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# THE GEOPOLITICS OF LOURENÇO, AN ARTISANAL MINING REGION IN THE NORTH OF AMAPÁ: TRAJECTORY, CONTRADICTIONS, AND UNSUSTAINABILITY

## A GEOPOLÍTICA DO GARIMPO DO LOURENÇO, NORTE DO AMAPÁ: TRAJETÓRIA, CONTRADIÇÕES E INSUSTENTABILIDADE

## LA GÉOPOLITIQUE DU LOURENÇO, RÉGION D'ORPAILLAGE AU NORD DU BRÉSIL: TRAJECTOIRE, CONTRADICTIONS ET LA MANQUE DE SOUTENABILITÉ

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### Abstract

Lourenço, in the north of Amapá state, is one of the oldest active mining fronts in Brazil. Gold mining activities are carried out by a cooperative of gold diggers, under precarious working conditions and little environmental care. The mining region is situated amidst a set of protected areas and recent researches indicate high concentrations of mercury in the region's fishes. In the past, the local government along with the Federal Public Prosecutor's Office made efforts to legalize the mining activity and turn the Lourenço region into a sustainable artisanal mining pole. Those efforts didn't materialize, but they left lessons, which were either eliminated or ignored by the rationalist State in the occasion of the celebration of bilateral agreements between Brazil and France for the fight against illegal mining activities along the border. Based on literature review, interviews and technical visits to the mining region, this paper traces the geopolitics of Lourenço and presents the main socio-environmental conflicts. It concludes that the mining activity in the region results unsustainable within a preservationist territorial context and considering the complexity of socio-environmental regulation actions.
Keywords: Mining. Socio-environmental impacts. Protected areas. Amapá.

### Resumo

O Garimpo do Lourenço, no Norte do estado do Amapá, constitui uma das mais antigas frentes de garimpagem ativa no Brasil. A extração de ouro é liderada por uma cooperativa de garimpeiros em precárias condições de trabalho e cuidados ambientais. O garimpo encontra-se envolto por um conjunto de áreas protegidas e pesquisas recentes indicaram altos níveis de mercúrio nos peixes dos rios da região. Em tempo pretérito, o Governo do Amapá e o Ministério Público Federal mediaram ações para legalizar a atividade garimpeira e transformar a região conhecida como Lourenço num polo de mineração artesanal sustentável. As referidas ações não aconteceram, mas deixaram lições que foram anuladas ou desconsideradas pelo Estado racionalista quando do estabelecimento de acordos bilaterais Brasil-França para o combate de atividades de garimpo ilegal na fronteira. O presente artigo resgata a geopolítica do Garimpo do Lourenço e apresenta os seus principais conflitos socioambientais com base em uma revisão da literatura e em entrevistas e visitas técnicas à região. Conclui-se que a atividade garimpeira é insustentável diante do contexto territorial preservacionista e da complexidade das ações de regulação e de ordenamento socioambiental.
Palavras-chave: Garimpo. Impactos socioambientais. Áreas protegidas. Amapá.

### Résumé

Lourenço, au nord de l'état de l'Amapá, est un des plus anciens fronts d'orpaillage en cours au Brésil. L'extraction artisanale d'or est conduite par une cooperative de prospecteurs qui vivent sous des conditions de travaille

précaires et avec peu de souci environnemental. La région d'extraction d'or est entourée par un ensemble de zones protégées, et des recherches récentes montrent une augmentation du niveau de mercure encontré dans les poissons des fleuves qui bagnent la région. Dans le passé, le Gouvernement de l'état de l'Amapá et le Ministère Public Fédéral ont fait des efforts pour légaliser l'activité minérale et transformer la région du Lourenço en un pôle de minération artisanale durable. Ces effots n'ont pas aboutit à des mesures concrètes, mais ils ont laissé des leçons qui ont été soit annulées soit ignorées par l'État rationaliste à l'occasion de l'établissement des accords bilatéraux entre le Brésil et la France pour le combat à l'activité minérale illégale dans la frontière. Le présent article récupère la géopolitique de la région d'orpaillage du Lourenço et présente les principaux conflits socio-économiques, basé sur une révision de littérature, des entretiens et des visites téchniques à la région. L'article conclut que l'extraction minérale d'or au Lourenço résulte insoutenable dans un cadre territorial preservationiste et en face de la complexité des actions de régulation et de gestion socio-environnementale.
Mots-clés: Orpaillage. Impacts socio-environnementaux. Zones protégées. Amapá.

## Introduction

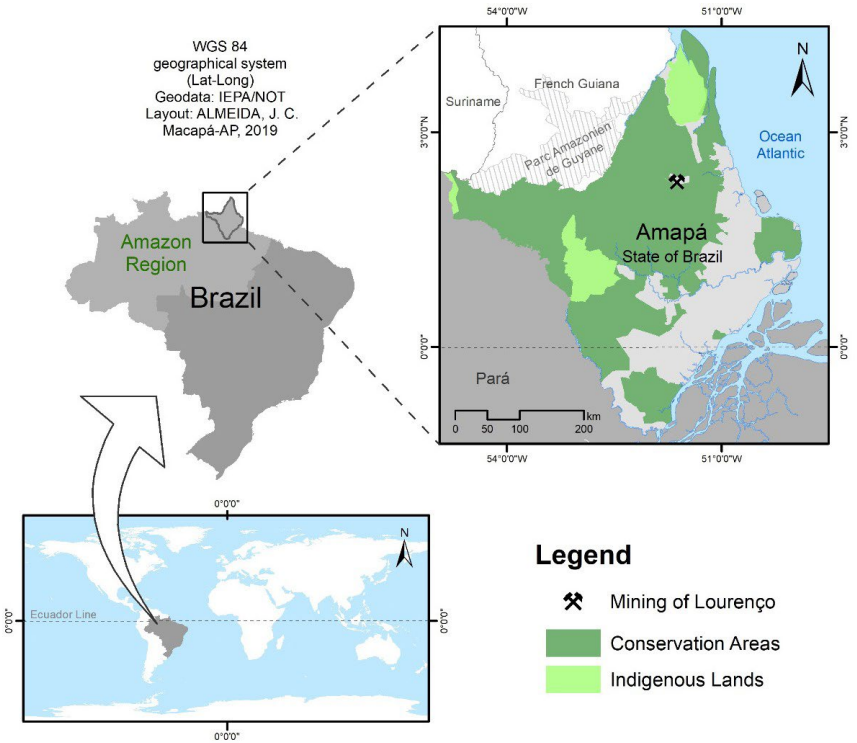
The Amapá has socio-environmental specificities that are still managed in an antagonistic or rival manner, since i) it has mineral resources, including islands of syntropy[1] that present different types of exploitation and associated environmental impacts; ii) 70% of its territory is institutionalized as protected areas (Conservation and Indigenous Areas).

Regarding the exploitation of mineral resources in Amapá an activity that is always cited as a reason for loss of opportunities for development, creation of environmental conflicts and social injustices, with references that perpass both industrial and artisanal mining (Drummond; Pereira, 2007; Oliveira, 2010a; Oliveira, 2010b; Chagas, 2013).

Amapá had of one of the largest manganese mining deposits on the planet, operated by ICOMI until exhaustion, from 1953 to 1997. Currently, only one gold mining company is operating in Amapá, but several fronts persist of mining activities under clandestine conditions and at a high environmental and social risk.

Among the active gold mining activities in Amapá, the region known as "Lourenço", located in the north of the state, dates back to the 19th century and is still productive today, which distinguishes it as one of the oldest fronts of artisanal mining in operation in Brazil. Over the years, Garimpo do Lourenço has been surrounded by a number of protected areas, including Conservation and Indigenous areas (Figure 1).

**Figure 1** - Garimpo do Lourenço surrounded by a number of protected areas




Source: Elaborated by the geographer Jodson Almeida (2018).

Between 1841 and 1900, the region north of Amapá, where Garimpo do Lourenço is located, was declared a neutral zone in the face of the conflict known as "Contestado Brasil-França", constituting a chapter apart from Brazilian geopolitics and affecting the French colonialist interests by the territorial expansion of the border and consequent appropriation of mineral resources.

Over the years, Lourenço has evolved from a prospector community to an administrative district in the municipality of Calçoene, receiving public structures like basic social services (health, education, security, etc.). According to the IBGE (2010), the District of Lourenço has a population of 1,866 inhabitants, with gold mining being the main

economic activity, with commerce and small agriculture supplementing the income of families in the dry season.

Between 1984 and 1994, the region also housed mining companies that took advantage of the traditional knowledge of the gold prospectors to explore locations with gold potential and gauge their profitability. The companies Mineração Novo Astro (MNA) and Mineração Yukio Yoshidome (MYYSA) operated in Lourenço and were responsible for a socio-environmental liability that was assumed by a cooperative of goldminers, created to follow in an organized way the mining companies that closed their activities in Lourenço.

In 1994, with the implementation of the process of the transfer of mining rights of the MNA, the control of the Garimpo do Lourenço passed to the Cooperativa de Mineração dos Garimpeiros do Lourenço (COOGAL) and the mining fronts, which were previously developed by mining companies have since become of high operational and environmental risk. As a consequence, labor accidents and environmental degradation in the region increased, with direct and indirect impacts on conservation areas and the surrounding indigenous lands.

In 2017, COOGAL was the target of an operation of the Federal Police and the Federal Public Ministry in Amapá (MPF/AP), leading to the arrest of members of the board of directors and others who had a commercial relationship with the cooperative. According to the Federal Police, the irregularities found are miners subjected to working conditions similar to slavery, illegal extraction of mineral substances, unauthorized mining or extraction, illegal use of mercury, crimes against aquatic fauna, and others.

This article aims to discuss the geopolitics of Garimpo do Lourenço and the associated environmental conflicts, with arguments that are due to the fact that, at the end of the 19th century, the gold mining region became a cause of defense of the national territory in the face of the "Contestado Brazil-France" and is now perceived as a space for illegal practices and threats to protected areas.

Specialized literature on mining, prospecting, and the environment in Amazonia and Amapá was consulted in order to assess the issue, as well as the use of field data and the author's records accumulated over 20 years of successive technical visits to the gold mining region of Lourenço. Some information presented is unpublished and was obtained in an interview

conducted by the author with the Manager of the MNA[2] which operated in Lourenço between 1984 and 1994.

## Prospecting and gold mining trajectory in Lourenço

The mining trajectory in Amapá is present in the main narratives that deal with the environmental aspects of the activity and the connections with the local development, with emphasis on the works of Drummond and Pereira (2007), Oliveira (2010a), Oliveira (2010b) and Chagas (2013).

The first authors analyzed the developmental effects in Amapá, due to the exploitation of manganese ore in the Serra do Navio region, based on 49 socioeconomic variables collected from 1953 to 1993. They concluded that the average welfare standards of the Amapá population did not stagnate or collapse in the period of the mineral enterprise, but that the scarcity of productive investments and infrastructure beyond the influence of Serra do Navio negatively impacted the prospects of development of Amapá (Drummond; Pereira, 2007).

Oliveira (2010a), on the other hand, through the analysis of environmental, social, and economic indicators of the five mining municipalities of Amapá (Pedra Branca do Amapari, Vitória do Jari, Mazagão, Porto Grande, and Calçoene), verified that mining has contributed to the development of only one (Pedra Branca do Amapari) among the five municipalities analyzed and that there are several obstacles to be overcome to make the activity economically sustainable.

The operation of the main mineral enterprises of Amapá is also provided by Chagas (2013). This author addresses the conflicts and environmental management of mining, signaling the importance of the lessons learned and the need to approach sustainability protocols and discourses on a global/local scale, including improvements in participatory processes and decision making.

In relation to gold mining, Mathis (1993, 1995a, 1995b, 1998) emphasizes that the activity presents a complex network of social relations that are shaped by the informality of the work, by goodwill and the high risks involved in the extraction process. The author traces a social profile of the actors involved in the Amazonian garment industry and draws attention to the absence of official data, with criticism of the methodology

of the last survey carried out by the Departamento Nacional da Produção Mineral (DNPM) in 1990.

In Amapá, Oliveira (2010b) conducted a comprehensive diagnosis of the mineral sector, identifying 32 mining areas. Being that of these, only eight are in activities in the regions of Lourenço, Vila Nova, and Araguari. Mathis (2012) complemented the identification of the mining fronts in operation in Amapá by Oliveira (2009b), with production estimates and socioenvironmental conflicts occuring.

In Lourenço, the failure to comply with the Plan for the Recovery of Degraded Areas (PRAD) by Mineração Novo Astro (MNA) was certified by Silva (2005). Environmental aspects of mining in Lourenço are also analyzed by Chagas (2013), with details on the operation of mining companies, goldminers, and the pollution of the region's water ways.

Between 1994 and 1997, surveys on mercury contamination were carried out in the Amapá gold mining regions, with special emphasis on projects coordinated by José Adolfo Melfi, from the Universidade de São Paulo (USP)[3] and, by Edson Bidone, from the Universidade Federal Fluminense (UFF). The results indicated the presence of the metal in carnivorous fish with levels higher than allowed by legislation, indicating the possible contamination of human populations that feed on these fish.

Particularly with respect to the Lourenço region, the cumulative impacts of mineral activity and its management have become quite complex, considering that they were produced by a succession of mining and business interventions, with the aggravating of the mining area being confined by a group of protected areas.

In spite of the pioneering occupation of the Brazilian Northern Frontier, Lourenço's prospector community has become the main threat to the integrity of the protected areas of Amapá, which together (conservation and indigenous areas) constitute a mosaic of about 10 million hectares, corresponding to 70% of the total area of the state of Amapá (Drummond, Dias, Brito, 2008).

The conciliation of the prospecting activity in Lourenço with the protected areas was conceived within the scope of the Sustainable Development Program of Amapá (PDSA), adopted as public policy by governor João Alberto Capiberibe in 1995. Under the PDSA, the "Socioeconomic and Environmental Development Plan of the Lourenço Area" was designed, with the following actions: i) analyze the

socioeconomic situation of the goldminers and their families; ii) analyze the impact of mining activities on the environment; iii) create a proposal to reduce environmental degradation, notably with regard to the use of mercury; iv) improve the organizational process of gold mining; v) encourage the processing of gold in the region itself and; vi) integrate the goldminers and their families into the community organization.

The Plan was intended to create the future conditions for transforming Garimpo do Lourenço into a community of Jewelers. This action adheres principles of sustainability when proposing the strengthening of cooperatives and the aggregation of local value to the gross gold. Segundo Chagas (2013), the existence of a cooperative, the good infrastructure left by the MNA and the occurrence of gold were the basic elements for Lourenço to be able to host the project to create a community of jewelers, idealized within the scope of the PSDA.

However, even with conciliatory support from the Public, Federal, and State Ministries, the complexity of the challenges faced by the government, the discrimination of the prospector, and the political discontinuities did not allow for the achievement of the results expected by the PDSA.

## Geopolitics of the prospector occupational, risks and "Operation Minamata"

In the early nineteenth century, the region where Garimpo do Lourenço is located was challenged by France, who claimed the limits of the Guyanese colony to be the Araguari River and not the Oiapoque River, as defined by the Brazilians. In 1841 an agreement of neutrality of the territory in dispute was established (Granger, 2011).

France, which had discovered gold in southern Guyana in 1854, fostered an occupation in the disputed region, creating an independent republic in 1885, dubbed the "Cunani Republic". Sarney and Costa (1998) consider that the Republic of Cunani, ridiculed by some writings (Picanço, 1981; Santos, 1994), was rather wise in diplomatic and political action to appropriate the region containing gold mining.

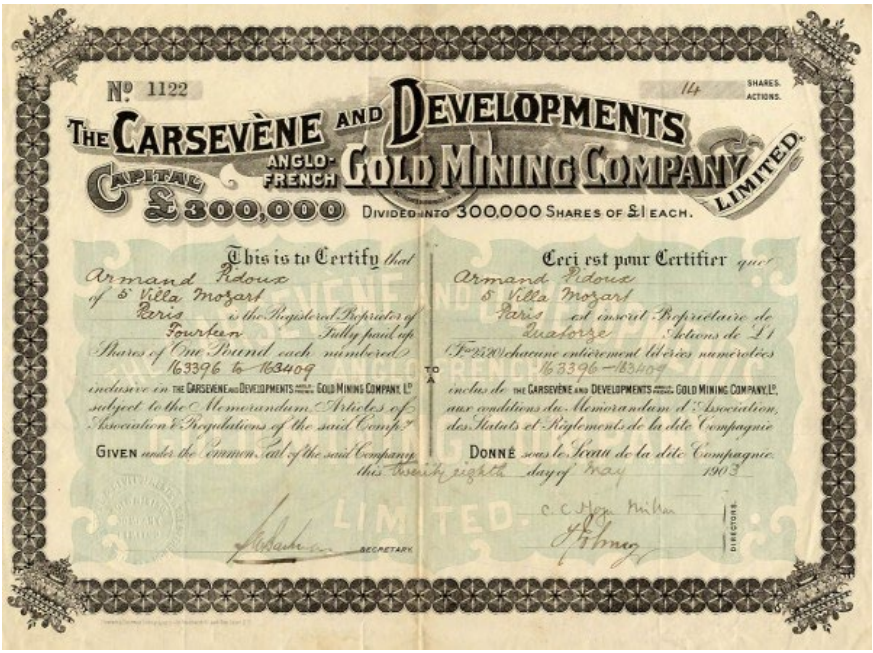
In 1894 gold was discovered in the locality of Lourenço, in the upper Calçoene River, Northern Amapá. Soon the region was intensely occupied, receiving between 6,000 and 10,000 prospectors. At the time,

the French dominated the region and all gold was drained to Guyana. French Guiana's gold production, which was 1,500 kilograms per year, jumped to five tons. The conflict was escalated by the prohibition of the access of the Brazilians to the mines, a premeditated attitude, in order to create favorable conditions for France to annex the disputed region to Guyana (Picanço, 1981; Meira, 1997; Sarney; Costa, 1998).

The situation even provoked armed war between the French and Brazilian invaders who, led by Francisco Xavier da Veiga Cabral (Cabralzinho), expelled the French from the disputed area. The situation was only resolved in 1900 in the courts of Switzerland, with Brazil victorious over the territorial rights over the disputed area by the defense of José Maria da Silva Paranhos, the Baron of Rio Branco.

However, it cannot be said that the region of Lourenço, in the north of Amapá, had become a disordered gold mining region in the late nineteenth century. France had installed the Societé Française de L'Amerique Equatoriale on the site and in 1904 an association of French and English entrepreneurs created The Carsevène and Developments Anglo French Gold Mining Company Limited, whose objective was to develop mining in the region (Figure 2). Three-hand Californian pylons were installed at Lourenço, steamed by two vertical boilers. A company called Carsévène Railway Company, in Paris came to deploy monorails to link Lourenço to the Atlantic Coast, a length of 110 km (FERRAN, 1988).

**Figure 2** - Certificate issued by The Carsevène and Developments Anglo-French Gold Mining Company (1903)




Source: Coutinho (2016).

In the first decades of the twentieth century, there was a decline in gold production in Lourenço, caused by rudimentary techniques of extraction and falling gold prices. The region began to experience only sporadic outbreaks of prospecting, but definitively consolidating itself as one of the most traditional gold mining regions of the Amazon and Brazil.

A new mineral boom in Lourenço occurred in the late 1960s, when the mining entrepreneur, Joel Ferreira de Jesus, implanted a mine with hydraulic dismantling, obtaining some success in the extraction of gold. In 1983, Companhia de Mineração e Participações (CMP) acquired the Joel Ferreira de Jesus area, installing a subsidiary, Mineração Novo Astro (MNA).

In addition to the MNA, Mineração Yukio Yoshidome (MYYSA) also setteled in the region, a company that evolved from mining. The production statistics of the garimpo are inaccurate, but the companies

created around 20 tons of gold in 10 years of extraction (1984 - 1994). In this period, the price of gold in the international market became attractive for mining, reaching the approximate value of $ 800 per troy ounce (Mathis; Brito; Brüseke, 1997).

MNA and MYYSA operated in Lourenço at an embryonic period of the National Environmental Policy (PNMA – Law n° 6.938/81), with sporadic actions of environmental control carried out, initially, by the Brazilian Institute of Forest Development (IBDF) and, starting in 1989, by the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) in conjunction with the newly created State Environmental Coordination of Amapá (CEMA-AP). The mining companies left a significant environmental liability in the region, mainly regarding pollution of water resources and non-compliance with the Degraded Areas Recovery Plan (PRAD). Many of these impacts were camouflaged or attributed to the mining.

The manager of MNA, in an interview[4], comments that the company's operation has always been tense with regard to the prospectors, with constant conflicts over the use of the MNA's areas, which were released to the prospectors in a difficult negotiation processes. In 1994, with the closure of the MNA operation in Lourenço, tensions and conflicts in the region intensified, with disputes between prospectors for the possible "gold lode" that the company had left behind.

The Cooperativa de Mineração dos Garimpeiros do Lourenço (COOGAL) was created as an alternative of organized occupation of the area that belonged to the MNA. After mediation by the Federal Public Prosecutor and the Government of Amapá, COOGAL obtained from the DNPM the homologation of the transfer of the mining rights of the securities belonging to MNA.

The gold mining practiced by COOGAL has become dangerous and the risks have increased, especially those of an environmental and working nature. As a result, the region's environmental pollution indices increased due to the indiscriminate use of mercury, and occupational accidents became frequent, with fatalities recorded as a result of landslides.

In 2017, the Lourenço mining region was the object of a Federal Police operation – "Operation Minamata" – in conjunction with the Federal Public Prosecutor's Office, in order to combat crimes committed by COOGAL related to the miners being subject to slave-like conditions

, unlawful mining or extraction, illegal use of mercury, crime against aquatic fauna, possession of an explosive device, criminal organization, and money laundering. (PF, 2017).

The mine was closed, but soon reopened by a court decision arising from the emergency situation declared by the mayor of the municipality of Calçoene, on the grounds that the paralysis of the mining activity was generating social chaos in the Lourenço district due to the absence of income of the families and the fact that the irregularities identified were still under investigation.

The MPF/AP has insisted on actions to organize the gold mining activity in Lourenço, with the elaboration of anthropological reports and recommendations for the gold extraction to be carried out in a sustainable way by the existing prospector community, which carries traces of traditional community (MPF, 2018). However, the Brazilian state remains negligent in the face of the challenge of dealing with a mine surrounded by a set of protected areas.

## Protected areas, mining, and unsustainability

Nature preservation and mining are difficult to reconcile. There are inferences in the mining literature that follow principles of sustainability in Canada and Norway (Enríquez, 2008). In the Amazon region, an experiment is underway in the Juruti region of Pará (GVces, 2008). In fact, since Rio 92, the mining sector has been adhering to protocols and agendas for sustainable development (Chagas, 2013), but, on the real scale, mining carries an immeasurable socio-environmental liability, with negative repercussions and disreputation, as in case of manganese ore exploitation in Amapá (Drummond; Pereira, 2007).

The mining activity was kept hidden or discriminated by the debate on sustainability in mining. It transits, in fact, between the pioneerism of territorial occupation and the condition of illegality and criminality, as shown by Barbosa's (1991, p. 229) text, rescued for current reflection:

> In recent years, and especially months, mining and garimpeiros have been a constant presence in the newspaper headlines. This recent visibility, however, is not associated with the same aspects that made the gold miners of our first mining cycle national heroes: the wealth of gold and the conquest of the nation's political frontiers. Quite the contrary: mining and prospectors appear today

> in our imagination as agents of mercurial pollution, destruction of indigenous societies and various other forms of confrontation. From characters in textbooks, they became the villains of contemporary Brazilian society. In the performance of this role, we inserted into our mental map only, through negative syntagmatic axes.

The Lourenço mining region is located in an area of river basin boundaries, with Serra Lombarda being the main water dividing line between the headwaters of the Araguari River (draining its waters to the South) and the Oiapoque River (draining its waters to the North). This geographical feature makes the Lourenço region extremely important for the maintenance of the environmental quality of the adjacent basins.

The existence of a set of protected areas in northern Amapá and French Guiana shifted the Garimpo do Lourenço to a very delicate geopolitical condition. Management plans for protected areas explicitly mention mining as the main threat to the integrity of ecosystems and biodiversity, particularly due to the use of mercury (ICMBio, 2009).

The indiscriminate use of mercury in the mines in the region is well known to the state. Guedron (2008) estimated that, between 1857 and 1992, neighboring French Guiana produced 170 tons of gold using 230 tons of mercury, with detection of mercury content in the organic form above 10 $\mu$g.g−1 (limit established by WHO is 0,5 $\mu$g.g-1).

On the Amapá side, after the studies on mercurial contamination already mentioned, coordinated by the researchers, Adolpho José Melfi (USP) and Edson Dausacker Bidone (UFF), even with recommendations about the need for more detailed research to determine the magnitude of impacts, only recently were new research initiatives coordinated by Lima et al. (2015) and by Venturiere et al. (2017).

In Lima et al. (2015), the concentrations of Hg in the fish at the sampling point in Lourenço did not indicate contamination, with weights justified by the trophic level of the fish captured, composed mostly by herbivorous species. In Venturiere et al. (2017, p. 18) the results were alarming:

> The high percentage of Hg detection in 81% of the fish examined and the presence of Hg levels in several fish species higher than those established by the WHO standard guideline strongly suggests that mercury is already a significant environmental threat and is a potential problem throughout the region.

Following the arguments of the authors:

> Despite being a very important economic activity in many regions of the Amazon, gold mining often results not only in a degraded environment but also in precarious social conditions, such as widespread diseases among miners (for example, malaria and sexually transmitted infections). In addition, there is an increase in the level of prostitution, violence and slavery in the mining areas (VENTURIERI et al., 2017, p. 18).

Specifically, on the use of mercury in the mining of Lourenço, the manager of the MNA comments that "the region was so heavily mined that on many fronts of mining located near the mining area of the MNA, it was common for the prospectors not to dig out gold, but mercury which was re-marketed on the spot." (verbal information).

The environmental and social problems identified are well known, as well as some solutions developed by research institutions, with the possibility of application with the support of the state. However, Mathis (2001) points out that these problems must be discussed and analyzed with the prospectors, obtaining, in this way, criticisms, and suggestions, within a process of negotiation and persuasion (Mathis, 2001).

The State, in turn, as an agent of arbitration of conflicts between prospectors and preservationists, has notably advanced in favor of nature protection in protected areas to the detriment of the complexity of the web of challenges that involves the organization of the mining activity.

For example, the Brazil-France bilateral agreement to combat the illegal exploitation of gold in protected areas or heritage areas, celebrated in 2008 and promulgated by Federal Decree n° 8.337/2014, formed a politically hostile environment for the mining industry in Lourenço. In the meantime, a series of economic facts that have recrudesced the dilemma "mining x preservation", such as i) the attempt to repeal the decree that established the National Copper Reserve (RENCA) and the overlap with protected areas; ii) the possible exploitation of offshore oil and the consequent risks on extensive corals reefs discovered in nearby areas e; iii) the construction of two hydroelectric dams in the state's main river basin (Araguari River) with a series of neglected impacts.

The mentioned facts, associated with the problems of management of COOGAL and the external preservationist pressure, converged on the State to act in the Garimpo do Lourenço, resulting in Operation Minamata.

The criminalization of COOGAL needs to be understood distinctly from the mining activity and for this it is necessary that the State recognizes the prospector not as marginal, but as a part of the history that, in some way, contributed to the guarantee of the national sovereignty in the border of Brazil -France, in northern Amapá.

## Final considerations

The consolidation of a regional preservation scenario with the presence of a number of protected areas, both in Amapá and French Guiana, the recent dissemination of research on mercury contamination and the fragile management of COOGAL have converged to criminalize the Lourenço mining activity by the State (Operation Minamata).

This conclusion brings to light the contradictory positions of the State, which on the one hand exalt the pioneerism of the occupation of the prospector in northern Amapá as a strategy of defense of the national territory before the French invasion and contestation and, on the other, criminalize what was pioneering by the marginal and discriminatory condition of the prospector.

It is recognized, however, that both the State Government and the MPF / AP welcomed the parties involved in mining in Lourenço to resolve the conflicts and worked hard to find alternatives that would guarantee the legality of the gold mining practice in a cooperative and sustainable way. The Socioeconomic and Environmental Development Plan of the Lourenço Area, prepared by the Government of Amapá in 1995, demonstrates the institutional commitment in favor of the organization of the activity.

The District of Lourenço is included in the map of the most traditional gold mining regions of the Amazon, but at the same time, it is also among the most impacted, mainly by the indiscriminate use of mercury, which cannot be attributed only to the prospectors' activity considering that mining companies also operated intensively in the region.

Research on mercury conducted in the 1990s and more recently, between 2015 and 2017, indicates that the region's fish are contaminated and call for intervention by the State, without any more effective action being taken, such as the prohibition of the use of metal in the mining activity, as already foreseen in international protocols.

The bilateral Brazil-France agreement to combat the illegal exploitation of gold in protected areas or heritage areas celebrated in 2008 and its promulgation by Federal Decree n°. 8.337/ 2014 created the political environment for State intervention in Lourenço, with a possible motivation preservationist and end of criminalization of COOGAL activities.

Between merit and crime, theoretical categories have yet to be unveiled, such as the condition of recognition of the Lourenço Garimpo as a traditional community. This distinction is necessary because there are differences between the illegal activities of COOGAL and those of the prospectors who have occupied the region since the 19th century and mine gold as a way of survival.

## Notes

1 "Ilha de Sintropia" é um conceito utilizado por Altvater (1995) para explicar como certas estruturas e materiais que ocorrem no planeta são dispostas de forma ordenada e concentrada, possibilitando acesso mais fácil pelo ser humano.

1 "Island of Syntropy" is a concept used by Altvater (1995) to explain how certain structures and materials that occur on the planet are arranged in an orderly and concentrated way, allowing easier access by the human being.

2 Interview granted to the author by the Manager of MNA, geologist César Torresini, in Macapá, on 09/21/2009.

3 Reference to the project "Study of the Mercury Cycle in the Amazon Forest Ecosystem: Evaluation of the Impact of Gold Mining on the Use of Mercury on the Environment (Amapá) ".

4 Interview granted by César Torresini on 09/21/2009, in Macapá, Amapá. Torresini joined as a junior geologist in the MNA and later held various management positions during the company's operation in Lourenço.

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