

A 'star performer' megaproject?

Linkages and the Mozal aluminium smelters in Mozambique (1998-2017)

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ABSTRACT

Despite the increasing appetite for precious commodities, resource-rich developing countries are confronted with numerous challenges regarding their resource-based development. This thesis analyses the case of Mozambique where the Mozal aluminium smelter 'megaproject' was seen as an opportunity for resource-based development. By following Hirschman's linkages theory on resource-based development through diversification of the economy by an upscale on the value chain, this thesis comes to the conclusion that in terms of tax income, the use of local contractors and suppliers and the diversification of the aluminium industry, numerous challenges remain and potential development opportunities are missed.

Keywords

Resource-based development, linkages, Mozambique, Mozal.

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INTRODUCTION

In 2050, the global population will reach 10 billion people. Given that the living standard in emerging economies like China and India is rising, and the appetite for electronics like computers, smartphones, or electronic vehicles is accelerating at an unprecedented rate all over the world, resources, particularly mineral resources are in the spotlight of global demand. In many cases, precious resources are located in poor developing countries which are confronted with the challenge to develop sustainably using these commodities. However, control over these treasured reserves, as well as questions of ownership, extraction and fair distribution of the profits are key problems. How can resource-rich countries develop sustainably and overcome these challenges? Keeping this global context and problem in mind, this thesis focuses on the case of Mozambique's attempted resource-based development. After turbulent years of post-colonial development, the new GDP 'star performer' Mozambique welcomed its first 'megaproject,' the Mozal aluminium smelter in 1998 in which imported bauxite would be smelted near the capital Maputo. Mozambique's vast reserves of economical electricity attracted the foreign owners and operators of the plant as aluminium smelting is extremely energy consuming and expensive. Mozal promised positive outcomes through frameworks to create linkages effects to train local Small and Medium-Sized Enterprises in order to benefit from Mozal by providing local labour and gaining experience and knowledge from Mozal. This thesis analyses how the linkages which the 1998-2017 Mozal aluminium smelters created can be evaluated and whether the effects brought the expected development to Mozambique. This study can be

regarded as lessons to be learned for future resource megaprojects which are expected to arrive in Mozambique or which have already taken up its operations. Reuters notes that the development of a gas field in Mozambique which was sealed in 2017 could be 'the first of a series of projects that could transform the poor African nation into a major energy supplier to Asia.' Hence, Mozambique's abundance of cheap electricity, as well as other resources, will guarantee further projects of such nature. It is thus necessary to learn from past experiences, as this case can be seen as an example for other developing countries which attempt to achieve resource-based development and which try to develop through megaprojects.

HIRSCHMAN'S LINKAGES THEORY

The development economist Albert Hirschman dealt extensively with the question how resource-rich countries could develop sustainably. Embedded in the large discussion of resource-based development and the Resource Curse/ Dutch Disease discussion shaped by scholars like Prebisch, Sachs & Warner and others, Hirschman states that 'development is essentially the record of how one thing leads to another, and the linkages are that record from a specific point of view.' Countries begin to develop sustainably once their economies diversify and become increasingly interconnected. By this, more value is achieved, more employment occurs and numerous positive effects can be seen. Three main linkages effects can be created through resource-based development:

- Fiscal Linkages: Benefits for the developing country through tax income (VAT, company taxes, import taxes, etc.)
- Backward Linkages (also called upstream linkages in more recent literature): The supply of all necessary products and services to enable the mining/smelting of the commodity, i.e. construction of roads to the mine, catering for the workers, supply of tools and equipment.
- Forward Linkages (or downstream linkages): the manufacturing of the commodity into products which are higher on the value chain, i.e. instead of the mere export of lithium, a lithium-rich country could rather export its domestically produced lithium-ion batteries or electronic vehicles.

METHODOLOGY

Regarding the acquisition of reliable material and data, numerous limitations were encountered. Mozal does not provide information about its tax payments, as well as no insight into its contractors and suppliers. Concerning further analysis about the suppliers, it has to be noted that the attempt to establish contacts with the individual companies has not been successful. Consistent annual data provided by the Mozambican ministries, Chamber of Commerce and the National Institute of Statistics (INE) is also absent. However, data was acquired through official channels. The main primary result is a list of all suppliers and contractors which are known to work/have worked for

Mozal. This information was obtained through direct contact with Mozal through the supply manager Chitsungo, with the Mozambican researcher Epifania Langa, and through the usage of numerous reports, secondary sources and company websites.

FISCAL LINKAGES

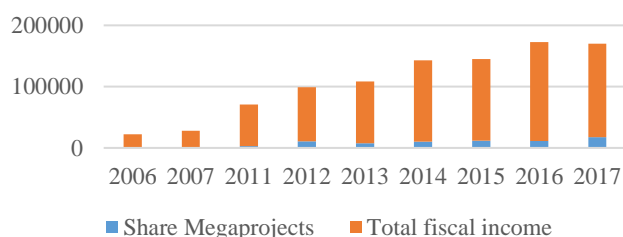
Have fiscal linkages been created through the establishment of the Mozal aluminium smelters? And has the government of Mozambique received significant tax income through the contributions by Mozal or megaprojects as a whole?

Taxa liberatorica and other tax breaks

Regarding the case of Mozal, the majority of literature states that Mozal has benefitted from favourable tax conditions. As such, the 1% taxa liberatorica has replaced the standard income tax of 32%. According to Andersson, Mozal and other megaprojects are treated with export free zone status which means that no, or very few indirect taxes, such as Value Added Tax, income or commodity taxes have to be paid. The report by the NGO Justicia Ambiental concludes that the Mozambican government receives significantly less than the British government's tax income from the then operator of Mozal, BHP Billiton. These estimates need to be viewed with caution. However, it can be noted that this sum is significant for Mozambique given its status as a developing country post-Civil War, but it is still very marginal compared to the financial advantages which the UK government receives from Mozal.

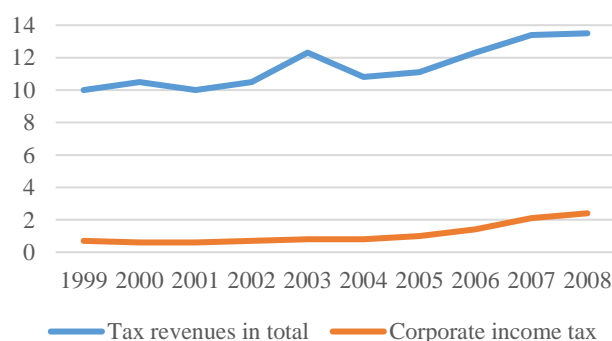
Assessment of Mozambique's fiscal income

Figure 1: Development of the annual fiscal income of the Mozambican Ministry of Economy and Finances in million meticaís, 2006-2017



Source: Ministério da Economia e Finanças, Ministry of Economy and Finances of Mozambique, Relatório Annual da Autoridade Tributária de Mocambique Reports 2007-2017.

Figure 2: Principal Revenues of Mozambique as Share of GDP (in %), 1999-2008



Sources: USAID Parpa II Review, page 35. Data based on Conta Geral do Estado (Years 1999 to 2007), Relatório de Execucao and data MPD from 2008.

Figure 1 and 2 enable the following observations:

- Even though there is no information regarding the share of Mozal alone on the total of fiscal income, it can be assumed that Mozal, being the biggest megaproject of Mozambique and Sub-Saharan Africa as a whole, must be significant in the share of megaprojects in general.
- The total fiscal income increased significantly throughout the entire period. It is unclear to what extent the tax reforms contributed to this increase, or if the rising GDP and economic activity in the country are responsible for this increase
- In terms of the relevance of megaprojects for the total fiscal income is that the share remains marginal and does not grow as much as the total fiscal income. This is surprising, as more megaprojects reached Mozambique. Foreign Direct Investment (FDI) expanded to the country, the GDP increase was titled to be an economic miracle by institutions such as the IMF, and megaprojects like Mozal had increasing profits.
- Figure 2 shows that even before 2009, total tax revenues increased as well as corporate income tax income. However, the tax revenues in total are not a particularly high share of the total GDP, as developed OECD countries usually have a tax-to-GDP ratio of 30% and higher. But similarly as in the case of Mozambique, corporate income tax are generally among the least decisive taxes, also in developed countries. Personal income tax, VAT, Social security contributions and others play a more important role for the total revenues.
- However, it can be established that the exceptional tax breaks for Mozal and other megaprojects based in industrial zones are responsible for a potentially missed opportunity for Mozambique to increase tax income and hence benefit more from megaprojects like Mozal.

BACKWARD LINKAGES

How many companies has the Mozal megaproject 'touched' by its use of them as suppliers and contractors? How many employees do these companies have, do they still exist, and are these companies actually Mozambican? Have these backward linkages been significant for Mozambique's employment situation since 1998? Moreover, what could the ownership of these companies imply? After having elaborated on these questions, more insight into the established linkages will be obtained and some critical conclusions and implications will be outlined.

Amount of companies 'touched' by Mozal and their employment figures

The result of the collected information reveals the following:

- 77 companies are known suppliers or contractors of Mozal. However, Chitsungo claims that 218 Mozambican companies have been working for Mozal. Details of the remaining companies could not be given.
- A significant amount of companies with large numbers of employees work for Mozal, namely 18 out of the 77 known companies. Examples are the construction company Caminhos de Ferro de Mocambique (CFM) with its 5,835 employees in 2002, as well as the Maputo Port Development Company with 1,600 employees.
- For 36 companies there is no information available, meaning no website presence, no mentioning in reports

and no registration at the mandatory Ministério das Finanças registry for companies (including micro companies).

- This absence of information calls for scrutiny. Langa suggests that ‘most [of these companies] are not suppliers anymore’ and she notes that a termination of contracts with Mozal has caused bankruptcies in the past. Has this been the case with these 36 companies? And if it is, does the role of potential dependency on resource megaprojects represent a possible challenge for local SMEs?

Significance for Mozambique’s employment situation

The information obtained through Langa and Mozal suggest the following:

- Mozal provided direct employment by offering 1165 jobs in 2016. According to Chitsungo, 97% of the staff is Mozambican. Mozal is the largest industrial employer in Mozambique.
- Regarding indirect employment, it is unclear how many of the workers who are employed in the local SMEs and large companies which are contractors and suppliers have received their position due to the cooperation with Mozal.
- The data gathered does suggest that some large companies with high numbers of employees have been employed. Put in contrast with Mozambique’s immense unemployment problem, every new job created counts. Chitsungo estimates the number of indirect employment to be 2300.
- Considering the development of Mozambique’s unemployment (% of total labour force) between 1998 and 2017 provided by the ILO, it can be said that unemployment has not decreased significantly, but remained on a level of over 21%, with an increase since 2003 reaching 25% in 2017.
- Based on these findings it can be concluded that while Mozal has created employment, its role in fighting extreme unemployment in the developing country seems to be limited.

Ownership

Figure 3: Ownership of the Contractors and Suppliers of Mozal

Country	n*	Country	n*
Unknown	22	Mixed foreign	8
Certainly Mozambican	14	Australian	4
Possibly Mozambican	12	South African	4
Foreign Total	31	Cypriot	1
US- American	1	British	3
Portuguese involvement total,	9	Paraguayan origin	1
out of which:	4		
Fully Portuguese	3		
Portuguese origin	1		
Portuguese involvement (debts owed) mixed	1		

Source: Own Calculations: Compilation of information gathered through various channels by author. Among which Ministério das Finanças Mozambique, John Sutton’s Enterprise Map of Mozambique, Ebizguide Mozambique, Monitor Deloitte, and if available the websites of the individual companies.

The findings on the ownership of the contractors and suppliers of Mozal lead to the following observations

and follow-up questions:

- The majority of the known companies have foreign ownership.
- Particularly Portuguese involvement (suggesting a connection to its colonial roots) can be noted.
- The mixed ownership includes stakes from various areas, stretching to the Indian Tata multinational, SEB Swaziland and Eskom South Africa, a Danish shipping company, and many more.
- Many of the companies with foreign ownership are large enterprises.
- Two of the known companies are registered in tax havens. It has to be questioned if this signifies missed opportunities in terms of profit investments and tax payments.

FORWARD LINKAGES

Have any forward linkages occurred in the wake of Mozal? Meaning, has the aluminium industry in Mozambique diversified, or is raw aluminium solely exported? What are the impacts of the forward linkages in the case of Mozal?

Companies involved in the aluminium sector in Mozambique

It is considered that Midal Cables is the sole forward linkage which has resulted from Mozal’s presence. Midal Cables International Limitada is the local branch of Midal Bahrain with its headquarter in the Gulf state. The website provides the information that the plant is an ‘Aluminium & Aluminium Alloy rod, wire & conductor factory’ and located right next to Mozal and receives aluminium exclusively from Mozal According to Sutton and Chitsungo, the contract between Mozal and Midal established an annual purchase of 50,000 tonnes of aluminium ingots. This purchase seems marginal compared to the aluminium production of the year 2016 which is held by South32’s share (47%) which was at 266 kt in total. The information regarding Midal’s project in Mozambique is very limited. It is only known that around 150 Mozambican workers were directly employed, but it is unclear whether this number has increased by now. Also, there is no information available which contractors and suppliers Midal uses for its operations, hence, which new backward linkages have been created through Midal. What Midal shows however, is the fact that it had to take a foreign company and foreign investment to begin with forward linkages. This leads again to the question whether Mozambique benefits from this opportunity adequately, meaning if the profits are invested in the country, and if the full fiscal potential is used.

Impacts of the forward linkage

Mozambique’s exports data provided by UN Comtrade shows that forward aluminium products are still far from becoming a significant export product for Mozambique. Aluminium wire only represent 2.3% of total exports in 2016 with an export value of \$89.1M. Other manufactured aluminium products represent less than 1% of total exports. The most crucial export good remains to be raw aluminium with a total share of 22% of all exports. This acknowledges that even in 2016, almost 20 years after the beginning of Mozal, no significant forward linkages industry has been

established so far. The communication with Chitsungo also proves that there is no willingness to change the pattern of Mozal's aluminium production towards potentially an upgrade on the value chain.

CONCLUSION

How can Mozal be evaluated in terms of linkages and did it bring the promised development to Mozambique? Briefly summarized, the data utilized in this research shows that fiscal linkages, as well as backward linkages and forward linkages remain to be limited in the case of Mozal. The tax contributions from Mozal have been limited due to exceptional tax breaks. Regarding backward linkages, although direct and indirect employment has been created, the impact on the eradication of mass unemployment has been questioned. Hence, it has to be examined if capital-intensive megaprojects like Mozal have the means to provide significant employment in developing countries which suffer from severe unemployment. Additionally, the data suggests that for a large amount of the involved companies there is no information available. Further research is needed to enquire about the status of these companies and if perhaps dependence on Mozal may have been involved. The fact that the majority of the known companies are foreign-owned also suggests that this may have implications for Mozambique's development. Additionally, it can be concluded that only one forward linkage has been created through the Bahraini company Midal Cables. Sources suggest that Midal Cables has created some direct employment with the majority being Mozambican. It has to be further researched if Midal has created linkages on its own. However, it can be seen that regarding Mozambique's exports, the significance of manufactured aluminium products is marginal, being less than 3% of all total exports. Raw aluminium remains the most representative export good with a share of 22% of total exports. This shows that the significance of Midal Cables is limited for Mozambique's economic performance in terms of exports. Moreover, the case of Midal Cables demonstrates that it took almost twenty years for the first forward linkage to be created, and it had to take a foreign investor and a large company to make the first step. Like in the case of backward linkages, this foreign ownership needs to be regarded with caution and researched further in order to ensure that no development opportunities are missed. This analysis has revealed that Hirschman's linkages theory is difficult to implement and complex, as linkages seem to need time to occur like in the case of Midal Cables. Moreover, linkages effects can be restricted due to tax breaks which may limit fiscal linkages. The challenge of foreign companies and the potential weakness and dependence of local SMEs, as well as a lack of labour-intensive activities which may restrict employment opportunities are issues of concern. The Mozambican government is still entangled in its attempt to make Mozambique attractive for megaprojects while it aims to benefit from the full potential and all opportunities which shall bring development to the impoverished country. Being spiralled into the danger of the resource curse is not an option for Mozambique. It is evident that the country's economical and abundant hydroelectric

power, as well as the gas reserves and 'some of the world's largest untapped coal deposits,' as well as numerous other mineral resources located in the country, offer the only option to develop through resource-based development. Mozambique's main exports are based on natural and mineral resources and they will continue to play a decisive role for the country. The Mozambican government, together with the actors of the mining industry and the investors, as well as the advisors of the IMF and World Bank need to continue to focus on Mozambique to ensure that the wealth which lies in these precious materials reaches the poor population of Mozambique. The Mozal megaproject and further megaprojects in Mozambique show that numerous concerns which were outlined in this analysis need to be regarded seriously in order to ensure that in the future, more positive effects transpire in order to turn future megaprojects into 'star performers' which will bring inclusive development into the resource rich developing countries.

ROLE OF THE STUDENT

Cindy Wilhelm was an exchange student at the University of Vienna where she took the course 'Resources and Development' from the MA programme in International Development. In discussions with Bernhard Tröster who conducted the course, she was inspired to write her BA Thesis on the case of Mozal, and Tröster suggested the use of Hirschman's linkages theory. Upon return at the Erasmus University Rotterdam, this thesis was created independently under the supervision of Ben Wubs and Jeroen Euwe.

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