



Contradictions to decent African jobs under energy transition-related extractivism: the case of graphite mining in Mozambique

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ABSTRACT

The power of African labour to bargain for better terms of employment is an important precondition to ensuring decent jobs under energy transition-related resource (ETR) extraction and the global renewable energy sector more broadly. Through the lens of graphite mining communities in Cabo Delgado Province in Mozambique, this article examines the socio-economic contradictions constraining the power of residents to negotiate decent jobs from ETR projects in Cabo Delgado and other regions of the country. Six principal but intertwined contradictions are identified, including regional antipathies and limited livelihood alternatives, engaging energy transition discussions in Mozambique on the issues unfolding at the local level which inhibit workers from negotiating decent jobs. A micro-level perspective to examining challenges to decent African jobs enables critical reflection on the local aptness of climate change policies, such as the energy transition, which are predominantly discussed at the global, regional and national levels.

KEYWORDS

Energy transition; extractivism; labour; graphite; Mozambique

MOTS-CLÉS

Transition énergétique ; extractivisme ; main d'œuvre ; graphite ; Mozambique

PALAVRAS-CHAVE

Transição energética; extrativismo; mão de obra; grafite; Moçambique

Les contradictions posées aux emplois africains décents dans le cadre de l'extractivisme lié à la transition énergétique : le cas de l'exploitation du graphite au Mozambique

RÉSUMÉ

Le pouvoir des travailleurs africains à négocier de meilleures conditions d'emploi est une condition préalable importante pour garantir des emplois décents dans le cadre de l'extraction des ressources liées à la transition énergétique (ETR) et, plus largement, dans le secteur mondial des énergies renouvelables. À travers le prisme des communautés minières de graphite de la province de Cabo Delgado au Mozambique, cet article examine les contradictions socio-économiques qui limitent le pouvoir des résidents à négocier des emplois décents dans le cadre des projets ETR à Cabo Delgado et dans d'autres régions du pays. Six contradictions principales mais interdépendantes sont identifiées, notamment les antipathies régionales et les moyens de subsistance limités, engageant les discussions autour de la transition énergétique au Mozambique sur les questions qui se

posent au niveau local et qui empêchent les travailleurs de négocier des emplois décents. Une perspective microéconomique pour examiner les défis posés aux emplois africains décents permet une réflexion critique sur la pertinence locale des politiques de lutte contre le changement climatique, telles que la transition énergétique, ces politiques étant principalement discutées aux niveaux mondial, régional et national.

Contradições para empregos africanos decentes no extrativismo relacionado com a transição energética: o caso da mineração de grafite em Moçambique

RESUMO

O poder da mão de obra africana para negociar melhores condições de emprego é uma condição prévia importante para garantir empregos dignos no âmbito da extração de recursos relacionados com a transição energética (ETR) e do sector global das energias renováveis em geral. Através do caso das comunidades mineiras de grafite na província de Cabo Delgado, em Moçambique, este artigo analisa as contradições socioeconómicas que restringem o poder dos residentes para negociar empregos dignos a partir de projetos ETR. São identificadas seis contradições diferentes mas interligadas, incluindo as dissensões regionais e as alternativas limitadas de subsistência. A compreensão destes desafios permite interligar as discussões sobre a transição energética em Moçambique com as questões que se desenrolam a nível local e que inibem os trabalhadores de negociar empregos dignos a partir de projetos ETR em Cabo Delgado e outras regiões do país. Uma perspetiva a nível microeconómico na análise dos desafios ao emprego digno em África permite uma reflexão crítica sobre a adequação local das políticas de alterações climáticas, como a transição energética, que são predominantemente discutidas a nível global, regional e nacional.

Introduction

Countries worldwide have committed to progressively transition from fossil fuels to low-carbon renewable energy sources to mitigate climate change and the associated impacts (see the Paris Agreement and Sustainable Development Goal [SGD] 7) (United Nations 2015a, 2015b). In Africa, beyond contributing to climate change mitigation, several analysts and intergovernmental agencies postulate that the energy transition can produce significant gains in decent employment, one of the most pressing needs on the continent (IRENA and AfDB 2022; Ram et al. 2022). In this context, decent employment refers to stable, well-paid jobs, with safe working conditions, respect for workers' rights, and which can be equitably accessed by all groups in a given society (IRENA and ILO 2021). An increase in decent jobs on the continent would also contribute to achieving SDG 8, which seeks to promote decent employment for all working-age people worldwide.

However, African countries currently account for less than 3% of worldwide employment in the renewable energy industry (IRENA and ILO 2021). Furthermore, most

African countries are limited to the upstream end of the renewable energy value chain – to the extraction and export of raw or minimally processed resources, including minerals like cobalt, copper and graphite, which are critical to the construction of renewable energy technologies such as solar photovoltaics, wind turbines and lithium-ion batteries (Bruna 2022a; Hamouchene 2020). The political-economic structure whereby African countries, which are primarily situated at the periphery of the world economy (Amin 1976), are (re)moulded into providers of raw or minimally processed resources for industries in the core capitalist countries has been characterised as extractivism (Ayelazuno 2014; Chagnon et al. 2022). Extractivism encompasses mineral and other resources such as agricultural and forestry commodities. Regardless of the resource type, one of its key characteristics is the over-exploitation of labour in extractive economies by resource-extracting companies from industrialised countries, seeking to maximise their profits (Acosta 2017; Gudynas 2010). As long as African countries remain predominantly raw material producers, the prospect of decent jobs from local renewable energy sectors remains illusory.

Recent studies of energy transition-related extractivism in Africa show that it leads to few decent jobs in the communities where energy transition-related resource (ETR) projects operate (e.g. Rubbers 2020; Sovacool et al. 2020). Extractivism dynamics are sustained by asymmetric power relations between countries (Amin 1976; Rodney 1973) and capital and labour (Ali and Stevano 2022; Cramer, Oya, and Sender 2008; Hickel et al. 2022). Therefore, an important precondition for change in labour conditions in the context of ETR extraction and the renewable energy value chain is the power of labour to bargain for better employment terms. While studies on ETR projects in Africa have clarified the poor conditions under which labour operates, specific attention to the factors which inhibit workers from negotiating better employment terms is less visible.

This article examines the dynamics that limit labour from bargaining for decent jobs, focusing on the socio-economic contradictions within the communities hosting ETR projects. The approach to examine the socio-economic challenges manifesting at the local level that negatively affect communities' labour conditions is inspired by the work of scholar-activist Amílcar Cabral. During his active involvement in the revolutionary struggle for the independence of Guinea-Bissau and Cabo Verde from Portugal, Cabral (1966, 2) argued for the significance of characterising and accounting for, among other aspects, micro-level socio-economic 'contradictions' when devising solutions to workers' struggles and formulating a broader theory of social transformation. Within the contemporary context of an expanding frontier of ETR extractivism in Africa and other regions of the global South (Chagnon et al. 2022), such a perspective can inform critical reflections on if or how the energy transition can be designed in ways that start from the realities of local labour.

The study adopts a qualitative case study design, drawing on empirical data from 208 semi-structured interviews to explore how socio-economic contradictions inhibit negotiation for decent jobs in graphite mining in Cabo Delgado Province in Mozambique. Cabo Delgado is particularly insightful because the province hosts multiple ETRs, including one of the world's largest graphite reserves (MIREME and Trimble Land Administration 2022). Graphite is critical for manufacturing lithium-ion batteries used in electric vehicles. For example, Tesla (a leading electric vehicle company) anticipates

sourcing its graphite products from Cabo Delgado's reserves (Syrah Resources 2021). However, residents of communities neighbouring the province's largest graphite project (Twigg Exploration and Mining) have complained about limited access to decent jobs (Zitamar News 2022). Several studies (e.g. Alberdi and Barroso 2020; Castel-Branco 2014; Kirshner and Power 2015) have highlighted the project-level, national, regional and international challenges which inhibit the creation of decent jobs in Mozambique's extractive industry, some of which may apply to the case of graphite. I explore the less-studied area of how specific socio-economic dynamics unfolding in the affected communities may limit the extent to which residents engage with such projects.

The article is organised into five sections. The next section expounds on the need to examine the local-level contradictions to decent employment in Africa under the energy transition, elucidating how the works of Amílcar Cabral inform this pursuit. The third section introduces the Twigg project and explains how the empirical data on the project's engagement with local labour were collected. The fourth section discusses the contradictions to negotiating decent jobs from Twigg. The final section summarises the study's key findings and reflects on their broader relevance for the effectiveness of climate solutions in contributing to positive socio-economic transformation in Africa.

Energy transition-induced extractivism and African labour: examining the contradictions to decent employment

The term energy transition-related extractivism approximates to Verweijen and Dunlap's (2021) concept of indirect 'green' extractivism, which relates to extractive operations that produce the technologies for energy extraction from wind, solar, hydrological and bioenergy resources. The two concepts fall under the broader notion of green extractivism, which refers to broadly defined forms of resource extraction linked to or justified by the 'green' or renewable resources-based economy (Bruna 2022a; Verweijen and Dunlap 2021). Emerging studies on the conditions of labour under ETR extractivism in African countries such as Guinea (Camara et al. 2021; Human Rights Watch 2018) and the Democratic Republic of Congo (Rubbers 2020; Sovacool et al. 2020; Tsurukawa, Prakash, and Manhart 2011) indicate the reproduction of poor labour conditions typical of conventional extractivism, including low wages, insecure work, elementary occupations such as day labourers (ILO 2007), and gender inequality. Several scholars, governmental and intergovernmental institutions acknowledge the limitations of ETR extractivism in facilitating development in low-income countries, specifically in creating decent jobs (IRENA and AfDB 2022; Oyewo et al. 2021; Ram et al. 2022). They suggest, therefore, that an increase in such jobs may stem from the development in Africa of various parts of the renewable energy value chain (*ibid.*), comprising raw material extraction, equipment manufacturing, construction and installation of technologies, and their operation, maintenance and decommissioning (IRENA and AfDB 2022). For African labour to benefit from this renewable energy value chain, it is critical to understand the socio-economic realities and contradictions at the local level that influence their bargaining power for decent jobs.

However, research on the socio-economic realities, particularly of rural labour in Africa, has experienced a decline in recent decades, following intense scrutiny from

the early independence period of the 1950s to the 1980s (Oya 2013; Schler, Bethlehem, and Sabar 2009). This decline is linked to the political reality of the gradual marginalisation of workers' conditions within African economic policies and the disempowerment of organised labour on the continent (Asafu-Adjaye 2022; Schler, Bethlehem, and Sabar 2009). According to Oya (2013), scholarly knowledge and official statistical evidence on rural wage employment in Africa is either scarce or unreliable. Most studies overlook the heterogeneity of rural employment, such as the interconnections between agricultural and non-agricultural wage employment (Ali and Stevano 2022; Cramer, Oya, and Sender 2008; Muianga 2022; Oya 2013). In Mozambique, official statistics on labour markets are collected through short modules on employment that do not capture information about the range of occupations in rural areas, their dependence on wage labour and vice versa, and their interrelation with the dynamics of social reproduction (Ali and Stevano 2022; Muianga 2022).

Nevertheless, calls for in-depth social analyses of labour dynamics are emerging (e.g. Castel-Branco 2022). These analyses would reveal the tensions and struggles within the country's labour force, which have been building since the colonial era (O'Laughlin 2002; Wuyts 2001). Understanding these local-level struggles can be helpful in discussions and actions related to facilitating labour to bargain for decent jobs in Africa's expanding extractive industry and proposed renewable energy value chain. In grasping local-level labour struggles, critical insights can emerge from the relevant but underutilised works of scholar-activists from Africa's early independence period whose activism and works drew significantly from local realities (Olukoshi et al. 2020).

Among the prominent early independence scholar-activists, Amílcar Cabral stands out for succinctly advancing the importance of understanding and characterising the socio-economic realities of workers in attempts to develop a theory of social transformation. Cabral contended that it is through an in-depth understanding of people's material realities that the nature of change they are likely to impel or rally behind – and that the ruling political class are willing or able to instigate – can be understood (Cabral 1966, 1974). For instance, he is popularly quoted as stating to his comrades:

Always bear in mind that the people are not fighting for ideas, for the things in anyone's head. They are fighting to win material benefits, to live better and in peace, to see their lives go forward, to guarantee the future of their children. (Cabral 1974, 70)

Therefore, for a chance at effective implementation, any theory of social transformation must understand and accommodate the diversity of contradictions in people's socio-economic realities.

Cabral's argument was informed by his work as an agricultural engineer under the Portuguese colonial government in Guinea-Bissau and his active involvement in the Guinea-Bissauan and Cabo Verdean struggles for independence. In 1953, Cabral conducted an extensive livelihood census in Guinea-Bissau, collecting historical, social and cultural data on communities nationwide (Davidson 1979; Zondi 2020). From the census process and the data collected, he examined the socio-economic realities of disparate groups of workers and gained a rich understanding of the factors that influenced whether or how workers participated in the struggle for independence. Prior to his death, his independence party had become a movement of overwhelming power and influence, which contributed significantly to the attainment of independence in Guinea-Bissau and

Cabo Verde. Following Cabral, in the following sections, I examine the socio-economic contradictions which affect the capacity of local labour to struggle for decent jobs from the Twigg graphite project in Cabo Delgado Province.

Graphite mining in Cabo Delgado, Mozambique

Mozambique’s fledgling graphite sector feeds into the ‘extractive core’ (Castel-Branco 2014) of the country’s economy, dominated by mining, energy and agrarian extractivism (Bruna 2022b). The bulk of foreign direct investment (FDI) into the country, close to 70% between 2011 and 2019, is directed to the extractive industry, comprising the extraction of coal, natural gas, heavy sands and rubies for export (*ibid.*). Following the way this FDI is deployed, most of Mozambique’s exports – over 70% between 2005 and 2017 – constitute primary commodities from the mineral and energy sectors (Castel-Branco 2022). Cabo Delgado Province, in the northeast of the country (Figure 1), hosts several of the

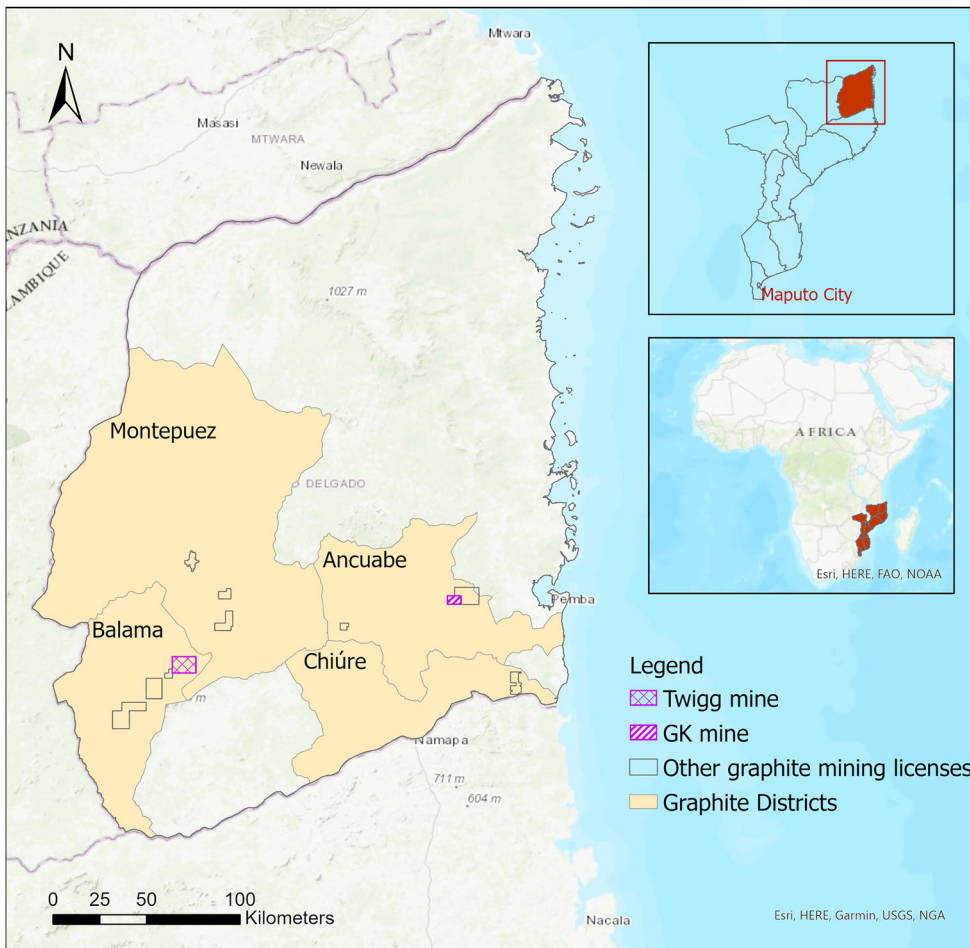


Figure 1. Graphite mining concessions and licences in Cabo Delgado Province. Source: Adapted from Namaganda, Otsuki, and Steel (2023).

largest mineral and hydrocarbon extraction projects, including natural gas, rubies and, more recently, graphite. Consequently, the mining sector is the largest contributor to the province's economy (Figures 2 and 3).¹

Over the past decade, the frontier of graphite mining in Cabo Delgado has been expanding. The province has granted up to 11 graphite mining licences to various companies (see MIREME and Trimble Land Administration 2022 and Figure 1). Three licences, including that of the Twigg Exploration and Mining project, are currently active mining concessions. Twigg is a wholly owned subsidiary of Australian Syrah Resources and operates a mine in Balama District. The mine is located on one of the world's largest high-grade graphite deposits, exploited under an 11,000-hectare state-granted 'right to use and benefit from land' (DUAT), valid from 2018 until 2038. It was developed between 2012 and 2017 and started commercial operations in early 2018. Currently, the project extracts and processes graphite in Cabo Delgado, but it does not manufacture any graphite products locally. Instead, it exports its mined graphite to Syrah's active anode material (AAM) plant in the US state of Louisiana, as well as to customers in China, Europe and India (Syrah Resources 2021).

In September 2023, Twigg received a conditional² loan of US\$150 million from the US International Development Finance Corporation (DFC) to fund the continued development of its graphite project, and to conduct feasibility studies for the development of vanadium,³ an ETR which co-exists with graphite in Balama (Syrah Resources 2023). Earlier, in 2022, the US Department of Energy offered a conditional loan of US\$107 million to Syrah Resources to expand its AAM plant (Syrah Resources 2022). Sustaining graphite extraction in Balama while scaling up its value-addition processes in the US

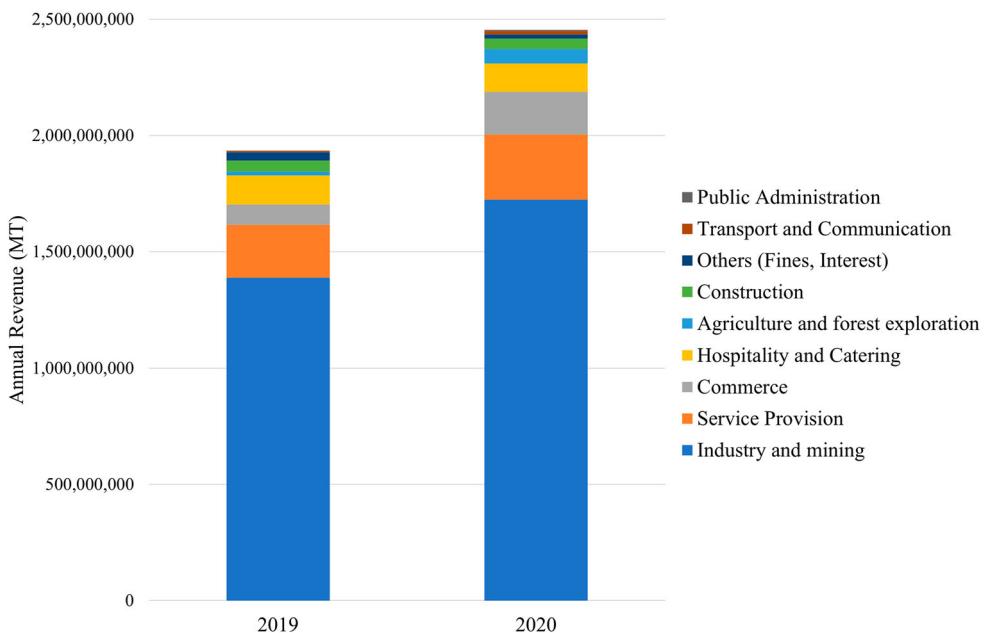


Figure 2. Cabo Delgado provincial revenue by business type for 2019 and 2020. Source: Data from Mozambique Tax Authority in Pemba, Cabo Delgado, and Namaganda, Otsuki and Steel (2023).

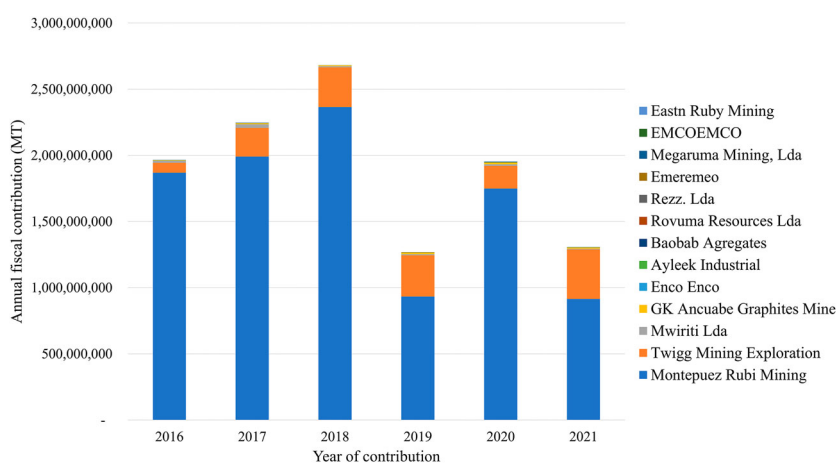


Figure 3. Cabo Delgado fiscal contribution of mineral and petroleum resources of mega-projects 2016–2021 (meticaís). Source: Data from Mozambique Tax Authority in Pemba, Cabo Delgado, and Namaganda, Otsuki and Steel (2023). Notes: Over the past five years, Twigg and GK (also a graphite project) have been among the top four fiscal contributors from Cabo Delgado’s extractive industry. The data for 2021 are only for January to September, the latest data at the time of field research.

deepens extractivism in Cabo Delgado, a structure which has failed to generate ‘stable and regular work, income and dignified working conditions for workers’ in other extractive regions across Mozambique (Ali and Stevano 2022, 68; Castel-Branco 2014).

Until 2020, less than 2% of Cabo Delgado’s population was employed in the mining sector (Table 1). Nonetheless, the DFC has advanced job creation (with the quality unspecified) as one of the anticipated effects of expanding the Balama operations (The White House 2023). The ongoing expansion of the already sizeable project makes it an appropriate case to study the dynamics between decent job creation and the expanding frontier of ETR extraction in Mozambique, which is currently concentrated in Cabo Delgado Province (Namaganda, Otsuki, and Steel 2023).

To understand the extent to which communities can bargain for decent employment, I focused on the socio-economic contradictions that bar residents from negotiating decent jobs. During 2020 and 2021, I conducted two phases of qualitative research in Cabo Delgado, asking questions about the interaction between the Twigg project and local communities. Together with research assistants, we held 208 semi-structured interviews

Table 1. Cabo Delgado percentage distribution of population by type of activity, 2019/2020.

Type of activity	%
Agriculture, forestry and fishing	83.7
Commerce and finance	4.8
Manufacturing industry	3.7
Mineral extraction	1.5
Administrative services	1.3
Construction	1.1
Transport and communications	0.3
Energy	0.0
Other services	3.4

Source: Instituto Nacional de Estatística (2021); Namaganda, Otsuki, and Steel (2023).

with residents (27% women) in the nine communities most directly affected by the project's activities. These project-affected communities (PACs) included Pirira, Marica, Nanhupo, 7 de Setembro, Balama Sede, Nacole, Mualia, Ncuide and Ntete. Specific attention was paid to communities' views on the socio-economic impacts of the project, where respondents discussed, among other impacts, their perspectives on project employment.

Of the residents interviewed, 59 were currently or had previously worked with Twigg. I also conducted 56 interviews with institutional actors who have broader knowledge of the interaction between Cabo Delgado's extractive projects and local communities. These included officers from government, civil society, private and academic institutions located in Balama town (the closest town to the project), Pemba (Cabo Delgado's capital), and Maputo (Mozambique's capital city in the south of the country).

Contradictions to decent employment from the Twigg graphite project

This section outlines six principal but intertwined contradictions that inhibit the residents from the PACs from negotiating for decent employment from the Twigg project in Balama. These contradictions materialised from an inductive analysis of the empirical data

Low formal education and skill level

The residents from Twigg's PACs, which are rural, have low formal (school) education and experience in the extractive industry. At the time the project began, over 80% of the PAC residents aged 18 and over had either never attended or not completed primary school (Gabinete de Engenharia and Coastal and Environmental Services 2018). Correspondingly, the 59 current and former workers (henceforth: workers) that we interviewed were all employed in low-wage positions, such as housekeepers, construction assistants, administrative assistants and machine operators. In consultation with the National Institute of Professional Training and Labour Studies, Twigg established a training centre in the Pirira community. This centre offers selected residents three months' training in vocations like mechanics and electricians, eventually hiring some of the graduates.

However, this short-term training also avails access to low-qualification jobs – and only to a few of the residents trained. A former worker gave the following example: 'we were 80 students, and only three were hired' (Marica27, August 2020).⁴ Moreover, key institutional actors – such as an officer from SINTICIM (the labour union for workers in civil construction, timber and mining in Cabo Delgado) – were not aware of any longer-term vocational training programmes which could more significantly transform residents' skill levels (NGO15, December 2021). Some of the unemployed PAC members therefore argued that the project created low-level and fewer jobs than they had anticipated.

In response to this discontent, an NGO officer attributed the local grievances to irrationally lofty employment expectations in the PACs. The officer articulated: '[t]hey expected that their children would be employed. It is often difficult to make them understand that these industries demand specialised services and the local communities do not have the necessary training' (NGO16, November 2021). This interviewee framed the problem of inadequate local employment as a community-level shortcoming.

This framing contrasts with a broader, historic labour-development challenge that significantly affects Mozambique's rural provinces like Cabo Delgado (Newitt 2017) – and one that companies and government institutions must consider when developing ETR projects.

Communities in other extractive locations, such as Tete Province with coal (Kirshner and Power 2015) and the Afungi peninsula (also in Cabo Delgado) with natural gas (Matsinhe and Valoi 2019), also face this challenge. Consequently, the low levels of formal education and skills limits the extent to which community members can bargain for more or higher-level jobs from capital-intensive projects demanding highly skilled – and often highly educated – workers (Lesutis 2022).

Regional antipathies

Some of the unemployed residents in the PACs blamed the project's inadequate delivery of promised jobs on its tendency to hire people from other provinces. A resident from Nacole explained: '[w]hen the project arrived, they said that we would work in the company. But when they started to extract graphite, their workers came from Maputo, Zambezia, Inhambane and Gaza' (Nacole16, September 2020). The project hires highly qualified labour from other Mozambican provinces with more tertiary-educated workers, often from urban areas. As of 2021, the project reported that 96% of its direct employees were Mozambican nationals,⁵ but 62%⁶ of these originated from outside of the PACs (Syrah Resources 2021). The project also hires highly qualified labour from abroad. However, since foreign workers comprise a smaller proportion of direct employees than non-PAC Mozambicans, the antipathy toward the former was less pronounced than that toward the latter. Previous research (e.g. Rubbers 2020) has also revealed that in terms of resource distribution, foreign workers within extractive projects in Africa are usually few but consume a significant amount of resources due to their steep wages relative to those of any national workers.

Fifteen of the interviewed workers disclosed their monthly wages. Over the past decade, these have ranged from 4000 meticaïs (~US\$62) to 10,300 meticaïs (~US\$160), which some of them perceived to be low, although consistent with the minimum wage of the respective years (Table 2 and Figure 4). However, wages were worse when workers were hired through subcontractors, a tendency that workers reported increased following the Covid-19 pandemic. A worker who was previously employed directly by Twigg and who was later employed through a subcontractor reported:

Our biggest problem is our wages, which the company doesn't pay properly according to the work we do. For example, Syrah used to pay us 6500 meticaïs, then increased it to 7000 meticaïs, then increased it again to 9000 meticaïs, and then came the notice for layoff. ... Later, we were hired by a company subcontracted by Twigg, who reduced our wages to 6800 meticaïs [below the 2022 extractive industry minimum wage of 9849 before April and 10,353 meticaïs afterwards (see Hanlon 2022)] (Mualia01, August 2022).⁷

In the case of the above-quoted worker, the wages were low and below the minimum wage. Moreover, through Twigg and the subcontractors, workers reported a heavy workload of 12 hours a day with a weekly total of 48 hours, the maximum allowed per week under the Mozambican labour law of 2007 (Mualia01, 02 and 03, August 2022).

Table 2. Worker wages versus minimum wage.

Worker	Community	Gender	Department	Employer	Employment duration (years)	Final year of employment	Final monthly wage	Minimum wage
1	Nacole	Male	Machine operator	Subcontractor	2.0	2017	9500	6963
2	Ntete	Male	Laboratory assistant	Subcontractor, later Twigg	3.2	2017	9000	6963
3	Ntete	Male	Electric maintenance and infrastructure	Twigg	3.0	2018	8000*	8264
4	Pirira	Male	Cleaning and housekeeping	Twigg	3.0	2018	8000*	8264
5	Nanhupo	Male	Locksmith	Twigg	7.0	2018	7000	6963 ^x
6	Balama Sede	Male	Laundry	Subcontractor	4.0	2019	9300	9254
7	Mualia	Male	Housekeeping	Twigg	3.0	2019	9000*	9254
8	Pirira	Female	- (not recorded)	Twigg	3.0 [#]	2019	6000 [^]	9254
9	Balama Sede	Male	Cleaning and housekeeping	Twigg	1.0	2019	9000*	9254
10	Balama Sede	Male	Machine operator	Twigg	6.0	2019	10,300	9254
11	Balama Sede	Female	Laundry	Subcontractor	4.0	2020	9300	9254
12	Nanhupo	Male	Laboratory assistant	Twigg	2.0 [#]	2020	9300	9254
13	Ntete	Male	Cleaning and housekeeping	Twigg	5.0	2020	9300	9254
14	Pirira	Male	Guard	Twigg	8.0 [#]	2020	9000*	9254
15	Marica	Male	Cleaning and housekeeping	Twigg	5.0	2020	5000 [^]	9254

Source: Empirical data; Hanlon (2022) and Meusalario (2023) for minimum wage values.

Notes: * These values, as indicated by the workers, appear to be lower than the minimum wage. However, they could be rounded down, for example, from 9300: this is how much workers (6, 11, 12, 13) indicated having been paid in the same period (2019/2020) in line with the minimum wage. Studies of other large-scale projects have indicated that the projects tend to derive the monthly wages paid to workers from the statutory minimum wage (Ali and Stevano 2022; Cramer, Oya, and Sender 2008). [^] For workers 8 and 17, wages are much lower than the minimum wage but in line with the minimum wages in the years when the workers started their employment. It is possible that the workers indicated their starting rather than the final wages. ^x Minimum wage until March 2018, increased to 8264 afterwards. [#] Employment period divided into at least two phases (worker laid off and then rehired).

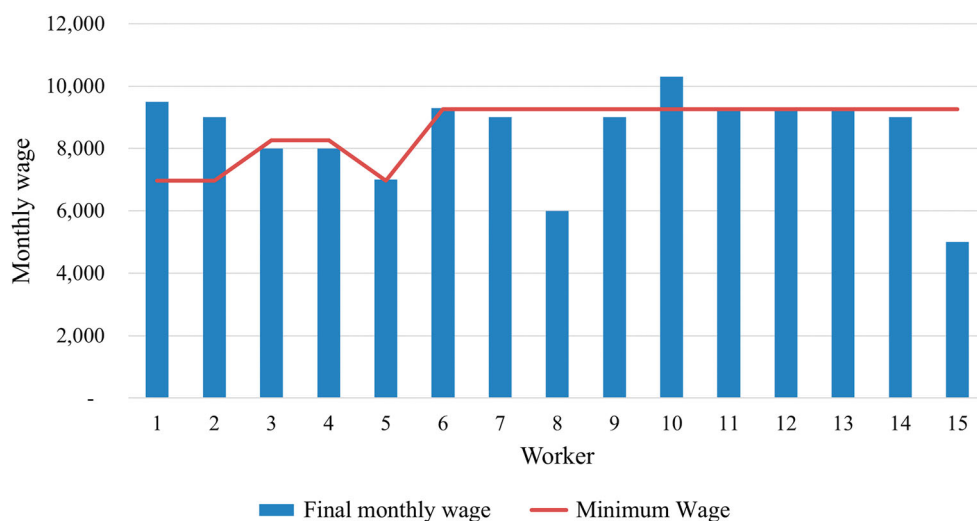


Figure 4. Worker wages versus minimum wages. Source: Empirical data; Hanlon (2022) and Meusalarío (2023) for minimum wage values.

Against the backdrop of their low wages, local workers understood non-PAC Mozambicans to earn monthly wages as high as 30,000 meticaís (~US\$465), which was exacerbating long-term regional antipathies that pit the less-developed north against the more-developed central and southern regions (Marica35, September 2020; Balama Ntete14, September 2020). The colonial-era location of Mozambique’s capital, Maputo, in the extreme south, has concentrated the financial resources and modern sector of the economy there (Newitt 2017). Grievances concerning regional inequalities, in favour of the more highly educated ‘southerners’, when it comes to employment in the extractive industry have been documented in other projects in northern and central Mozambique (Namaganda, Otsuki, and Steel 2022; Wiegink and García 2022). The real or perceived differences in the conditions of labour based on region inhibit the formation of alliances among all workers for higher remuneration and more jobs (for instance, by lobbying Twigg or the government to conduct more value-added processes within the renewable energy value chain locally).

Limited livelihood alternatives

The limited livelihood options in Balama restricted communities’ negotiations for improved labour conditions from the Twigg project. Most residents depend on agriculture, which they supplement with small-scale economic activities like logging and retailing. Of the 208 interviewees, over 90% engage in agriculture as their primary or secondary livelihood source. Therefore, irrespective of grievances around work arrangements (like the low salaries), many residents are willing to accept almost any job from the project because project employment provides an alternative source of monthly income. A former worker expressed: ‘[t]he presence of Twigg in Balama has an advantage because we, in the community, helped ourselves with the little we received’ (Balama04, September 2020).

Other workers reported having utilised their incomes to access necessities, for example, purchasing motorcycles and bicycles, constructing or renovating their

houses, and caring for their families. With reference to the eagerness of many people to work for Twigg and other extractive projects in Cabo Delgado, a government official added: '[t]here are people who no longer work in the fields. They stay at the door of the mining companies waiting for a job' (GOV08, December 2021). Therefore, due to the limited livelihood options where workers could receive a sizeable regular income, residents are keen to work for Twigg despite several unsatisfactory work arrangements. In Mozambique's rural communities like Balama, employers have a high bargaining power (Cramer, Oya, and Sender 2008).

The hope for project employment partly contributed to communities' acceptance of being displaced from their farmland, allowing Twigg to construct its project facilities. The project economically displaced and resettled about 600 families from over 700 farms (Gabinete de Engenharia and Coastal and Environmental Services 2018). The majority⁸ of those displaced were financially compensated for lost crops and farm structures and given replacement land to farm. The project officers calculated compensation based on government-prescribed minimum rates (PS01, May 2021). However, there were mixed reactions to this reparation. Some displaced farmers were content with the amount, with reparations utilised for personal necessities. However, others complained that the compensation was low, delayed, and decided upon in an opaque or unjust manner.

Responses to the replacement farmland provided by the project, in consultation with the government, were decidedly more negative. Most displaced farmers complained about being resettled in a distant swamp, partly utilised by other communities. Many of those affected rejected the replacement land and tried to find alternatives through personal networks. As a result, several reported a reduction in agricultural productivity. Population displacement without satisfactory resettlement is one of the most prevalent problems accompanying extractive projects in Cabo Delgado and other parts of Mozambique (Lesutis 2022). Wiegink and García (2022) explain how these dynamics create 'surplus populations' (Li 2010) in the country's rural areas; that is, people in places whose resources are useful for large-scale extractive projects, but the people are not.

In principle, the PACs' earlier occupation of land indispensable to the project for graphite extraction or for constructing relevant project facilities was substantial leverage to negotiate for higher compensation rates, better replacement land or better job arrangements. However, the need for alternative livelihood options and limited support from the state, which holds custodial ownership of all land in Mozambique, reduced this negotiating capacity. The Mozambican government has been keen to attract extractive FDI into the country, but so far has failed to couple this with protecting local livelihoods (Castel-Branco 2022).

Restricted knowledge of the extractive industry

Local communities' restricted knowledge of the workings of the extractive industry, such as the volatile commodity markets or the phased nature of project activities (Kirshner and Power 2015), limits their negotiation for better jobs. Currently, the employment of local workers is insecure, characterised by frequent hiring and dismissal, contingent on the project phase (e.g. construction versus operation) or a volatile graphite market. The interviewed workers reported having, on average, held project employment for a

few months to one year⁹ before dismissal following the end of a project activity (e.g. dam rehabilitation) or a shift in the graphite market. However, some workers are employed with the project for more extended periods.

In 2019, 277 workers were laid off due to a restructuring of Twigg's operations following low prices on the graphite markets (Mualia01, August 2022). Local workers, many of whom had low-qualification jobs not central to Twigg's mining activities, were often the most and first affected by any project retrenchments (NGO15, December 2021). When dismissed, many benefits workers reaped from employment, particularly the increase in disposable income, ceased. The dismissed workers who did not lose all their agricultural land or who had accepted the project's replacement farmland resorted to agriculture as their primary source of livelihood. Those who did not have farmland or could not access any through their social networks were the most negatively affected by dismissals. Some assumed casual work, such as logging and agricultural wage labour. Moreover, the negative impacts of workers' dismissals had cascading effects on entire communities (Lesutis 2022) due to curtailed remittances through employed family members and diminished community purchasing power.

Beyond being relegated to economic conditions similar to their previous situations, discharge from the project engendered additional financial problems for some workers. The project had collaborated with two local banks to guarantee personal development loans for interested workers, loans that the banks would debit from the workers' monthly salaries in instalments over five years. However, a substantial number of the beneficiaries were dismissed before the end of the five years, leaving them indebted. Upon expulsion, workers received indemnification payments ranging from 18,000 meticaïs (~US\$279) to 150,000 meticaïs (~US\$2325), depending on their previous salary and how long they had worked for the project. However, those who were indebted could not access this amount and were often left in debt. An ex-worker explained the situation:

The company advised us to take out a loan. Some took out 80,000 meticaïs or 74,000 meticaïs, and the bank said that the loan would be discounted from our monthly salaries little by little over five years. Now this! We were already expelled from work. (Ntete03, September 2020)

Many workers were surprised and angered to have been laid off so soon or for their contracts to have been that short. Moreover, the National Institute for Social Security (INSS) did not help workers deal with the negative impact on their livelihoods due to retrenchment from work (NGO15, December 2021), even though the project makes social security payments to the institution on behalf of the workers (Mualia01, August 2022).

Perhaps if the workers had had more information about how extractive projects operate, with their boom and bust cycles (Kirshner and Power 2015), they would have negotiated for better employment arrangements during the advent of the project. Although the project conducted community consultations where communities should be informed about planned project activities (NGO16, November 2021), possible changes to these activities, for instance, stemming from changes in commodity markets, were either omitted or unclear to the PACs. Several interviewees reported that project officials set the expectation that the project would operate for at least 50 years, which is the projected life of the mine. Consequently, they also expected that employment opportunities for residents would be available for a similar period

(Pirira002, September 2020). That said, Wiegink and García (2022) outline how communities consulted on a new graphite project in Balama drew from the experiences of people affected by the Twigg project to inform their discussions with the new project's actors.

Fragmented labour organisation

The ability of workers to negotiate for desired employment conditions is also inhibited by fragmented labour organisation. An officer from SINTICIM commented that the union does not have the power to influence the government or extractive companies to change undesirable working conditions in any significant manner. The officer gave the following example: '[w]hen the union makes an economic assessment of the country, we establish a minimum wage that would be ideal. But when we go to the table with government, we only get a third of that figure' (NGO15, December 2021). Therefore, the power of organised labour in the country to negotiate for better employment conditions is low. Mozambique's labour unions have not developed in a way that can counter strong multinationals, whose activities are facilitated by a state eager to attract and maintain foreign investment, including by depressing the conditions of local labour (Ali and Stevano 2022).

In the case of Twigg's PACs, this deficiency in labour organisation was evident during a recent worker strike. In September 2022, several local workers initiated a strike, citing an unfair disparity between their wages and working conditions and those of the southern workers (Zitamar News 2022). The striking workers even called for senior Mozambican officers to be replaced with Australians (*ibid.*). The strike was halted after Twigg agreed to review the workers' grievances in consultation with the government and an internal union committee. However, workers reported low confidence in their union. One worker explained: '[w]e had a union called CHARIA with a strong representative who defended our interests. But when the company discharged him due to illness, we were left without a defender' (Mualia02, August 2022). Therefore, the local workers do not have a strong union to negotiate for desired working conditions.

Organisation among workers is vital for protection against exploitation from extractive capital, which attempts to appropriate the utmost surplus from labour for the lowest price possible (Cabral 1966; Rodney 1973). Moreover, the regional antipathies between workers, which caused them to prefer Australian to Mozambican management, clearly restrict alliances among all workers for better conditions. Beyond the Twigg mine, regional inequalities in access to jobs from a large-scale natural gas project have been at the centre of an armed insurgency in Cabo Delgado which erupted in 2017 (Matsinhe and Valoi 2019). While the need for decent jobs and access to benefits from extractive projects is a shared concern between the insurgents and the strikers (*ibid.*), the latter did not relate their cause to that of the former. This dissonance similarly points to a weakness in the organisation of labour in the province.

Gaps in institutional support

There are notable limitations to the current support (particularly economic and political) that institutional actors such as government, civil society and academic institutions offer workers to increase their power to bargain for more jobs or for improved working

conditions. For instance, transition studies (e.g. IRENA and AfDB 2022; Ram et al. 2022) propose that increased jobs from the renewable energy industry would accrue from greater integration of communities into the renewable energy value chain. However, a NGO official reported that there is still insufficient funding from government agencies to develop or support local business enterprises that would potentially engage with extractive projects like Twigg. The official explained:

If a company like Twigg asked me to produce 5000 meals a day, without funding, I cannot meet such a demand. Yet, the projects are unwilling to pre-fund small businesses because the businesses cannot provide proof of their ability to manage large funds. And government is not investing in the development of small and medium-sized enterprises. (NGO8, November 2021)

A recent analysis of Mozambique's political economy also indicates how the Mozambican government's priority to attract and support large-scale extractive investments has neglected the development of small and medium-sized businesses (Castel-Branco 2022). Twigg occasionally contracted academic institutions such as Lúrio University to train PACs in small businesses such as beekeeping (ACA01, November 2021). However, none of the businesses had succeeded at the time of field research, partly due to interruptions stemming from the Covid-19 pandemic. Therefore, there are limited avenues for local individuals or businesses to engage with Twigg beyond employment by the project or its subcontractors.

For this reason, decent employment conditions are crucial. However, the government institutions monitoring and ensuring these conditions have inadequate technical and financial capacity to oversee ETR projects' activities in the province. An inspector from the provincial labour inspectorate explained that due to scant logistical resources, they inspect workers' conditions in most projects once a year, if at all (GOV06, December 2021) – a challenge also documented by Cramer, Oya, and Sender (2008). Consequently, the inspectorate often relies on project or worker reports of labour conditions. Civil society organisations help to monitor workers' conditions (NGO9, November 2021); however, their activities are limited due to their dependence on project-based funding (Symons 2016).

Even with grievances around the linkage between Twigg and local labour, the project was perceived by many civil society and government actors as performing better than other extractive projects in the province. A former Twigg employee who is still working in the extractive industry reflected:

I think Syrah made an earnest effort to meet the expectation and promise of employment compared to other companies, including the current place where I am working. The project had a local employment plan based on a database which included who lived in the communities in which they operate, their age, and their level of education and skills. (PS01, May 2021)

These reflections suggest that the labour-related challenges observed between Twigg and the PACs transcend this singular project. Rather, they reflect broader socio-economic contradictions in communities in Cabo Delgado and other – especially rural – parts of Mozambique. Consequently, they need to be understood and tackled as such to engage local labour more productively under the expanding frontier of ETR extraction and the proposed renewable energy value chain.

Conclusions

Various scholars, and national and international government institutions have hypothesised that the global energy transition to renewable energy could engender decent jobs in African countries. However, currently, the transition is primarily expanding the frontiers of ETR extractivism in these countries. This is reproducing exploitative labour conditions, such as precarious employment and low wages, which are typical of extractivism as a political-economic structure of international resource exchange. This article has asserted that the power of African labour to bargain for better terms of employment is an essential precondition to ensuring decent jobs under ETR extraction and the global renewable energy sector more broadly. The article has explored the socio-economic contradictions that limit the power of residents in the communities neighbouring ETR projects from negotiating decent jobs from the projects, utilising the case of the communities neighbouring Twigg, the largest graphite mining project in Cabo Delgado Province in Mozambique. The works of scholar-activist Amílcar Cabral informed the approach to examine how the socio-economic dynamics unfolding at the local level affect workers' capacity to negotiate better jobs. Cabral led a successful independence movement in Guinea-Bissau and Cabo Verde partly by drawing on an in-depth understanding of local socio-economic realities to effectively mobilise workers to struggle for independence.

Six issues which limit residents from the communities neighbouring Twigg from negotiating decent jobs from the project were identified. They include low formal education and skill level, regional antipathies, limited livelihood alternatives, restricted knowledge of the extractive industry, fragmented labour organisation, and gaps in institutional support. To implement the energy transition in a way that engenders positive socio-economic transformation for labour in the African communities affected by ETR extraction, the contradictions – such as those identified in the case of Cabo Delgado – which limit their bargaining power for decent jobs must be understood and resolved. A micro-level perspective to examining challenges to decent African jobs enables critical reflection on the local-level aptness of climate change policies such as the energy transition which are predominantly discussed at the global, regional and national levels. Researchers, government, or civil society organisations in other African regions can utilise this approach to explore the effectiveness of climate change solutions in other local contexts. Future research can leverage such insights from various localities to theorise how global climate change solutions can be designed in ways that better respond to concrete socio-economic realities in Africa.

Notes

1. The contributions from the natural gas project are not reflected in the provincial accounts. Until 2020, the project was still in its construction phase.
2. The loans are conditional on the finalisation of agreements between Syrah Resources and the loan-awarding US institutions specifying certain conditions, such as legal, contractual and financial requirements.
3. Vanadium batteries can be used as an alternative to lithium-ion or lead-acid batteries for large-scale battery storage, especially for wind and solar-power generation facilities.
4. Community interviews are numbered sequentially per community. Institutional interviews are numbered sequentially by institutional type (NGO – non-governmental organisation; GOV – government; PS – private sector; ACA – academia).

5. Studies (e.g. Rubbers 2020) have found that some mining companies have a high percentage of local workers, partly because they hire more expatriates through consultancy firms. However, I did not investigate this in this study.
6. It is unclear from the report how many people were employed by the project at the time. In March 2017, this was 523 people (Philips 2020). However, it likely reduced as the project transitioned from its development to operations phase. Twigg also laid off workers in 2020/2021 due to low graphite prices and the Covid-19 pandemic.
7. The interviews denoted as Mualia01, 02 and 03, which took place in August 2022, were conducted by a partner organisation in Cabo Delgado.
8. Compensation was paid in phases, so some affected residents were still waiting for theirs.
9. Except for one worker employed by a subcontractor, the interviewed workers reported having signed contracts as they were being employed. However, it was unclear from the interviews if the contracts had an explicit timeline of employment.

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