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## **COAL MINING AND IMPACT IN LOCAL ECONOMY OF MOATIZE, 1977/82 – 2007/12: repetition of history?<sup>1</sup>**

### **Abstract**

Mozambique's economy has become one of the most attractive economies within SSA (Sub-Saharan Africa). The country, like many other developing countries, is rich in natural resources. In the past three decades, the existence of extensive coal reserves and land for agriculture attracted a wide number of private investments, from multinational companies to PPP (public and private partnership). Although involving different actors and contexts, the exploitation of these resources, especially coal, has evolved for more than one century. Overall, recent research are focused on effects of these activities – coal mining– at the macroeconomic level. This article analysis how coal mining affects the trends of employment and preserves the agricultural production in Moatize, Tete province,

**Keywords:** Coal Mining; Employment; Agrarian Production.

### **1. Introduction**

The study of coal mining's impacts on employment and local agrarian production is or should be one of the central issues of academic debate, considering the transitional context of the economy of Mozambique.<sup>2</sup> The latest trends in foreign direct investment in Tete and Moatize (resulting from

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<sup>2</sup> There is a trend of economic transition characterized by the transition from an economy based on providing services through ports and railways, migrant labour and dominant subsistence agriculture for the production of export goods to an economy based on exploitation of natural resource and dominant subsistence agriculture for local consumption, including tiny volume of exportation (Wuyts, 1978; Abrahamsson and Nilsson, 1994; Castel-Branco, 1994; Brito, 2009).

the boom of natural resources) and the return to coal mining revived the hope of improving lives and wealth conditions of local population. Yet, against all the expectations, coal mining companies employ a tiny number of people, and does not preserve or either promotes local agrarian economy.

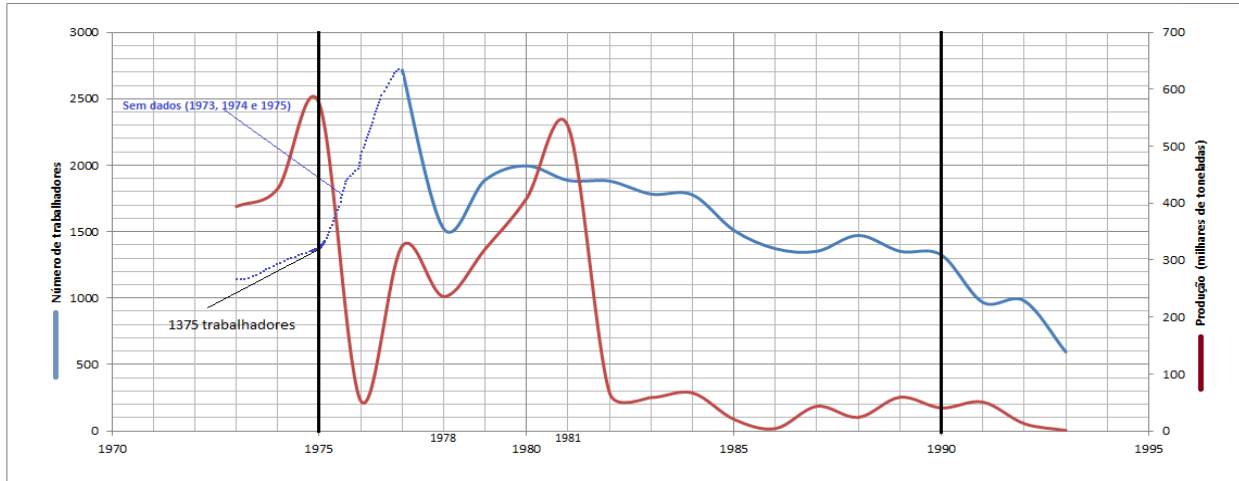
This paper discusses the relationship between coal mining, employment and agrarian production in Moatize, and tries to show and explain, in an historical-comparative perspective, what emerges as the “repetition of history” in coal mining dynamics and related impacts.

## **2. Impacts of the Extraction of Coal on Local Employment: “repetition of history”?**

The contribution of coal industry to the local economy depends on many factors, including the level of contracting (direct and indirect) workers. In this regard, did the end of colonialism mean changes? Overall, the hiring of manual labour - seasonal and permanent, direct and indirect – in the colonial period showed growing trend. Still, the colonial exploitation policies blocked the possibilities of development of local workers and farmers/peasants (Castel-Branco, 1994). In this period, coal extraction was done in gallery mines, by opening shafts little more than 300m deep, involving “small” machines such as drills, pumping machines and lifts, picks and hammers. The workers were minimally skilled, mainly miners, carpenters, drivers, electricians (Tivane, 2013).

With the independence, in 1975, many of these characteristics of colonial coal mining continued. But, there were some improvements resulting from technical cooperation relations that the new government established with the German Democratic Republic. The operation continued to demand intensive hiring of manual labour, whether permanent or contracted for short and long-term assignments. Thus, the number of workers and operators needed also demanded to grow.

*Graph 1. Number of workers and volume of coal produced, 1973 – 1993.*



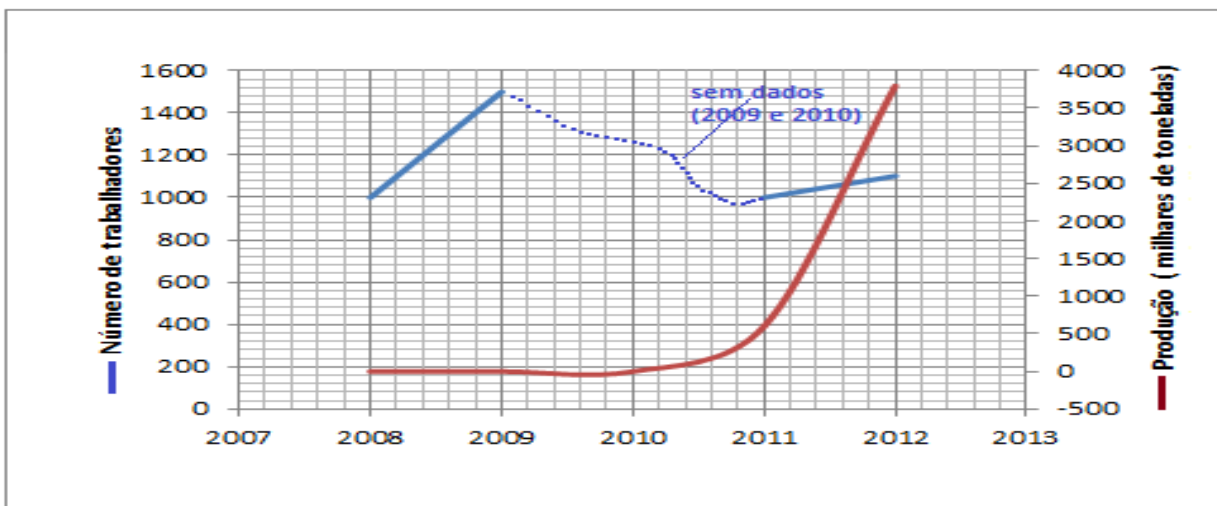
**Source,** Tivane, 2013.

According to the graph 1, the evolution of the production and marketing of coal in the colonial and postcolonial period to 1995 depended also on the intensive hiring of seasonal and permanent workers. For example, from 1978 to 1981, there was an increase in production by more than 100% (from 236 177 to 534 545 tonnes), and in (almost) the same period, there was an increase in the hiring of labour. It is estimated that the mining company (CARBOMOC, EE) hired about 31% of existing employees (1522 to 1996 workers here hired), from 1978 to 1980. However, the increasing trend in recruitment labour, which occurred between 1978 and 1981, was not sufficient to meet the employment needs of the population, at district level. It is likely that the explosions occurred in mines VI and III have had the effect of reducing the mining exploration area of Moatize. According to Tivane (2013), this contributed hugely to reduce the volume of coal produced from 1975 to 1976 and, also, the explain the reduction of hired workers, between 1977 and 1978.

From 1981, there was a reduction in the volume of production associated with the effects of civil war. Alongside the war, the company started to have some economic and financial problems that limited the development of production plans of CARBOMOC. Then, the company was forced to start the “rationalization” of manual labour. This occurred between 1982 to 1984. The massive dismissal of workers became official in 1990 (Pantie, 2006).

These characteristics of coal exploitation changed completely, with the emergence of mega projects era and related multinational companies, from 2007 to 2012. These companies are known by their characteristic of investing massive capital for natural resource exploitation. For instance, the total value of Vale Mozambique in Moatize was USD 1535 million, and its mega project covered an area of 23,780 hectares. The operation model involved hi-tech machinery. The coal extracted was sold in world markets. The model of production – very high in investment costs, magnitude and technologies used – required qualifications and expertise in terms of labour force, competitive conditions, expertise in suppliers and consumers markets. For these reasons, these projects do not require, by nature, the use of untrained and unskilled labour force (Castel-Branco, 2008; Castel-Branco and Cavadias, 2009).

*Graph 2: N<sup>a</sup> of workers and annual coal production, 2008 – 2012.*



**Source,** Castel-Branco & Cavadias, 2009.

According to graph 2, between 2008 and 2009, about 1,500 jobs were created by Vale, showing a growth trend in terms of hiring manual labour in its installation phase. From 2011 to 2012, production increased from a little more than 500,000 to about 3.8 million tons of coal. Yet, the hiring of manual labour only grew by about 10.2% (from 1000 to 1102 employees) in the same period. Compared with CARBOMOC period (1978 – 1981), this meant that coal production increased 7.6 times; with an overall decrease of almost 20%, in terms of number of workers employed.

Data available referring to local workers hired by Vale is limited. But, it is estimated that of the 1102 workers contracted by the of 2012, only 394 of them were born in Tete province; and, of these, only 72 were from Moatize (Tivane, 2013).

General, Vale employed less than 1,200 workers in its production phase (from 2010 to 2012), but the employment needs for the country are much high. The economically active population is growing by 300,000 per year, yet fewer than 15,000 formal sector jobs are being created annually. This means that Mozambique must create 20x more jobs. For this needs, mega-projects are not viable solution. The big companies, in general and almost without exception, are capital intensive and, comparatively, create few jobs. High number of jobs is created by small and medium companies, but those small companies face a variety of setbacks and a poor business climate on developing their activities (Hanlon, 2011).

This relationship shows that the development of coal mining industry does not generate large numbers of jobs. Currently, coal production levels and volumes are high, but the new technical model of operation is not consistent with intensive manual labour. This entails that, since 1984, there have been no changes in terms of employment created by the coal mining industry in that district. Moreover, existing trends show that the problem is getting worse. The government's policies continue to not respond employment needs and the growing of population. In this context, the informal sector becomes one of the most sources for Mozambicans livelihoods.

For the problem of unemployment and poverty reduction, the government established a simplistic, automatic and direct connection between the creation of a company leading to more job created, and, therefore, poverty reduction. This link is not automatic and nether linear. It depends on a number of structural and productive factors, business productivity and working conditions. Thus, in Moatize, alongside of multinational companies, other types of industries, small and medium enterprises that are intensive in employment or absorb more manual labour should be encouraged. The policy of diversification of the production base in Moatize worked slightly in the colonial era with the introduction of "development plans"; through which colonial government used to facilitate terms of investment, production, installation of new industries and rural classes, etc. However, these practices were of colonial interests and were based on colonial social forms of exploration. The new government is called upon to implement policies that can stimulate, articulate and materialize links between mega projects and the wider economy, so that they multiply investment, retain profits, redistribute income, promote consumption and improve local productive

capacities. This does not happen if the mega projects are disassociated or insulated from other sectors of the economy, such as the agricultural sector (Castel-Branco, 2008).

### **3. Local “extractive industry” and agrarian production: is the coal extraction a boost factor?**

This section discusses the characteristics of the productive and reproductive logics of the agrarian structure of the peasantry, its relationship with coal industry and related impacts. Agricultural activity is, historically and traditionally, the main source of livelihood of Moatize district and Tete province. Overall, agriculture remains the sector that offers more jobs to the economy and ensures food security. It should also allow the creation of rural classes, reduce hunger, etc.

From 1958, the growth of infrastructure and coal production was accompanied by some development of the local agricultural sector, diversification and expansion of the production base. This resulted from the introduction of “development plans” in the region and linkage created between private mineral companies, state-owned enterprises and agricultural farms. These links allowed the development of local agricultural sector, mainly the settler farmers, while the economic production of the local (Mozambicans) farmers remained undermined by colonial policies. While colonial farmers received assistance from the State in terms of credit and machinery and had a monopoly of the commerce, local smallholder farmers used to sale their products at low fixed prices and determined by the structure of colonial interests. In this case, the peasantry was subordinately integrated to the economy to (I) supply cheap labour, (ii) produce cheap raw materials for industries and (iii) produce cheap crops (Wuyts, 1978; Castel-White, 1994). For most of the smallholder farmers, the increasing efficiency of administrative action in forced crop production and recruitment diminished their productive capacity and available working time for local subsistence production (Coelho, 1998). It was important to produce and sale to finance the consumption and pay taxes. These dynamics associated with colonial policies based on racial exploitation did not benefit the peasantry and blocked the development of the productive forces in rural areas (Wuyts, 1978).

After independence, aware of the crisis (1974-1977) and wishing to recover the levels of agricultural production and coal, the new government introduced reforms in both sectors. In 1977,

agriculture was defined as the main basis of economic development; industry as a boost factor and heavy industry as a decisive factor (in this case, in Moatize, the booster and decisive factor was CARBOMOC, EE).

In 1978, the mining complex of Moatize was nationalized and CARBOMOC, EE was formed. In parallel, from 1982 to 1984, several policies were adopted to link the agriculture to industry sector for agricultural development, mainly in State farms (Wuyts, 1978; Castel-Branco, 1994; Coelho, 1998). But the structure of the colonial rural economy inherited after independence continued to exert strong pressure. Peasant farms and the conditions under which their livelihood depended on remained mostly intact and unchanged. The new government assumed a dualistic vision of development of the agrarian structure, which was not suitable for the development of the rural economy (Castel-Branco, 1994). In this political vision, peasantry remained a producer of subsistence. The complex and historical connection between family production and wage labour was ignored. The peasantry was defined as a class unlinked with monetized commercial circuits and unable to survive without investment. It was conceptualized as poor and vulnerable to climate change. The development of peasantry was linked to the development of the state sector – cooperatives and communal villages (Wuyts, 2001).

The weakness of this model was partly revealed in the early of 1980 decade, with the advance and spread of civil war in Tete. The province was one of the most affected in the country. The combination of civil war, floods (extended until 2003 in Moatize), drought and economic crisis originated hunger in the province, particularly in rural areas where resources have become scarce for the local population, who has to share resource with returnees from Zambia and Malawi (Coelho, 1998; Tivane, 2013).

Before the spread of war, local economic production (agricultural and livestock), State farms and the small plot farm of CARBOMOC fed the workers of the mining company, local population and the local market of Tete, Sofala and Manica. The provincial government of Tete promoted markets, which allowed people to acquire agricultural and livestock produced by local farmers. This resulted in increasing crop areas and local production. In addition to agricultural products, stoke rising and marketing were encouraged through trade fairs, which came to minimize the problem of supply (Tivane, 2013). However, the destruction caused by civil war in rural areas, government policies and the privatization of state farms after the 1984 reforms (particular from 1987 to 1990)

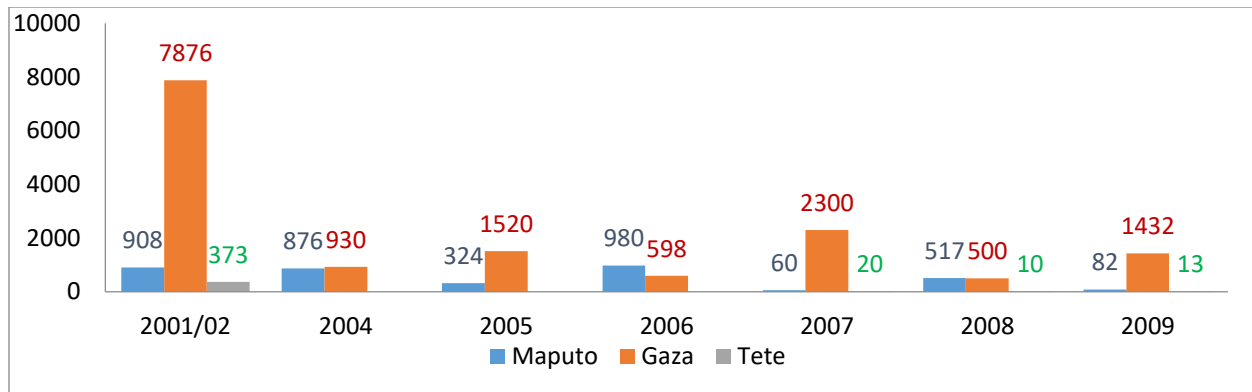
impeded regular food production and trade activities by rural communities. The rural communities no longer supplied the urban centres, including CARBOMOC, as well as the markets of Manica, Sofala, Malawi. The population also had to face negative effects that destabilization brought to employment and the local economy production. Additionally, they also had to suffer the effects of persistent drought that forced a majority of the rural population into dependence on external food aid (Abrahamsson and Nilsson, 1990; Coelho, 1998).

The war intensified the need for reform, which led to the opening of the market economy. The State, by complying with the impositions of the WB and IMF, came to neglect small producers, looking at them as a class of smallholder producers, while prioritizing the private sector. The liberalization of prices was seen as the main incentive mechanism for the development of rural economy, with a focus to the private sector and smallholder producers (Mosca, 2008). However, there was little attention to the link between non-agricultural wage work and family production, that historically ensured the profitability of family agriculture and the livelihoods of the rural population (Wuyts, 2001).

In Moatize, Tete and in general, the provision of wage is the stimulating factor in production and attraction of rural labour, but the state continued to ignore this relation and role of income/wage. Under the liberal reforms, aid started to encourage the development of trade of imported products in detriment of domestic products. The social pattern and rural differentiation have become more pronounced resulting in social conflicts between farmers, state farms and cooperatives. Among family producers, the farming inputs purchase capacity – for credit, equipment and land – lowered, due to excessive bureaucratic procedures and corruption. Some irrigation schemes were built, but there was continued inability to manage and keep them in operation.

*Graph 3: Irrigation systems constructed or reconstructed, 2001-2009.*





**Source:** Author, based on data in Cunguara & Garrett, 2011.

For example, according to the graph 3, there was poor and uneven distribution of investment for construction and reconstruction of irrigation systems. In Tete only 416 hectares of irrigated land were rehabilitated, compared with 2839 hectares and 7280 hectares in Maputo and Gaza, respectively. More localized data indicate that by 2005, the Moatize district had 310 hectares of irrigated land of which 126 were not operational owing to lack of equipment, destruction by floods, lack of access to credit and paid employment that could allowed allocating “funds” for maintenance.

These differentiations continued up to today. The small-scale producer remains excluded from the wider market, investment, access to agricultural credit, equipment, land, etc. The domestic traditional market is concentrated, low-scale, fragmented and of low quality. The peasantry generally does not participate in the new market dynamics (created with the mega projects), because it cannot meet the demand due to lack of preparation in terms of volume of production and quality. The new demands of food are large-scale and higher than the existing capacity and, therefore, miners are forced to import food (rice, wheat, meat, potatoes, tomatoes and some vegetables) for their cafeterias to satisfy the supply, quality and regularity (Mosca, 2008; Mosca and Selemene, 2011).

In this context, there is a low employment rate in the agricultural sector in Tete. The province is among the seven provinces that created less direct employment, and among 5 that created less self-employment in the period 2010-2013, with 33,748 and 768. These data put Tete below Maputo, Nampula, Sofala, Zambezia and Manica in terms of direct employment (Tivane, 2013). The informal sector continued to be the guarantee of survival and/or livelihoods. It is the base and the support of the local economy creating short-term, self-employment and generating some income

for rural families, ensuring the supply of essential goods and contributing to local economic dynamism. Emigration and rural depopulation tend to “ruralize” the city of Moatize, resulting in suburbs and poor settlements, unordered with living conditions (Mosca, 2012).

Although taken as the main basis of national development, agriculture is not being prioritized and has had very little investment (Mosca, 2012). In Tete, instead of becoming the central sector for socioeconomic transformation, there were no major changes either in the production base or in technology and productivity. In Moatize, as a result, the supply to the traditional food industry, markets and local companies did not reach the levels of 1973, but coal mining exceeded more than 7 times the production of 1975 and 1981 (Tivane, 2013).

#### **4. Conclusions.**

The study shows that in Tete, the coal mining industry, disassociated from other economic sectors, does not develop the economy. On the contrary, it makes it concentrated and, consequently, unstable and dependent. The two coal mining phases characterized here shows ruptures, but, most important, they also show continuities and similarities, especially in the impact on the hiring manual labour, preservation and promotion of local agricultural production, which suggest a repetition of history.

The slight changes recorded did not result on socioeconomic lives improvement. On the contrary, the coal industry is still not responding to the needs of local populations. Since 1984, the impact of coal mining in terms of job creation and promotion of agricultural production remains weak and lowing, if consider the growing rate of population.

In terms of investment, it is noted that there was only concern with technological development, increasing production, coal export and profits; and mega projects were not integrated socioeconomically in local communities. In Moatize, recent development trends have resulted in growing social differentiation, where a few wealthy becoming richer and the majority poor becoming poorest.

Overall, the recent socio-political and economic characteristics shows reversible possibilities of a “resource curse” in the country, in its embryonic stage. Development policies and strategies should ensure greater integration and inter-sectoral relationships between sectors of the economy. Alternative development policies and strategies are needed.

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