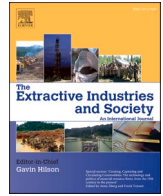




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Original article

## The trajectory of extractive urbanism: Examining the implications of Vale's presence and withdrawal for the coal frontier and its urban spaces in Tete

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## ABSTRACT

Motivated by the increased demand for coal in the first decade of this century, multinational mining firms, including the Brazilian Vale, arrived in Tete province, Mozambique and expanded the coal frontier. The recent global agenda for energy transition made Vale decide to divest from Tete, selling all the mining-related assets to a new company, Indian Vulcan. This divestment is likely to lead to the restructuring of the expanded coal frontier and generate wider implications for the inhabitants than currently assumed in studies, which tend to focus on enclaves and resettlement sites constructed by Vale. In this paper, we argue that paying attention to urban spaces beyond the enclaves and resettlement sites helps us establish a more comprehensive understanding of the potential consequences of Vale's investment and divestment on Tete's coal frontier. Critically engaging with the emerging literature on extractive urbanism and drawing on ethnographic field research in three urban spaces, the paper shows that Vale's divestment following the energy transition agenda has deepened uncertainty and generated scepticism about the future development of urban spaces among the frontier inhabitants.

### 1. Introduction

After accepting the International Monetary Fund's (IMF) structural adjustment programme in the late 1980s and following the end of the civil war in 1992, the Mozambican government started investing in rebuilding the national economy by attracting foreign direct investments. Mozal's aluminium, Sasol's natural gas, and Kenmare's heavy sand projects are considered the first mega-projects in the post-civil war period (Castel-Branco, 2014). Following these projects, discoveries of massive deposits of coal in Tete Province and natural gas in Cabo Delgado Province stimulated a sharp rise in national economic growth, which led Mozambique to fully take an 'extractive turn' (Wiegink and García, 2022). Economic growth led by the extractive economy was associated with the commodity boom of the 2000s, the period which saw a sharp increase in both mineral and food prices (Bowman et al., 2021; Erten and Ocampo, 2013), and the global expansion of the extraction frontier. In 2004, the Brazilian mining giant Companhia Vale do Rio Doce<sup>1</sup> (hereafter Vale) won the international tender to explore both coking and thermal coal in Moatize mine in Tete (Companhia Vale

do Rio Doce, 2004). Following Vale's move, other mining firms arrived to forge so-called 'mining enclaves' to develop untapped coal deposits, and subsequently, Tete became a booming coal frontier (Kirshner and Power, 2015; Lesutis, 2019a).

Between 2004 and 2015, Mozambique experienced something of an economic golden era, registering an average GDP above 7% (African Development Bank, 2019). The decision-makers promoted extractive-led development where coal was central to this vision. In 2013, the IMF Article IV report noted that Mozambique could become 'one of the world's leading coal exporters' (IMF, 2013, p. 64). In fact, coal has become the country's second largest export product after aluminium<sup>2</sup>, accounting for around 40% of the country's total export revenue (EIU, 2019). Along with mining assets, multinationals also invested in strengthening regional infrastructure such as railways, roads, and ports to secure transport networks. Amongst the mining firms, Vale was clearly the most influential player in Tete as the firm's output accounts for nearly 90% of the country's total coal exports (EIU, 2017), with its primary markets across Asia, Europe, and Brazil (Vale, 2015). Vale claimed that their contribution to local employment is

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<sup>1</sup> In 2009, Companhia Vale do Rio Doce changed its official name to Vale S.A.

<sup>2</sup> See: <http://portalcomercioexterno.gov.mz/pt/trade-data>.

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significant as the firm directly and indirectly hires over 11,000 workers of which more than 90% are nationals (Vale, 2018), even though systematic lower-class Vale's mineworkers' strikes were ubiquitous due to disputes over bonuses (Reuters, 2016, 2017).

In reality, in spite of Vale's claims, mining-related jobs were largely taken by foreigners or by better-educated Mozambicans who are often from other urban centres (such as the capital city of Maputo). Studies have problematised the socioeconomic inequality, which widened between immigrants and local workers (Mosca and Selemene, 2011; Kirshner and Power, 2015). In addition, both mining and associated local urbanisation have resulted in environmental degradation and heavy traffic, as well as local inflation and a lack of social services (Kirshner and Power, 2015; Feijó, 2016). The most controversial issue has been mining-induced resettlement: Vale alone has so far resettled 1,365 households (Human Rights Watch, 2013). Those forced to relocate continue to express dissatisfaction with the harsh living conditions, as they experience poor housing, difficult accessibility to water and a lack of transport and job opportunities; and the provided land for farming turned to be non-arable (Human Rights Watch, 2013; Selemene, 2016; Lesutis, 2019a).

These studies imply that the coal business in Tete had become socially and environmentally controversial. In addition, the huge investments made by Vale in mining and transport infrastructure have not brought the expected returns, and only produced 'loss-making assets' (Reuters, 2021). This economic loss, coupled with the firm's ambition to become carbon neutral by 2050 following international consensus (UNFCCC, 2015, p. 2), made Vale decide to divest from Tete. At the end of 2021, Vale announced to sell all mining assets, including the coal transport network, for US\$ 270 million, plus a 10-year Royalty Agreement, to Indian Vulcan, a subsidiary of the Jindal Group which also operates in Marara District, more than 100 kilometres (km) from Moatize City (Vale, 2021). This transition from Vale to Vulcan has led the local population and civil society organisations to publish a joint open letter to the Minister of Mineral Resources and Energy, urging Vale to settle all outstanding issues related to the socio-environmental impacts of its mining project before withdrawal from the region<sup>3</sup>. Nevertheless, Vale officially left Tete in April 2022 after concluding the sale of assets without addressing the demands presented in the letter (Vale, 2022).

Whilst previous literature tends to focus on enclaves and resettlements to assess the impacts of the coal mining in Tete, in order to understand the implications of Vale's investment and recent withdrawal on the expanded coal frontier, we argue that it is imperative to pay attention to urban spaces and surrounding areas beyond and between Vale's mining enclaves and resettlement sites. Inspired by recent studies on extractive urbanism (Kirshner and Power, 2015) and spaces of extraction and urbanisation underpinned by dispossession and mining capital accumulation (Lesutis, 2019a; 2021), we examine spatial transformations experienced by the communities left within the concession area, and the urban and peri-urban areas in the cities of Tete and Moatize, spread across the coal frontier. Drawing on ethnographic field research intermittently conducted between 2016 and 2022, we show how inhabitants in these spaces have been experiencing the effects of Vale's investment and divestment following the energy transition. Based on this case study, we conclude with an analysis of the trajectory of extractive urbanism and discuss how to address uncertainty of future development of the coal frontier.

## 2. Literature Review

### 2.1. Spatial transformation on Tete's coal frontier

Tete Province has produced coal since the Portuguese colonial

period. Under the Portuguese regime's forced labour system, which started in the 1930s, populations of Tete largely fled to surrounding countries, making the province relatively a marginalised part of post-independence Mozambique (Isaacman, 1997; O'Laughlin, 2013; Pérez Niño, 2017). The establishment of the contemporary coal industry led the province to become entirely integrated into the global capitalist system and expand its coal frontier, absorbing manual labour. So far, scholarship on the implications of mining frontier expansion has focused on 'enclaves' or isolated spaces that large firms create in order to develop specific natural resources (often hydrocarbons) with limited socioeconomic contribution to the host society (Ferguson, 2005; Phelps et al., 2015). Certainly, such an enclave economy permeates present Tete, as less than 1% of the produced coal is destined for domestic consumption (EIA, 2020).

Scholars and activists have also problematised that the formation of coal enclaves induced the displacement and resettlement of thousands of local households (Human Rights Watch, 2013; Lesutis, 2019a; Lillywhite et al., 2015; Mosca and Selemene, 2011). It is estimated that since the first decade of the current century, more than 2,000 families (approximately 10,000 people) were forced to relocate to make way for the mining investments in Tete (Lesutis, 2019a); others still await future resettlement (Bila, 2015; Wiegink, 2018). For instance, before Vale started operations in 2011, the company displaced 1,365 families to two newly constructed sites: Cateme (nearly 40 km from Tete City) and 25 de Setembro (inside Moatize City) (Human Rights Watch, 2013). Right after the resettlement, resettled people in Cateme started to experience confrontation with Cateme natives over land use and extreme difficulties in accessing land, water, employment, and compensation; many of the issues remain unsolved (Human Rights Watch, 2013; Lesutis, 2019a; Selemene, 2016). Moreover, it is unclear how long companies or the government remain responsible for resettled people as well as when a resettlement is considered completed (Wiegink and García, 2022).

Building on these studies on enclaves and resettlement, emerging literature has shed light on socio-spatial transformation beyond the enclaves and resettlement sites in Tete (Kirshner et al, 2020; Lesutis, 2019b, 2021, 2022). This could be studied as a specific form of 'extractive urbanism' (Kirshner and Power, 2015; Correa, 2016). In Tete, the cities of Tete and Moatize were rapidly urbanised, and a wide range of local businesses was established to satisfy the increasing demand for accommodation, catering, transport, and telecommunications for expatriates and national immigrants (Kirshner et al., 2020; Wiegink, 2018). Whilst rapid urbanisation benefited some groups, especially new skilled and labour immigrants, engaged in civil engineering, construction and hospitality industry, it tended to adversely affect ordinary households and natives as local inflation hit the price of food and other products (Feijó, 2016; Mosca and Selemene, 2011). Additionally, as urban areas expanded, unplanned and temporary dwellings were also built, which often lacked the basic services of electricity, water, sanitary and waste disposal (Kirshner and Power, 2015), further widening the division between the *haves* and the *have-nots*.

Analysing the pattern of urban development in Tete and Moatize cities and in the resettlement site, Lesutis conceptualises 'urbicidal urbanisation' as the urbanisation led by extractivism has resulted in 'the deliberate erasure of material infrastructure and social life' (2021: 1197). In Lesutis' urbicidal city, neoliberal urban growth may create opportunities and a better life for some—including immigrants—but it also simultaneously destroys the pre-existing socio-spatial forms of urban life and induces 'social death', especially of the local vulnerable population. For example, resettled people often abandon the resettlement site due to the lack of fertile land (Lesutis, 2019b), but moving into an urbicidal city as urban dwellers is also not a viable option. Therefore, they expand the frontier of settlements in remote areas, leaving behind streetlights, better roads as well as education and health facilities in the resettlement site (Lesutis, 2019b).

Following these studies on extractive and urbicidal urban spaces within, beyond and between enclaves and resettlements, we further

<sup>3</sup> See: <https://omrmz.org/comunicado/carta-aberta-ao-mireme-e-ao-gover-no-de-mocambique-a-respeito-da-venda-da-vale-mocambique/>.

need to examine how these urban spaces evolve over time, especially in relation to the divestment process resulting from the energy transition.

## 2.2. Divestment from urban spaces and its implications in the Global South

Socioeconomic impacts of divestment from urban areas are generally well documented in the context of the Global North (Audirac et al. 2012; Haase et al. 2014; Martínez-Fernández et al., 2012b). The studies often use the concept of ‘shrinking city’, which is defined as an urban space that has experienced a decrease in population, economic downturn, and increased unemployment and the associated social and economic crises (Martínez-Fernández et al., 2012a). The shrinkage of an industrial city is usually caused by the city’s inability to keep up with economic globalisation and navigate through transnational financial flows and the internationalisation of production space (Audirac et al., 2012; Martínez-Fernández et al., 2012b).

The shrinking city can be also seen in extractive urban spaces in the Global South. When mineral output declines or the commodity value in the international market decreases, the synergies between mining and urbanisation weaken (Bryceson and MacKinnon, 2012; Kamete, 2012). As a result, the so-called mining towns might be abandoned and turned into ghost towns (Kamete, 2012; Littlewood, 2014). At the same time, as Lesutis (2021) argues, urban infrastructure and social life could have already been destroyed during the expansion of the mining frontier.

Nevertheless, little is known about how the divestment further influences the already dispossessed and often fragmented urban lives of the frontier inhabitants. In other words, mining towns might not only shrink but become rather reshaped and create new situations that deserve more attention. Thus, the question is: What are the implications of divestment for urban spaces, which had been shaped, destroyed or fragmented by extractivism? We have identified three spaces within and outside of the enclaves and resettlement sites to answer this question. The first space is the communities that remained inside now Vulcan’s concession area who have been forced to deal with socioeconomic and environmental challenges on a daily basis (Bila, 2015). The second space is Moatize, a city located adjacent to Vulcan’s mine. The city is one of the major urban centres in the region where the urban inhabitants’ life has been dramatically altered with the inflow of migrants, spatial transformation, and environmental impacts (UNDP, 2020). The third space is Tete’s city centre and its outskirts. Within a certain distance from the major extraction sites, this area has been the epicentre of regional urban growth, hosting many commercial facilities as well as formal and informal settlements (Kirshner and Power, 2015; Lesutis, 2019a). We have selected these urban spaces because the inhabitants and the environments seemed to have been clearly affected by Vale’s arrival and withdrawal. We analyse the evolution of these spaces to extend our understanding of the trajectory of extractive urbanism in Tete’s coal frontier.

## 3. Methodology

The ethnographic descriptions of the three spaces are reconstructed based on three sets of field research in Tete and Maputo: (1) April–May 2016, (2) March 2019, and (3) the ongoing fieldwork from April 2022 to the time of this writing. During the three field trips, the lead author visited various spaces including Vulcan’s mining site, private condominiums, different communities inside the mining concession area, Moatize City and Tete City. To reach the communities inside the mining concession area, the author visited the area with the support of a local NGO known as AAAJC - Associação de Apoio e Assistência Jurídica às Comunidades (*Association for Support and Legal Assistance to Communities*), which has close ties with local communities located inside Vulcan’s mining concession area. At each visit, AAAJC provided transportation and one research assistant who served as an interlocutor between the community members and the author.

More than 65 semi-structured and informal interviews were conducted with different individuals and organisations, including officials from Vale/Vulcan and government officials at the provincial, district, and municipal levels, as well as residents of both Tete and Moatize cities, residents of the communities inside the mining concessions, local activists, journalists, and entrepreneurs. After Vale’s divestment, the author has also conducted focus group discussions with residents of communities inside Vulcan’s mining concession area. Most of the interviews and group discussions were conducted in Portuguese, the official language of Mozambique. English was also used during the interviews with expatriates or foreign entrepreneurs. As some of community members inside the mining concession area only spoke *Nyungwe*, the local language, the research assistant translated the conversation into Portuguese. In addition, the author conducted online interviews and personally communicated with key informants in 2021. To contrast with the empirical data, academic articles, online news websites, company websites, and various reports are also used in this paper.

In what follows, we present an in-depth analysis on the evolution of the three key urban spaces identified above. The data we present demonstrate that each of the spaces holds a unique relation with frontier expansion as well as the divestment process. In conclusion, we discuss the implications of the analysis.

## 4. The coal frontier transformation and the evolution of urban spaces

### 4.1. Communities inside the mining concession

In 2020, Vale acknowledged that a total of 1,349 families still lived inside their concession area (Vale, 2020). Ntchenga (Fig. 1) was initially included in the resettlement process, but Vale eventually decided that the community would be resettled at a later phase (Bila, 2015). Meanwhile, Vale displaced and resettled other communities around Ntchenga, and this process adversely affected Ntchenga community members’ everyday lives.

A resident of Ntchenga mentioned that before the displacement of people from Mithete—now Vulcan’s extraction site—children used to go to a school in Mithete. After Mithete’s displacement, Ntchenga community lost access to this school (Interview with a Ntchenga resident, 20 April 2016). Likewise, the removal of neighbouring communities also led to the loss of a local health post, forcing the residents of Ntchenga to travel to Moatize City, around 25 km away from the community (Quembo, 2015). These changes, associated with the installation of the mine, suggest that the residents of Ntchenga experienced isolation and dispossession of basic services in an indirect manner.

In addition, Ntchenga residents also experienced the adverse environmental impacts of mining activities. Before Vale’s arrival, residents had relied on water from the nearby river for multiple purposes (Bila, 2015). However, since Vale arrived the river has been contaminated. Although Vale promised to regularly transport water into the community, the water supply has often been intermittent and insufficient (Bila, 2015). Yet, Vale officially publicised this water supply to Ntchenga as a part of the firm’s ‘social programs’ aimed at the community’s welfare (Vale, n.d.). In a 2016 interview, a resident from Ntchenga expressed his dissatisfaction as follows:

Everyone knows about the problems here, but there is no solution. Neither the government nor Vale says when we will be resettled. We are always faced with these issues, and we don’t know when we will get rid of them. (...) we are forgotten<sup>4</sup>.

However, Vale seemingly changed its approach to this community in the process of expanding the mine. While the water issue remains unsolved, Vale donated local facilities such as a retail shop and a flour mill

<sup>4</sup> Interview with a Ntchenga resident, 20 April 2016.

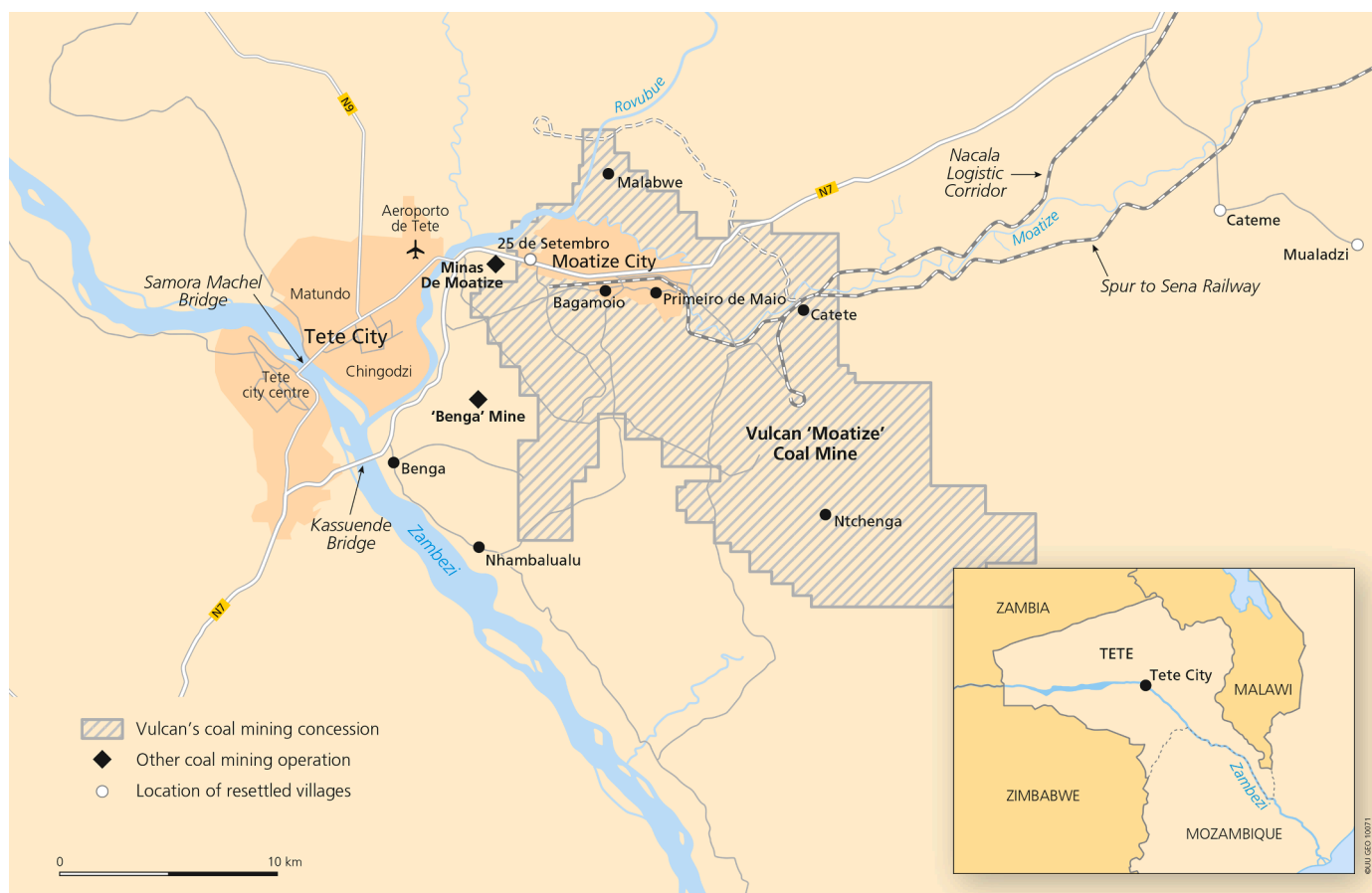


Fig. 1. Vale/Vulcan's mine and the area surrounding Tete and Moatize.

to the community in September of 2018 (Vale, 2019). Moreover, Vale provided job opportunities to residents who were members of the *Comité de Gestão de Recursos Naturais (Natural Resource Management Committee)* in Ntchenga (Interview with a AAAJC agent, 7 March 2019). These actions appear to be akin to what Hönke (2013) calls 'community belt' which is defined as an imaginary space where mining firms strategically intervene in the neighbouring community through community development programmes, with the aim to address community discontents and thus reduce social risks.

Meanwhile, Vale's annual *Sustainability Report 2018* officially mentioned that Ntchenga would be soon resettled (Vale, 2019). The resettlement site will be built in Nhamitsatsi in Moatize district, with more than 160 houses as well as a hospital, a school, and recreation facilities (O País, 2021). However, after Vale's withdraw and Vulcan's entrance to the concession, the situation changed. The new company began to show their clear interest in expanding the mining operation on the agricultural land of some of the community members although the resettlement of the residents had not been materialised, and this led to a great anxiety among the residents (Group discussion with Ntchenga residents, 25 August 2022). While the community is waiting to be resettled in Nhamitsatsi, they have to deal with Vulcan to avoid another loss of access to their valuable resources and assets.

Catete community within the concession area is also facing the uncertain future. Catete is adjacent to two major mineral transport railways, namely Sena and Nacala. Before the arrival of Vale, the Sena railway was not functional as it was severely damaged during the prolonged civil war which lasted 15 years after independence. However, with the arrival of Vale and other mining companies, it was rehabilitated with the financial support of the World Bank (2012). The regional transport system became even more reinforced in 2017 when Vale's multi-billion Nacala Logistic Corridor was inaugurated (AIM, 2017). The

development of the railways worked to impede Catete residents' mobilities, as trains started to run day and night even though Catete residents needed to cross the tracks in order to access to the closest river. A train could have more than one hundred cars, and as it stops and stays for hours, the blockage of residents' access to water could last for a long time. In relation to this, a resident mentioned the importance of being able to move between their community and outside of the concession area. Residents haul firewood, crops and charcoal on bicycles to sell in Moatize City, and return with maize flour among other things to sustain their lives (Interview with a Catete resident, 20 April 2016). This means that, even though Catete is located within the fenced concession area, the residents' life remains closely linked with Moatize City. The in-and-out mobility clearly shows that there are leaks in the mining enclave, which nuances the general understanding of mining enclaves conceived as spaces walled-off from the immediate environment.

Yet, access to the nearby City has become increasingly limited, as Vale expanded its fenced areas. According to an agent of the local NGO AAAJC, the communities inside the concession area, including Catete, are now obliged to pass through formal entrances because other access roads have been blocked<sup>5</sup>. As a way to compensate this blockage, Vale donated 2,000 bicycles to the communities inside the concession area, including Catete, to support day-to-day mobility (Online Notícias, 2020). However, the expansion of the mine and the continuous fencing process are constantly modifying the living conditions of the residents inside the concession area. In other words, the residents are increasingly vulnerable to changes at any time according to the company's intentions.

In sum, both Ntchenga and Catete have experienced modification or

<sup>5</sup> Text message exchange with an AAAJC agent, 1 July 2021.

destruction of material infrastructure, social life and livelihoods. As Vulcan took over the concession, Ntchenga is now facing the fear of losing land due to the mining expansion and pending resettlement process, and Catete continually struggles with limited mobilities. When the lead author visited Catete after Vale's withdrawal, the residents expressed the same impasse, pointing out that Vulcan's entry has not brought any change and the community continues to be isolated by railways and fences (Group Discussion with Catete residents, 25 August 2022). In contrast to Ntchenga, Vulcan seems to neglect Catete more since it is integrated neither in Vulcan's expansion plan nor in the resettlement plan.

#### 4.2. Mining town—Moatize City

Moatize City is the capital of Moatize District where coal mining has taken place since the Portuguese colonial period. After Mozambique's independence in 1975, the national coal company *Carbomoc* operated in Moatize; and currently it is the centre of the expanding coal frontier in Tete. In 2020, Moatize was officially elevated to the category of 'city' due to the increased population and income (*Imprensa Nacional de Moçambique, 2020*). According to the official website of the government, the city currently hosts approximately 64,000 inhabitants of which most are classified as economically active<sup>6</sup>.

The growth of Moatize is underpinned by inflows of both skilled and unskilled workers as mining companies moved into the area. Skilled workers arrived from larger urban centres of Mozambique, such as Maputo and Beira, as well as from abroad, such as Zimbabwe, Malawi, and Pakistan (*Kirshner and Power, 2015*). The inflows of the workers from outside created tension between the newcomers and locals. During the initial construction of the mining site, Moatize locals were employed by subcontractors as many construction works required a major workforce. However, employment was mostly temporary and the number of available jobs has significantly reduced since then. This is due to the nature of the mining life cycle: the initial period requires the largest workforce, but when mining projects move from exploration and construction phases into the production phase, the industry only needs to maintain operations as all necessary infrastructure is set up (Interview with the Director of Provincial Directorate of Labour, Employment and Social Security in Tete, 15 April 2016). Locals thus came to face competition over jobs with immigrants, and this situation led to wider discontent among Moatize's original residents.

Moreover, in spite of the mining development and economic growth, the city still lacks decent housing and a reliable water system (*Meneses, 2018*). A journalist based in Moatize claims that the major benefits of the coal economy have gone to the immigrants whereas the locals have been marginalised and must bear the harsh living environment:

If you asked me or the natives of Moatize whether we would like to live in Moatize today or 20 years before without the mining, we would prefer the latter. (...) the mining industry gives opportunities to the newcomers (...) and the locals continue to be unemployed in the environment where the living cost has increased<sup>7</sup>.

In addition to this increasing sense of marginalisation, the city is considered to be 'one of the most polluted cities' in the country (*UNDP, 2020*). Moatize shares a boundary with the mining concession area, which contains the largest open-pit coal mine in Mozambique.<sup>8</sup> In their everyday life, the residents deal with various environmental impacts

<sup>6</sup> See: <https://www.portaldogoverno.gov.mz/por/Imprensa/Noticias/Gov-erno-eleva-as-vilas-de-Moatize-e-Vilankulo-a-categoria-de-cidade>.

<sup>7</sup> Interview with a journalist based in Moatize, 7 March 2019.

<sup>8</sup> Whether Moatize City is technically inside or outside Vale's concession area is ambiguous. While the initial mining contract (signed in 2007) shows the city inside the leased area, it has been treated as lying outside the concession area in practice.

such as polluted air, water and crops (*Human Rights Watch, 2013; Mosca and Selemane, 2011*). Environmental degradation became even more evident when Vale opened a new extraction site, Section 6, located in the closest area to Moatize City. Studies began to outline the potentially detrimental health impacts (*Chapare et al., 2020; Source International, 2019*).

In October 2018, the accumulated discontent with the mining led Moatize residents to take a concrete action. A group of Bagamoio neighbourhood residents, one of the communities which shares a boundary with Vale's mining site Moatize II, broke into the site as a form of anti-mining protest and halted mining activities (*Fernando, 2018*). The population demanded resettlement, alleging that Vale's mining activities had increased pollution, excessive noise, and cracks in the walls of their homes because of the company's use of explosives (*Fernando, 2018*).

In addition to the environmental changes, the continuous expansion of extraction sites such as the Section 6 and the boundary fencing process have started to impede the residents' easy access to their lands (*Lesutis, 2021; Marshall, 2015*). For instance, Vale fenced off what they called 'unoccupied land' in the Bagamoio neighbourhood. In September 2014, residents of Bagamoio organised a protest against Vale, alleging that the land was common land that local people used for multiple purposes such as livestock farming, harvesting, and collecting firewood (*Marshall, 2015*). In 2016, as Vale began their extraction in the Section 6, a resident who raises goats in Moatize stated:

Five-hundred metres from my house, Vale will open a mine. They said they will fence off the land. I am a livestock farmer. How can I raise my goats if there isn't enough space for it? Some lands will be split, and Vale says they will financially compensate for the loss. But, at some point, the money will be spent, and what will be left for our next generations?<sup>9</sup>

In May 2021, hundreds of brickmakers and farmers from the *Primeiro de Maio* neighbourhood invaded the Section 6, alleging that the company inappropriately blocked access to some fields without fair compensation (*Darame, 2021*). This invasion ended up halting the mining operation and causing an intervention of governmental forces and detention of protestors (*Darame, 2021*). According to the local NGO AAAJC, many Moatize residents have lost their access to land, and Vale walled off a large part of their mining site so that the residents even have to cut firewood outside of the fence.<sup>10</sup> As the fencing process continued, the density of the overcrowded city increased. Vale has recognised in their annual report that the neighbourhoods in Moatize City require more attention due to the city's high socioeconomic vulnerability as well as the environmental impacts (*Vale, 2019, p. 52*).

Whilst the situation in Moatize City itself has not changed, the announcement about the completion of the asset sale to Vulcan obviously angered ex-Vale's workers and ordinary residents of Moatize. Hundreds of the ex-Vale's mineworkers went on strike over the clarification of their situation as they were not pre-notified about what the transition would mean to them (*Reuters, 2022*). Moatize residents at large also organised a large-scale protest, demanding Vale to leave *after* solving all the pending issues, such as future resettlements and financial compensations to brickmakers and farmers (Interview with a local journalist, 8 September 2022).

The protesters also raised concerns about uncertainty they face with the new owner Vulcan, as Moatize residents are very much aware of the reputation of Jindal Africa, (another subsidiary of Jindal Group which has operated in Marara District since 2013). It is well known that Jindal Africa has a series of issues with local communities including long-awaited resettlements, unfulfilled compensation promises, and negative environmental impacts (*Ngovene, 2021*). Moreover, Jindal owns a

<sup>9</sup> Interview with a Moatize resident, 5 March 2019.

<sup>10</sup> Text message exchange of with an AAAJC agent, 1 July 2021.

dry port in the middle of Moatize City to stock their coal which has been polluting the area. Even though the provincial court has ordered the company to close the port, the company continues to utilise the facility (Folha de Maputo, 2017). The residents fear that the already existing 'urbicidal' conditions of their city would worsen with the entry of Vulcan. Worse still, they also cannot know to what extent the new company will be responsible for the pending issues left by Vale.

#### 4.3. Tete's city centre and its outskirts

Tete City is the largest urban centre in Tete Province. The iconic suspension bridge Samora Machel over the Zambezi River links two different parts of the city. The colonial city centre (*cidade de cimento*) lies at the southern margin whilst there is a growing outskirt alongside the road that connects Tete to Moatize at the northern side. Prior to the coal boom, Tete City was only known among the people from Maputo for serving as a transit point for long-distance truck drivers heading to and from neighbouring countries such as Malawi and Zimbabwe (Kirshner and Power, 2015). With the rise of the coal economy, the city centre and its outskirts have become the centre of the regional economy. Tete City started to host many entrepreneurial activities such as accommodation, catering, transport, telecommunications and other services aimed at expatriates and business people (Kirshner et al., 2020). Population growth during the coal frontier expansion was exponential. Between 2007 and 2017, the population in Tete City nearly doubled from 158,000 to 307,338—the rate of growth was higher than any other major urban cities including Maputo, Beira and Nampula during the same period<sup>11</sup>.

As the contemporary mining relies heavily on outsourcing, various types of subcontracting including multinational companies, middle-sized foreign firms, and national companies are established (Rubbers, 2020). This tendency is also observable in Tete. The workers started to have direct or indirect connections with smaller segments of the local economy. The connections have subjected the local economy to the ups and downs of the coal economy. One condominium business clearly illustrates this instability. This condominium is rented by Vale (now by Vulcan) and is located along the road to Zambia, the northern margin of the Zambezi River. The condominium started operations in 2011, the year that Vale began coal production. The lead author talked to a condominium manager during the recession period and the following summary clearly illustrates their strong ties with Vale's operation. According to the manager, they were initially planning to increase the number of units to 200 as well as construct an international school inside the condominium; at the peak, there were around 30 children of school age. However, the downturn of the coal economy after the booming period of 2009 to 2012 (Kirshner et al., 2020) as well as political instability in the central region made them more cautious about making the decision. He mentioned they would only start to reconsider the expansion when the situation had settled (Interview with condominium manager, 18 April 2016). The price of coal finally started to pick up and the political situation also improved around 2017. When the author spoke to the same person in 2021, he had already left the condominium business, but the ex-manager was able to explain the trajectory of the condominium business afterwards (Interview with ex-condominium manager, 4 April 2021). The firm decided to build more units after Vale offered a multiple-year contract to them and, subsequently, the number of the units reached more than 200.

The Northern side of the Zambezi River, along the main road which connects Tete City to Moatize City, has become the prime focus of urban growth, hosting mining services and the offices of logistic companies, fancy hotels and restaurants as well as bank branches (Kirshner et al., 2020). In 2017, Mall de Tete was inaugurated in the heart of Tete City

with an investment of US\$ 23.2 million<sup>12</sup>. The mall houses a variety of tenants, including the largest African retail company Shoprite, the South African clothing store PEP, and the recently opened casino—New Macau Casino bringing an international air to Tete. In addition to concentrated commercial facilities, the outskirts of Tete City have evolved into a large residential area. Initially, there were not enough condominiums or hotels to accommodate the increasing number of workers, and the suburban residents started renting out their own houses (Interview with an official at the Municipality of Tete, 16 April 2016). However, this practice changed as a number of accommodation units increased over time. Mining elites started to stay in private condominiums and hotels, and the spatial segregation between the mining elites and the rest of population became obvious.

At the aforementioned condominium complex, the area is completely walled off and residents have 24-h security. All the houses are well-furnished with private gardens, and tenants have access to the internet, a swimming pool, and tennis courts among other services. The manager stated that as there was no public water system or a reliable electricity supply, the firm built their own water supply system and installed diesel generators in case of a blackout (Interview with a condominium manager, 20 April 2016), making this space distinct from the outside area. However, even amongst those who work in the mines, only those who are in the upper ranks have the privilege to stay in the condominiums, and lower ranked operators must rent houses elsewhere (Interview with a provincial government official, 25 April 2021). Outside of the condominiums, the city started to grow without any planning of land demarcation for housing and infrastructure. In new expansion areas, people first build their houses; public infrastructure such as water and electricity follow afterwards even though it is supposed to be the other way around (Interview with an officer in Municipality of Tete, 25 April 2016). Newcomers arrive every day because they see Tete as 'a promised city' (Interview with a Chingodzi neighbourhood resident, 20 April 2021), expanding the urban settlements with precarious or no infrastructure. According to a provincial government official:

Some public servants construct houses to rent out with the aim of securing their livelihoods after retirement. (...) It is no longer possible to find (available) land in Bairro Azul and Matema<sup>13</sup>, so people go further to the unexplored areas searching for spaces to build their houses<sup>14</sup>.

Thus, the urban fringes of Tete City have expanded as the newcomers build their own houses or the current residents build houses to rent out to short-term contractors and workers. At the city centre, commercial and hospitality businesses, though with fluctuations, have flourished. Vale's departure will affect the current business structure, as the new company might have different preferences and ways to connect its (and its subsidiaries') workers to local economy. Signs of the change are already observable in 2022. After the transition, Vulcan started to review the contracts with subcontractors with the aim to minimise the cost, and as a result, some firms were rescinded, and others are in the negotiation process (Interview with a representative of a trade union, 9 August 2022). It is yet premature to evaluate the implications of this review. However, as Vulcan is reshuffling its partners in their operation and aiming to cut down the cost of the operation, less circulation of money could be expected in the local economy. Unemployment might increase, especially negatively affecting the lower ranked workers in precarious urban spaces.

<sup>12</sup> See: <https://grit.group/mozambique/mall-de-tete/>.

<sup>13</sup> Bairro Azul and Matema are commonly known areas along the main road to Moatize.

<sup>14</sup> Interview with a provincial government official, 24 June 2021.

<sup>11</sup> Based on the general census data in 2007 and 2017. See: <http://www.ine.gov.mz/>.

## 5. Conclusions

This paper has explored how investment in and divestment from large-scale mining influences the spatial transformation of urban spaces and the surroundings, focusing on Vale's presence and withdrawal from Tete's coal frontier. We paid particular attention to three urban spaces namely: the communities that remain inside mining concession area, Moatize City, and Tete's city centre and its outskirts. Although these spaces existed before the expansion of the coal frontier, the paper has shown that the coal frontier expansion drastically reshaped everyday lives of the inhabitants in each space, and Vale's divestment and Vulcan's arrival will likely affect each space differently.

Inside the mining concession, some communities will be relocated while others will remain. Either way, dismantlement of basic infrastructure, land enclosure and fencing, as well as the promises of resettlement and compensations that are not fulfilled, keep on frustrating the community members. We have also explored the lives of people in Moatize City. As Vale began to extract coal adjacent to the expanding city, resident mobility became more limited amid the environmental crisis. Vulcan's arrival does not mean a radical or structural change for the communities inside the mining concession and Moatize City, at least in the short term; this implies that unsolved issues left by Vale will likely remain. As for Tete's city centre and its outskirts, which had experienced unprecedented growth upon Vale's arrival, Vulcan's reviewing of their relations with existing subcontractors will be likely to have an immediate effect on the existing relationship between the extractive industry, the local economy, and livelihoods.

However, in all the spaces, Vale's divestment decision and subsequent withdrawal from Tete raised uncertainty and scepticism among the inhabitants about the future development of the already expanded coal frontier. Although Vulcan seems to maintain Vale's image as *the leading mining firm* in Tete, it is unclear to what extent Vulcan will honour what Vale had promised to various actors and communities and how far the new company will modify the way Vale had done business. On the ground, these sentiments have already culminated in overt protests and contestations, as the local population feels insufficiently informed about the change and what the change means to them.

In fact, despite the global discourse on the energy transition, Tete's coal frontier might remain expansive in coming years or even decades. There are other coal-related projects that are on their way to being functional. These include construction of a new coal-fired plant in Moatize<sup>15</sup> and a new steel and vanadium project which aims to use local coal as input<sup>16</sup>. Whilst majority of the countries which were present in the COP26, including Brazil, pledge to achieve carbon neutrality by 2050, India officially announced that it aims to become carbon neutral by 2070 (Ainger et al., 2021). This Indian interest coincides with Mozambique's vision; at the Summit, Mozambique's prime minister clearly stated that the country will continue to rely on coal and natural gas projects in order to secure the financial resources needed to realise the energy transition (Tiua, 2021). This all means that Tete's coal frontier is not going to easily close with Vale's withdrawal. However, Vulcan's arrival will certainly reshape the coal industry as well as the relations between the concession, urban spaces, and surroundings. The 'urbicidal' spatial transformation (Lesutis, 2021), associated with extractive urbanism, will be likely to continue after Vale's withdrawal and Vulcan's arrival.

Methodologically, we have shown the importance of following frontiers of extractivism and development in order to clarify the implications of various global and national agendas, such as the energy transition, for various spaces and their inhabitants. In particular in Tete, as mining economy persists, we—the researchers—need to continue to observe the political justification and actual processes of investment and

divestment and how they play out for the changing coal frontier, its urban spaces, and the inhabitants.

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<sup>15</sup> See: <https://www.ncondezienergy.com/about-us/>.

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