

## Zijin - a growing metal mining Chinese transnational firm

**ABSTRACT.** This article follows previous work based on the EJAtlas on the Vale company, Impregilo-Salini, and Total Energies, and on the difficulties that such extractivist companies face when confronted by socio-environmental protestors. Again, this article draws on EJAtlas entries on the transnational metal mining company Zijin as a protagonist of socio-environmental conflicts in all continents. It looks at Zijin's reactions and achievements while successfully mining or attempting to mine copper, gold, tin, zinc, platinum, and lithium. Extractivist transnational companies such as Zijin have a crucial role in the geographical transfers of low-entropy energy, materials and also human labour-time imported from the Peripheries in order to sustain the metabolism of the industrialised Cores. Zijin is such a top company in terms of the tonnage mined and also financially. Its socio-environmental liabilities must be assessed in terms of global comparative business ecological economics and political ecology.

### KEYWORDS

Metal mining; commodity extraction frontiers; corporate social irresponsibility; China's economy; business political ecology; valuation contests; EJAtlas.

### HIGHLIGHTS

The political ecology and environmental liabilities of a growing metal mining company

Commodity extraction frontiers and world-system history

Geological opportunities and political opportunities

The objectives of the extractivist firm: "tons, joules, money and power"

### 1.- Introduction

In 1950, K.W. Kapp published one of the first books on business ecological economics and political ecology (though not yet using such words) where he stated that externalities should not be seen as occasional market failures but as systematic social cost shifting. Companies, and in particular the extractivist companies, would have their profits markedly reduced should they avoid or repair the social and environmental damages they cause and leave behind. The rule is not to acknowledge the damages and not to compensate for the "externalities". In any case, the complaints against damages are often expressed in non-economic

languages of valuation so that money compensation is not the issue. Environmental damages and damages to human health cannot be later amended. Dead people and lost biodiversity cannot be resurrected.

In particular, extractive industries take care of the steady extraction and concentration of energy and materials in industrialised centres by the expansion of extraction frontiers and the exploitation of the environment and local communities in such “sacrifice zones”. One such company is the Zijin company, one of the top metal mining transnational companies.

The present article is not about geopolitics (such as the alarming struggles and alliances in a new “age of empires” between the US-Nato empire, Russia, China, and the emerging Indian empire). It is merely another article on business political ecology of interest mainly to students in Business Schools, transcending also the “methodological nationalism” that assumes that countries or subcontinents are the natural units for analysis in comparative studies. We focus instead on the interactions between extractivist transnational corporations and socio-environmental protestors hailing from territories subject to external or internal colonialism. Here we study a single metal mining company across continents, and the unit of comparison could be any other large extractivist international businesses with a similar fixation on tonnage including increased material inputs, increased pollution and mine tailings.

Not focusing on the geopolitics of states or empires, it does not matter much whether mining transnational companies are of Brazilian, Canadian, Australian, United States or Chinese origin. They enjoy support from their own states of origin but they are motivated not by geopolitics but by the logic of maintaining and increasing the social metabolism and the concomitant search for profits. Their slogan is “more is more”, very different from the “less is more” of the Degrowth movement. (Gomez-Baggethun, 2020). Their motivation is “tons, joules, money, and power”. They need political access to the authorities of countries where they operate, often requiring police or military protection from them. They compete with each other though they also enter into partnerships, indifferent to nationality. Excessive attention to the geopolitics of states would detract attention from the ecological economics and industrial ecology of extractivist companies, and from the grassroots resistance of environmental justice movements.

The political ecology of any extractivist firm has industrial ecology aspects (such as mining and smelting of copper and other minerals, in the case of Zijin) and also socio-economic and political aspects. One main objective of the extractivist firm is to increase the tonnage produced and processed thus contributing to maintaining and increasing the social metabolism of the world’s metropolitan industrialised areas (Llavero-Pasquina et al 2024). Tonnage is as important or more important than profits. Thus, at world level, less than one third of copper demand is met by recycled copper (both manufacturing and end-of-life scrap). The rest comes from new mining.

Nothing better for understanding the objective of “tonnage” than some paragraphs from the speech of Zijin’s proud chairman Chen Jinghe on 31 December 2023, translated into English: *“Dear shareholders, investors and friends who care about and pay attention to Zijin Mining: The auspicious energy is coming from the east, and the golden dragon is rising up into the sky! On behalf of Zijin Mining, I would like to express my sincere gratitude for your care, support and guidance! 2023 marks the 30th anniversary of Zijin Mining. Starting as a modest small county-level enterprise, through three decades of rapid growth, Zijin Mining has made tremendous leaps, evolving into a Fortune 500 company and a globally renowned large-scale multinational metal mining group. After three decades of thriving in harmony, Zijin Mining now stands in the full bloom of its prime, entering a new era of development and arriving at an important platform to take off towards further growth. In the past year, geopolitical influences intensified, global economic growth further slowed down. The overall performance of the mining industry declined significantly. The new term of management of Zijin Mining put forward the master work directive of “improving quality, reducing costs, boosting profitability”. With perseverance, entrepreneurship and innovation, the Company achieved a “good start” in the second stage of Zijin’s new decade despite the unfavourable environment. The Company’s main mineral products, such as copper and gold, continued to grow and advanced side by side. Among the world’s leading mining companies, Zijin Mining stands out as one of the few demonstrating continued year-on-year growth. The Company is the only enterprise in Asia and China to surpass the remarkable milestone of producing over 1 million tonnes of mine-produced copper. The Company’s output of main mineral products and economic indicators maintained a position among the top ten globally and its rankings have been improved. The net profit attributable to owners of the parent amounted to RMB 21.1 billion, representing an increase of 5.38% compared with the same period last year; net cash flows from operating activities were RMB 36.9 billion, representing an increase of 28.5% compared with the same period last year. The Company’s global mainstream ESG ratings have been fully upgraded, placing the Company in the first tier of the global mining industry. Despite an extremely severe market background, the Company’s market value has significantly increased, and its market value has been highly recognised by investors, which is commendable. Zijin Mining is striding into a new period of development, striving to build global competitiveness and providing the materials that improve standards of living in a low carbon future. Leveraging the advantages of world-class assets and embracing the global energy transition We actively integrate our own development with the destiny of all mankind, placing a strong emphasis on addressing climate change and attach great importance to the crucial role of mineral resources such as copper and lithium in the energy transition. The Company’s three world-class copper mine assets, namely the Kamao Kakula Copper Mine in the DR Congo, the Čukaru Peki Copper and Gold Mine and the Bor Copper Mine in Serbia and the Julong Copper Mine in Tibet, continue to increase output and efficiency. The newly acquired Zhunuo Copper Mine in Tibet and the Kharmagtai Copper and Gold Mine in Mongolia are progressing in an orderly manner. The construction of the Tres*

*Quebradas Salar in Argentina, the Lakkor Tso Salar in Tibet and phase 1 of the Xiangyuan Lithium Mine in Hunan advanced smoothly. The Company has been invited to lead the exploration and development of the northeast part of the world-class Manono Lithium Mine. The development momentum of the “two lakes, two mines” lithium segment is strong, which will help the Company become one of the most important lithium producers globally within five years. The preliminary work of the world-class Jinzhai Molybdenum Mine in Anhui Province is accelerating, and it will become the world’s largest molybdenum-producing mine. Faced with global uncertainties and currency oversupply, gold is the “ballast stone” of financial security. We have a batch of world-class gold assets such as the Rosebel Gold Mine in Suriname and the Buriticá Gold Mine in Colombia. The Porgera Gold Mine in Papua New Guinea, one of the world’s top 10 gold mines, has resumed production. Coupled with the construction of a batch of medium-sized gold mines, the Company’s gold output will achieve continuous rapid growth. Mineral resources are the most core assets of mining companies. Zijin Mining has a strong resource base. At present, the Company’s retained resources on an equity basis include approximately 75 million tonnes of copper, approximately 3 thousand tonnes of gold, over 10 million tonnes of zinc (lead), approximately 15 thousand tonnes of silver and over 13 million tonnes of lithium carbonate equivalent. Supported by world-class resources, we plan to produce 1.11 million tonnes of mine-produced copper, 73.5 tonnes of gold, 470 thousand tonnes of zinc (lead) and 25 thousand tonnes of lithium carbonate equivalent in 2024. We are formulating a new “Five Year Plan” and strive to achieve the strategic goal of “becoming a green, high-tech, leading global mining company” ahead of schedule”. (Zijin, 2023a).*

## 2.- Drawing on Industrial Ecology and Political Ecology

While sincerely admiring the enthusiastic resilience of the chairman during these thirty years, we place attention on the physical facts displayed: the names and locations of the main mines of copper, molybdenum, gold and silver, tin, platinum, tungsten, lead and zinc, lithium; and the tons extracted and processed per year.. Zijin’s financial results are good although the socio- environmental liabilities are scarcely taken into account. The protestors’ voices are hidden. They are left for the contrived ESG reporting.

The perception that economic accounting hides negative social and environmental realities has given birth to dissimulation through the rhetoric of stakeholder participation, the “triple bottom line”, the Corporate Social Responsibility, and the reports on ESG (environmental and social governance) that in general do not stop grassroots complaints or dispel public scepticism. Competent business journalists are a better source of information on the behaviour of extractivist companies than ESG reports. It is immaterial that Zijin earned in 2023 the top spot on Refinitiv’s ESG rating among 671 metals and mining companies (Zijin, 2024). Refinitiv is one of the world’s major rating agencies. ESG scores are meant to make companies attractive

to investors and therefore tend towards whitewashing or greenwashing. Meanwhile, the EJAtlas (the main source for this article) documents socio-environmental injustices caused by companies or governments. We start with an account of conflicts in some of Zijin's investments in China (a tailings spill, a copper smelter, a copper mine in Tibet), continue with conflicts in other Asian countries and in Serbia, follow with descriptions in gold and copper mines in Papua New Guinea and in South America (Colombia, Peru, Ecuador), we then describe at length a lithium mining conflict in Argentina, and finally some big investments in Africa (in copper, lithium, zinc, platinum). (Fig. 1).

Drawing upon the EJAtlas and other sources, we see that many sites mentioned by Zijin's chairman are to some extent in trouble because of local protests and/or mortal accidents. They are "marginal" sites in the sense that they are far away from the centres of political and economic decision-making but they are crucial from the metabolic viewpoint.



**Fig. 1. A map of Zijin's and related investments mentioned in this article**

Sometimes, students of political ecology like to mention its "materiality". (Cederlöf 2021). This is obvious. Industrial Ecology and Political Ecology have much in common. For instance, most copper comes from mines (open pit or underground), and a small part is recycled. The bulk of copper comes from "fresh" mining, and then goes through the energy-intensive process of smelting. One reason for the low recycling rate is that demand is increasing at least at the speed of economic growth plus an extra because of the "electrical transition" A second reason is that copper

extracted in the past is still in use in equipment. For cobalt and lithium, recovery amounts to less than one per cent ([MineFacts, n.d.](#)). One main cause of socio-environmental injustices is that the industrial economy is obviously not circular, it is entropic and therefore there is mining of new materials at the commodity extraction frontiers.

Zijin, from its modest origins in Fujian, has become a core transnational metal mining company, keen to increase tonnage from the commodity extraction frontiers ([Moore, 2000](#)) inside China and from around the world. Notice Zijin's objectives on mine-produced tonnage on a par with its economic results. Zijin's down-to-earth chairman uses honest language. His speech does not pay even lip service to rosy goals of "dematerializing the economy", achieving a "circular economy" or aiming at an "ecological civilization". There are three main different corporate strategies that Zijin employs (as also other extractivist companies) in order to expand the tonnage of their operation: opening new mines (commodity-widening) ([Banoub et al., 2021](#)), expanding existing mines (commodity-deepening), or buying mines from others. If we look at world copper production as a whole, Zijin is becoming a remarkable actor, with over one million tons of mine-produced copper per year. Thus, Zijin proudly announces in its webpage, that "among the world's top five newly discovered copper mines in the 21st century, the Company owns three slots of world-class mega copper mines, including Kamo-Kakula Copper Mine in DR Congo, the Čukaru Peki Copper (Gold) Mine in Serbia [next to Bor] and the Julong Copper Mine in China".

Zijin's expansion is not to be explained by a political purpose of strengthening global Chinese influence. It is explained by the fact that the metabolism of the world industrial economy keeps growing and (to some extent) changing. There is a clear link between the expansion of Zijin in China and Central Asia, in South America, in DR Congo, and the increased world demand for minerals required by the so-called energy transition which needs lithium but also copper. Zijin also has some reserves of coal and iron ores. In the words of Zijin's chairman of December 2023, "As an important global green mineral material producer, we prioritise the improvement of ESG performance in business ethics, environment and ecology, response to climate change, occupational health and safety, human rights, employees, communities and responsible supply chains" ([Zijin, 2023a](#)). These words have performative content announcing new investments around the world, the increase of the tonnage mined (and therefore of the tailings produced), and the overcoming of the resistance to such projects.

Zijin is just a large and growing metal mining company in the same rank as BHP Billiton, Rio Tinto, Vale, Glencore, Norilsk Nickel, Freeport MaMoRan, Anglo American, AngloGold Ashanti, Barrick, Newmont, Southern Copper ... and its political ecology must be studied as a member of this group of companies. Zijin is proudly Chinese and at the same time just another transnational. It is so transnational that the chairman can colloquially refer to "our two lakes and two

mines” to refer to Zijin’s contested lithium assets in such distant places at Catamarca in Argentina, Tibet and Hunan in the R.P China, and Manono in DR Congo. And to “our three world-class copper assets” in Europe (Serbia), and again the RD Congo and Tibet (R.P. China). All this is supported by a contested “batch of world-class gold assets” in Colombia, Suriname, and Papua New Guinea. These possessions at extraction frontiers around the world are not permanent political colonies. At best, they will last a few decades until the mining grade declines or the concessions change hands. They will leave large environmental liabilities behind. In the meantime, they are protected by mercantile international law and by local state power including police and military interventions when needed.

Zijin’s overseas investments can also be seen as small milestones in the Chinese Belt and Road Initiative, and the company relies (in a way similar to other giant extractive companies, private or state-owned) on support from its state of origin. Zijin sometimes has joint ventures with “Western” companies while one of its main shareholders is Sumitomo Mitsui from Japan. As any other of these companies could do, Zijin sometimes threatens the governments of host states (Colombia or Papua New Guinea) unless they speed up the permissions and repress the opponents to the extractivist activity. In summary, Zijin must be seen as just one more big metal mining company, looking for geological and political opportunities to increase the tonnage mined in response to world economic demand, and neglecting the socio-environmental liabilities despite the ESG ritual statements.

Zijin’s claims of contributing to the energy transition must be taken with a grain of salt. Zijin has a role both in the “energy transition” and in the “energy addition” taking place at present at the world level ([York and Bell, 2019](#); [Roy and Schaffartzik, 2021](#)). News of an energy transition is premature. There is increased tonnage of fossil fuels and increased tonnage of other commodities, some of which meant for a green economy through new extractivism and profit making. Oil and gas increased in 2023, and also coal production rose almost 2% with growth in India, China and Indonesia more than offsetting declines in the United States and the European Union. Thus, 2023 marks another all-time high in global coal production, totalling 8 741 Mt. Steam coal and lignite account for about 87% of global coal production. Coking coal accounts for the balance, driven by strong growth in Mongolia ([International Energy Agency, 2023](#)). There is a paradox in claiming to save the environment (from climate change) through energy-intensive metal mining and smelting.

### 3.- Methodology

This study employs a qualitative methodology drawn from the discipline of political ecology, to investigate the socio-environmental challenges posed by the extractive activities of Zijin Metal Company. The EJAtlas ([ejatlas.org](#)) is the main source for the present article. This continues work by the EJAtlas team on the Vale company, Impregilo-Salini, and the Total Energies company in the field of “business political ecology and ecological economics” written with teachers and students of Business

Schools in mind. ([Bontempi et al., 2023](#); [Llavero-Pasquina et al., 2024](#); [Saes et al., 2021](#)). We also plan articles on biomass transnationals (palm oil and Wilmar) and the cement industry (Lafarge-Holcim) well documented in the EJAtlas.

Data for this analysis were primarily sourced from the Environmental Justice Atlas (EJAtlas), which documents over 4,150 cases of environmental conflict worldwide. The EJAtlas attempts (together with Business and Human Rights, Mongabay, Global Witness, many other EJOs and academic political ecologists) to make visible socio-environmental injustices around the world. Specifically, this article draws upon twenty entries from the EJAtlas featuring Zijin as protagonist in socio-environmental conflicts across all continents. Each entry includes data on the nature of the conflict, the stakeholders involved, the outcomes, and the broader socio-economic and environmental implications. A common theme in our EJAtlas-based previous articles is the opposition they encounter from environmental defenders ([Scheidel et al, 2020](#)). This article is on the same line. Similarly to the extraction of fossil fuels and biomass, the steady concentration of metallic resources in industrialised centres requires the march to extraction frontiers and the exploitation or dispossession of workers and communities. This leads to conflicts where local EJOs fight for the preservation of local lives, livelihood and culture, for land, water and clean air, while companies pursue access to metal ores, fossil fuels, biomass, sand and gravel, hydroelectricity, and therefore the ability to make profits. ([Llavero-Pasquina et al 2024](#)). There is the possibility that such local EJOs join together in intercontinental networks across borders. ([Martinez-Alier, 2023](#)).

Our analytical framework examines the geographical transfers of resources —low-entropy energy, materials, and human labour— from the Peripheries to sustain the industrial metabolism of the Cores ([Hornborg 1998](#)). This framework allows us to assess Zijin's socio-environmental liabilities within a global comparative political ecology context across different geopolitical and ecological settings and not just from local or regional perspectives. This involves comparing the company's practices and the ensuing socio-environmental impacts and protests in China and other territories. By juxtaposing these cases, we aim to identify patterns and variations in how Zijin adapts its strategies to local socio-environmental dynamics and resistance movements. We focus on the procedures, sometimes unsuccessful, that Zijin deploys for overcoming local resistances when attempting to gain political access to authorities and to obtain local social licence to operate. Therefore, we also integrate a stakeholder analysis to understand the roles and perspectives of different groups affected by or involved in Zijin's operations, including local communities, environmental NGOs, government bodies, and the company itself. This analysis helps to reveal the power dynamics at play and the contrasting valuations of natural resources and environmental quality among stakeholders.

4. - Zijin in China; accident in the Ting River, copper smelter in Qiqihar, fatalities in Julong mine in Tibet.



We begin with descriptions and analyses of some of the socio-environmental complaints that the company faced in China decades ago when it was starting. They had a reputational cost. My first encounter with the company came from a case registered in the EJAtlas. The acidic dumping of waste in the Ting River in 2010 is well known. It was announced that toxic tailings from a mine owned by China's largest copper and gold producer contaminated the Ting Jiang River, threatening the river's drinking water and fishing industry (EJAtlas, 2023e; Martinez-Alier, 2023, p. 118). The Zijinshan mine was then its most important, covering an area of 30 km<sup>2</sup> and employing 1,900 people. It was discovered in 1980, containing two types of ore, with gold above and copper below. Not unusually, a local politically powerful company secured some complicity by providing jobs and handing out money as shareholders to some sectors of the population, but then a massive pollution accident turns the local population against it and this leads to the intervention of regulatory agencies and the government itself. Fines are imposed, technical measures are demanded, and some monetary compensation is offered. In the meantime, the next "accident" in some other gold and copper mine in China or in the world is to be expected as also a clash in "valuation languages" between the extractivist companies, the local and national governments, the environmental organizations, the indigenous peoples or peasants, neighbours and citizens.

Zijin's world business consists of exploration or acquisition of mineral resources, smelting and processing, and a combination of mining and finance, trade, and logistics. The company was founded by Jing He Chen on July 15, 1986 (EJAtlas, 2023e). The rapid growth of the Zijin company and its share price when floated on the Shanghai Stock Exchange enriched the major shareholders, including the Shanghang District Government and some officials. To the extent that everything was legal, the new wealth was welcome except that it came at a high ecological cost. The local resident population of Shanghang benefited though some fellow citizens paid the price of pollution. On July 3 2010 a leak from a leachate dam dumped some 9,100 cubic metres of acidic water containing copper waste into the Tsing River, killing at least two thousand tons of fish. The district government advanced some money to buy all the dead fish to compensate for the losses to the farmer-fishermen. Still, nine days later, neither the Zijin company nor the Shanghang District Government had publicly announced the accident. On July 20, the Environmental Protection Department of Guangdong Province urgently warned its colleagues in Fujian that toxic water from the Zijinshan copper mine had reached the mouth of the Ting Jiang River in Guangdong and that the copper content had risen dramatically, posing a danger to fishermen and people. There was thus a trans-provincial conflict between Fujian and Guangdong.

After the accident, the local villages had no water to drink for a while (EJAtlas, 2023e). Some who had money bought water; others had to walk a long way to fetch water. They were afraid to eat fish and suffered from mineral dust when it was windy. Apart from the pollution, the people in the villages found it difficult to get a job. Those

who had obtained Zijin shares in the early 1980s made some money and moved elsewhere. Those who remained suffered from a high incidence of oesophageal, lung, and stomach cancer, which drove families into debt. Although there were complaints about pollution, nothing was done until the 2010 accident took place.

Media scrutiny finally brought the Zijin company's pollution story to light, and the State Council sent a task force to investigate ([EJAtlas, 2023e](#)). The company first blamed what happened in 2010 on heavy rains, but then it became known that a government investigation had said the flow of water discharged from the mine was excessive. The company had ignored the government's warning in September 2009 about the need to repair the automatic water quality monitoring system. Following the accident, in July 2010, Zijin's vice president and director of the copper mine were detained by the police. According to China Mining News, by 2014, Zijin Mining had invested more than 1 billion yuan in "rectifying" its environmental facilities. As a reminder, July 3 was declared Environment and Safety Day, and the entire month of July was declared as Safety Month at Zijin Company. Perhaps it still is.

This was not the first Zijin accident. A report by the Institute of Public and Environmental Affairs identified Zijin as one of the 175 companies listed on the Hong Kong Stock Exchange that had the most records of environmental violations in China. Since 2005, Zijin committed a series of violations and caused environmental accidents in Hebei, Xinjiang, Guizhou, and other provinces. Also, the Chinese authorities accused Zijin of another accident in September 2010. ([Reuters, 2010](#)). The authorities accused an offshoot of Zijin Mining Group of breaches contributing to a tailing dam collapse that killed 22 people. "The tailing dam of a tin mine in Xinyi in the southern province of Guangdong overflowed during a typhoon, destroying 523 homes, but province investigators concluded that Xinyi Zijin Mining also "holds direct liability for the accident", said Xinhua News Agency, citing a government statement." ([Reuters, 2010](#)). The Xinyi company was a subsidiary of the Zijin Mining Group. "The investigation report determined that the collapse was a safety accident triggered by a major natural disaster and regulatory violations by the units involved," said a report in the Yangcheng Evening News, a Guangdong newspaper. "The reason for the dam breach was the non-standard construction of the dam's catch pit, thus lowering the dam's flood control standard," said Xinhua, citing a government statement. Investigators accused government officials in Xinyi and mine company managers of ignoring safety rules. Xinyi Zijin built and redesigned the tailing dam in contravention of those rules, the newspaper reported. Four officials and 11 company managers and employees faced a criminal investigation that could lead to trial and possible conviction.

By 2010 Zijin already enjoyed a reputation as one of China's premier mining companies with interests in China and overseas. But it had run into trouble with tailings dams before. Late in 2006, a tailings dam breach at a Zijin's mine in Guizhou province dumped cyanide-laced residue into a stream, and forced the mine to close

for months ([Reuters, 2010](#)). In 2010, a mining boom was fuelling the Chinese economy's voracious demand for metals and, allegedly, it left the countryside studded with unsafe tailings dams, that liquefy under pounding rains. Several companies were responsible. As Reuters wrote: in the worst such accident, 276 people were killed when a tailings dam at an iron mine gave way in Shanxi Province in September 2008. A similar collapse the previous month in the same province killed 43 people but was covered up ahead of the 2008 Olympic Games in Beijing. In 2010, as we have seen, Zijin Mining was fined for toxic wastewater leaks into eastern Fujian province's Ting River, killing fish and polluting drinking water for tens of thousands of people.

Also in China, another type of conflict involving Zijin developed at a copper smelter in **Qiqihar** in 2016. In Qiqihar City, Heilongjiang province there was a strong protest in the streets against a copper smelter to be built by Zijin. Many of the conflicts in this article took place or are currently taking place in rural areas affecting agriculture, pastures, and fisheries. This was an urban conflict, one of many others caused by copper smelting around the world. Thousands of people took to the streets of Qiqihar in September 2016 to protest against a copper smelting plant to be built near their homes. Fularji is a district of Qiqihar City ([EJAtlas, 2022a](#)). Since the founding of the People's Republic of China, the three north-eastern provinces of China (Liaoning, Jilin, and Heilongjiang) became the key base for heavy industry development, and the Fularji region has been one of the first-generation industrial development zones in China. More and more areas have been polluted by the large number of chemical plants in Fularji District in the past decades. Most chemical plants were forced to shut down. But people have still been plagued by pollution. On July 23, 2016, Li Yugang, deputy secretary and mayor of Qiqihar Municipal CPC Committee, met with Chen Jinghe, Chairman of Zijin Mining Group to promote the investment of the copper smelting project in Fularji. Chen said that the reason for choosing Qiqihar City as a location for a copper smelting project was because the local industrial foundation could meet the requirements for the project, and the local government could give strong support to the project. On August 20, Heilongjiang Dabaoshan Copper Co., Ltd. officially signed the third phase for the copper smelting project in Fularji District. The construction of the project started in 2017 and it was expected to operate after about two years.

Zijin was already by then one of the most notorious Chinese companies listed in the Shanghai and Hong Kong stock markets ([EJAtlas, 2022a](#)). It was also known to the general public that the company was intertwined with and protected by the local government in its headquarters base in Fujian. With this background, protests from Fularji residents in Qiqihar were sparked by an online video of government officials signing a formal contract with Zijin Mining Co. The video was exposed through an informal channel. Residents were worried that the project would be built at the site of a bankrupt chemical plant in Fularji and its sewage would be discharged directly into the Nenjiang River, possibly polluting the drinking water sources and even affecting

the health of the next generation. Besides the fact that state media had criticised Zijin's environmental record, the town had already suffered enough from pollution. It is not unlikely that other copper smelters elsewhere in China (whether owned by Zijin or not) get negative reactions from the local inhabitants.

This section on Zijin's socio-environmental conflicts in China ends with a recent Tibetan case. There are some well-known "copper belts" in the world, in Central Africa, in the Andes, in Arizona and Sonora. Zijin after 2021 considers Tibet as its own copper extraction belt inside China, of which the Julong mine is a star investment but not the only one. Some troubles are inherited when the assets of some other companies are acquired by Zijin as for instance in Bor in Serbia, in Bisha (Eritrea), in the conflictive mine of Rio Blanco Majaz in northern Peru, or in Warintza in Shuar territory in the Amazon of Ecuador but often the troubles are not a legacy of the past but created anew by Zijin itself as in Julong in Tibet (China).

The districts around Lhasa now house a tantalising grouping of 40 copper deposits, a few already mined with many more awaiting extraction. One single mine in Tibet belonging to Zijin is to be the world's biggest unless Kamao-Kakuli in DR Congo (partly belonging to Zijin) becomes even bigger. Mining accidents, if publicly known, can be very damaging to an extractive company. After one such accident in 2023, Zijin was forced to visibly halt copper production at a Tibet mine ([EJAtlas, 2024e](#)). On 15 May 2023, Zijin Mining announced that "one of its mines in Tibet had stopped production after an accident the previous day left six people working for a subcontractor missing" ([Reuters, 2023b](#)). "The mine is operated by **Tibet Julong Copper Co.**, a subsidiary in which Zijin Mining holds a 50.1% stake." ([Ibid.](#)) Julong Copper produced 115,000 tonnes of the metal in 2022 for use in energy production and transmission, and for the building industry and infrastructures. It planned to produce 152,000 tonnes in 2023 ([Ibid.](#)). "Contact with six mine workers was lost when a lift cage fell during construction of shafts in the drainage system of the Julong Copper and Polymetallic Mine, Zijin said in a statement, adding that the mine had suspended production." ([Ibid.](#)). After a few days, the deaths had to be admitted by the company, and work resumed.

The mine is in Maizhokunggar or Meldro Gungkar, a county east of Lhasa, Tibet Autonomous Region ([EJAtlas, 2024e](#)). The county has an area of 5,492 square kilometres with an average elevation of 4,000 metres. Most of the people are ethnic Tibetan and are engaged in agriculture or herding. Mining is a major source of tax revenue but has created social and environmental problems, as in the Julong copper mine. .

Zijin banks on the growing world demand for copper and other metals ([EJAtlas, 2024e](#)). The Zijin Mining Group announced in 2023 that it was going ahead with the second phase of a major expansion at its Julong copper project after receiving government approval. The permit will allow Zijin to increase the mine's capacity to 350,000 tonnes of ore per day by 2025. Once the Julong expansion is completed,

the asset will become China's largest single copper operation, with ore mining and processing volumes of more than 100 million tonnes of ore per year. Zijin has several assets in Tibet, including the Zhunuo copper mine, which it acquired in August 2023. It also has a controlling interest in lithium producer Lakkor Resources and is the second-largest shareholder of Tibet-based companies Yulong Copper and Tianyuan Mining. If the third phase of expansion is approved by local authorities, Julong could raise annual ore output to about 200 million tonnes, making it the largest single copper mine in the world. Tibet is a mining extraction frontier for copper, lithium, and gold, and it is a territory that can be characterised as being subject to internal colonialism. In Tibet, difficulties in getting a "social licence to operate" are overcome by the threat of force.

There is a previous story to be told. In 1980, the Chinese government examined the area and began mining in Gyama township, Maldrogungkar county where the Julong Copper Mine is located ([EJAtlas, 2023a](#)). Due to the expansion of mining projects since 2007, the environment was polluted and local Tibetans appealed to the concerned authorities to halt the mining projects, but instead of receiving positive responses, people were beaten brutally. In another accident on 29 March 2013, the Gyama mine suffered the casualties of 83 workers including two Tibetans during a landslide. This mine was not operated by Zijin.

There are several other conflicts involving Zijin mines in China; for instance at the zinc and lead mine at Urad Rear Banner, and the zinc smelter at Bayannur also in Inner Mongolia.

#### 5.- Zijin elsewhere in Asia and in Europe

Beyond peripheral regions of China, we continue with the environmental protests Zijin endures in other countries of Asia (in Mongolia and the Kyrgyz Republic), and in Europe (Serbia). In Asia the company might easily use the image of the Belt and Road Initiative. However, its motivation is directly geological, metabolic, and financial rather than geopolitical. We first briefly consider the Xanadu-Zijin copper and gold project in Mongolia. Xanadu will partner with Zijin to develop the **Kharmagtai** copper-gold project in Mongolia's Omnogovi Province which also houses the very large Rio Tinto's Oyu Tolgoi mine near the Chinese border ([Xanadu Mines, n.d.](#)). Kharmagtai has on-site rail, power transmission, and water assets. The initial capital expenditure would be for an open pit development and associated processing infrastructure. The immediate perspective is for 50,000 t/y copper and 110,000 oz/y gold production for 30 years of open pit mining ([Moorhead, n.d.](#)). Zijin would invest in the Xanadu company and form a joint venture with Khuiten Metals for the Kharmagtai project. It is a promising investment that will have social and environmental impacts not yet accounted for.

We now consider two cases, one in Kyrgyzstan and one in Serbia. **The Taldy-Bulak Levoberezhny gold deposit in Kyrgyzstan** was the first gold mine after Kumtor to

be launched post-independence ([EJAtlas, 2022d](#); [Ocakli et al., 2021](#)). Kumtor, at over 4,000 m high, has been a very conflictive mine with strong local opposition to its Canadian owner ([EJAtlas, 2022b](#)). Kyrgyzstan is a country, like Mongolia, on the doorstep of China. Zijin might be successful in Taldy-Bulak in cooperation or perhaps in opposition to Orlovka, a mining community that never stopped resisting. It is a small city in the country's northernmost region of Chui region that was once home to rare earth metal mining during the Soviet Union and hosts today the country's third largest gold deposit 'Taldy-Bulak Levoberezhny'. Following the dissolution of the Soviet Union, the state-owned enterprise disintegrated by the end of the 1990s, leading to emigration. With no enterprise to maintain the social infrastructure, and with the majority of the population leaving, many of the privileges that made Orlovka a unique town fell apart. The residents who stayed in Orlovka describe the first ten years following the regime change as a phase of depression. But gold mining awoke new hopes. While Kumtor (which does not belong to Zijin) has been very conflictive, the people of Orlovka have been more collaborative ([Ocakli et al., 2021](#)).

**In Serbia**, complaints against the Rio Tinto company because of its rude behaviour in trying to mine lithium, have been in the news (as also in the [EJAtlas \(2023d\)](#)) Not so well known and less trendy are the tired protests by villagers against Zijin because of its encroaching on villages for copper mining and also because of mountains of mine tailings and pollution from the smelter in Bor ([Dragojlo, 2024](#); [EJAtlas, 2024i](#)). Zijin had never mined in Europe but it has now inherited a century of pollution in eastern Serbia. Zijin has two mines in Bor and one mine (with two pits) in Majdanpek, both towns have a long mining history and are heavily polluted. In 2018 the property of the mines passed to Zijin. The lives of the citizens in this area have been disgraced. In an open letter, the villagers of Ostrelj wrote in 2018 that two companies, Serbia Zijin Copper and Serbia Zijin Mining, were expanding their activities threatening their health, private property, and livelihood. The villagers called on the authorities to find a solution for all the residents who were trapped between the old and new mines and hills of tailings. When the winds blow, the Ostrelj village is coated in toxic dust. The first copper mines in this area were opened in 1904 and increased production several times during the last century, including the opening of new mining sites and expansion of the factory ([EJAtlas, 2024i](#)). The company RTB Bor employed 5,000 people in nine mines, three flotation units, two foundries, an electrolysis unit, a sulphuric acid factory, a factory of non-metal salts, and a lime factory. At the beginning of the Bor mine explorations, the ore copper content was 17% and it was transported to France for processing. In 1935, as the copper content lowered, the company decided to establish a foundry in Bor. This was when the first protests against the mines occurred. After an acid rain episode, the farmers blocked the factory for 3 days demanding compensation for the harvest loss. These demonstrations were stopped with military intervention and one person died. The Government of ex-Yugoslavia came up with a solution to free the farmers from paying taxes for the next three years, which would be compensated by the fine prescribed to the factory. Besides, the government demanded that the company

install a sulfuric acid recovery factory to reduce emissions. Two new smelters were opened in the 1960s and 1970s, while another big protest occurred in 1989 when the citizens pointed out the presence of radiation in Bor. The national government denied such claims.

Later, Bor and neighbouring villages continued experiencing air and soil pollution from production processes and slag dump sites, mainly sulphur dioxide accompanied by heavy metal particles; deforestation and land erosion from opening new mines; and water pollution from the industrial process ([EJAtlas, 2024i](#)). Besides the industrial wastewater, the municipal wastewater has been discharged into the Borska River and the Kriveljska River without any pre-treatment. Several wells for drinking water were closed down due to the pollution. The farmers and beekeepers also reported negative effects on their production. Several times the company had to compensate the farmers for damage as decided in court cases. The detonations from one of the mining sites damaged houses in the village of Veliki Krivelj, located only 800 metres away. Higher occurrences of respiratory diseases and cancer in local people were reported.

Local NGOs promoted the case through public debates, petitions, protests, reporting to the environmental inspection, and submitting appeals to the Serbian government petitions ([EJAtlas, 2024i](#)). Several times, after episodes of high air pollution, the smelter was stopped but only for a few days. In 2007, there was an attempt to privatise the mine but without success. Another instance of severe pollution occurred in 2009 when the local government managed to make the national government start the restoration project. The money for the “Bor Regional Development Project” was provided by a World Bank loan. Among other things, the project included the construction of a new foundry and sulfuric acid factory by the end of 2014. The restoration project would allow for the expansion of production. In addition, the construction of an industrial and municipal wastewater treatment plant was agreed upon by the Bor municipality and the German company "BDH Consulting Group" in March 2014. A new smelter was built in 2014 and opened in March 2015. Given that the old one continued its operations, the pollution was not reduced and the citizens of Bor organised a series of protests in October 2015. The old smelter was closed in November 2015. RTB Bor was in a difficult economic situation and a decision was needed on the management of the company. By 2018 Zijin took over.

By 2024 the Chinese mining giant Zijin Copper said it had temporarily suspended production at the Novo Cerovo mine in Serbia after villagers in Krivelj blocked the road ([Dragojlo, 2024](#)). The blockade had interrupted the supply of raw materials to the mine. “Serbia Zijin Copper respects Serbian laws, adheres to all existing agreements and actively seeks a dialogue with the organisers of the blockade, local authorities and the government of Serbia, to resolve the road blockade peacefully,” the company stated. “Since the takeover of RTB Bor by ‘Zijin Copper’, the intensity of works has increased significantly, which is endangering the safety and life of the

villagers, the entire infrastructure [and causing] significant material damage to private properties in the ... village”, a protest statement from January 30 said. They claimed local roads have been turned into industrial roads, making safe traffic on them impossible. Locals also say polluted soil, air and water have damaged agricultural production. They have been calling for government mediation for a long time, but so far no deal has been reached that would satisfy them. Air pollution is persistent. Zijin was to expand the capacity of the smelter from 80,000 tonnes to 150,000–200,000 tonnes of ore per year. As the head of the Department of Environmental Protection at the Technical Faculty in Bor, Professor Snežana Šerbula explained: ‘In Bor, we have been poisoned for years because arsenopyrite is an adjoining mineral of the copper ore. The bigger the production in Bor is, [and] the more copper, gold, precious metals we export, the bigger the concentration of arsenic will be in the air.’ (Ristivojević & Lazar, 2023). **Fig. 2.**



**Fig. 2. Complaints in Bor, Serbia, against Zijin. Source: Informacija Je Capital, 2022.**

Zijin had entered Serbia in 2018, paying \$350 million to recapitalise RTB Bor and pledging to invest \$1.26 billion over the following six years in return for a 63 percent stake (Dragojlo, 2024). It later took over a project to exploit the Čukaru Peki copper and gold mine deposit, another major project of 3.8 billion \$US. Zijin showed political access at the top level to the government of Serbia on 9 September 2023,



when H.E. Maja Gojković, Deputy Prime Minister and Minister of Culture met in Xiamen with Chen Jinghe, Chairman of Zijin Mining, on the sidelines of the 23rd China International Fair for Investment and Trade ([Zijin, 2023b](#)). We know that Serbia and China have boasted of their “ironclad friendship” again and again. Belgrade keeps its trade and diplomatic options open towards Russia and China while pursuing its EU membership. But we emphasise the logic of social metabolism in Zijin’s presence in Serbia (as a company organising the flows of freshly mined copper) over the vagaries of geopolitics. At best (for Zijin’s interests) the geological opportunity (abundant copper in the soil) aligns with the world economic demand and the opportune geopolitical friendship between states. This, despite the irritation of the population towards pollution and the impacts of mine blasting and mine tailings on the local landscape. Thus, in the summer of 2022, more than 100 individuals had gathered at Mt. Starica, near Majdanpek, to protest against Zijin Mining’s operations on the mountain above the village. The protesters aimed to halt these activities since the blasting would increase the community’s exposure to toxic dust. They also accused Serbia Zijin Copper of illegally operating on state land without the right to expropriate it. For four months, the activists successfully impeded Zijin’s operations at Mt. Starica, an act referred to as the ‘Battle for Starica’. Their efforts ended when police forcibly removed them from the mountainside, allowing the company to resume blasting. Subsequent rockfalls from the mountain damaged houses in the village. Following the protest, three activists were interrogated by police, beaten, and imprisoned for one month on unclear charges. Now, in 2024, two years later, these activists face charges of damaging other people’s property and committing violence against Chinese workers while they defend human health and landscape values against monetary gain ([Just Finance, 2024](#)).

## 6.- In the Pacific and in South America

In Papua New Guinea (a territory famous for cruel disputes on mining by foreign companies, as in Ok Tedi and elsewhere), Zijin is a major shareholder in the Porgera gold mine ([EJAtlas, 2022c](#)). In May 2024 a landslide killed over 2,000 people in Enga Province, in a densely populated area near the Porgera gold mine which is operated by Barrick Gold, a company based in Canada, in collaboration with Zijin Mining. The landslide did not reach the mine but roads were cut. This is a remote part of the country. The Porgera Valley is subject to large landslides. Exploration of gold mineralization commenced in the 1970s and mining operations continue.

As in Serbia, Zijin inherits here a sad social and environmental legacy. The damages caused by the gold mining companies present at the site include extrajudicial killings, gang rapes, and other human rights abuses that have marked the development of the **Porgera Joint Venture (PJV) gold mine**. By December 2023 it was announced that the mine would start producing gold again. The equity in New Porgera is shared 51% by Papua New Guinea stakeholders, including local landowners and the Enga provincial government, and 49% by Barrick Niugini Limited (BNL), a joint venture

between Barrick of Canada and Zijin of China. There are complaints against Barrick from around the world. An alliance of protestors against Barrick might be built because of human rights and environmental abuses in Papua New Guinea, in Tanzania - North Mara-, in Pakistan (Balochistan, in a very large gold and copper mine, Reko Diq ([EJAtlas, 2024k](#)), and in Pueblo Viejo (Dominican Republic) ([Johnson, 2024](#)).

Papua New Guinea is still a world treasure for biodiversity, and simultaneously it holds large reserves of mineral ores such as gold and silver ([EJAtlas, 2022c](#)). The Porgera Joint Venture (PJV) mine, is the second-largest mine in Papua New Guinea and it is potentially among the ten most productive gold mines worldwide. But this brings not only benefits – it comes with massive social and environmental costs as the depressing development of the mine has shown. Before the arrival of the Porgera Gold Mine, the area was a rather remote area that was hardly accessible and mainly inhabited by Ipili indigenous clans. Apart from agriculture, home gardens, and forest uses, small-scale alluvial gold mining has long been an important local livelihood source for residents. Things changed rapidly when the Porgera Gold Mine opened in 1990; first under the management of Placer Dome which was taken over by Barrick Gold in 2006. Since then, the dump sites of the waste rocks occupied an ever-growing area that was previously bush, forest, and farmland of local residents. Large amounts of mine tailings have been disposed of into nearby rivers year by year. The tailings contain waste rocks but also heavy metals and traces of chemicals like cyanide used in the gold extraction process. This poses not only a threat to the environment, it is also a health concern for nearby and downstream communities. This practice excluded Barrick from the portfolio of the Norwegian Government Pension fund.

Inside the mine, several accidents occurred ([EJAtlas, 2022c](#)). In August 1994, a blast destroyed the Dyno Wesfarmers explosives factory located at the mine. Eleven workers were killed and property was damaged in an area of up to two km away. In 2012, five people were killed during a routine blast. The police said the victims were illegal miners who entered the mine. The remaining three survivors were charged with trespassing. Outside the mine, social tensions and livelihood concerns shaped the daily lives of local residents, as well as the violence employed by security and police against local residents. People complained about the lack of adequate compensation and the absence of livelihood opportunities in light of declining access to land. Social problems, such as prostitution, alcoholism, and economic inequality have increased. Many impoverished residents frequently come to the dump sites to search for remaining traces of gold in waste rocks, in a non-violent way, to enhance their little income. They use mercury in the final gold extraction process, which poses a severe health and environmental risk. When found by security guards, they faced arrest and violence. A few times, the mine was also violently raided by illegal mining groups posing severe threats to its employees. The mine's private security force mounted up to about 450 persons.

The most severe events occurred through private security staff and police raids ([EJAtlas, 2022c](#)). Extrajudicial killings through private security were reported by local groups in the early 2000s, as well as brutal gang rapes of women who were captured on the waste rocks by security guards. A dramatic event occurred in 2009 when nearby villages were raided by police officers. People were forcibly evicted, houses were burned down and livelihood assets (land, garden, livestock, other belongings) were destroyed. Most affected was the Wuangima area, where at least 130 houses were burned down, and cases of rape were reported by villagers. Other areas where violence was used are Kulapi and Mungalep. The police raids were formally conducted to enforce law and order in the area through an operation that was termed "Operation Ipili".

In 2005, a report issued by the local organisation Akali Tange Association (ATA) alleged that the mine's security staff had killed at least nine people between 1995 and 2005 ([EJAtlas, 2022c](#)). The government of Papua New Guinea started an investigation but the results were not made public. Placer Dome acknowledged that eight people were killed at that time, arguing that it was in self-defence. Some cash compensation was paid to relatives upon the condition that no further legal action would be taken. On May 11, 2009, Amnesty International issued a statement about human rights abuses by the police and subsequently investigated the cases. Human Rights Watch investigated six cases of rape between 2008 and 2009 that were believed to represent a broader pattern of violence against residents, deployed by security staff. Later on, more than 130 women accepted payments of around 10,000\$ requiring them to forgo any future legal action. 11 women however rejected the offer for being grossly inadequate and planned to file a lawsuit with support from Earth Rights International. In 2015, an out-of-court settlement was reached, the details of which were however not made public ([EJAtlas, 2022c](#)). The 2015 Akali Tange Association (ATA) report that was submitted through the PJV grievance mechanisms listed 256 victims "who have been shot death, injured and raped by the Barrick PJV Security Personnel". After so many incidents and accidents the mine was closed down. A sacrifice of human rights is not equivalent to a sum of compensation money.

Now with Zijin as a partner, the mine is supposed to start again ([Xuan, Guoping, & Yutong, 2020](#)). Barrick and Zijin Mining will operate the mine after 2021. Zijin "believes that an early restart of the Porgera gold mine is in the interest of all parties" ([Reuters, 2021](#)). On 29 April 2020, it was reported that Chen Jinghe, Chairman of Zijin's board, sent a letter addressed to Papua New Guinea's Prime Minister James Marape stating that: "As a Chinese enterprise, Zijin would like to contribute to the existing good economic, trade, cultural and inter-governmental relations between China and PNG." ([Westbrook & Daly, 2020](#)). However, if Zijin's investment in the Porgera mine was not properly protected by the PNG government, the chairman was afraid there would be a significant negative impact on the bilateral relations between

China and PNG. The letter was seen by Reuters and Chen's office confirmed the letter had been sent.

### **Rosebel gold mines in Suriname**

In another recent takeover of an overseas gold mine, in October 2022 Zijin Mining announced the acquisition of Rosebel gold mine in Suriname, one of the largest of its kind in South America, with a proposed investment of \$360 million, further expanding the company's competitiveness among global gold producers ([Global Times, 2022](#); [Zijin Rosebel Gold Mines N.V., n.d.](#)). As Papua New Guinea, this is a country with Indigenous populations.

Because of inflation, gold maintains financial popularity for its hedging function. Through the acquisition of the Rosebel Gold Mine Project held by the Canadian IAMGOLD Gold Mining Company, Zijin's gold mergers and acquisitions have achieved another success in the rising global competition ([EJAtlas, 2024d](#)). As Zijin's chairman said on December 23, 2023, gold is a special commodity, "faced with global uncertainties and currency oversupply, gold is the "ballast stone" of financial security. We have a batch of world-class gold assets" - such as the Rosebel Gold Mine in Suriname and the Buriticá Gold Mine in Colombia ([Zijin, 2023a](#)). As explained below, Buriticá is rather a mess while Rosebel, though also a big risk, is looking better from Zijin's point of view. Suriname is a country of only 600,000 inhabitants. In the EJAtlas, it figures with three entries; the Indigenous defence of the territory of the Saramaca; the complaints against an oil bonanza threatening coastal peoples; and because of gold mining and mercury pollution.

"As one of the largest gold mines in South America, Rosebel Gold Mine has about 217 tons of gold resources and still has a lot of potential. Since mining began at Rosebel in 2004, the average annual gold production has exceeded 10 tons. In the first half of this year, it produced about 3.5 tons of gold. More than 8.6 tons of gold is expected to be produced annually according to a preliminary estimate, and there is potential for further expansion, according to Zijin. Zijin's competitive advantages in technology and management are expected to maximise the resources of the mine while reducing production costs." ([Global Times, 2022](#)).

"At present, the international gold price is hovering above \$1,600 per ounce, but many gold mining stocks are lower than when the gold price was \$1,200 per ounce, so now is a good opportunity to acquire gold assets, Samson Li, a Hong Kong-based analyst for the Dutch Commodity Discovery Fund, told the Global Times, commenting on Zijin's moves." ([Global Times, 2022](#)). Also, through the acquisition, Zijin is aiming to gain synergies in South America although the investments in Rio Blanco Majaz (Peru) have not fructified, Buriticá (Antioquia, Colombia) is in deep trouble, and the lithium project of Tres Quebradas in Argentina is going ahead but it is contested.

## **Buriticá, Antioquía, Colombia: the price of gold**

In May 2023, lacking to some extent local licence to operate, and forcing its political access to Colombia's authorities, the Zijin company wrote an open letter to the president of the country, Gustavo Petro, to the military commanders and to the young minister for Energy and Mines Irene Velez, asking for protection against armed informal and illegal miners. The Zijin Mining Group asked the Colombian government to retake control of the territory surrounding its Buritica gold mine after the operation suffered a new attack ([Acosta, 2023](#)). One worker was shot, and vehicles were incinerated, prompting an evacuation of this rich gold mine in Antioquia province. That comes after two contract workers were killed and 14 other people were injured, including 4 members of the police, on May 17, 2023 ([EJAtlas, 2024f](#)). Informal miners have also been killed. "Intervention in the Buritica mine is urgent," Zijin-Continental Gold said in a statement. "Illegal mining activities haven't stopped and, on the contrary, have become more aggressive with the use of explosions, detonations, and weapons."

Zhang Jingjing, an environmental lawyer and professor at the University of Maryland School of Law (United States), where she directs the Transnational Environmental Accountability Project, said that Zijin is a mining company with experience investing in 12 foreign countries. Despite this, she said politely, in Colombia "it has not been able to fully manage the relationship with the surrounding community", and although it may have legal authorisation to undertake the project, its "social licence" is less than assured ([Lizarazo, 2022](#)). No social licence and also a doubtful political licence.

Large scale gold mining suffered a well known setback in Colombia in 2017 when in La Colosa, in the department of Tolima, AngloGold Ashanti was forced to withdraw after her project was voted down in a public consultation. Meanwhile, Zijin is attempting in Colombia and other countries to exercise the "coloniality of power" (with some support from Chinese diplomacy) that has accompanied "extractivism" from its very beginning in mining in the Andes in the 16th century and that was long adopted by Western metal mining, biomass and fossil fuels extractivist firms.

Zijin has been unable so far to extract the gold ore in the way they had planned in Buriticá. Thousands of informal or illegal miners work in dangerous conditions in dozens of tunnels and clandestine processing locations around Buritica, some of which are within Zijin's alleged concession ([Orozco, 2022](#)). In its turn, after some deaths of informal miners and threats to Zijin personnel, in 2023 the company decided to threaten itself the government of Colombia with an arbitration procedure ([EJAtlas, 2024f](#)). However, on 20 May 2024, informal miners, and later their trade union, announced that the company had carried out backfilling operations in areas where they were working underground. On this occasion, initially four miners were trapped, and two of them were presumably dead. Roads into and out of Buriticá were blockaded in protest ([Business & Human Rights Resource Center, 2024](#); [El Nuevo Siglo, 2024](#)). Buses and trucks were burnt.

The company had paid around one billion US dollars to Continental Gold for this mine in the northwest region of Antioquia in Colombia ([Portafolio, 2020](#)). The complaints have to do with the right of informal miners to mine and also with the use of water and its pollution impacting the town of Buriticá, of about 10,000 inhabitants. Depending on Colombian politics, Zijin might stay or it might be forced to withdraw. Regarding the arbitration procedure, there is a parallel with the Ganfeng company procedure against Mexico in 2024 at the ICSID, the World Bank International Centre for Settlement of Investment Disputes, because of lithium mining in Sonora. (Ganfeng is a company that is mining lithium also in Salta, Argentina). Chinese companies, similarly to other mining translational, learn to use the arms of what some might call imperialism.



**Fig. 3 : Butiricá: a poster praising Zijin’s CSR and a reply. Source: [EJAtlas, 2024f](#).**

### **Minera Majaz, Rio Blanco in northern Peru**

In 2001 Minera Majaz S. A., a subsidiary of the English company Monterrico Metals, obtained eight concessions in Piura in the north of Peru, including the 6,472 hectares Rio Blanco mine for the exploitation of copper and molybdenum ([EJAtlas, 2023c](#)).

Thousands of farmers, local community representatives, some Mayors and provincial administrators together with social and environmental organisations opposed the project, demanding the cancellation of the environmental certification granted to Minera Majaz for exploratory operations. The Monterrico company was involved in violence and torture against local peasants, a court case took place in London. The final settlement of the legal case by July 2011 didn't recognize Monterrico's liability but the company had to pay compensations to the 33 Peruvian farmers who pursued the charges. Rio Blanco Copper S.A. continued to show interest to start the exploitation of the mine. Local people denounced the mining activities of Rio Blanco Copper S.A. on their lands, threatening their lands' fertility and traditional livelihood. Mining would destroy landscape and cultural values. Although the company didn't start the exploitation of the mine in Rio Blanco, its preparations already affected communities in Huancabamba, Ayabaca, and San Ignacio. The communities held a consultation of September 2007 with the result of 17,423 voters with a percentage of 97% against mining ([Gutierrez, 2023](#)). By 2024 the project is still not operative, though Zijin is very much present looking eagerly at Rio Blanco which would be amongst the 20 largest copper mines in the world, producing on average 191,000 tonnes of copper and 2,180 tonnes of molybdenum per year during the first five years ([EJAtlas, 2023c](#)).

On 27 April 2007, Xiamen Zijin Tongguan Development Co. Ltd (the Zijin Consortium) had acquired a majority shareholding (89.9%) of Monterrico. Rio Blanco Copper. Almost twenty years later the local social atmosphere continues to be against the Zijin project in Rio Blanco. Zijin often includes this project among those in its portfolio but, for the moment at least, there is local opposition to mining by international companies. No social licence to operate while the governments in Lima are so far too weak to break the local resistance. This failure for Zijin is not so much a triumph of Peruvian "resource nationalism" (that does not exist) as a victory of the conscious defence of their own local territory by the peasant *rondas campesinas*. (Neyra, 2020). In Rio Blanco in Piura, Zijin made a costly mistake, it paid for a promising copper and molybdenum mine that it has not been able to develop ([The Economist, 2007](#)). There have been a succession of marches and demonstrations against the project ([Red Muqui, 2019](#)).

On the other hand, in May 2024, in contrast with the bad news from the Rio Blanco project, there was good news for Zijin from Peru, because, in the neighbouring department of La Libertad the company acquired the La Arena gold mining project from the Pan American Silver, a Canadian company ([MINING.COM, 2024a](#)).

### **Warintza-----, in Shuar territory in Ecuador**

In South America, again, Zijin in early 2024 made another mistake and intended to buy a share of Solaris, a Canadian firm claiming rights on Warintza in Shuar territory in Ecuador ([Solaris Resources Inc., 2024](#)). Zijin Mining Group was planning to invest about US\$130 million. Solaris intended to use the funds to advance its flagship

Warintza copper, molybdenum, and gold project in southeast Ecuador. On 11 January 2024, Canadian Mr. Daniel Earle, President & CEO, commented: “Zijin is one of the most successful major mining companies in the world. It boasts an unprecedented track record of growth from its origins operating a single gold mine in the early 1990s to becoming a global major operating in 16 countries ... We take tremendous pride in announcing our new strategic partnership with Zijin and look forward to leveraging its deep technical expertise and financial capacity in delivering the full potential of one of the last remaining greenfield copper districts at low elevation. and adjacent to infrastructure available globally.” By late May 2024, Solaris’ optimism faded ([Amazon Watch, 2024](#)). Solaris expected Canadian regulatory approval of the Chinese company investment but this was not forthcoming for the time being. Therefore, the investment was now in doubt. Zijin’s knack for buying and/or making alliances with Canadian mining companies has not worked here ...yet.

In any case, Warintza (and its planned extension) has been a controversial project, not in Canada and not in China but in Ecuador itself. Opposition by the Shuar Arutam has been constant ([EJAtlas, 2023b](#)). Recently in March 2024, the Shuar notched a victory in defence of their collective and territorial rights ([Amazon Watch, 2024](#)). In 2021 they documented to the International Labour Organization (ILO) the lack of consultation of their Organization, PSHA, on both the Warintza project as well as the Panantza San Carlos project which also overlaps with their territory ([EJAtlas, 2023b](#)). The ILO is an agency under the United Nations that houses Convention 169, the Indigenous and Tribal Peoples Convention, which is enshrined in Ecuador’s constitution recognizing the self-determination of Indigenous peoples. The complaint received support from attorney Mario Melo (who had won the Sarayaku case, against an oil company), Amazon Watch, and other organisations of civil society ([Amazon Watch, 2024](#)). After filing the ILO complaint, PSHA leaders travelled to the United Nations in Geneva to follow its progress. In February 2023, Amazon Watch accompanied former PSHA President Josefina Tunki, who provided testimony before the ILO’s International Standards Department regarding personal threats from Solaris officials and abuses suffered by affected communities resisting mining activities. After he was elected as PSHA’s current president, Jaime Palomino also met with ILO representatives to provide updates from the ground regarding Solaris’ efforts to advance the project without consultation or consent of the Shuar Arutam. Three years after the case was first filed, the ILO issued its report on March 15, 2024, that concluded that PSHA had not been properly consulted over both the Warintza and Panantza San Carlos mining projects on their territory. Should its investment with Solaris in Warintza go forward, Zijin would be saddled with lack of local Prior Consultation. This would not be its first blunder with Indigenous peoples.

**Tres Quebradas, Catamarca, Argentina: Zijin in the lithium “triangle”**



The company Liex S.A, a subsidiary of the Neo Lithium company of Canadian origin, began in 2016 perforations in the Three Quebradas Project ([EJAtlas, 2024g](#)). The assemblies of self-convocated citizens mobilised and opposed the project. In 2021 Zijin Mining negotiated the buying of Neo Lithium and its project for 737 million US dollars. There have been seven years of resistance to the Three Quebradas project (Three Streams project) here summarised from the EJAtlas and other sources. There have been infringements to the legal procedures, and a Ramsar site is affected. The struggle is continuing. In 2016, the first Self-Convened Assembly for Life pointed out that the exploration activities were taking place in the vicinity of Mount Pissis, an icon of adventure tourism in the province, and that they violated the internationally protected Ramsar site. The area includes the Aparejos, Las Tunas, Azul, Negra, Verde, and Tres Quebradas Lagoons. Laguna Aparejos is a nesting site for the Andean flamingo. There are other contested lithium *salares* in Argentina, Bolivia, Chile, and Perú becoming “green sacrifice zones”.

The Fiambalá assembly denounced that lack of prior public hearings before the start of exploration ([EJAtlas, 2024g](#)). In September 2016, the company and the municipality summoned some neighbours to an informative meeting where signatures were collected as evidence of the public hearing required for the social licence of the project. This meeting was rejected by the assembly of Fiambalá. The residents of Tinogasta filed an appeal to stop the exploration work based on the precautionary principle and the lack of evidence that the work will not generate environmental impacts. In November 2016, the self-convened assembly of Fiambalá and Tinogasta organised an open talk to learn about lithium mining on the occasion of the launching of the book by Lic N. Ruiz. Then the *Fiambalá Despierta* assembly was formed. A mobilisation took place in the main square of Fiambalá. In January 2017, assembly members, mostly women, blocked National Route No. 60 to protest the inauguration of the mining camp. A meeting of the Union of Citizens' Assemblies (UAC) was held in Fiambalá and a demonstration took place together with mural paintings, movies, and a celebration of international Wetlands Day.

The Government of Catamarca supported the project and the company installed permanent camps and laboratories, and new access roads were opened with the prospect of starting production in 2021 ([EJAtlas, 2024g](#)). In February 2017, nine assemblies from the region met in Andalgalá to form the Pucará Network (Catamarca Peoples in Resistance and Self-Determination) as a new alternative against the extractivist advance in the area. Participating in the meeting were the Assemblies of El Algarrobo, Chañar (Belén), Yokavil (Santa María), Self-convened *Fiambalá Despierta*, Self-Convened for Life (Tinogasta), Neighbors of Londres, Belén, Anquincila, Ancasti, the Sumaj Kausay Collective and the Popular Movement La Dignidad (both from San Fernando del Valle de Catamarca). These assemblies held that mega-mining in this area suffocates small and medium-sized regional economies (mostly derived from agricultural and artisanal productions), due to the polluted water and toxic materials that mining companies produce. Again, the

assemblies pointed out that the Tres Quebradas project is located in a Ramsar site and endangers the entire ecosystem with impacts. They demanded respect for protected sites and consultation with peoples. Protests were held on the occasion of an International Lithium Seminar. In April 2017, the non-governmental organisation YUCHAN Foundation presented a Preliminary Report on the Survey of Extractive Activities in the Altiplano of Catamarca, in notes given to the Minister of Environment and Sustainable Development of Argentina, the Secretariat of Environment and Sustainable Development of the province of Catamarca and the Secretariat of Mining of the province of Catamarca. In particular, with regard to the Tres Quebradas project, YUCHAN highlighted that "in the IIA for the exploration stage and the Environmental Impact Statement approving the aforementioned IIA, the environmental and social baseline does not correspond to the scale of intervention of the project and does not incorporate the ecosystem approach...". They emphasised that there is "a system of interconnected lagoons and salt flats". The actions at the Laguna Tres Quebradas and Laguna Verde can negatively affect other sectors of the same basin such as Laguna Negra. "Obviously an acceptable Environmental Impact Report cannot be made without this information."

In 2017 and 2018 many actions were carried out, including in Buenos Aires ([EJAtlas, 2024g](#)). In Catamarca, the first Latin American Water Summit for the peoples was organised together with PUCARA. The project was moving forward with the government's endorsement. In 2019, Neo Lithium installed a pilot plant built by the Institute of Technological Research of the University of Concepción, Chile, in warehouses in the town of Fiambalá. The Plant has a designed annual capacity of 50 tonnes of lithium carbonate per year using concentrated lithium brine of 3.2% to 3.6%. In 2019, a request for information was presented to the Deliberative Council of Fiambalá, the councillors said they had no knowledge of the projects. During 2019, the assembly held a day of visibility with projections and a meeting in the main square together with the Assembly of Famatina, and on the occasion of the governor's visit to Fiambalá, the conflict was made visible with posters. In 2019, the company presented an environmental impact assessment that ensures that the Tres Quebradas project "can be developed with a minimum impact on ecosystems". In October 2019, the organisation Blessed are the Poor presented a report evaluating the Tres Quebradas project within the framework of the Guiding Principles for Transnational Corporations. The report highlighted several rights violated by the company in relation to water reservoirs, rupture of the water cycle, impact on meadows and periglacial systems, vulnerability to soil salinization, destruction of the unique landscape, the disregard of the precautionary principle in the face of the great uncertainties at stake. The privatisation of ancestral Indigenous territories was highlighted as also the lack of information and transparency, and the legal uncertainty, In January 2020, the assemblies of Tinogasta and Fiambalá met in response to the advance in the installation of the lithium processing plant and the granting of land to LIEX S.A. announced by Neo Lithium S.A. In 2021, the company Neo Lithium completed its 5-year pilot project, concluding that it is possible to obtain

a brine concentration of approximately 3.6% and intends to expand the capacity of the project's evaporation pools.

Under Zijin's ownership, by 2022, the Tres Quebradas project was underway (Valle Calchaqui, 2022). Governor of Catamarca Raul Jalil and the vice president of the company Zijin Mining launched the Tres Quebradas project to produce 20,000 tons of lithium carbonate per year, in one of the deposits that is expected to be one of the most productive in the province along with those already started in the Salar del Hombre Muerto belonging to other companies. The event, which was held entirely at the mining company's headquarters at 4,300 metres above sea level, was also attended by representatives of the Argentine subsidiary Liex S.A. and representatives of the Chamber of Commerce and ICBC Bank, along with Deputy Governor Rubén Dusso, Mayor Roxana Paulón and community leaders from the west of Catamarca who accompanied the launch. The representative of Zijin praised the project and remarked that "it is an honour to meet to celebrate the start of the construction of the 3Q Project, which is of great importance for Argentina, Catamarca, and Fiambalá." In closing, he remarked that "this project will open bright long-term prospects for bilateral exchanges between China and Argentina within the framework of the sustainable development of new energy". In turn, Governor Raul Jalil said: "For us it is very important that Zijin and Liex have chosen Catamarca to invest and provide development possibilities to our province. Today we see here workers from Belén, Tinogasta, Andalgalá and other nearby departments who will benefit directly from this project." He stressed that "the link that we will maintain with China from this mining project will also open doors for us to exchange and market other products such as alfalfa, meat, among others." In this sense, the importance of the trade of the San Francisco Pass across the Andes was stressed.

The social metabolism of the so-called electrical transition, business interests, local development, and international geopolitics came harmoniously together at these meetings at high altitude showing Zijin's political access to the authorities of Argentina, while also representing the alleged local social licence obtained. (Fig. 4).



**Fig. 4. The Tres Quebradas project before the Zijin logo was added. Source: Cámara de Comercio Argentino Canadiense, 2022**

After taking over the Canadian company Neo Lithium Corp, Zijin expected to generate a total of 1,000 jobs directly and indirectly (Sosa, 2024). By 2022 the project was moving forward despite many labour disputes (Valle Calchaquí, 2022). On 7 March 2024, governor Raúl Jalil met again with the CEO of Zijin Liex company with the aim of advancing public works (financed with so-called mining reinvestment funds) and promoting sustainable initiatives for the benefit of the Fiambalense community (El Inversor, n.d.; Valle Calchaquí, 2024). Likewise, the progress of the work of the 132 KV power line that goes from Tinogasta to Fiambalá which will make it possible to improve the electricity supply both for the company and for the entire Fiambala community was discussed (Valle Calchaquí, 2024). This will mean an investment of more than 20 million dollars by Zijin. In this framework, the possibility of paving the road to the Balcony of Písis was discussed, since the Balcony next to the Hot Springs of Fiambalá and the Dunes of Tatón attract the most tourists in the town. By May 2024 there was a strike of hundreds of workers belonging to AOMA complaining of conditions of travel to work for Zijin in the midst of a freezing storm. AOMA is the miners's trade union in Argentina.

-----7.- Zijin In Africa

**The Bisha mine in Eritrea**

The Zijin-Bisha Mining, an Eritrean company formed for the development and operation of the **Bisha Mine** in western Eritrea is owned by Zijin (55%) and the Eritrean National Mining Corporation (ENAMCO) (45%) (EJAtlas, 2024a). This zinc mine must be mentioned. A company such as Zijin makes money from several sources (EJAtlas, 2024a). It takes inputs from nature that were produced long ago by geo-biochemical processes with no cost to the company, and it disposes of tailings and other waste back to nature again without cost. It also exploits wage-labour paying little, and without facing the reproduction costs of this labour. Sometimes the workers lose their health and occasionally lose their lives in mining accidents. Another source of profits is financial trading in derivatives and futures contracts. Such monetary profits hide social and environmental losses unaccounted for. In the case of Zijin there was a special liability because Zijin acquired the Bisha mine that had used slave labour (Business & Human Rights Resource Center, 2014).

Zijin Mining completed the acquisition in 2019 of a 60% interest from the Canadian Nevsun company in the Bisha copper-zinc mine. The plaintiffs in a human rights case, Gize Yebeyo Araya, Kesete Tekle Fshazion, and Mihretab Yemane Tekle, claimed that in 2014 they worked at the Bisha mine against their will and were subject to "cruel, inhuman and degrading treatment" (Ibid.). They alleged that they were forced to work long hours and lived in constant fear of threats of torture and intimidation. They were not the only ones. Nevsun denied the allegations. In October

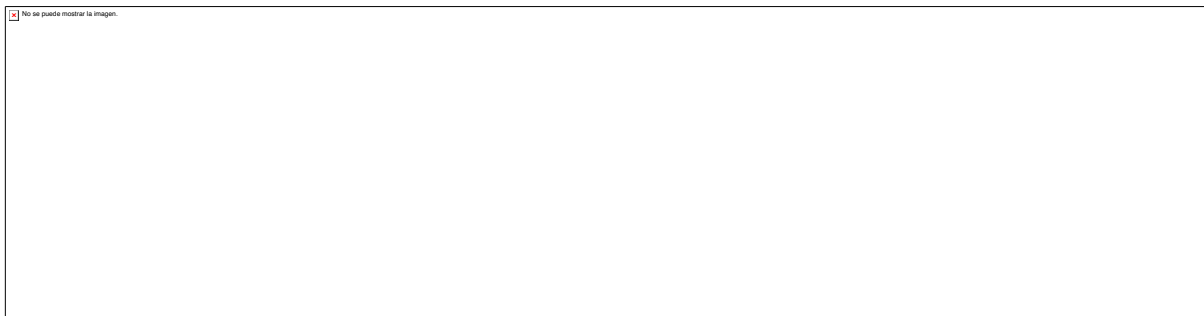
2016, the Supreme Court of British Columbia rejected Nevsun's motion to dismiss the lawsuit and ruled that the case should proceed in British Columbia as there were doubts that the plaintiffs would get a fair trial in Eritrea. Nevsun appealed the decision. In November 2017, the British Columbia Court of Appeal rejected Nevsun's appeal to dismiss the suit, thereby allowing the case to proceed in Canadian courts. The court also allowed claims of crimes against humanity, slavery, forced labour, and torture to go forward against Nevsun. This decision marked the first time an appellate court in Canada permitted a mass tort claim for modern slavery. On 19 January 2018, Nevsun filed an application with the Canadian Supreme Court asking for permission to appeal the British Columbia ruling. "On 28 February 2020, the Canadian Supreme Court dismissed Nevsun's appeal and ruled that the lawsuit can proceed. Notably, the Court held that international norms can be applied to the plaintiff's case." (*Ibid.*). "In October 2020, Nevsun Resources settled the lawsuit with plaintiffs for an undisclosed but "significant" amount according to Amnesty International." (*Ibid.*).

### **Garatau Zijin Platinum Mining (a PGM company) in South Africa**

As reported and documented by Layla van der Donk from various sources in the EJAtlas, South Africa's '**platinum belt**' holds approximately 84% of the world's **platinum group metals (PGMs)** ([EJAtlas, 2024c](#)). The country is the biggest producer of platinum, with the PGM mining sector constituting a leading revenue and employment generator. Platinum has been extracted, processed, and exported from South Africa, with famous episodes such as the Marikana strike and massacre in 2012. Nowadays PGM extraction (platinum, palladium, etc) is gaining traction with the surge of green hydrogen projects, in which these metals play an important role. South Africa is starting to position itself as a green hydrogen hub. However, platinum mining's significant water requirements pose a challenge, particularly in water-scarce regions like South Africa's platinum belt. Amid the push for decarbonization driven by green hydrogen initiatives, the platinum belt risks turning into a 'green sacrifice zone' to cater to the interests of Global North countries. In 2014, **Nkwe Platinum Limited**, a subsidiary of the Chinese **Zijin Mining Group**, together with Genorah Resources (Pty) Ltd, secured mining rights over Garatau, located within the Bushveld Igneous Complex. Following exploration activities, the companies also identified chrome, cobalt, and copper reserves within the UG2 Reef and the Merensky Reef beneath Garatau. The annual average processing capacity of **Garatau** is expected to yield 3.6 million tonnes of ore once full capacity is achieved in several years, placing it among the ten biggest platinum suppliers in the world. Nkwe appointed South Africa Zijin Platinum (Pty) to oversee the mine's daily operations. Mine construction began in May 2021 and is expected to take approximately four years. The project's developers proclaim the project will boost local employment opportunities and contribute to investments in infrastructure, training, and education, thereby fostering socio-economic development in local communities.

While Nkwe praises the project for its widespread anticipated benefits, the company got entangled in conflicts with fellow mining companies operating in the region, as well as with local communities impacted by its operations ([EJAtlas, 2024c](#)). Anglo American Platinum (**Amplats**) and African Rainbow Minerals (ARM) jointly own the **Modikwa Platinum Mine** in Maandagshoek, adjacent to Nkwe's concessions. Modikwa Platinum Mine attempted to prevent Nkwe from mining in Maandagshoek through legal means, claiming the company was encroaching on their land. Residents of the affected villages Maandagshoek, Ga-Ratau, and Leolo share concerns over Nkwe's activities on the land where Modikwa holds mining rights. In July 2021, the Limpopo High Court dismissed Amplats' application.

Another legal dispute unfolded between Nkwe and the co-owner of the Garatau Platinum Mine, Genorah Resources ([EJAtlas, 2024c](#)). The conflict stems from Genorah's claim that Nkwe incorrectly transferred its mining rights to a newly amalgamated company under the same name: Nkwe Platinum Limited ("new Nkwe"). Additionally, Genorah was not listed in the mining rights over De Kom, Hoepkrantz, and Garatouw. Genorah took Nkwe to court for both matters, and the former was dismissed. As for the latter, the Department of Mineral Resources and Energy acknowledged its mistake and has since then corrected the authorization letter. (**Fig. 5**).



**Fig. 5. In South Africa, Garatau platinum mine. Source: Zijin Platinum**

Concerns over Nkwe's operations also come from local communities, who claim they have not been properly consulted by the mining company ([EJAtlas, 2024c](#)). Nkwe allegedly made lease agreements with 185 to 189 families residing on and cultivating the Garatouw land. Over the combined 495 hectares of land, Nkwe was set to pay a total sum of 387,000 USD, which comes down to approximately 2,150 USD per family. This small amount cannot compensate for the loss of harvest revenues over the 40-year lease duration. Villagers claim the company dispossessed them of their land through deceptive means, such as isolating community members, bribery, and failure to provide lease agreements in the local language. In March 2021, members of the Maandagshoek community reported that the company had fenced off a 411-hectare area of their farmland without consulting them beforehand. Such corporate practices have been condemned by local activists from Maandagshoek Community Against Land Invasion (MCALI), with support from the South African Federation of

Trade Unions (SAFTU). Nkwe has refuted the allegations made by land claimants regarding its illegal mining operations. In years past, this had been the site of great violence by other companies and the authorities against protestors ([EJAtlas, 2021](#)).

### **Kolwezi (copper and cobalt). DR Congo**

Kolwezi was a colonial settlement founded by Belgian colonialists as the seat of the Union Minière du Haut Katanga. It is not far to the west of Lubumbashi. In Kolwezi, research conducted by Amnesty on September 12, 2023, produced the report quoted below.

In the Democratic Republic of the Congo industrial mining of cobalt and copper for rechargeable batteries is leading to grievous human rights abuses ([EJAtlas, 2024b](#)). It has led to the forced eviction of entire communities including sexual assault, arson, and beatings. In a report, *Powering Change or Business as Usual?* Amnesty International and the DRC-based organisation Initiative pour la Bonne Gouvernance et les Droits Humains (IBGDH), detail how mining operations have resulted in communities being forced out from their homes and farmland. “The forced evictions taking place as companies seek to expand industrial-scale copper and cobalt mining projects are wrecking lives and must stop now. Amnesty International recognizes the vital function of rechargeable batteries in the energy transition from fossil fuels. But climate justice demands a just transition. Decarbonizing the global economy must not lead to further human rights violations...The people of the DRC experienced significant exploitation and abuse during the colonial and post-colonial era, and their rights are still being sacrificed as the wealth around them is stripped away.”

Growing demand for so-called clean energy technologies has created a corresponding demand for certain metals, including copper and cobalt, which are essential for making most lithium-ion batteries ([EJAtlas, 2024b](#)). These are used to power a wide range of devices including electric cars and mobile phones. The average electric vehicle battery requires more than 13 kg of cobalt, and a mobile phone battery about 7g. Demand for cobalt is expected to reach 222,000 tonnes by 2025, having tripled since 2010. Donat Kambola, president of IBGDH, said: “People are being forcibly evicted, or threatened or intimidated into leaving their homes, or misled into consenting to derisory settlements. Often there was no grievance mechanism, accountability, or access to justice.”

Candy Ofime and Jean-Mobert Senga, Amnesty International researchers and co-authors of the report, said: “We found repeated breaches of legal safeguards prescribed in international human rights law and standards, and national legislation, as well as blatant disregard for the UN Guiding Principles on Business and Human Rights.” ([EJAtlas, 2024b](#)). To produce *Powering Change or Business as Usual?* Amnesty International and IBGDH interviewed more than 130 people at six different mining projects in and around the city of Kolwezi, in the southern province of Lualaba, during two separate visits in 2022. Researchers reviewed documents and

correspondence, photographs, videos, satellite images, and company responses. Findings at four sites are included in the report.

A few months after this Amnesty report was published, there was a recognised radiation risk at Kolwezi Copper - Zijin Mining Group. On 23 April 2024, the Congo Mines ministry halted shipments of copper and cobalt over high radiation levels ([EJAtlas, 2024b](#)). A Congolese copper and cobalt operation, primarily owned by China's Zijin Mining Group Co. Ltd, faced rejection of its mineral shipments due to excessive radiation levels. The Congolese mines minister told the COMMUS project, where Zijin maintains a 72% stake, of the temporary suspension of its licence pending an inquiry into the issue. COMMUS is the Compagnie Minière de Musonoi, which belongs to Zijin. One can imagine the effects of radiation on the workers of the mine. "I am informed of the return of your shipments that exported ... mineral products to South Africa on the grounds that their radioactivity content exceeds the regulatory threshold," Mines Minister Antoinette N'Samba Kalambayi said in a letter. COMMUS did not issue an immediate comment. Based near Kolwezi, COMMUS produced 129,000 tonnes of copper and approximately 2,200 tons of cobalt in 2023, according to ministry data.

An internal directive from the ministry outlined the investigation's steps, including verifying COMMUS' adherence to export procedures and assessing potential risks posed by radioactive materials in the export chain ([EJAtlas, 2024b](#)). DR Congo ranks as the world's third-largest copper producer and the leading producer of cobalt.

### **Kamoa-Kakula Mine (copper), DR Congo**

With a very large reserve of copper, the Kamoa-Kakula mine, located 25 kilometres west of Kolwezi, is en route to becoming one of the largest copper mines in the world ([Ivanhoe Mines, n.d.](#)). Zijin joined Canadian mining company Ivanhoe in the Kamoa-Kakula venture in 2015 ([Amnesty International, 2023](#)). The mine started production in May 2021 and realised production of 393,551 tonnes of copper concentrate in 2023 ([Ivanhoe Mines, n.d.](#)). Electricity for its smelting operations is sourced from the Inga II hydropower dam, which is another contested project included in the EJAtlas ([EJAtlas, 2021b](#)). Mining operations at the Kamoa-Kakula complex are tied to inadequate resettlement of evicted communities, motivating allegations of human rights abuses against the mine's operators ([Amnesty International, 2023](#)). Moreover, several fatal accidents have occurred at the site ([Ivanhoe Mines, 2019; 2023; Mining Journal, 2021](#)). By 2024 the plans are for a smelter of 500,000 tons of copper per year. As we know, copper smelters are often sources of pollution for the surrounding populations.

Kamoa Kakula is a very large investment by Ivanhoe (of Vancouver) in which Zijin has a large share, almost fifty percent ([EJAtlas, 2024j](#)). One issue is the energy for the mine and the smelter, apparently solved through hydropower from the Inga dam, allowing claims of decarbonization for the whole operation. Another trouble arises from the transport ([Economist Intelligence, 2024](#)). So far, Kamoa-Kakula sends its



copper concentrates in caravans of trucks to ports in South Africa and in Tanzania. In 2023, approximately 90% of Kamoakakula's concentrates were shipped from the ports of Durban and Dar es Salaam. An average round-trip takes approximately forty days. Now, transport will be in partnership with Trafigura by the renewed Benguela railway. The distance from Kamoakakula to the port of Lobito (Angola) is half that to the port of Durban. The railway is both quicker and less energy-intensive ([Energy Capital & Power, 2024](#)). Cheaper transport will allow a larger volume of extraction and exports. The Dutch company Trafigura is one of the world's largest suppliers of commodities, and not only from the Global South to the North: it was also involved in 2006 in a famous case of toxic waste export to the Ivory Coast ([EJAtlas, 2023f](#)).

### **Manono, lithium and tin in the DR Congo**

There has been fierce competition with Australian interests to get hold of lithium in the DR Congo ([Mining Technology, 2021](#)), first owned by AVZ Australia, and now claimed by Zijin Mining. A report from Reuters said that although Australia's AVZ claimed the Manono mine, it will be China's Zijin Mining that will defend its right to advance the contested mine in the Democratic Republic of Congo after it was granted permission to develop the deposit ([Liu & Njini, 2023](#)). "The permit to develop one of the world's largest hard rock deposits of the mineral initially belonged to Australian AVZ Minerals (AVZ.AX) but was revoked ... by the DRC's mines ministry that said the company had not developed it fast enough" ([Ibid.](#)). China's top gold and copper miner, Zijin, snapped lithium assets in recent years in South America as well as Africa, to produce the metal used in electric vehicle batteries ([EJAtlas, 2024h](#)). AVZ, which said it owns the Manono project through its unit Dathcom Mining SA, has pending mutual arbitration disputes going on in 2023 and 2024 against Zijin and Cominiere. AVZ, which was worth A\$2.8 billion (\$1.79 billion) when it was delisted from the Australian stock exchange last year, said it owns the project. "AVZ has been in constructive negotiations with the DRC government to establish a pathway to grant the mining licence and the resolution of arbitrations between AVZ and DRC controlled entities," it told Reuters.



**Fig. 6. The Manono lithium project**

Manono Lithium SAS, a joint venture through which Zijin subsidiary Jinxiang Lithium owns a 61% stake and DRC's state-owned Cominiere the remaining interest, was granted rights over the northeast tenement of the Manono mine, the company said. Zijin is committed to developing the project with Cominiere, local stakeholders, and the DRC people, Chen Chen, legal counsel for Zijin Mining, told Reuters ([EJAtlas, 2024h](#)). "We cannot speculate as to what legal issues will arise in the future, but will defend the new joint venture so that work on the northern tenement may continue for the benefit of the DRC and its local communities," she said. Zijin here is the vanguard of Chinese companies and battery manufacturers who are increasing investments across Africa to expand output for copper, cobalt, and lithium, metals that are needed for the so-called world's green transition and growth in battery electric vehicles ([EJAtlas, 2024h](#)). Located north of Lubumbashi, north-east of Kolwezi and Kamao-Kakula (**Fig. 6**), the giant Manono deposit "has strong potential to become the first to-production lithium project for Zijin in Africa and the DRC", Jian Heyuan, general manager of Manono Lithium told Reuters ([Liu & Njini, 2023](#)).

### **Discussion and Conclusion: increased tonnage and increased conflicts**

Zijin is one of many extractivist companies marching all the time towards commodity extraction frontiers ([Gudynas, 2020](#); [Moore, 2000](#); [Svampa, 2019](#)). Despite the talk on sustainability and circularity, the reality of the industrial economy paints a different picture.

**1.- The industrial economy is not circular, it is entropic.** There is much rhetorical enthusiasm about the possibilities of an industrial circular economy

where material resources could be increasingly sourced from within the economy, reducing environmental impact by increasing the reuse and recycling of materials. The aim would be to minimise waste and move towards a closed-loop economy where materials would not become waste. However, this socio-technical “imaginary” has no relation to reality as revealed by biophysical, metabolic analysis. The actual industrial economy is not circular, it is entropic. (Cederlöf 2021). The energy in the fossil fuels is dissipated after use, and the materials are recycled only to a small extent. This applies to China as it applies to the West, to Russia, India and elsewhere. The steady concentration of energy and materials in industrialised centres requires the constant expansion of international or internal extraction frontiers, the exploitation of the environment and dispossession of local communities. This leads to ecological distribution conflicts in such sacrifice zones (Martinez-Alier 2023; Llaveró-Pasquina et al 2024).

Some materials possess a degree of recyclability but the vast majority are sourced anew from old or recent extraction sites, perpetuating a cycle of depletion and environmental degradation. Copper, a vital component in various industrial processes, serves as a poignant example of this phenomenon. There is a new collective initiative for the historical study of “commodity frontiers” and a new journal with this title (<https://commodityfrontiers.com/journal/>). This concept (Moore, 2000) is becoming ever more relevant. The industrial economy reaches all the time to the extraction frontiers in search of materials and it also travels to the waste disposal frontiers (such as mine tailings). Even without economic growth, extractive industries would have to go to the commodity extraction frontiers because energy is not recyclable and materials are recycled only to a small extent.

Consider gold for instance. Gold is seen by Zijin as a “ballast stone”, a hedge to get purchasing power for other mining operations. Gold mining is very damaging to the environment but it is “converted” miraculously into the means for mining copper, cobalt, lithium and other “green” metals for the energy transition. While gold is mined and transformed into permanent stocks (as jewellery or ingots), much of the copper is also fixed in stocks in built structures which are still in use. While copper is technically recyclable, the bulk of the copper entering the economy is freshly mined. It is not surprising that China’s Zijin Mining goal for 2025 is to boost mine-produced copper to 1.22 million tonnes (MINING.COM, 2024b). It also plans to further boost such “fresh” copper output to between 1.5 and 1.6 million tonnes by 2028, which represents a 50% increase from 2023.

To complement the social metabolic logic of “tons and joules” (Fischer-Kowalski and Haberl, 1997), extractive companies (from China or anywhere else) must have financial power and they need access to the political power of state representatives. They require “political licence to operate” together with the “social licence” obtained from the local civil society by means of persuasion, compensation, bribery, force, or

fear. This is the physical and social context in which Zijin operates, as any other large metal mining company.

We do not insist on “neoliberalism” as a source of extractivism. The growth of the social metabolism in industrial economics is older and also more persistent than the “neoliberal” epoch. Neoliberalism followed the period of social-democratic Keynesianism after 1945-75 in the West, when state intervention had reached a peak. Then came a period of “neoliberalism”. But the continuing physical reality of social metabolism is indifferent to such changes. The industrial social metabolism is per se neither social-democratic, neoliberal, or state-capitalist (as China’s system is frequently described). It is also rather indifferent to private or state ownership of the extractivist businesses. **Extractivism and Colonialism** are the politico-ecological concepts required to understand Zijin, not “neoliberalism”.

**2.- Geological opportunities and political opportunities.** Geological opportunities, while abundant, are unevenly distributed across the globe, leading to competition among extractive companies for access to resource-rich territories. As Zijin’s chairman said in his speech on 31 December 2023: “Due to the differences in the Earth’s metallogenic geological processes, the distribution of mineral resources is extremely uneven” (Zijin, 2023a). This is a sound observation coming from Geology and Industrial Ecology. When the research on political ecology took off in the 1990s, there was a complaint against too much politics: “where is the ecology in political ecology?” (Vadya and Walters, 1999). Here, to understand Zijin, we must “geologise” political ecology because the company, as any other transnational mining company, searches the world for geological opportunities at places where the concentration of the desired metals is high. There are access conflicts between companies, and also with local communities. The logic of the extractive companies (whether of fossil fuels, metal mining, sand and gravel mining for cement production, or biomass extraction) is to increase the quantities extracted year after year, while they compete with each other or swallow each other. Increased tonnage appears to be the main objective, subject to satisfactory profits and increased shareholder values. Moreover, the pursuit of these resources frequently awakens social and political opposition. Geological opportunities must come together with political and social licence to operate. This is not always easy to achieve because extractive activities encroach upon lands inhabited by indigenous communities and marginalized populations, leading to conflicts over land rights, water and air pollution, and socio-economic dislocation. These conflicts, and the way they are sometimes “solved” through violence from the extractivist companies and their political allies, raise fundamental questions about the ethics and sustainability of extractive practices in a globalized world.

To extract, process, and sell such materials, whether it is copper or lithium, international companies have to look not only for geological opportunities but also for political opportunities. They have to exercise financial leverage and persuasion in

their communications or personal meetings with political representatives of the regions or countries where they operate, including prime ministers or presidents as we observe in some of the cases in this article. They sometimes corrupt politicians as a means to obtain political licence to operate, or they simply display diplomatic pressure and the backing of their own countries' governments, or they resort to arbitration procedures to penalise the countries daring to withhold permissions and deny police and military protection. Trade agreements very often include such arbitration clauses. The analysis of such facts belongs to the field of Political Ecology. We know that cost-shifting is part of the capitalist economic system. Violence against environmental defenders is the rule. We have seen some of Zijin's successes in cost-shifting and also some of its socio-political troubles with copper mining and smelting in Serbia, D.R. Congo, and China, and the new lithium investments in Argentina, China, and RD Congo. As regards gold, there are no recorded troubles in Norton Gold Fields in Australia and in the investment in Kyrgyzstan, but the Rosebel Gold Mines in Suriname, the Buriticá Gold Mine in Colombia, and the Porgera Gold Mine in Papua encounter large socio-political difficulties that are added to the geological difficulties. In all this, Zijin is just one more metal mining company.

**3,- Ecologically unequal trade between Peripheries and Cores.** Wallerstein's world system history introduced the division of the world into Peripheries and Cores. This article draws on this approach and on the notion of ecologically unequal exchange ([Hornborg, 1998](#), [Cederlöf 2021](#)). The theories of ecologically unequal exchange and extractivism are closely connected, and both have Latin American roots ([Bunker 1984](#); [Gudynas, 2021](#); [Perez-Rincon, 2006](#); [Serafini, 2022](#); [Svampa, 2019](#); [Svampa & Slipak, 2015](#)). Where to place China in the periphery-core typology? The theory of "ecologically unequal exchange" highlights the unequal distribution of environmental costs and benefits across different regions, social groups, and generations. Such inequalities are increased by current environmental and trade policies. In history, Core regions achieve high levels of consumption by exploiting the natural resources and labour of the global Periphery and Semi-Periphery, while leaving behind a legacy of ecological degradation, social injustice and racism that causes complaints. The unfavourable terms of trade plus the obligation to pay back loans to the Core region are instruments to force still more extractivism in the Peripheral regions ([Schatan, 1998](#); [Corsi et al., 2024](#)).

China was formerly a peripheral country colonised by European powers and Japan. China has become a world champion in coal extraction, it is also increasing oil and gas consumption, and extracting metals at home and abroad. Should China now be placed in the Core, or rather in the Semi-Periphery (some of its regions at least) processing the materials from Chinese peripheral territories (Mongolia, Tibet) and from around the world, manufacturing industrial exports? At a macroeconomic world level, "while China continues to be exploited by the core, it has fuelled its ascent in the world-system by creating its own peripheries from which it extracts natural resources, as well as by creating extractive peripheries within its borders" (Tausch,

Althouse 2024). Extractivist transnational companies such as Zijin have a crucial role in the geographical transfers of low-entropy energy and materials and also human labour-time, imported from the Peripheries in order to sustain the metabolism of the industrialised Cores whose inhabitants enjoy the “imperial mode of living” (Brand et al., 2021). In confronting these challenges, extractive companies like Zijin Mining find themselves at a crossroads, torn between the imperatives of metabolic and economic growth, and the imperative of environmental stewardship. This is hidden by favourable ESG reports which are meant for investors but cannot pass the scrutiny of objective research from environmental social scientists and international financial journalists.

In its strategy for increasing “tons, joules, money and power” through exploration, extraction, transport, processing, and smelting of metals, Zijin could next move to the Arctic or to Indonesia and The Philippines for the mining of nickel as one main metal for the so-called energy transition, it could increase its Rare Earths mining at other commodity extraction frontiers or reach more deeply into the Amazon for copper, gold or cassiterite (tin) mining (Zijin. “Business Ecosystem,” n.d.). Zijin could try to get hold of nickel or copper mines in The Philippines as it tried to do with the enticing Tampakan (South Cotabato) deposit (copper and gold) in 2010 without success. Zijin was also involved in Myanmar (in Chin state) in 2011 in the failed Mwe Taung Nickel Project owned by Jinshan (Hong Kong) International Mining Company (a 100% subsidiary of Zijin Mining Group) and China North Industries Corporation’s subsidiary Wanbao Mining Ltd. The Mwe Taung Nickel Project is a large-scale lateritic nickel deposit, i.e. a source for ferro nickel (Mann, 2014; Zijin, n.d.).

Zijin could also invest more in bauxite mining although the production of aluminium from bauxite produces toxic waste (“red mud”) and is very intensive in the use of electricity. Zijin is not unlikely to be involved in lead pollution episodes (from lead and zinc mining and refining) in China, Eritrea, and elsewhere. It is in the nature of extractivist business to produce damage to the environment and to local inhabitants.

Zijin's objectives of increase in tonnage were explicitly spelled out by chairman Chen Jinghe in December 2023 and are reiterated in other documents from the company. The local resistance is often expressed as a lack of prior consent and therefore lack of “social licence to operate”, which the company tries to overcome by various means. The protests are sometimes purely environmental in content - damage to birds and fishes because of pollution, destruction of whole ecosystems and disrespect for Ramsar sites. They overlap with protests claiming human rights to health and life, complaints about displacement, and dispossession of territorial rights of Indigenous peoples. China is not a signatory of Convention 169 of ILO but some countries featured in this article are (South American countries). The right to public protest is not respected to the same degree in Tibet or DR Congo as in the Andes of Argentina or Serbia. In all cases, the Zijin company (like any other extractive company) needs a political and social licence to operate, promising and often

carrying out small compensatory investments in terms of roads, schools, and hospitals in the areas affected.

**4.- The extractivist economy breeds local and international protestors.** The global industrial economy is geared to growth. Firms, industries and nations must increase production every year. This also means growth of the social metabolism. There are two approaches to the clash between the economy and the environment. One preaches further growth of the economy, together with increases and changes in the social metabolism together with technological change and increased efficiency. The second approach to the clash between economy and environment gives a role to civil society in the form of an environmentalism of the poor and the indigenous that in fact represent “degrowth in practice” when local communities stop mines, pipelines, eucalyptus plantations, coal fired power plants or metal smelters. (Martinez-Alier, 2023). The extractivist economy breeds protestors. There are a variety of them. Zijin’s chairman also said in his December 2023 speech: “We strive to provide good opportunities for value creation to 55,000 employees and 30,000 collaborators from 76 countries and regions. We regard the “right to life” as the greatest human right, and high-quality safe development is the inevitable choice for mining enterprises. However, it is heartbreaking that in the past year, the Company’s safety situation was exceptionally severe, with multiple safety incidents occurring among construction project subcontractors, exposing a large gap of the Company from intrinsic safety. We will deeply learn from the lessons by fully benchmarking against international advanced practices, anchoring the goal of “zero fatalities”, reshaping the safety management system to resolutely fight the battle of safety production.” (Zijin, 2023a). A few days before this speech was delivered, in Guyana a truck operator died in a collision at the country’s north-western Aurora Gold Mines, operated by China’s Zijin Engineering company while a tunnel collapsed at a Zijin subsidiary in nearby Suriname, causing the deaths of 15 informal gold miners. We know that informal gold miners sometimes are illegal and sometimes they are like subcontractors selling their production to formal companies or state banks. The Rosebel Gold Mines regretted the deaths of these *garimpeiros* (Reuters, 2023a). There is then an awareness of infringements to the human right to life, and no doubt also of damages to the environment that can be regretted but cannot be amended. Such damages are locally contested, they give rise to complaints expressed in several valuation languages, not only in demands for monetary compensation.

The complaints are caused by environmental injustices (water pollution, land grabbing, air pollution) and they often overlap with labour disputes (e.g. safety of the operations, as with the risk of radioactivity in cobalt mining in South Africa or occupational deaths of mining workers), and they might also overlap with ethnic disputes (as currently in Tres Quebradas in Catamarca, Argentina, in Shuar territory in Ecuador, in Papua New Guinea, in Tibet and Mongolia, and in the past in failed projects in Myanmar and Peru). In some environmental conflicts both in China and other countries, Zijin is not the first one damaging the local environment, Zijin

actually inherited many pathetic social and environmental liabilities. In new investments, Zijin often partners with foreign companies, often from Canada. We reiterate that Extractivism and Colonialism are today rooted in the social metabolism of the industrial economy spearheaded by international companies regardless of their nationality of origin and the ideologies they express.

Extractivist companies follow a rule of maximising “tons, joules, profits and power”. This is a crazy rule as seen in the aggregate. To search for and use all possible sources of energy and materials might be a “law of evolution”, as Lotka said. (Martinez-Alier, 1987, p. 12-13). But there are countermovements. There are attempts at international public policies to make the economy fit into planetary boundaries. And, more to the point and shown in the EJAtlas, emerging grassroots movements advocate for environmental justice and indigenous rights, challenging the status quo and calling for a more equitable and sustainable approach to resource management. (Scheidel et al 2020, Serafini 2022). Ecological distribution conflicts can have an important role for sustainability, because they bring to light conflicting values over the environment. Environmental justice movements are not easily duped by promises of green transitions. They deserve visibility and praise since they turn ‘victims’ of environmental injustices into ‘warriors’ for sustainability (Scheidel et al, 2018).

Local movements against actual or potential damages from Zijin’s projects (**Fig. 1**) could network across large geographical and cultural distances. For instance, there are attempts at an international coalition (an *articulação*) against the misconduct of the Vale company (Saes et al., 2021). There was a group called Partizans (People Against Rio Tinto Zinc and Subsidiaries) that campaigned and supported local opposition to the mining operations of RTZ, now to some extent continued by the London Mining Network. There is also the remarkable effort of the *People’s Map of Global China* tracking international activities by engaging with global civil society. There is however a great asymmetry in power and financial resources between a company such as Zijin (or Vale, Barrick, Rio Tinto, Glencore, BHP Billiton) and the disconnected communities where their extractivist investments are located (<https://thepeoplesmap.net/>). The global environmental justice movement (Martinez-Alier 2023) is still weak, and it is often repressed locally. Environmental Justice and Human Rights organisations, as well as academic action-researchers in China, have an active future in front of them giving faithful information to the public and supporting local protestors against companies in China and in the Belt and Road territories, in a way similar to what European, United States, Canadian or Australian EJOs or international organisations such as Greenpeace or Amnesty do sometimes. When Zijin gets into close agreements with foreign companies (as with Barrick and Ivanhoe), foreign EJO activists could more easily try to join with action-researchers from China. Locally successful outcomes for environmental justice in ecological distribution conflicts are leverage points for a more sustainable economy and



society. On this line, there is much political ecology to be taught to students in Business Schools about social justice and environmental sustainability.

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