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Procedural irregularities related to the semi-industrial exploitation of the Aruwimi River by Xiang Jiang Mining Sarl in the Basoko territory (Congo Basin, DRC)

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Abstract
This paper addresses the generality of a Chinese mining company established in the territory of Basoko. The irregularities of the company that hinder the procedure with regard to the interpretation of the new mining law of 2002 as amended in 2018 are described. To collect data in the field, an inductive approach was used, by comparing the literature and direct observations in the field. Three techniques were applied: (documentary, focus group, and semi-structured interviews). The main finding is that the law N°18/001 of 9 March 2018 on the mining code is not complied with in all aspects.The mining company Xiang Jiang Mining Sarl operates on the margins of the law. Moreover, this exploitation of the Aruwimi River will endanger aquatic and terrestrial ecosystems, and disturb the balance of the fauna and flora, with socio-economic and health consequences that are of great concern for the local population.

Keywords: Mining, legal framework, environmental deterioration, Aruwimi River, Basoko

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I. INTRODUCTION

In an environmental conflict, actors use two types of language. First, there is the economic language in which cost-benefit analysis is carried out. Then a translation of all externalities into money is made before any activity. Next, there is the human language in which we can recognize ecological, cultural, social values, etc., which promote the desire of the people and the economic actors to live together. Therefore, political ecology studies environmental conflicts and finds that the languages used by actors in conflict vary according to their interests, power, values, or culture (Matheus., 2018;Asimbo et al., 2021).

Therefore, environmental conflicts are primarily linked to the economy and follow the development process reflected in globalisation. In this chapter, we will discuss the mining-related conflict between Xiang Jiang Mining Sarl and the procedural irregularity claimed by the local population of the Aruwimi River. A mining industry refers to all activities relating to the discovery and extraction of minerals found under the ground's surface. These minerals can be metallic (such as gold and copper) or non-metallic (such as coal, asbestos, or gravel).

Mining is the extraction of ores, which are rocks in the earth's crust containing useful minerals or metals in high proportions enough to justify their exploitation (Matheus., 2018). In the process of this exploitation, water, energy, and waste management is an important part that is environmentally destructive. In addition, the waste generated is potentially harmful and the environmental consequences are maintained on the productivity of the sites with unintended inherited effects on future generations (Wakenge, 2019; Matheus, 2018).

This law number 007/2002 of 11 July 2002 on the Mining Code in the Democratic Republic of the Congo was drafted in a post-conflict context in which the country most needed investors. During the period of

pacification, dreams of development were nourished, however, the country did not have enough capital to meet the requirements of development, hence the necessity of incentive laws for investors.

In order to meet the development requirements, it was necessary to have a law that protects communities, and the environment and improves the fiscal regime for mining project promoters. For this purpose, the 2002 mining code was modified and completed by Law No. 18/001 of 9 March 2018 on the Mining Code. However, a growing public pressure is against the exploitation (Wakenge, 2019) of the Aruwimi riverbed mining in the Liambi area (Liambi, Likombe, Yakoyo...) despite the fact that the mining company Xiang Jiang Mining SARL has been granted exploitation permits.

Upstream of the same river in Banalia territory, the same company had extracted gold and diamonds. Unfortunately, at the opening, during the extraction, and at the closing of the mine, this company had not developed strategies to reduce its exposure to risks and implement better practices to reduce clean-up costs. Instead, pollution, environmental destruction, and the lack of cooperation with local communities are the legacy that the company has left in this area (Ekele and Mangambu, 2020).

Faced with the obstinacy of the Chinese company to exploit the Aruwimi River with its research permits despite the opposition of the local community, this company is still looking for means and political support from certain notabilities for forced exploitation. According to a certain opinion among the local population, people are seeking the support of the legal office to request the Ministry of Mines to cancel the two permits granted to Xiang Jiang Mining. Though the soil and subsoil belong to the state, the latter must guarantee private and collective property. If the people of Basoko, particularly those of Liambe, Likombe, Ilongo-Mbutu, Ilongo-Koki, Yangonde-Lioto, Yakoyo, Bomane, Baonde, etc., are expropriated from their land to the benefit of this Chinese company, they will be deprived of their basic resources (means of substance). (https://www.election-net.com/tshopo-polemique-autour-de-lexploitation-miniere-a-basokodossier/).

II. METHODOLOGY

STUDY SETTING: BASOKO TERRITORY

This study was conducted in the Territory of Basoko which is a Deconcentrated Territorial Entity (DTE) of the Tshopo Province in the DRC. It has an area of 22. 436 km² (Figure 1, De Saint Moulin, 2012). It is located at an altitudebetween 120 to 800 m, a latitude of 1 to 2° North and a longitude of 20 to 26° East, with an estimated population size of 332,117 inhabitants, or 15 inhabitants/Km². which is located entirely in the Congo Basin (source: Anonymous, 2016, Data from the Basoko Civil Status Office 2016).

Its climate is equatorial with alternating dry and rainy seasons. The dry season runs from mid-December to mid-March, while the rainy season runs from mid-March to mid-June for crop season A and from mid-June to mid-August and mid-August to mid-December for crop season B. Its average ambient temperature is higher or equal to 25°C. The thermal amplitude is null, and the rainfall is abundant and not uniformly distributed during the year. Maximum rainfall is recorded in April and October, and humidity and heat are constant (Asimbo & Mangambu, 2021).

Its relief is dominated by large expanses of flat land in the eastern central plain and with several small hills. Its subsoil is rich in minerals (gold, diamond, etc., Mangambu et al., 2021).

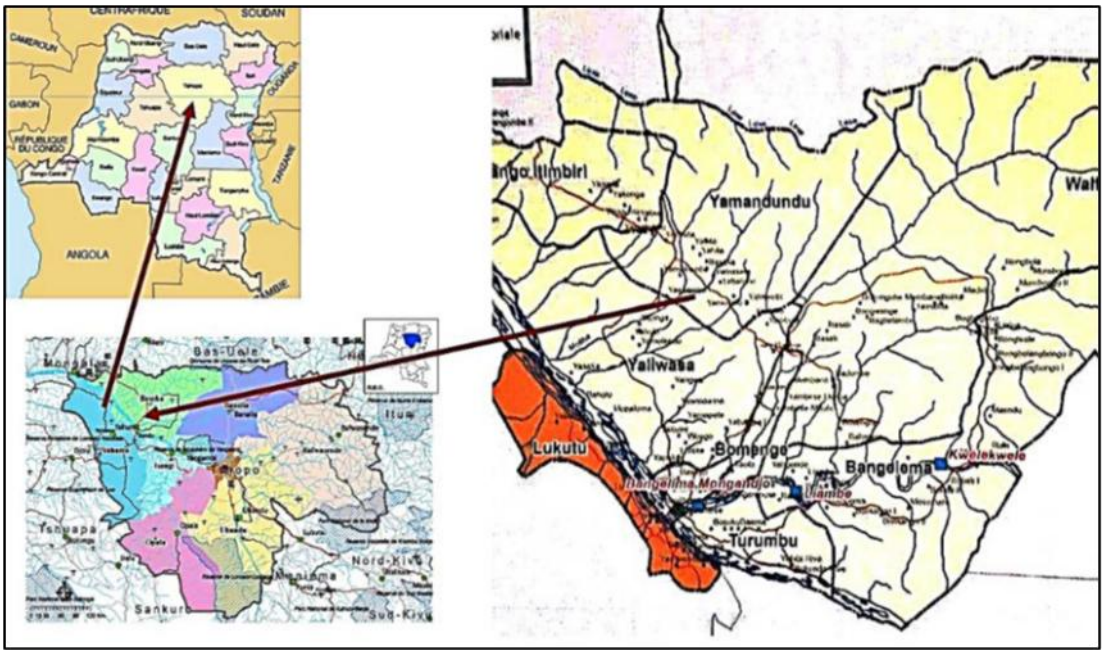

Figure 1. Map of the territory of Basoko (De Saint Moulin, 2012, as adapted by Mangambu et al., 2021).

The vegetation of the Basoko territory is dominated by primary or secondary evergreen equatorial forest, where exploitable species such as *Pericopsiselata* (Afromosia), *Gilbertiodendrondewevrei* (Limbalo), *Miliciaexcelsa, Uapaca guinensis, Prioriabalsamifera*, *Entandophragma*ssp (Liboyo), etc., dominate.

The flagship species of Basoko fauna are Hippos, Crocodiles, Elephants, Monkeys (Chimpanzees, Colobus, Baboons...), Snakes (Vipers, Pitons, Mambas...), various birds, and freshwater fish (*Clarias*sp (Ngolo in local language), *Auchenoglanis* sp. (Foka), *Hydrocynus*sp. (Mbenga), *Distichodus*sp. (Mboto), *Heterobranchus*sp. (Kamba), (Mangambu et al, 2021). The Aruwimi River, the study site, is also called Lohale by the Basoko population.

It flows in the North and North-East of the country, in the regions of Ituri, Uélés, and Tshopo. Its headwaters are namedIturi, which originates in the savannah region north of the Kibali River basin (Oberiuele, 2011).

Xiang Jiang Mining SARL

It is a trading company with limited liability up to the amount of the contributions and has the characteristics of a mixed company, six people and the shares held in the capital are not freely accessible without the agreement of all or some of the shareholders (https://congoaujourlejour.blogspot.com/2020/04/on-denonce-les-irregularites-et-la.html).

The company has its headquarters, on number 15, Avenue du Commerce, in the Commune of GOMBE in KINSHASA. Their Articles of Association dated April 29, 2019, are signed by Ying Jianbiao, Pan Farming, Li Haibo, Chen Cheng, Zhu Tiejun, and Yin Jiazhong. The six partners are placed under the responsibility of a certain YING JIAMBIAO, duration of the company is 99 years. While the research permit of Banalia territory: N°CAM/CR/8260 dated November 29, 2019, for the Research Permit No. 14765, Exclusive of 10 squares, located in the territory of BANALIA in the Eastern Province (https://desknature.com/province-de-la-tshopo-xiang-jiang-mining-a-renonce-a-son-projet-dexploitation-de-lor-et-de-diamant-dans-le-lit-de-la-riviere-aruwimi/).

It is important to point out that this company in its functionality on the Basoko land is infringing the mining code.

DATA COLLECTION

The present research was based on an inductive approach, comparing the literature with direct field observations in the high-altitude. In order to achieve the research objectives, an appropriate, rigorous, and operational methodological approach was implemented based on the empirical findings, the theoretical orientation, and the objectives (https://www.scribbr.fr/methodologie/methodes-inductives-deductives/). The research took place from January -June 2019 and August - December 2020 in 22 villages and two cities in Basoko territory. To collect the data, we used three techniques: desk research, focus group, and semi-structured

interviews.For the documentation method, we consulted the archives of the Territory of Basoko, those of the Provincial Divisions of Mines and Geology, the National Ministries of Mines and the Environment, etc.).

COMPANY'S SOCIAL STRUCTURE AND BUSINESS CAPITAL

The mission of the **Xiang Jiang Mining** company is

- the prospecting, research, exploitation, extraction of minerals, sale, purchase, and production of minerals;
- and also geological, geophysical, or geochemical examinations, drilling, sampling, and testing of mineral substances;
- metallurgical testing, discovery work (Ekele M. & Mangambu M., 2020.

The company, with a business capital of only ten thousand US Dollars (10,000 USD), holds two exploration permits, namely 14765 (20 squares) and 14764 (30 squares) in Basoko, for a total of 50 squares. In contrast to this concessional exploitation attribution, BANALIA is five times larger with only one permit (10 squares), the authenticity of which is subject to criticism, as it is not signed by the authorized persons(Ekele M. & Mangambu M., 2020).

In addition to this document, including their statutes of April 29, 2019, the recently established company Xiang Jiang MiningSarl also holds a RécépisséNo. 001/2020 of January 03, 2020, issued by the Provincial Ministry of Tshopo, in charge of Mines, Energy, Hydrocarbons and Relation with the Provincial Assembly, as well as the National Identification of July 09, 2019, signed by the Secretary General of the National Economy. The notification of the Tax Number A 1912839C of July 19, 2019, was signed by the Directorate of the Tax Base of the Ministry of Finance. However, we could not gather some correspondence.

PROCEDURAL IRREGULARITIES

While the different layers of the population are fighting against the illegal and wild exploitation of the forests by the Chinese company called "Forestière pour le Développement du Congo (FODECO)", another company has emerged to exploit the minerals in the villages of Liambe, Likombe, Ilongo-Mbutu, Ilongo-Koki, Yangonde-Lioto, Yakoyo, Bomane, Baonde and surrounding areas, located along the Aruwimi River, about 300 km from Kisangani, in the sector of Bangelema-Mongandjo in the Basoko Territory in the province of Tshopo. For this purpose, two robot dredgers were docked at the port of Yangoma Village, on the Congo River, in the Basoko Territory, and to this day, a good number of them have been put to use. In addition, a third dredger is being built in the city of Kisangani for the same purpose.

The stakeholders managed to create a structure from Kisangani called "Comité pour l'Exploitation des Minerais de Basoko", in short COMIBA, with the only purpose to support this enterprise, in order to exploit in all tranquillity, the gold, diamonds, and other minerals present in these entities. The details are indicated below. After having noticed the irregularity of the address in their documents, they specified that the Territory of Basoko could not be involved in this exploitation, as it is located in the Province of Tshopo and not as indicated.

The reaction of the population of Basoko and the local non-profit organizations

From the analysis of the file

The local population and its organizations have demonstrated too many shortcomings in the mineral exploitation dossier of this commercial and industrial company, including the following:

- The lack of an extract of the mining map and the geographical coordinates for the 03 (three) concessions, including the numbers of the judgment under RPNC 45.190iété ;
- No address of the mentioned company indicated in terms of the representative office neither in Basoko nor in Kisangani;
- The elaboration of terms of reference in Kisangani by a handful of people from the community of Basoko instead of the riparian community (LENYAMA-ABONGA, as an example), without its mandate, which was observed.

Before the semi-industrial/industrial exploitation, two villages, Liambe and Likombe, which are located in the forest, will be relocated, thus moving them away from their ancestral lands near the Congo River. The local residents are against the delocalization of their villages and refuse to allow the Chinese company to exploit their land. The indigenous people, as well as several personalities from the territory, are requesting the cancellation of these two research permits in order to fully enjoy their ancestral land, even if the soil and subsoil belong to the State, and the State itself guarantees the right to private property.

Figure 2. The population of Basoko says no to mineral exploitation by Xiang Jiang Mining SARL in Liambi (photo MS)

When the two decrees of the Minister of Mines granting research permits to Xiang Jiang Mining SARL overlap on territories that are in fact villages in which the people of Basoko, in particular those of the villages Liambe and Likombe, have lived for centuries, this is, in fact, a violation of the right to individual property. This population is now being forced to leave the land they have occupied for centuries to move to a new land. Living mainly from fishing around the Congo River and the Aruwimi River, peopleare forced into the forest where they may face enormous difficulties of survival because they will have been deprived of all their means of subsistence for their families.

In the spirit of the revised mining code, communities have not only rights but also obligations.According to Geenen, S. &Custers, R. (2010), communities have the following rights:

- Prior consultation (Communities must be consulted beforehand even for the granting of research permits,) ;
- Information (the promoters of mining projects have the obligation to inform the communities about the evolution of their activities,);
- Participation (members of the affected communities must participate and benefit from the opportunities and other advantages offered by the company).
- In addition, communities have the obligation to support development and peacekeeping efforts to make it easier for companies to operate.

Filing of the Environmental Impact Assessment

In accordance with Articles 69, 92, 103, and 154 of the DRC Mining Code, the applicant shall file with the Mining Registry, as an annex to its application for an exploitation permit, a discharge exploitation permit, and a permanent quarry exploitation permit, the Environmental and Social Impact Assessment (ESIA) for the project and its environmental management plan for the project in three copies.The modalities for the acceptability of the Environmental and Social Impact Assessment, the payment of the deposit fees related to the environmental investigation and the transmission of the ESIA, and the project's environmental management plan for investigation are determined in Decree N° 038/2003 of 26 March 2003 related to the procedures for the granting of each type of mining or quarrying right.

Overview of mining and local survival practices

Agriculture and fishing are the activities most practiced by the Basoko population, not only because of the cultural habits of the tribes, but also on the principle of resource productivity (soil, forest, and water). A leader said: "*Water is for us the essential element for our life as Basoko in our cultural diversity. Our life cannot be conceived or lived without a river, stream, or stream. Today, mining on our river will disrupt our daily life, despite the many promises of development.*

Another says: "*This mining will no longer allow us to produce rice, groundnuts, palm oil, maize, yams, bananas, cassava, etc., on the coastal land of the Aruwimi River. We live off the swampy forest through which our river flows and which produces the game, snails, caterpillars, termites, etc. And fishing is our favorite daily*

activity. Our children will no longer eat fresh, smoked, and salted fish, nor will they eat the products of domestic livestock (chickens, pigs, goats, sheep, etc.).

VIEWS ON ENVIRONMENTAL IMPACTS: DISCOURSE OF THE LOCAL POPULATION

The mining project on the Aruwimi River in the Liambe area (Baonde, Liambe, Yakoyo, Yangonde-Lioto, Ilongo, Likombe, Bobaula, Mongandjo...) aiming at the semi-industrial exploitation of gold and diamond deposits is at high risk for more than 80% of the population, says a local leader. Other accounts recorded indicate that "For generations, the people living along this majestic river have lived mainly from the fruits of its waters and used it as a drink. This river serves as the backbone for the communities, and the main communication route for their mobility. "If mining were to take place in Aruwimi, the effects on water quality and availability of water resources in the project area would be probably the most significant impact.

Key questions would be whether water quality and surface water supplies would remain suitable for human consumption and support aquatic life and native terrestrial wildlife in the project area. According to the League of Traditional Chiefs, "Liambe is in a high rainfall area, so water pollution factors may occur from small-scale local and informal artisanal mining, (Figure 5). Therefore, the consequences will be enormous, not only for the area of exploitation but also beyond the mouth of the Aruwimi River. For example, in surface waters, high concentrations of particle matter in the water column may produce both chronic and acute toxic effects in fish es which are the most important Regenerative Revenue Resources (RRR) and the main food source of local residents. For example, in surface waters, high concentrations of particulate matter in the water column could produce both chronic and acute toxic effects in fish, which are one of the Regenerative Revenue Resources (RRR) and the primary food source for local residents.

The example of Banalia, upstream of the Aruwimi River, reveals inthe SAESSCAM - Kisangani Branch report (2020), that the large quantities of water that will be discharged into the environment during the entire exploration period, containing debris from the 'clay-sandstone' soil, will have a negative impact on the vegetation and even the animal life in the area. Therefore, we, the holders of the ancestral land and water, are against this exploitation.

According to the same SAESSCAM-Kisangani Branch report (2020), any semi-industrial mining operations conducted in Tshopo Province lead to sediment deposition in surface waters, or in the floodplains of a river valley. They will further aggravate erosion processes. Sedimentation will result in the accumulation of thick layers of fine minerals and alluvium in floodplains, as well as the degradation of aquatic habitats and the loss of storage capacity of water bodies. The case of our neighbors in the Abolo de Banalia illustrates this. In the case of Liambe and its surroundings, given its erosive sandy-clay soil, the main factors that will influence erosion include the volume and speed of runoff from rainfall, the rate of penetration into the soil, the amount of vegetation cover that will be destroyed, the distance of the slope or the interval from the point of origin of the sheet flow, and the compositions of operational erosion controls.

Before mining, we also have to consider the agricultural aspect and understand the evolution of the deforestation mechanism in the upcoming years. A researcher from the royal lineage demonstrated the deforestation and land degradation impacts of semi-industrial mining. According to this study, these mining activities are real catalysts of deep degradation of the bio- and pedoclimatic conditions that could lead to a different thermal regime and new water dynamic in the soil and will affect the upper meters of the soil profile. This was the case in Banalia, where mining was carried out on only 10 mining squares.

The case of Banalia and Bafwasende warned by SAESSCAM-Kisangani indicates that "there is a risk of transfer from one area to another, where it could create similar environmental problems, or even become an indirect source of pollution of the same area. Without being as costly as a remedial measure, reducing pollution at the end of the cycle can significantly increase the cost of production processes without adding value" (SAESSCA, Service assistance et d'Encadrement du Secteurminier de type artisanal) of Kisangani.

Furthermore, the case of Banalia and Bafwasende reveals that: "mining operations require large quantities of substances and waste containing particles that are often dispersed by the wind and that are often sources of atmospheric contamination in mining operations".

According to a local agronomist, based on the same SAESSCAM-Kisangani report, "these particulate emissions to the atmosphere include storage and transport of materials, mine processing, fugitive dust, blasting, construction activities and drifts associated with mining activities, leach pads, tailings piles, transfer ponds, and waste rock piles. The sources and characteristics of fugitive dust emissions from mining operations vary in each case, as do their impacts. Thus, material particles are transported by the wind, as a result of blast excavations, material transport, disintegration by the wind, fugitive particles from tailings facilities, and tumbling areas...with serious effects on human health (heart disease and pneumonia) and on the environment.

At all levels, environmental effects will be noticeable. Mining is one of the activities with the greatest environmental impact and as such, it is strongly contested by environmental NGOs and local communities who suffer directly from the effects of pollution, environmental degradation, pollution, and nuisances.

LEGAL STATEMENT

The local leaders and the board of the Silent Minority Asbl note that it is appropriate to examine certain provisions of the mining law that comply with the standards established by the regulations in force in the DRC:

- Article 33, paragraph 2 of the Mining Code stipulates: "In this case, the Minister in charge reserves, by decree, the mining rights over the deposit to the invitation to tender. Before granting quarry authorizations through a call for tenders, the Minister consults his counterpart at the provincial level and the local community involved, within the framework of a consultation commission, the modalities of which are determined by regulation".

From the analysis of this provision, the legislator requires that before any authorizationis given to the company selected by the call for tender, the Provincial Minister of Mines and the local community should undertake prior consultations, with the sole aim of establishing the validity of the exploitation. However, in the case under consideration, it appears that the local community was surprised to see the company equip itself with dredgers for the exploitation without respecting the prior consultation.

Article 52 of the same Code stipulates that: "the duration of the research permit is five years, renewable once for the same duration and for all mineral substances. This research permit does not give any right to exploitation. This right will only be effective after the completion of the entire research procedure by granting the exploitation permit. It is necessary that once a mining company has obtained an exploration permit, it is able to know the surface area of its mining area and the types of deposits found there, as well as the quantity of minerals found in the area to be exploited.

Another observation is that this Chinese company was created in January 2020 and obtained its research permit without however clearing the research procedure, but wants to proceed directly to the harvesting of minerals on the Aruwimi River, in violation of the provisions of the mining law. From these legal clarifications, the Local Leaders, the Civil Society Consortium, and the office of the Silent Minority Asbl addressed the following questions:

- *Why was this determination to exploit the minerals in Basoko during this time of health emergency proclaimed by the Head of State and President of the Republic while the country is affected?*
- *How can a company with a business capital of only US$10,000 build-up drag of an amount far greater than its stake?*
- *Will this mineral exploitation have a positive impact on the development of Basoko*?
- *Will this exploitation of minerals have a positive impact on the development of Basoko?*
- *Can we not sign a set of specifications with the local population?*

The answer to these questions will provide basic elements that are further developed in the following chapters of this article according to scientific analysis.

The people of Basoko point out that this is indeed semi-industrial exploitation. With reference to Articles 33 and 52 of the Mining Code in force, the Congolese State is complicit in the fraud of the Chinese, by the fact of the attribution to its client Xiang Jiang Mining SARL of two research permits (No. 14764 and 14765) for a total of 30 squares for 99 years, without prior consultation of the local community of Basoko,

According to Article 165 of the 2018 Mining Code, all mining operations, except for temporary quarrying, must be subject to a project environmental impact assessment and a project environmental management plan[1] .

This is in accordance with the Rio Declaration 78. According to this statement, ESIA procedures have three key stages:

- *initiation, completion, and approval" or applicant for an operating permit ;*
- *a discharge permit, a small mine permit, or a quarrying permit to submit an environmental impact assessment with an environmental management plan for the project and obtain approval of its ESIA and EMP, and implement the plan.*

To have complied with the obligations to maintain the validity of the permit provided for in Articles 196, 197, 198, and 199 of this Code, by presenting:

- *aproof of payment of the annual surface fee per square and the surface tax on mining concessions ;*
- *provide proof of the capacity to treat and process mineral substances in the Democratic Republic of Congo and submit an act of commitment to treat and process these substances on Congolese territory.*

This is regrettable, according to the Basoko associations and the Civil Society. Article 75 has not been respected. The article refers to the deadline for the environmental and social investigation of the application for

[1].The procedures for ESIAs of mining projects are set out in Law No. 007/2002 as amended and supplemented by Law No. 007/2002 of July 11, 2002 on the Mining Code of 2018 in its Article 204

- Transfer to the State 10% of the shares or stocks constituting the share capital of the applicant company. These shares are free of all charges and non-dilutable and create, at each transformation, within the framework of a separate mine or a separate mining project, an affiliated company in which the applicant company holds at least 51% of the shares or stocks
- to file a deed of commitment to comply with the specifications defining the social responsibility towards the local communities affected by the project activities.

an exploitation permit. The code states that the environmental and social investigation of the ESIA and the ESMP relating to an application for a mining permit that has been declared eligible is carried out within six months from the date of transmission of the application file by the Mining Registry to the Congolese Environment Agency and the National Fund for Promotion and Social Service, in collaboration with the Directorate for the Protection of the Mining Environment, in accordance with the regulations on environmental protection

Finally, the code provides that in the event of population displacement, the mining operator is required to proceed in advance with the compensation and resettlement of the populations affected. Article 281 paragraphs 7 and 7 bis of the code stipulate that: "Any occupation of land that deprives the right-holders of enjoyment of the soil, any modification that makes the land unsuitable for cultivation shall entail, for the holder or the leaseholderof mining and/or quarrying rights, at the request of the right-holder of the land and at their convenience, the obligation to pay a fair value for the land at the time of its occupation, increased by half... However, the occupant of the customary land may, with the agreement of the holder, continue to exercise his right to cultivate on the condition that the work on the fields does not hinder the mining operations. The landowner will then not be able to continue to construct buildings on the land. However, there is no signed agreement between the two parties, on the one hand, the local community, and on the other hand the company Xiang Jiang Mining Sarl.

EVALUATION OF THE ENVIRONMENTAL MONITORING PLAN

According to the analysis and the testimonies of the people of Basoko, all the promises of the ESIA are likely to be a mere illusion unless the ESIA establishes the means by which the mining company and/or responsible government officials will monitor the implementation of the mining project and its impact on the environment.

As Conservation International explains: "The monitoring programme should be part of the company's overall environmental management system, and should respond directly to the environmental issues identified in the EIA carried out prior to the start of operations. But the company's experiences in other countries have shown these limitations', (Blom A., 2001). The public states that the monitoring programshould be developed using a set of objectives, the company's obligations, and the existing conditions. The program should also define the work plan, the responsibilities of the mining staff, the measures taken for monitoring, and the reporting systems. Monitoring starts with baseline sampling programs to describe the environment in the pre-development phase.

Environmental issues that are addressed and managed by the plan generally relate to issues such as land clearing and topsoil, water, waste rock, tailings, hazardous waste, biology (species, health risks, biodiversity), dust, noise, and transport (Geenen, S. &Custers, R. 2010):"

An Environmental and Social Management Plan (ESMP) should provide more than just details about where, when, who, and how often a mining company will monitor the quality of water, air, and soil in the vicinity of the mining project, as well as the amount of pollutants in the effluents and emissions the company releases into the environment.

The environmental monitoring plan should also indicate how this information will be provided to government decision-makers and the general public so that they can assess whether the mining company has complied with all its promises and appropriate environmental regulations and standards (Geenen, S. &Custers, R. 2010).

Furthermore, based on the book Canivet G. et al. (2006), which refers to the United Nations Environment Programmes judicial manual of environmental law, there is no prior consent procedure (PCP) between the Chinese and the population of Liambi and Basoko.

Therefore, it is important that the environmental monitoring plan specifies that it will promptly report all monitoring data to the public in a user-friendly format (Butaré, I., & Keita, S. 2012). It is also essential to ensure that citizens from affected communities are part of the teams set up to monitor the environmental performance of a mining company. These monitoring teams could raise suspicions if they only include representatives from industry and/or government agencies (IFC/World Bank, 2007). "Reducing the impacts of mining involves issues of siting, technological solutions to remove contamination, and rehabilitation programs…'.

Most important for mining is the location of mining operations and tailings ponds to avoid sensitive habitats, wetlands, riparian areas, and feeding areas. Nothing is stated about this by the company, furthermore, the specific mitigation measures depend on the type of operation and the specific process causing the impacts (Butaré, I., & Keita, S. 2012). In addition to minimizing disturbed areas, activities should be timed to avoid disturbing nearby plants and animals during crucial periods of their life cycle (Miller, G. & Jones, G., 2005; Caron-Malenfant, J. &Conraud T., 2009).

For the population of Basoko and the Liambe area, no provision of the code in their benefit has been respected, so they request the execution of Article 290. Apart from the major rejection due to natural disasters,

the Liambe land is shallow. Therefore, any exploitation will make it implausible and unrealistic. Moreover,there are other environmental consequences that do not allow mining in this area. Climate change and natural disasterscan also influence the availability and distribution of natural resources. According toCanivet G. et al. (2006), the population of Basoko also relies on the Prior Informed Consent (PIC) procedure, which is a procedure used before starting activities to limit potential conflict and reduce the risk of environmental or social damage.

PUBLIC HEALTH IMPACT ASSESSMENT OF THE PLAN

In general, mining projects in sub-Saharan Africa often underestimate potential health risks inherent in mining operations (UNDP, (2016). Hazardous substances and waste discharged into water, air, and soil may have serious implications for public health (Vanclay, F. 2002; Franks, D. et al., 2010). The World Health Organisation (WHO) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (Vanclay, F. 2003; Daniel, P. et al., 2013).

The term "hazardous substances" is broad and includes all substances that can be harmful to the population and/or the environment. The extractive industry in Liambe, may cause damage due to the quantity, concentration, or physical, chemical, or infectious characteristics of the hazardous substances it is expected to use, namely

- *an increase in mortality or an increase in serious irreversible or disabling infectious diseases caused by chemical substances.*
- *substantial or potential risks to human health and the environment if these substances are improperly managed, stored, transported, disposed of, or otherwise managed.* Cheshire, L. (2010) and Coleman et al. (2018) suggested that soils form and evolve as a result of geochemical processes (the totality of mineral weathering processes, secondary mineral formations, and other types of solid/solution interactions), biological processes (degradation of organic matter and formation of evolved organic compounds), and material and energy transfers. The mineral phases and complexes formed are predominantly silicates (such as clay minerals), oxides and oxyhydroxides, carbonates, phosphates, and sulfates (Corkal. et al., 2020).

This figure shows the transfer of substances from water, atmosphere, fauna, and flora to humans who ingest them by inhalation and dermal absorption, exposing themselves dangerously to infectious and carcinogenic diseases

THE ACCELERATED AND IRREVERSIBLE CRISIS BETWEEN THE TWO STAKEHOLDERS

The crisis caused by the accelerated and probably irreversible impact of human activities on nature requires collective responses from international institutions, governments, and citizens. Governance understood as the plural management of social and environmental policies and actors aims at addressing this crisis by bringing together the experience and knowledge of each of the institutions and social agents involved (Canivet G. et al., 2006).

The increasing scale and severity of the environmental problems that will arise in the Liambe area will lead to a decrease in biological diversity and the degradation of ecosystems already threatened by climate change, which will stifle any potential response from the various stakeholders and already limit the prospects for the economic development of the Basoko area and other neighbors. Environmental protection measures are still very insufficient in this area compared to the warnings issued by the scientific community. These reforms are a slow process that requires time, energy, finances, and, above all, a lot of diplomatic negotiations by the elected representatives. The serious environmental crisis that is looming on the horizon is not likely to elicit common responses from the stakeholders (Chinese firms and the indigenous population).

However, divisions slow down the possibilities of environmental governance in this territory and even in Tshopo province. The question is whether or not it is necessary to find an alternative to the current system of exploitation to get out of the environmental crisis. Does this system have solutions? Can biotechnology and sustainable development be considered as a solution? The architecture of the environmental civil society community has reflected this debate. These actors have seen the participation of all the political actors as well as all the components affected in some way by the environmental crisis.

Furthermore, it must be acknowledged that nature ignores social and political obstacles and that some environmental transformation factors, such as the contamination of the water of this river, will have neither borders, nor exclusive thematic allocations of the river, but rather the majestic Congo River. It is, therefore, necessary to impose the need to apply the mechanisms provided for by the mining code from the holistic point of view of sustainability, not only between the actors of this exploitation and institutions dedicated to the environment but also between these actors and institutions and those who are interested in international trade, sustainable development, peace, etc.

ADRESSING THE ISSUE OF MANAGEMENT SCALES

Beyond partnership on the one hand, and the local scale on the other, there are fundamental clusters in the development of environmental governance, even if a major concern remains:that the intermediate scales (territorial, provincial, national) become the effective distribution channels between local initiatives and global decisions. Various obstacles and challenges in environmental governance can be mentioned:

- It has not been possible to halt or reverse the degradation of natural resources in the Liambe area;
- Persistent lack of real will to solve environmental problems and develop a policy for the sustainable use of the resources of this river. Thus, the environmental community generates consequences such as the lack of funding, imbalance, lack of agreement with the economy etc.;
- Limited financial resources combined with insufficient direct investment in the environment by this Chinese company;
- Uncoordinated methods were used at local, regional, and national levels; the multiplication and fragmentation of mandates exacerbated the situation.
- Current environmental governance is characterized by a weak sectoral policy integration, inadequate institutional capacity, poorly defined priorities, and unclear operational objectives. In other words, it can be described as poor governance;
- It is increasingly recognized that environmental issues are linked not only to sustainable economic growth and development but also to trade, agriculture, health, peace, and security. Yet, there is no permanent cooperation between the actors responsible for these issues either;
- Obligations under the mining code on the environment at the national level are difficult to enforce, generally due to a lack of political will;
- The gender perspective in addressing environmental degradation and equity issues is not integrated;
- Despite the popularity of some issues related to the environmental crisis, those related to the organization and decisions about environmental governance do not seem to have an impact on public opinion.

For others, however, the apparent fragmentation is driven by the complexity of environmental problems. Environmental managers have to deal, without specific intervention, with 'scientific uncertainties as well as with inconsistencies between the ethical ramifications and the policies dictated by the principle of precaution. It can also be argued that the problems of this riverbed mining do not necessarily require solutions at the local, territorial, provincial and local levels.

In grassroots decision-making processes, one can speak of 'participatory' or 'decentralized' environmental governance. Such models work at the local level in multi-stakeholder patterns of collaborative decision-making, for example between civil society, public institutions, and private actors. Decentralized environmental governance becomes "a new institutional framework in which decision-making processes on access to and use of natural resources tend to remain local". We believe that, normally, four elements allow these processes to develop:

- Formal and informal rules or procedures, such as consultations, participatory democracy, etc;
- Social interaction between participating groups, which may arise from external factors, such as involvement in development programs promoted by public institutions or as a reaction to unfair situations;
- The regulation or rectification of certain social behaviors in order to transform a private issue into a public affair and to be able to collectively negotiate a shift towards sustainable and acceptable agreements;
- Horizontality in the structure of a social group in terms of decision-making and
the mechanisms of relation with external actors.

Unfortunately, the legitimacy of the decisions adopted depends not only on the level of participation, whether high or low, of the population concerned, but also on the representativity of the actors participating in the non-consultation mechanisms for this exploitation. This confirms what is said that: "in the countries of the South, the main obstacle to the integration of intermediate levels in the process of territorial articulation of environmental governance is often the "developmentalist" inertia, a dominant political attitude of the States (Miller, G. & Jones, G., 2005).

As a result, the environment is not effectively integrated into national development planning and agendas in the DRC. Instead, the common perception is that environmental protection constitutes a constraint to economic and social development, supported by the export of raw materials extracted using methods that degrade nature, deplete resources, and do not generate added value.

III. CONCLUSION

In light of several legal provisions in law N°18/001 of 9 March 2018 relating to the DRC Mining Code, the study summarizes some of the procedural irregularities arising from the semi-industrial exploitation of mines on the Aruwimi River by XiangXiang Jiang Mining Sarlin Basoko territory.

It has been established that Law N°18/001 of 9 March 2018 on the mining code is not respected in all its aspects.

The mining company Xiang Jiang Mining Sarl is operating in violation of the law. Moreover, this exploitation of the Aruwimi River will endanger aquatic and terrestrial ecosystems, and disrupt the balance of fauna and flora, withsocio-economic and health consequences of great concern to the local population.

The exploitation operations may contribute tothe contamination of the water and air, leading to acts of repression such as kidnappings, and the forced eviction of indigenous communities from their lands. The rehabilitation of the mining concession and the collective rights of the indigenous peoples living in this area are in contradiction with the fundamental elements of the Peace Agreementsand with the obligations of theILO Convention 169[2] and other national and international agreements and treaties(see also

Water is still one of the fundamental prerequisites for sustainable development. Sustainable Development Goal 3 by 2030 (SDG 3) calls for good health and well-being for all. It also calls, among other things, for a reduction in the number of deaths and illnesses caused by hazardous chemicals, pollution, and contamination of air, water, and soil. Goal 6 (SDG 6) is about clean water and calls for ensuring access to water and sanitation for all and sustainable management of water resources. And target 3 of MDG 6 calls for the protection and restoration of water-related ecosystems, including mountains, forests, rivers, lakes, etc.

With respect to the environment and the rights to sustainable living conditions for the local communities of Liambe in Basoko territory, the competent authority granting the concession to the mining companies should agree to withdraw the controversial decree. Such a decision should be the result of fair consultations between stakeholders in order to limit the negative impacts of mining on their area, the people, and the natural resources on which humans and other species depend. The provisions of the Constitution allow for peaceful resistance to disagree with the violation of environmental law. However, a strong institutional and legal framework to govern the development and management of the extractive industry is essential to ensure that the rights and interests of all stakeholders are taken into account.

REFERENCES

[1]. Anonyme (2016). Rapport de Territoire de Basoko 2016 : Données du Bureau d'Etat civil de Basoko de l'exercice 2015-2016, 42 p.

[2]. Anselme B., Bousquet F., Lyet A., Etienne, M. &Fady, B. (2008). Modelling spatial dynamics and biodiversity conservation on Lure Mountain (France). *EnvironmentalModeling& Software*, in review.

[3]. Asimbo B., Mokili Kanda E.& Mangambu M. (2021). Pragmatic Vision of the Socio-Economic Impacts of Semi-Industrial Mining On the Aruwimi River: A Bad Paradigm on the Rivers of the Congo Basin (Basoko Territory, DRC). Journal of Environmental Science, Toxicology and Food Technology 15 (9), 09-20 https://doi.org/10.9790/2402-1509020920

[4]. Blom A. (2001). An estimate of the recurrent costs of biodiversity conservation through a system of protected areas in the Guinean-Congolian forest region. WWF, Washington DC.

[5]. Butaré, I., & Keita, S. (2012). Aspects environnementaux liés au développement du secteur minier en Afrique de l'Ouest. http://www.africabusinessmarket.com/fichier/1290108564aspect.pdf

[6]. Canivet G., Lavrysen L. &Guihal D. (2006). Manuel judiciaire de droit de l'environnement. Programme des Nations unies pour l'environnement. Nairobi, 267 p

[7]. Caron-Malenfant, J. &Conraud T., (2009). Guide pratique de l'acceptabilité sociale : pistes de réflexion et d'action, Québec : Éditions D.P.R.M., p. 14.

[8]. -Castilla-Gómez J. & Herrera-Herbert J. (2015). Environmentalanalysis of miningoperations:Dynamictools for impact assessment. Minerals Engineering, 76.Gullett, W. (1998). Environmental impact assessment and the precautionary principle: Legislating caution in environmental protection l'environnement. Nairobi, 267 p

[9]. De Saint Moulin L. &Kalombo J-L.T. (2005). Atlas de l'organisation administrative de la République Démocratique du Congo. Centre d'études pour l'action sociale (Kinshasa, Congo), 2e Edition revue et amplifiée

[10]. Ekele M. & Mangambu M. (2020). Feuilleton sur l'exploitation des minerais par la société Xiang Jiang Mining sarl, une entreprise chinoise a Basoko (Province de la Tshopo, RD Congo). Edition les Ekeles, Kinshasa, pp. 1- 14

[11]. Geenen S. &Custers R. (2010). « Tiraillements autour du secteur minier de l'Est de la RDC ». In S. Vandeginste, F. Reyntjens& S. Marysse (éd.), L'Afrique des Grands Lacs. Annuaire 2009-2010. Paris : Le Harmattan 231-258.

[12]. Hamouchène H., (2019). Extractivisme et résistance en Afrique du Nord, https://www.tni.org/files/publication

[2] John B. Henriksen 2008: Key Principles in Implementing ILO Convention No. 169, Programme to Promote ILO Convention No. 169, ILO CONVENTION NO 169:,

[13]. https://congoaujourlejour.blogspot.com/2020/04/on-denonce-les-irregularites-et-la.html
[14]. https://desknature.com/province-de-la-tshopo-xiang-jiang-mining-a-renonce-a-son-projet-dexploitation-de-lor-et-de-diamant-dans-le-lit-de-la-riviere-aruwimi/
[15]. https://www.election-net.com/tshopo-polemique-autour-de-lexploitation-miniere-a-basokodossier/
[16]. https://www.scribbr.fr/methodologie/methodes-inductives-deductives/
[17]. Mancinia L. &Sala S. (2018). Social impact assessment in the mining sector: Review and comparison of indicators frameworks. Resources Policy, 57(C), 98–111.
[18]. Mangambu M., Asimbo B., Ekele M., (2021). regards sur les impacts environnementaux de projet d'exploitation minière semi - industrielle dans le bassin du Congo : cas de la rivière Aruwimi (Territoire De Basoko, RD Congo).*EuropeanScientific Journal, Sciences Humaines, 17 (29) : 330-363, https://doi.org/10.19044/esj.2021.v17n29p328*
[19]. Matheus P. (2018). Les techniques et conditions d'exploitation des mines aurifères. Annales des Mines - Réalités industrielles, 10-19 ; https://www.cairn.info/revue-realites-industrielles-2018-4-page-10.htm
[20]. Oberiuele L. (2011). Rapport de recherche sur la production et la commercialisation d'or dans la ville d'Isiro. Rapport de recherche commandé par IPIS/International Alert, 132 p.
[21]. Wakenge C., (2019). Stade Coltan: extraction minière artisanale, réformes et changement social à l'Est de la RDC », L'harmattan, Collection Etudes Africaines, 248 p.