linked to the resumption of *onshore* oil and gas exploration and the violations that this accelerated resumption process can generate for the impacted communities.

The document is divided into four parts. First, historical information about the Médio Juruá and the first attempts to prospect for and extract oil and natural gas in the region will be covered, including the social, environmental and economic repercussions brought about by the venture. Secondly, recent legislative initiatives, public policies and programs to promote oil and natural gas exploration in the Brazilian Amazon will be highlighted. Thirdly, the main impacts (physical, biological, social and economic) caused by oil and natural gas prospecting and exploration will be pointed out, based on experiences both in the Médio Juruá and in other parts of the Amazon, emphasizing the peculiar vulnerability of these ecosystems and the direct and indirect future impacts of the development of these activities on human and non-human populations.

Finally, recommendations will be made for improving transparency and adapting the concession process to defend the territories and interests of indigenous peoples and traditional communities.

2. METHODOLOGICAL ASPECTS

This diagnosis is the result of the analytical systematization resulting from exploratory research into the effects of hydrocarbon exploration, more specifically natural gas, in the Amazon region from a socio-environmental and legal-institutional perspective, based on the context of Carauari/AM (Middle Juruá Basin).

Secondary and primary data sources were used (semi-structured interviews). Nine interviews were conducted with indigenous leaders at the Brazil/Peru Binational Seminar on "AMAZONIA, SOCIOBIODIVERSITY, RESISTANCE TO THE DEVELOPMENT MODEL".

PREDATORY" promoted by the Indigenist Missionary Council (CIMI), which took place between May 23 and 26 in Cruzeiro do Sul-Acre, and online interviews with non-governmental organizations working in the region, the Juruá Institute⁵, João Vitor Campos-Silva (Jota), and ASPROC, Sinomar Júnior, linked to the

⁵ <https://institutojuruu.org.br/en/equipe/>

discussions related to the socio-environmental justice aspects of hydrocarbon exploration in the Amazon rainforest.

In addition to this primary data, secondary data came from the diagnosis of the impacts of infrastructure projects in the Pan-Amazon region. The assessment identified 14 hydrocarbon projects, out of a total of 72 infrastructure projects spread across the Amazon regions of Brazil, Peru, Ecuador and Colombia.

After carrying out a preliminary analysis of materials of interest, whether produced by civil society organizations, the press or scientific publications, the process of filing and systematizing them in Excel spreadsheets (forming the database) began. The axes that guided the searches were "*clipping*", "history, occupation and socio-economy of Carauari", "history of oil and gas exploration in the Amazon and the Médio Juruá", "socio-environmental impacts resulting from oil and gas exploration in Amazonas and other locations in the Latin American Amazon" and, finally, "rules and programs that regulate or encourage the exploration of hydrocarbons on land in Brazil".

The following keywords and combinations were used: history-Carauari; socioeconomy-Carauari; occupation-Carauari; oil-gas-Carauari; exploration-oil-gas-Carauari; Carauari-campo de Juruá; oil-gas-Médio Juruá; oil-gas+impacts; socio-environmental-impacts-Amazon-petroleum-gas; standards-petroleum-gas; programs-petroleum-gas-Brazil; standards-petroleum-gas-Amazonas; Amazonas-lei-gas; Eneva-Juruá field; Eneva-Carauari and Carauari-Juruá field.

There was also a collective effort to monitor news published in national media (such as G1, O Globo and UOL) and in other local channels in Amazonas (such as Amazonas Atual, A Crítica and BNC Amazonas). 32 news items were collected. In the topic of characterizing the natural gas exploration initiatives in Carauari, a summary table will be presented with a summary of the negotiations and expectations surrounding the Juruá Field, making it possible to identify the main players and interests in the resumption of the project.

Using geospatial data provided by the National Indian Foundation (FUNAI), the Ministry of the Environment (MMA) and the National Agency for Petroleum, Natural Gas and Biofuels (ANP), maps were drawn up showing the location of

blocks (exploratory and under study), production fields and drilled wells in relation to the protected areas of Carauari and Tefé.

The data, reports and interviews served as input for the production of three videos to publicize the current situation and the imminent and future prospects and risks surrounding Eneva's acquisition of the Juruá field. The topics covered at this stage were: (i) the presentation of a general context of the problem, (ii) the main events leading up to the resumption of the project by Eneva and (iii) the perspective of local leaders involving the installation of infrastructure projects in one of the best preserved regions on the planet.

3. CHARACTERIZATION E HISTORY OF CARAUARI AND REGION

The municipality of Carauari, which has a population of 28,000, is located in the interior of the state of Amazonas, in the mesoregion of Southwest Amazonas and the micro-region of Juruá, on the left bank of the Juruá River in very high and rugged terrain⁶. Approximately 64% of the municipality is made up of protected areas - TI Rio Biá, RDS Uacari, RESEX Médio Juruá and FLONA de Tefé - which are considered strategic for conservation in the Juruá River Basin (**Figure 01**) because they present a great diversity of species, with extensive areas of preserved forests and numerous lakes, which enable great fishing productivity to supply the local and regional market⁷.

⁶ <https://oglobo.globo.com/economia/russos-levam-sonho-do-petroleo-de-volta-ao-coracao-da-amazonia-21183438>

⁷ <https://www.icmbio.gov.br/portal/ultimas-noticias/4-destaques/6897-operacao-de-fiscalizacao-combating-environmental-illicit-in-the-middle-jurua>

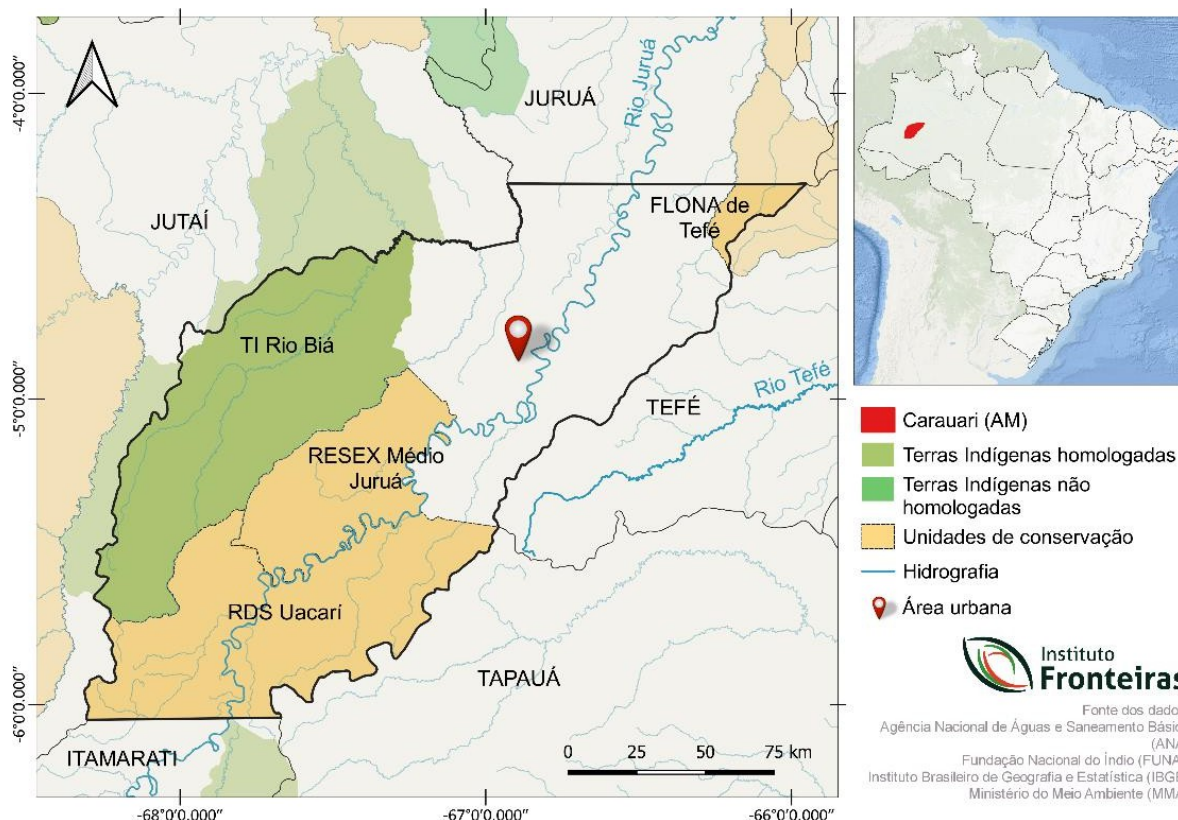


Figure 01. Protected areas in Carauari.

The entire municipality is bathed by the Juruá River, which sets the pace of life in the region and is the basis of the communities' survival, both as a means of transportation and as a source of food and income⁸. In the area of the municipality, the Juruá has the following main tributaries: Ueré, Bauana, Xué and Marari on the right bank and; Bauana Branco and Anaxiqui on the left bank⁹.

The municipality's history is closely linked to rubber, the region's main product from the *boom* during the world wars until the 1970s³. With the decline of rubber, many rubber tappers became farmers, others started working for logging companies and rubber tapping was almost abandoned¹⁰.

⁸ <https://amazonialatitude.com/2021/05/28/impactos-das-cheias-no-municipio-carauari-medio-juruá-no-amazonas/>
⁹ https://www.icmbio.gov.br/portal/images/stories/imgs-unidades-conservacao/RESEX_M%C3%89DIO_JURU%C3%81.pdf
¹⁰ https://www.gret.org/static/cdrom/floresta_viva_amazonas/Files/1.1.3_12_0810_extrativismo_carauari_clement_jaubertie.pdf

Over the years, this economy, founded on rubber extraction, changed due to the crisis in latex production and the prospect of oil and natural gas exploration, creating an expectation of better wages for the local population. Rubber tappers then began to be employed in teams hired by Petrobrás and by contractors providing services to the state-owned company⁹. The first clearings and boreholes were opened in the forests for future seismic surveys.

The "security" of employment for the former rubber tappers was always in quotation marks: the contracts with the contractors were short-lived³. Due to the financial unfeasibility of Petrobrás exploiting gas in Carauari - a gas pipeline would cost around 1 billion dollars - plus the discovery of oil in Coari, in the 1980s the investments made by the state-owned company were abandoned and the contractors moved to other municipalities, which is why there was a significant decrease in the hiring of Carauari labor¹¹.

In addition to rubber and the expectation of oil and natural gas exploration, the region is recognized for investment in the bioeconomy and sustainable businesses, especially in the Médio Juruá Extractive Reserve. Since 2013, companies such as Coca-Cola and Natura have been developing businesses in the region aimed at strengthening the açaí and guaraná chain and extracting vegetable oils.

There is also intense artisanal fishing, which since the 1980s has been an important part of the local economy and the scene of conflicts over the availability of these fishing resources. Although the fishing areas within the protected areas are delimited and reserved for traditional populations, many boats invade the community lakes¹⁰ and engage in predatory and indiscriminate fishing.

This scenario is changing with the work of institutions such as the Mamirauá Institute, the Juruá Institute and Operação Amazônia Nativa (OPAN), which have been establishing fishing agreements in the region for over ten years¹². This has fueled the influence of civil society in this stretch of the Juruá, with an emphasis on community actions for sustainable management, territorial protection and the strengthening of production chains. In

¹¹ <http://www.ppe.ufrj.br/index.php/pt/publicacoes/teses-e-dissertacoes/2010/965-energia-eletrica-e-the-traditional-populations-of-the-state-of-amazonas-learned-from-the-experience-in-the-community-of-roque-in-the-extractivist-reserve-of-medio-jurua>

¹² <https://institutojurua.org.br/praticas-em-conservacao/>

In an interview on December 17, 2021, João Vitor Campos-Silva (Jota), a representative of the Juruá Institute, stated that:

"[...] one of the institute's main ideas is to think of the Juruá as an organism, a model of conservation and local development on a basin scale. The Institute works in the Juruá as far as Eirunepé and one of the main instruments used is the fishing agreement, trying to empower the local population to protect their territory and guarantee food security."

The Catholic Church was also very active, which boosted the organization and coordination of associations and social movements, a unique feature of the region. In this sense, the people who lived in the rubber plantations were organized into local units and social networks to make it easier for them to demand rights of common interest to all the communities⁹, which led to and culminated in three important processes:

- Consolidation and creation of the Carauari Rural Producers Association - ASPROC (a locally-based organization that discusses local development models in the Amazon);
- Creation of the Médio Juruá Resex;
- Creation of the Uacari Sustainable Development Reserve (RDS).

With particular characteristics in relation to community arrangements, other organizations also stand out, such as the Ecclesial Grassroots Movement (MEB), the National Council of Extractivists (CNS) and the Association of Agro-Extractivist Residents of the Uacari RDS (AMARU). There are also relationships between different levels and spheres, involving public authorities, private companies and local, regional and international civil society organizations.

The presence of institutions in the Médio Juruá region and, more specifically, in Carauari is shown in the following table, which contains the main actors and organizations, as well as their respective places of operation.

Table 1. Organizations and Associations active in the Médio Juruá

Institution	Role	Activity
AMARU Association of Agro-Extractivist Residents of the Uacari RDS	- Supports community strengthening in the Uacari RDS, helping to make projects viable that meet the interests of the community.	Reserve Development Reserve (RDS Uacari).
ASPROC Association of Rural Producers of Carauari	- The first non-profit association created in the Médio Juruá. It works to organize and market the rural production of the region's agro-extractivist communities, as well as fighting for territory and the creation of conservation units.	RESEX Médio Juruá.

ASMANJ Association of Agro-Extravist Women of the Médio Juruá	-	Acts in the struggle for the empowerment, autonomy and visibility of agro-extravist women in the Médio Juruá region. The riverine women who live in communities along the Juruá river in the municipality of Carauari have been trying to strengthen their role in recent years. To do this, they rely on the Association of Agro-Extravist Women of the Médio Juruá (ASMAMJ), which works to support and encourage projects aimed at them.	Médio Juruá RESEX.
CODAEMJ Mixed Cooperative for Sustainable Development and Solidarity Economy of the Médio Juruá	-	The main activity of this cooperative is the collection of non-timber products from native forests. The cooperative also promotes activities to support forestry production, the manufacture of refined and crude vegetable oils and the wholesale trade in oils and fats.	Médio Juruá RESEX.
Juruá Institute Solutions for Amazon Conservation	-	The Juruá Institute is a non-profit civil organization formed by conservationists and researchers in strong partnership with community leaders and local associations. They work to support the participatory management of natural resources in the Amazon and provide training for local communities so that they can sustainably manage their natural resources and protect their territory.	The Juruá Institute's main areas of activity are the two conservation units of sustainable use located in the middle Juruá River region in the municipality of Carauari: a Extractive Reserve Médio Juruá (RESEX Médio Juruá) and the Uacari Sustainable Development Reserve (RDS Uacari).
UNIVAJA Union of Indige nous Peoples of the Javari Valley	-	Support for the indigenous peoples of the Javari Valley.	Vale do Javari Indigenous Land (TI)
AKAVAJA Kanamari Association of the Javari Valley	-	Strengthening the Kanamari people of the Javari Valley.	Vale do Javari Indigenous Land.
ASPODEX Association of the Deni people of the Xeruã River	-	The Association was born out of the need to seek protection for the land, indigenous school education, health, rights and other issues related to daily life and quality of life for the people of the Deni and Kulina ethnic groups.	Deni Indigenous Land.
AMECSARA Association of Extravist Residents Community of São Raimundo	-	A political organization that works to defend the social rights of community members and other activities linked to culture and art.	São Raimundo community in the Médio Juruá Extractive Reserve.

COLPESCA Colony	-	Since 1995, it has been supporting freshwater fishing in Carauari.	Reserve	Res
ny Colony Carauari	Colo of		erve Development Reserve (RDS Uacari).	
FAS - Sustainable Amazon Foundation	-	A private, non-profit institution, created by the government of Amazonas and Banco Bradesco in 2008, with the mission of contributing to environmental conservation in the Amazon by valuing the standing forest and its biodiversity and improving the quality of life of riverside communities associated with the implementation and dissemination of knowledge about sustainable development.	In the Médio Juruá, it operates in the Uacari RDS.	
OPAN Operação Amazônia Nativa	-	Operação Amazônia Nativa (OPAN) is the first indigenous organization founded in Brazil in 1969. For 52 years, OPAN has been working to strengthen indigenous protagonism on the regional stage, valuing their culture and ways of social organization by improving practices for managing their territories and natural resources autonomously and sustainably. Historically, OPAN's multidisciplinary indigenist teams have carried out grassroots work with indigenous peoples in areas such as politics, land, health and economics. OPAN's work methodology is based on direct action, through interaction and involvement in the daily life of the villages, which are the guiding nucleus of the proposals and development of the projects.	RESEX Middle Juruá, RDS Uacari, RDS Cujubim, Deni Indigenous Land, Caititu Caititu Indigenous Land, Jarawara Jarawara/Jamandi /Kana manti Indigenous Land, Paumari Paumari Indigenous Land.	

Source: Instituto Fronteiras.

3.1 The "Capital of Gas": natural gas exploration initiatives in Carauari

The Brazilian government's attempts to exploit natural gas in the Médio Juruá date back to the beginning of 1977, when natural gas deposits were found in the region, which resulted in the identification of the first field *in* the Solimões Sedimentary Basin: the *Juruá field*, located between Carauari and Tefé. The discovery, which took place in 1978¹³, had a considerable impact on the history of the Juruá River region, especially for the riverside populations and indigenous peoples.

According to the prospectus released by Petrobras, the Juruá field contained a "significant volume" of natural gas¹³. In the interests of "energy independence" and "national production", a large-scale undertaking was being consolidated in the region.

13 <https://www1.folha.uol.com.br/mercado/2017/05/1886433-petrobras-poe-a-venda-segundo-campo-de-gas-na-amazonia.shtml>

environmental and social repercussions and the justification was that the benefits of carrying out the project were sufficient to make it viable. Table 2 shows a summary of the negotiations and expectations published in the media surrounding the Juruá field.

Table 2. Main negotiations involving the Juruá field since its discovery in 1978.

1978	The Juruá field was discovered in 1978 and, according to the prospectus published by the state-owned company, has a "significant volume" of natural gas.
1980	In the early 1980s, Petrobras carried out oil and gas research in the municipality, but left for Coari, 650 km from the capital, where it centralized work on the Urucu Oil Province, today the largest onshore gas reserve in the country.
2007	Petrobras decided to resume development of the Juruá Field, in the Amazon, the country's largest onshore reserve of non-associated natural gas (without oil) and the field was included in the list of priority projects in the state-owned company's strategic planning until 2012.
2008	Disclosure of the Environmental Impact Report for the environmental licensing of the Juruá/Urucu gas pipeline, whose developer is Petróleo Brasileiro S/A. The study was carried out by the Instituto de Inteligência Socioambiental Estratégica da Amazônia, Piatam Institute. The purpose of the project would be to transport gas and condensate production from the Juruá and Aracanga fields to the Arara Pole (Urucu), located in the city of Coari.
2010	Petrobras announced that it was preparing to set up a gas exploration project similar to Urucu in Juruá, with the implementation of a similar pipeline to connect the new plant to the existing gas pipeline system. The project would therefore link Juruá to Urucu.
2011	The Russians entered gas exploration in Amazonas, when TNK-BP (a <i>joint venture</i> between Russia's TNK and Britain's BP) announced the purchase of a 45% stake in HRT's exploration assets in Solimões, for no less than US\$ 1 billion. TNK-BP was later bought by Rosneft, which paid another 151 million dollars for the operation and for the remaining 55% share of HRT. As a result, the Russian company, after returning some areas, now holds a 100% stake in 16 oil exploration blocks.
2011	Petrobras received authorization from the Amazonas Environmental Protection Institute (Ipaam) to build a 140 km gas pipeline from Juruá to the Arara Pole in Urucu.
2017	In February 2017, the Russian oil company Rosneft began its first drilling operations in the Amazon, in the municipality of Carauari (786 kilometers from Manaus). The company's project includes the construction of a thermoelectric plant in Carauari and a 790-kilometer transmission line to Manaus, where the plant would be interconnected to the SIN (National Interconnected System).
2017	On May 22, 2017, Petrobras announced the sale of 100% of its stake in the Juruá field in the Solimões river basin in Amazonas, one of the state's large natural gas reserves. Until then, only Russia's Rosneft had activities in the region. Petrobras says that, during the negotiations, it will evaluate the possibility of using its gas pipelines, which connect the Urucu production hub, around 260 kilometers from Coari, to Manaus. Due to the Brazilian economic crisis, logistical difficulties and the fall in the price of oil, most of the blocks with potential did not make significant progress in their exploration campaign and were put up for sale by Petrobras in 2017.
2017	May 23, 2017 - Launch of Petrobras' Jade project to sell the Juruá field.
2018	In May 2018, almost a year after the launch of Jade, the board of the National Petroleum Agency (ANP) decided to terminate the concession contract for the Juruá field, operated by Petrobras in the Solimões Basin and part of the state-owned company's Divestment and Partnership Program. The decision came after the state-owned company asked the agency with two more years of additional time to study and define proposals for the development of production in the field.

2018	Publication of Decree 9.355/2018, which established rules of governance, transparency and good practices for the sale of Petrobras' fields and exploration blocks.
2018	Sale of the Azulão field to Eneva.
2018 a 2020	Period for collecting information and consolidating the Solimões EAAS, the purpose of which is to determine locations to be auctioned off for oil and natural gas exploration in the Basin.
2019	Inauguration of the Permanent Offer model in ANP auctions. Under this model, blocks are permanently available, awaiting expressions of interest from oil companies.
2020	Civil society organizations working in Amazonas took the position to the Federal Public Prosecutor's Office (MPF) that the Environmental Assessment of the Solimões Sedimentary Area (EAAS Solimões) should be stopped immediately. During workshops on the EAAS, held at the end of 2018 in Carauari and Tefé, representatives of the peoples and communities demanded the right to Free, Prior and Informed Consultation before any administrative measure that affects them.
2020	In December 2020, Eneva acquired a 100% stake in the Juruá field in the Solimões basin, in the second cycle of the Permanent Offer. This is an area for the exploration of "marginal accumulations". In other words, these are activities in areas that have already been explored. According to the Juruá Development Plan, drawn up by Petróleo Brasileiro S.A. and approved by the ANP in 2012, Juruá's <i>in-place</i> volume of non-associated gas is 25.9 billion cubic meters. The value of the signature bonus offered by Eneva for Juruá was R\$25.7 million.
2020	Eneva presents mineral exploration plans to the governor of Amazonas.
2021	The Urucu Pole, located in the Solimões River Basin, was won by Eneva, owner of the Azulão field, in the municipality of Silves.
2021	In March 2021, the Amazonas Legislative Assembly approved the "Gas Law", which allows the monopoly on the distribution of natural gas in the state to be broken. The measure will have a positive impact on Eneva.
2021	Eneva starts producing natural gas in Amazonas, in the Azulão field.
2022	Rondônia enters the natural gas market and the then Minister of Mines and Energy, Bento Albuquerque, sees that opening up the natural gas market in the state will boost gas exploration in the Solimões and Amazonas river basins in the Amazon region.
2022	Eneva has decided to end negotiations for the purchase of the Urucu fields, a Petrobras light oil and natural gas production hub in the Solimões Basin in Amazonas. It was not possible to converge on an agreement and there were no penalties for the company. At the beginning of 2021, Eneva won the Urucu dispute, beating 3R Petroleum, which had initially offered around US\$ 1 billion for the concession.
2022	Eneva announces that it is considering transporting liquefied natural gas by ferry from the Solimões River in Amazonas. The product would be shipped from the Juruá field to Manaus and Itacoatiara. The plan is to start developing the field in 2024, with production expected to start between 2026 and 2027.
2022	Eneva's plans for natural gas now include two other novelties in the company's portfolio: the company's entry into <i>onshore</i> Bahia and the production of fertilizers from Juruá gas, in the Solimões Basin - both fronts in embryonic stages, but which could advance over the course of the year.

Source: Instituto Fronteiras based on data published in local and national media.

To get an idea of the impacts of the expected gas exploration, when Petrobrás arrived in Carauari, it found a village of 3,000 inhabitants and, by the mid-1980s, when the company assessed that it would not be worthwhile to continue with the project, there were already 20,000 people living there, including indigenous and riverside populations, many of them attracted by job opportunities(2) .

opportunities². In all, 15 wells were drilled in the field, 08 of which were classified as producers (**Figure 02**).

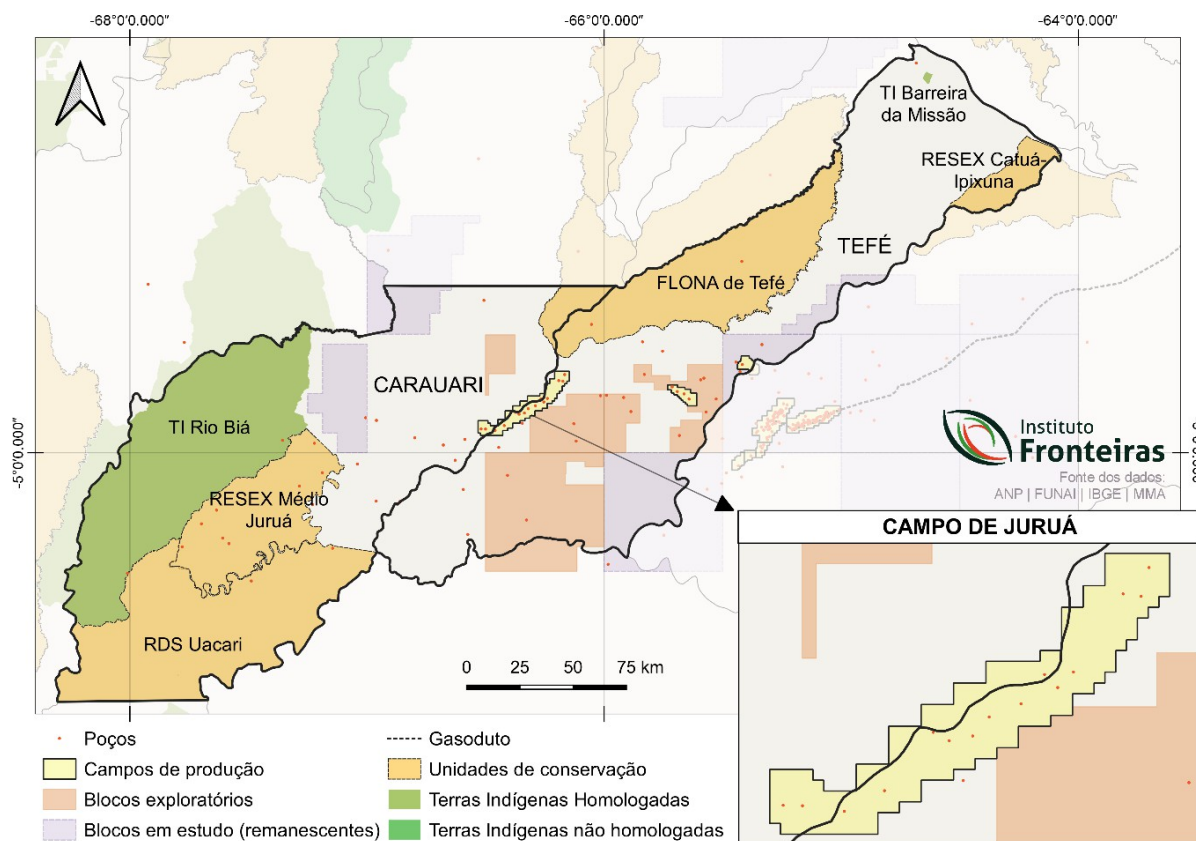


Figure 02. Location of the Juruá Field

In 2020, in the second Permanent Offer auction held by the ANP, Eneva won the dispute with Imetame Energia and acquired a 100% stake in the field, paying R\$25.7 million against the competitor's offer of R\$5.6 million.

The company has already announced that development of the field is scheduled for 2024, with exploration to begin between 2026 and 2027¹⁴, and transportation via river routes to Manaus and Itacoatiara, which would be the gas distribution points¹⁵ for municipalities in the northern region or even to other countries. However, it is also necessary to consider the effects of the possible installation of pipelines for the transportation of natural gas in the future, which could affect the agricultural production of communities and cause soil compaction and the suppression of native vegetation¹⁶.

¹⁴ <https://bncamazonas.com.br/municipios/gas-jurua-balsas-solimoes-eneva/>

¹⁵ <https://www.abdib.org.br/2022/02/09/eneva-avalia-projeto-para-escoar-gas-por-balsas-em-rios-no-amazonas/#:~:text=A%20Eneva%20evaluates%20developing%20one,yesterday%2C%20in%20presenting%3%A7%C3%A3o%20a%20investidores>

¹⁶ https://tede.ufam.edu.br/bitstream/tede/6460/5/Tese_Sandro%20de%20Lira

The possible exploitation of the Juruá field by Eneva is seen by the oil and gas sector and the federal and state governments as an important milestone for the resumption of oil activity in the region and is the result of efforts to "modernize" laws and create programs to attract investments in the sector in the Amazon region.

3.2. Recent Normative Changes Regulating Oil and Gas Exploration in the Brazilian Amazon

Today, the world's largest rainforest is also subject to conflicts over the use and occupation of space caused by new energy projects aimed at prospecting for and exploiting hydrocarbons. According to Article 177 of the Federal Constitution, the Union has a monopoly on the exploration and exploitation of oil and natural gas deposits. In 1997, the Petroleum Law (Law No. 9.478/1997) created the National Petroleum, Natural Gas and Biofuel Agency (ANP), whose purpose is to promote the regulation, contracting and inspection of economic activities in the sector.

The Petroleum Law also stipulates that concession contracts should have two phases: exploration, i.e. activities to evaluate any oil or natural gas discoveries in order to determine their marketability, and production, which will also include development activities (art. 24).

The concession implies an obligation on the part of the concessionaire to explore at its own risk and, in the event of success, to produce oil or natural gas in a given block, giving it ownership of these assets once they have been extracted, with the burden of paying the taxes levied and the corresponding legal or contractual participations.

In the event of successful exploration, the concessionaire will submit the development and production plans and projects to the ANP for approval, so that the agency can issue its opinion on the plans and projects within a maximum of 180 days. Once the period has elapsed without a statement from the ANP, the plans and projects will be considered approved (art. 26).

Concessions may be terminated in the following cases: (i) as a result of the expiry of the contractual term; (ii) on the grounds for termination set out in the contract;

(iii) at the end of the exploration phase, without any commercial discovery having been made, as defined in the contract; or

(iii) at the end of the exploration phase, without any commercial discovery having been made, as defined in the contract or (iv) during the exploration phase, if the concessionaire exercises the option to give up and return the areas in which, at its discretion, investments in development are not justified or by agreement between the parties (art. 28).

In any of the cases where the concession is terminated, the concessionaire will, at its sole expense, remove the equipment and goods that are not subject to reversion, and will be obliged to repair or indemnify the damage resulting from its activities and carry out the environmental recovery acts determined by the competent bodies (art. 28, §2).

Since 2017, the ANP has implemented the permanent offer of exploration blocks (CNPE Resolution No. 17/2017) in areas with marginal accumulations for the granting of concession contracts for the exploration or rehabilitation and production of oil and natural gas.

The Permanent Offer model consists of the continuous offer of exploration blocks and areas with marginal accumulations located in any onshore or offshore basins, as well as fields that have been returned or are in the process of being returned, for the purpose of granting concession contracts for the exploration or rehabilitation and production of oil and natural gas¹⁷. In other words, it consists of a kind of bank of continuous offers of exploration blocks that are available to the investor to be bid on, unlike what happened previously, when the government chose what was to be bid on.

The aim is to attract investment to the sector in line with the objectives of the Program to Revitalize Oil and Natural Gas Exploration and Production Activities in Onshore Areas (REATE), announced by the Ministry of Mines and Energy (MME) in 2017.

The purpose of REATE is to advance the implementation of a national policy that strengthens the activity of exploration and production of oil and natural gas in onshore areas in Brazil, promoting the relationship between producers, suppliers, financiers, government agencies, policy and program makers and other institutions operating in the chain¹⁸. The program has already shown great

¹⁷ <https://www.gov.br/anp/pt-br/rodadas-anp/oferta-permanente/opc/edital>

¹⁸ <https://www.gov.br/mme/pt-br/assuntos/secretarias/petroleo-gas-natural-e-biocombustiveis/reate-2020>

influence on the regulatory and political environment, with changes taking place in the market to attract new players.

In the state context, the Amazonas Legislative Assembly approved the New Gas Law (Law No. 5,420 of 2021) to regulate the public service of distribution and marketing of piped natural gas within the state's territory. The law could benefit companies that exploit natural gas in the state, such as Eneva, since it allows the monopoly on the distribution of natural gas in Amazonas to be broken¹⁹. Given this opportunity, Eneva is already considering that "natural gas from Juruá could be traded directly with free consumers, through transportation in the form of liquefied natural gas (LNG) or through transportation via the Coari-Manaus gas pipeline"²⁰.

Added to this scenario is the so-called Devastation Bill (PL 191/2020), which regulates §1 of art. 176 and §3 of art. 231 of the Constitution to establish specific conditions for research and mining of mineral resources and hydrocarbons on indigenous lands. Among the changes, it establishes that it is up to the President of the Republic to forward to the National Congress the request for authorization to carry out these activities on Indigenous Lands, regardless of the contrary opinion of the indigenous communities. Although there is provision for the affected communities to be heard, it will not determine the power of veto over energy exploration and mining in their territories, which has caused concern given the resumption of oil and gas exploration in the Amazon.

4. POSSIBLE SOCIO-ENVIRONMENTAL IMPACTS

As explained in the previous sections, the incentive to explore for natural gas and oil is in addition to the economic cycles of exploitation of natural resources in the Amazon (e.g. the rubber cycle), with possible negative socio-environmental impacts on the territories of indigenous and traditional communities²¹.

¹⁹<https://www.legisweb.com.br/legislacao/?id=411235#:~:text=Art.,territorial%20do%20Estado%20do%20Amazonas>

²⁰ <https://megawhat.energy/news/129973/eneva-considera-positiva-nova-lei-do-gas-aprovada-pela-assembly-of-am>

²¹http://www.29ba.abant.org.br/resources/anais/1/1401990511_ARQUIVO_ArtigoCompleto29ABA2014.pdf

The most recurrent impacts of natural gas exploration on Amazonian ecosystems were surveyed, with emphasis on the context of Coari, in Amazonas, and the Megantoni district, in Peru (Camisea Gas Project). These include: deforestation, conflicts with local communities, disorganized growth of cities, infrastructure deficits and threats to water resources.

In Brazil, oil and gas exploration has been found to generate socio-environmental impacts on indigenous peoples and traditional communities in border areas such as Acre/Peru, as well as in the interior of Amazonas, specifically in the Médio Juruá and Baixo Solimões.

Indigenous peoples of the Katukina ethnic group, from the Rio Biá Indigenous Land, and, in the Javari Valley, the Marubos, Matsés, Matis, Kanamaris, Kulinas, as well as other isolated groups would be the main ones affected by the projects, considering only the Brazilian Amazon. In Peru, the peoples who inhabit the Kugapakori-Nahua-Nanti Reserve are under the influence of the projects, and in Ecuador, the Huaorani territory and the Kichwa communities (Manguilla, Comuna Centro Manduro, Patasyacu, Puerto Colón, Corazón del Oriente, Hermano Miguel).

Between 2018 and 2020, the Environmental Study of the Sedimentary Area of the Solimões Terrestrial Sedimentary Basin (EAAS Solimões)²² was carried out to support the planning of public policies for oil and natural gas in the Solimões Basin subsoil. The study revealed a territory with rich diversity in social, cultural and environmental terms, but also various conflicts over land and the use of certain natural resources, as well as the presence of isolated indigenous peoples.

The risks pointed out in the report were related to the most striking characteristics of the region: its flood and drought regime, which determine biological patterns, and human occupation, with a complex socio-cultural and economic dynamic.

The effects of natural gas exploration are not limited to the area actually explored, especially in the Amazon region, whose ecosystems have peculiar vulnerabilities. In Carauari, many of the communities are located outside the areas

²²<https://www.epe.gov.br/sites-pt/publicacoes-dados-aberto/publicacoes/PublishingImages/Paginas/EAAS-Solimoes/EAAS%20Solim%c3%b5es%20-%20vers%c3%a3o%20executiva%20180621.pdf>

protected without having their tenure rights recognized and, therefore, in a situation of even greater vulnerability. But even in areas inhabited by traditional populations and indigenous peoples with regularized legal status, there are various conflicts arising from invasions for timber extraction and illegal hunting and fishing. In addition, there is a proposal in the National Congress to facilitate the research and mining of mineral resources and hydrocarbons and the use of water resources to generate electricity on indigenous lands without the possibility of communities vetoing exploitation in their territories (PL 191/2020).

The impact of projects of this size in areas of native forest is inevitable. As already pointed out, prospecting activities in the 1980s in Carauari destabilized the municipality socially and economically and other experiences in the Amazon point to irreversible effects caused by hydrocarbon exploration in a region of dense equatorial forest:

Deforestation. The activities involved in the production of oil and natural gas cause progressive deforestation of the forest due to the growing demand for exploration²³. In Coari, where the Urucu Oil Province is located, there has been a significant increase in the loss of forest cover due to the migration of people from other regions attracted by Petrobras' activities²⁴.

The profound changes caused by the hydrocarbon industry to the landscape have as one of their main consequences the fragmentation and reduction of native habitats, imposing serious risks to the functioning of ecosystems and the conservation of species of fauna and flora in general²⁵.

The creation of accesses to remote and conserved parts of the forest to enable the arrival of personnel, the movement of machinery and the transportation of production promotes

23https://repositorio.unb.br/bitstream/10482/22538/1/2016_EmanuelCarlosGuimar%C3%AAsMoreira.pdf

24https://www.researchgate.net/profile/Orleno-Marques-Da-Silva-Junior/publication/341828524_IMPACTOS_AMBIENTAIS_DA_EXPLORACAO_DE_HIDROCARBON_ETOS_NA_AMAZONIA_ANALISE_DA_PROVINCIA_PETROLIFERA_DE_URUCU/links/5ed65f4892851c9c5e729d3e/IMPACTOS-ENVIRONMENTAL-IMPACTS-OF-HYDROCARBON-EXPLORATION-IN-AMAZON-ANALYSIS-OF-PROVINCE-PETROLIFERATION-OF-URUCU.pdf

25https://edisciplinas.usp.br/pluginfile.php/5769426/mod_resource/content/1/LIVRO_fracking_ibase_set2017.pdf#page=70

the sharp increase in deforestation, which also implies an increase in logging, hunting and the formation of new human settlements under precarious conditions.

The indigenous issue. Oil and gas exploration in areas occupied by indigenous groups in the Amazon implies situations of conflict between the company and the communities.

These peoples' way of life is closely linked to the forest and water resources, and the degradation or conversion of these natural habitats significantly alters the way they obtain their daily sustenance²⁶.

In Peru, the Camisea gas megaproject, located in the southeast of the Peruvian forest, has been facing problems with indigenous communities since the 1980s, when it began operating.

The region is home to the Nahua, Machiguenga, Yine Yaminahua, Asháninka, Nanti, Amahuaca, Nomatsiguenga and Yanesha peoples, as well as other isolated groups, who have been exposed to disease and their diet has been compromised. The pipeline, which transports gas out of the Camisea region, has broken down at least seven times, leading to the annihilation of fish populations and the emergence of diseases among the Machiguenga communities²⁷.

The experiences of the peoples in the Kugapakori Nahua Reserve demonstrate the effects that resource extraction activities (both surface and subsoil) can have on local populations, not only when carried out on their land (as in the case of the Nahua) but also when carried out downstream from their territory (as in the case of the Nanti)²⁷.

The seismic surveys that took place between 1981 and 1985 in the Javari River Valley were marked by serious material, cultural, symbolic and environmental damage with the destruction of gardens, medicinal plants and gathering products, as well as illegal logging²⁸.

²⁶ <https://amazonwatch.org/news/2002/0401-estudio-ambiental-y-social-independiente-de-proyecto-de-gas-camisea>

²⁷ https://www.forestpeoples.org/sites/fpp/files/publication/2014/01/camisea-spanishlowres_0.pdf

²⁸ <https://repositorio.pucsp.br/bitstream/handle/19304/2/Raimundo%20Emerson%20Dourado%20Pereira.pdf>

The expansion of the hydrocarbon industry in the Amazon region is also trampling on the rights of indigenous peoples to be consulted before any administrative or legislative measure with the potential to affect them directly. Aerial and land prospecting for shale gas in the Juruá region and throughout the state of Acre began in 2008, without any prior consultation or information for the peoples and communities living in these territories²⁵.

For the Solimões EAAS, carried out by the Energy Research Company (EPE), which points to a potential oil and gas exploration system in Amazonas in a region characterized by the presence of indigenous peoples and extractivist populations, less than 10% of the municipalities covered by the environmental analysis were heard, indicating that the Prior, Free and Informed Consultation (CPLI) provided for by law was also not observed²⁹.

Socio-economic impacts. Back in the 1980s, the expectations surrounding the project in Carauari resulted in a disorganized growth of the urban area, significant internal and external migration and an increase in infrastructure, services and urban equipment deficits.

Similarly, later on in Coari, there was no specific program to prepare the local workforce, so many people who were hoping to be hired to work in the nascent industry were frustrated³⁰. Jobs such as drivers, machine operators, bricklayers, carpenters, cooks, speedboat captains, watchmen and maids, even though they required few qualifications, were not taken up by the local population²⁸.

With demand for labor outstripping supply, precarious public services, rising crime rates, adult and child prostitution and drug trafficking are also common. In Coari, migration combined with the increase in poverty and indigence rates and the degradation of living conditions have culminated in the formation of river slums, known as "Beiradões"²⁴.

Threat to water resources and soil contamination. In addition to the degradation of the forest for the construction and maintenance of the units and the drilling of wells, the

²⁹ https://amazonianativa.org.br/2020/12/01/organizacoes-acionam-o-mpf-pela-paralisacao-de-30https://teses.usp.br/teses/disponiveis/8/8135/tde-22082012-121853/publico/2011_AlbertoLuzernoDeMenezes.pdf

he exploitation of natural gas can also compromise water resources, with effects on the alteration of waterway dynamics, the silting up of lakes, the formation of embankments and the contamination of water sources²⁸.

The river is the main setting for the development of the territory's social dynamics³¹. It is estimated that the Carauari perimeter is home to around 400 riverside communities that depend directly on fishing and agriculture for their survival, because as well as being a source of food for the people of the Médio Juruá, fish is also a key source of income.

The region is made up of many lakes, igarapés, paranás and igapós that connect to the Juruá River, which makes fishing an important activity for the local economy. There is a great diversity of fish, such as acará, aracu, aruanã, bodó, branquinha, cascuda, curimatã, jaraqui, mandim, matrinchã, pacu, pirapitinga, pescada, piraíba, piramutaba, piranha, piarara, sardinha, surubim, tambaqui, tamoatá, traíra and tucunané.

But it is the community pirarucu management implemented in 2011 that is among the most successful productive activities: from the beginning of the plan until 2021, the monitored population of the species grew by more than 600% and, in the last quarter of 2021 alone, fishing exceeded 150 tons³², making the initiative one of the remarkable success stories of the Amazon bioeconomy.

The intensification of river traffic and the increase in predatory fishing as a result of hydrocarbon exploitation can lead to the disappearance of fish. In addition, the contamination of bodies of water, both through the migration of components of fluids that remain underground or compounds naturally present in rocks, and through the accidental leakage of waste, poses serious risks to various species of fauna and flora, especially those that inhabit aquatic ecosystems²⁵.

31<http://www.repositorio.ufal.br/bitstream/123456789/8834/1/O%20impacto%20das%20mudan%C3%A7as%20clim%C3%A1ticas%20sobre%20comunidades%20locais%20na%20Amaz%C3%B4nia%20-%20a%20percep%C3%A7%C3%A3o%20dos%20ribeirinhos%20do%20Rio%20Juru%C3%A1.pdf>
32<https://exame.com/negocios/pirarucu-amazonia-case-bem-sucedido/>

5. FINAL CONSIDERATIONS

Based on opinions issued by the Federal Court of Auditors and notes from Civil Society Organizations, the following are recommendations for improving the process of granting blocks for hydrocarbon exploration:

- Carry out up-to-date and detailed environmental analyses of the blocks to be awarded;
- Expansion of investment in alternative energy sources in the Amazon;
- Recognition of the right to free, prior and informed consultation of traditional communities and peoples before decisions are taken that could affect their property or territories, as set out in ILO Convention 169 (International Labor Organization), so that they can effectively influence administrative and legislative decisions;
- Demonstration by the ANP that the process of choosing the blocks to be auctioned off is in line with national energy policy, including a mandatory statement by the CNPE on the criteria used;
- Promoting greater transparency and publicity for the concessions;

Carauari already experienced a deep economic crisis in the 1980s with the departure of Petrobras and the resumption of the project by Eneva represents a series of threats to the forests, water resources and the people who inhabit the Médio Juruá region.

In Brazil, the socio-environmental impacts caused by infrastructure projects are often assessed and taken into account after the actions have been outlined, making it impossible for the affected communities and the developer to plan together and violating the right to Free, Prior and Informed Consultation required before any administrative measure that affects them.

Part of the blocks auctioned off for gas exploration in the Amazon border indigenous communities that are at different stages in the demarcation process by FUNAI, which represents a threat to isolated and traditional native peoples (riverine and extractivist) who do not have their territorial rights recognized by the Brazilian state.

Projects of this scale imply a new governance over the territory in order to serve the interests of private enterprises, violating socio-environmental rights and putting historically excluded peoples and communities on the margins.