Artisanal gold mining and rural development policies in Mozambique: Perspectives for the future

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ABSTRACT

Despite Mozambique’s great natural resource wealth and strong economic growth, rural poverty remains high countrywide. The challenge is thus finding ways to turn this wealth into development opportunities. For many rural people in central Mozambique, artisanal gold mining is the most direct source of income and this is most likely to remain so. Drawing on our personal experiences, we reflect on the future of artisanal gold mining in Mozambique. The government’s strategy consists of promoting improved technologies and encouraging artisanal miners to establish themselves as businesses by creating miners associations. This has proved successful where the ore allows for sufficiently long exploitation, in practice, where reef gold occurs. The same cannot be said, however, of colluvial or alluvial deposits, where placer gold is mined. Given the variable nature of these deposits, accompanying mining activities are relatively short-lived at such sites. In these cases, local authorities and community representatives must play an expanded role in enforcing good mining practices. Doing so would be in line with the country’s current decentralisation and democratisation policies in relation to rural development.

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1. Introduction

Mozambique is a paradox: despite being rich in natural resources, it ranks amongst the world’s ‘poorest’ countries. On the 2012 Human Development Index, Mozambique ranks 185 out of 187 countries, with Niger and the Democratic Republic of Congo sharing the last position [1]. The country has been praised by the international community for its economic growth, which exceeded 8% annually from 1993 to 2010, making it the fastest growing, non-oil economy in sub-Saharan Africa [2]. This growth, however, has only had a marginal impact on poverty reduction as it has been driven by foreign investment in large-scale mining and energy projects, creating few jobs and spawning few linkages to the local economy [3].

In general, the region’s enormous and largely unexplored geological resources present a vast potential reserve of wealth [4]. For Mozambique, as Ansell [5] explains, its natural capital represents 49% of total wealth (4644 USD per capita), which is more than double the average (24%) in sub-Saharan Africa. Natural capital is here defined as finite resources (mineral assets), renewable resources (forests, lands) and environmental services. But as is the case in many African countries, including its neighbours, Mozambique is challenged with using its natural resource wealth productively for development.

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Since the late 1980s, the Government of Mozambique has complied with recommendations of international institutions to liberalise its economy and adopt export-based development strategies [6,7]. In line with neoliberal economic principles, the government’s rural development strategy has sought to increase agricultural production by promoting the private sector and by minimising state interventions. To create conditions favourable for luring investors to exploit and develop the country's natural resources, the government implemented a policy and institutional framework for natural resource management. Its main pillars are various pieces of legislation dealing with natural resources, such as the Land Law, the Forestry and Wildlife Law, the Mining Law and their related regulations and annexes [8].

The Land Law (Lei de Terras, No 19/1997) was intended to provide flexible rules to foreign parties for accessing land, while securing local people's customary rights. According to the Mozambican Constitution, all land is property of the state, but the current Land Law also recognises local people’s rights to land for sustaining their livelihoods. Local people can have their user rights formally recognised, through what is called a ‘delimitation process’ [9]. This allows local people to identify the boundaries of their community land during a participatory mapping exercise. The land title certifies the community customary rights but does not exclude other persons or investors from acquiring land-use rights. For rural communities, the delimitation process is important as it puts them in a stronger negotiating position whenever investors want to undertake activities on their land, such as commercial farming, forestry, tourism or mining.

The Forest and Wildlife regulation (Decree 12/2002) mandates that 20% of tax revenues levied on the exploitation of natural recourses – timber, hunting, or tourism – is reverted to local communities. Although land delimitation is not specified as a requirement, whenever communities have had their land rights registered, it has been easier for them to claim and secure their share of tax revenues [10]. The principal of reverting 20% of tax revenues, however, is not applicable to mining operations.

The Mining Law (Lei de Minas No 14/2002) principally regulates large-scale, industrial mining. The aim of the law is to govern ‘the rights and obligations regarding the use of mineral resources taking into account the environment, aiming its rational utilisation to the benefit of the national economy’ (Article 1). Five types of mining licences can be issued in Mozambique:

(a) A reconnaissance licence, for up to two years, which is not renewable;
(b) An exploration licences, for up to five years, and renewable;
(c) A mining concession, for a maximum of 25 years, and renewable;
(d) A mining certificate, for a maximum of two years, and renewable; and
(e) A mining pass, for up to one year, and renewable.

Artisanal miners are required to obtain a mining pass which, according to the law, can only be granted to Mozambican citizens. It allows holders to work in areas designated for artisanal mining (Decree N 28/2003/Section VII). Whereas the ‘mining passes’ are granted at provincial level by the Provincial Governor, the ‘designated areas’ are declared, modified or extinguished at the national level by the Minister of Mining. Initially, nationwide, only 48 areas had been designated for artisanal mining (Ministerial Circular, Nr 77/94 of May 2006). But crucially, in Central Mozambique, none of these ‘designated’ areas were locations where gold was known to occur, although 65 artisanal gold mines are known in the area [11,12] (Fig. 1).

Drawing on personal experiences of working with artisanal miners in Central Mozambique, we reflect on the successes and difficulties encountered with the implementation of the government’s policies for the sector. First, we highlight the importance of artisanal gold mining in Central Mozambique. Secondly, we share views from artisanal miners on the positive and negative aspects of their mining activities, and their perceptions of current and future trends. Thirdly, we analyse the policy, challenges and dilemmas brought about by artisanal mining. Finally, we reflect on the sector’s future, particularly in the context of rural development.

2. Gold mining in Mozambique

Gold mining has a long history in Mozambique. It dates back at least 1000 years in what is currently the central part of the country and Zimbabwe. Indeed, long before the arrival of the Portuguese to south-eastern Africa in the late 15th century, gold was exported along trade routes linking southern and eastern Africa to the Middle East, India and China [13,14]. In the colonial period, mining was developed at an industrial scale, providing employment to local people. During the civil war (1977–1992), mining activity was brought to a standstill as a large part of the population had taken refuge in neighbouring countries or to more secure areas. With the instauration of peace, returning populations began engaging in artisanal mining [11].

In recent years, gold production in Mozambique has increased noticeably. During the period 2007–2011, recorded annual output was in the range of 600–900 kg, of which not more than 100–500 kg was officially recorded [15]. At an average price of 1000 USD/ounce, this would correspond to a value of 19–29 million USD annually. Despite the government’s efforts to create favourable conditions for industrial mining, gold has almost exclusively been produced by artisanal miners over the last two decades [11].
In many countries, governments regard artisanal and small-scale mining as an illegal activity. Attempts to eradicate 'illegal' artisanal mining have invariably proven to be very difficult [16,17]. In relation to artisanal mining, state authorities face three major challenges: (1) ensuring that the trading is formalised such that national revenues and foreign exchange are not lost to the country; (2) ensuring that the safety of miners is maximised while health hazards for the general public are minimised; and (3) minimising the environmental consequences of often chaotic exploitation [18,19]. In Mozambique, the artisanal mining sector is large, populated by more than 150,000 people who are engaged in the extraction of gold, gemstones, tantalum and industrial minerals. At least 60,000 people are estimated to be employed in artisanal gold mining alone [2,15]. Recognising both the economic and social importance of artisanal mining, the government implemented the 2003 mining decree (Decree N.º 28/2003) which established a framework to assist with regularising this hitherto illegal activity.

So far, the government’s position on artisanal mining has been to give technical support to operators with a view to encourage environmental best practices and to encourage miners to form associations [20]. Where artisanal gold miners have been registered as an association, they have also obtained licences as ‘mining certificates’. In the province of Manica, six artisanal mines have mining certificates: Munhena and Mimosa in Manica District; Bandire and Tsetsera in Sussundenga District; Kumboedza in Barúé District; and AMACOD in Mâmbossá District. Together, these mines employ approximately 1400 people. In Sofala Province, a seventh association has recently been registered at Tsiquiri, in Gorongosa District (Fig. 1).

The Mining Development Fund (Fundo Fomento Mineiro in Portuguese) was created with the principal objective of promoting amongst artisanal miners the use of improved mining technologies that minimise the environmental impact and improve the miners’ safety. The Mining Development Fund, as a government agency, was also actively buying artisanal produced gold at a price close to the world market price. The aim has been to minimise “leakages” of gold to the informal market. This has only been partly successful, because informal buyers also provide artisanal miners with mercury to amalgamate their gold [21]. Recently, the Mining Development Fund has been transformed into two new entities: a private company “Empresa Moçambicana de Exploração Mineira” which has the mandate of buying gold on behalf of the Government, and the Institute for Mining Geology (Instituto Geológico Mineiro), tasked with providing technical assistance to artisanal miners [22].

3. Artisanal miners’ views through video

In collaboration with artisanal miners in Manica District, we produced two videos which provide insights into operators’ lives. The first video concerns a mine in Chazuka, where placer gold is extracted by a group of people who do not have any licence. The second video, footage from Munhena, concerns the biggest artisanal mine in the area. Here, reef gold is mined.
and it is the location of the first miners association. The videos are ‘participatory videos’ in the sense that the miners are both subjects and co-producers in a process of community reflection and action, in accordance with Fabel [23]. Both videos can be accessed at http://vimeo.com/album/1513692.

3.1. The miners of Chazuka

“No bad thing comes without any good thing to it,” said Firmino Maronda, head of a group of gold panners working in the locality of Chazuka. Mr. Maronda made this statement during the recording of a video1 in which gold panners explain how they extract gold from colluvial deposits. Having trained as a teacher, he explains that just after the civil war, he worked for a resettlement programme for refugees. Towards the end of his assignment, he realised that some of his friends had gotten rich by gold mining, so he decided also to try his luck. In the video, the miners explain how they use old irrigation canals for panning placer gold. Though they do not use mercury, Mr. Maronda further explains that they resent polluting the rivers with the sediments. He therefore pleads for the government to provide technical assistance to solve this problem. He also shows that, wherever possible, they do trap sediments by making bench terraces suitable for agriculture. He further stresses that the money they get from the gold helps them to improve their farming, enabling them to buy seeds and fertilizers. Thanks to the gold mining, people are able to build better houses and buy cattle; some of them even buy cars and get into the transport business. With improved transport facilities, people now find it easier to go to town, and farmers find it easier to sell their produce. The gold also makes it possible for their children to study, and so he foretells that one day, some of them will become teachers, nurses, doctors and even ministers. He concludes that, despite the perils and hard work, they really cannot do without the gold mining.

3.2. The miners of Munhena

In the video “The history of our mine”2, the miners of Munhena explain how the site was discovered and how they organised themselves by forming a miners association. They show how they process the ore in basins outside of the riverbed, how they use improved sluices provided by the [former] Mining Development Fund, and how they use retorts for recovering gold and distilling mercury. Strikingly, when explaining the process of creating the miners association, Mr. Armando Takarindwa, the vice-president of the association, explains that as there were so many people working in the mine, they first created a unit of the ruling party. Then, mining technicians came to interact with them and assisted with creating a miners association. They started the legalisation process in 2001, but it was only in 2004 that the process was concluded. Finally, Mr. Takarindwa also explains that they recently formed a partnership with an industrial mining group. They so expect that they will be able to extract ore veins now inaccessible to them and to access better equipment for processing the ore.

4. Challenges and policy dilemmas

The views and concerns expressed by the miners in Chazuka epitomise the challenges and dilemmas faced by operators in Central Mozambique, and more broadly, in developing countries. The wealth of mineral resources laying within reach of an impoverished rural population offers local people a glimmer of hope, though often illusory, of escaping from poverty quickly. The soaring international price of gold – which in 2003 was less than 400 USD/ounce and which in 2012 peaked at 1670 USD/ounce [24] – has been one of the major drivers of the sharp increase in artisanal gold mining activity in Mozambique. In Central Mozambique specifically, by the end of the 1990s, fewer than 10,000 people were involved in artisanal mining; today, they are an estimated 25,000. After agriculture, artisanal mining is the biggest source of employment and for many rural people, gold mining is the most direct means of filling gaps when income from crop production is low [25].

In practice, the government’s efforts to promote safer mining techniques and environmentally friendly efforts have been successful where it has been possible to organise miners in associations. In Bandire, for example, miners are now excavating reef gold along benches, which was not the case in 2005 (Fig. 2). In this way, the stability of the exploitation front is improved, and so is the miners’ safety. Retorts, aimed at reducing exposure to mercury vapour and preventing mercury from spreading in the environment, have also been introduced in these mines [12,26].

However, most artisanal miners extract gold from colluvial and alluvial deposits – as illustrated by the video of the mine in Chazuka. Given the variable nature of these sedimentary deposits, mining activities at any particular site are relatively short-lived, typically a few months, while their discovery often sparks gold rushes (Fig. 3). The miners camp in shelters around the mine site, where health and sanitation are far from desirable. At such mines, it is not uncommon to encounter children working, while safety measures are very poor; deep mining shafts and galleries which have not been stabilised can be particularly dangerous. The processing of ore occurs in the river, resulting in high sediment loads. Though mercury is not commonly used where placer gold is found, wherever it is used, part of the mercury is directly discharged in the rivers. It

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would be naive – though a mistake often made – to assume that at such sites, people do not have their own social organisation. The miners in Chazuka are proof of this: they work under a headman and follow rules for sharing the profits. They all happen to be members of a religious group adhering to very egalitarian principles. As a rule, they share all of the profits equally amongst the group members but with the landlord receiving an equal share. In general, we often observed that miners work in bands of four to six people and that they have to negotiate with others where they are allowed to work. They may team up with other bands to form a larger group controlling a river section and mining site. Still, the social dynamics of such groups lack formal organisation and are very fluid. Where placer gold is mined, it can therefore not be expected to get artisanal miners organised in the same way as where reef gold is mined. To work with these groups of miners, more flexible approaches are needed.

Over the last decade, whenever reconnaissance surveys were conducted in the area, the work always attracted artisanal miners. Government authorities struggle to control artisanal miners, which is one of the factors that has discouraged foreign companies from investing in large-scale mine development. Given the lack of alternative employment activities in rural areas, and the high return artisanal mining offers to the rural population, the sector will likely continue to be important in Mozambique, even if the price of gold were to dip noticeably. Furthermore, having a secure livelihood is a fundamental human right, and where people strive to attain this through artisanal mining, this choice deserves as much recognition as any other livelihood strategy. Moreover, just as Cartie and Bürge [27] have argued in the case of Sierra Leone, the miners of Chazuka also make the point that agriculture and artisanal mining are not alternative livelihood strategies, but indeed complement each other. As Nielsen et al. [28] demonstrate for Central Mozambique, gold mining and commercial forest products are important in rural people’s livelihood strategies as a means of diversifying their sources of income. Where gold is relatively abundant, as in Central Mozambique, gold mining should, therefore, be recognised in rural development strategies, and by extension, in any area where artisanal mining is common.

Fig. 2. Bandire a mine where reef gold is extracted (Sussundenga district): (a) originally excavation was done in a chaotic way compromising the stability of the embankment and hence miners’ safety (photo of November 2005); (b) today, extraction is done in a more systematic way along bench terraces (photo June 2012).
5. New trends and future perspectives

The international consultancy company KPMG, stated in a report [29] that Gold production in Mozambique is expected to increase significantly, albeit from a low base, driven mainly by Auroch Minerals Manica Gold Project which is expected to come online. Despite being largely overshadowed by its booming coal sector, gold is still expected to boost the mining industry and economy. By 2017, Mozambique’s gold production is expected to increase from 25,000\(^3\) ounces in 2011 to 85,000 ounces by 2017. (p. 16)

Despite failures over the last decades of industrial gold mining companies in Manica, KPMG still expects that this increase will solely come from industrial mining; the report does not even mention the gold production from artisanal mining. Whatever it may be, it is clear that artisanal mining will continue to be an important economic activity in Central Mozambique. On the one hand, many gold deposits are too small for industrial exploitation. On the other hand, it is often the only opportunity for rural people to secure an income outside agriculture.

In 2005, the partnership between the Association of Artisanal Miners of Munhena and “AMAN Capital Investments”, an industrial group\(^4\), appeared as a new phenomenon. The partnership led to the introduction of excavation galleries, the installation of a processing plant and improved environmental management. For the artisanal miners, the main advantage, it seemed, was that they would be able to continue mining ore that was inaccessible using their simple tools [11]. Though the joint venture did not prove to be long lasting, it has helped the artisanal miners to expand the scale of their exploitation. Whereas less than 15 years ago, artisanal mining was illegal, today, artisanal miners associations are recognised and operate as small enterprises. Through alliance with industrial mining companies, as the case of the Munhena mine, but also from experiences gained from working at industrial mines in South Africa, miners are improving their mining techniques and expanding their operations. In this way, mining techniques are spreading that enable operators to extract gold using deep shafts and galleries. What we are actually seeing is that the miners’ associations are becoming more professional and growing into small endogenous enterprises. Another example of the increasing professionalism of the sector is the union UMIMA (União dos Mineradores de Manica) created by associations of artisanal miners in 2010. Its purpose is to advise its members on legal and administrative matters, and also to promote more efficient and environmentally more friendly mining techniques. The union also promotes alternative economic activities, ranging from fish and chicken farming to the development of markets for trading ordinary commodities.

\(^3\) With 11 oz = 31.103 g, this is from 778 kg to 2644 kg.

As unregistered gold buyers are supplying gold panners with mercury, government authorities have not been successful at controlling its use. It is therefore hard to foretell what the effect will be of the recent European and American export ban on mercury [30]. Meanwhile, the Ministry of Mineral Resources in cooperation with the Ministry for the Coordination of Environmental Action is investigating the possibility of substituting mercury with borax, which thus far has had promising results. It further remains to be seen whether the newly-created Empressa Moçambicana de Exploração Mineira, entrusted with the task of purchasing gold, will be able to gain a larger share of the informal market. Similar to the agricultural policy, the government seems to be banking on the private sector. The experience from the agriculture sector is that liberalisation is fraught with difficulties, and that it did not facilitate increased production [3]. The attempt, for example, to create an important agro-business sector in central Mozambique by attracting Zimbabwean farmers failed [6].

On the possibility of introducing and adopting retorts in Central Mozambique, Spiegel et al. [21] observed that barriers for widespread adoption of new technologies include poverty, lack of knowledge and trust, together with the free supply of mercury. Our experience shows that, where miners can be organised in associations, it is possible to introduce new technologies for allowing safer exploitation and reducing the environmental impact of mining. Having such an organisational structure allows for social control mechanisms and so indeed contributes to the building of trust. As with any entrepreneurial organisation, trust among the miners depends in the first place on internal rules and agreements on tasks and responsibilities as well as the sharing of benefits. To arrive at such a structure, however, requires social stability over a sufficiently long time which, in practice, only occurs where reef gold is mined. Geologically, it means that the ore deposits need to be predictable and large enough to have a long-term exploitation. In such cases, the current policy and legal framework is indeed adequate. Nevertheless, it requires a high level of commitment on the part of mining technicians who are willing to collaborate closely with miners at the site, and equally, the institutional willingness to provide such technical assistance. Where placer gold is exploited, the situation is, however, more complex. In such cases, a more flexible strategy is required, whereby local authorities and community representatives could take up a greater role.

Since the peace instauration in 1992, the Government of Mozambique has been adjusting its relationship with rural population and local authorities [31]. This process has been accompanied by different forms of democratisation such as multi-party presidential and parliamentary elections and by decentralisation, whereby some authority has been devolved to local administrations and local chiefs have been reinstated [32]. The process also led to the formulation of the new Land Law and the Forest and Wildlife Law and regulations. Though the rule of revolving 20% of tax revenues from the exploitation of natural resources is not applicable to mining, in the current spirit of decentralisation and democratisation, it should be possible to work out a similar regulation for the mining sector. Local authorities, at the level of the district and locality together with community representatives, could be given the authority to control artisanal mining on community land. The Land Law provides a framework for identifying and recognising community land, including the establishment of community committees which can take up such a task. These committees could assume a role in ensuring that artisanal miners would have a mining pass and that minimal mitigation efforts are made. In return, and similar as foreseen by the Forest and Wildlife regulation, communities should then get a percentage of the revenues from the mining.

6. Conclusions

In Central Mozambique, artisanal gold mining is important to the economic development of rural people as, besides agriculture, it is the single largest opportunity of employment. To rural people, artisanal gold mining is also the most direct source of monetary income. Given the importance of gold mining to rural people, artisanal mining should be included in rural development policies. As a general policy for rural development, the Government of Mozambique has made strident efforts to improve the relationship between state and rural people since the instauration of peace in 1992. The overall trend has been one of decentralisation and democratisation, whereby more authority has been given to local administrations, and rural communities and traditional authorities have been given greater recognition. This policy aimed to promote agriculture, forestry and tourism while at the same time secure local people’s access right to natural resources. In the same vein, the government has recognised the social and economic importance of artisanal mining. The current trend amongst the miners association is one of increased professionalism and expansion of their operations. With regard to artisanal gold mining, the current policy and legislation is adequate to promote safer and more environmentally-friendly techniques, but only where the geologic conditions allow exploitation for a period sufficiently long to establish miners associations. In practice, this has only been the case where reef gold is exploited. Where placer gold is mined, these conditions are usually not met. In the future, a more flexible strategy must be developed whereby some authority should be devolved from national and provincial level to the levels of the districts, localities and communities. If local authorities and community representatives would be given an expanded role in controlling artisanal mining, it should be possible to promote safer mining practices across a much wider area. In return for their involvement in controlling artisanal mining, local communities should receive a percentage of the revenues from the mining, as foreseen for other natural resources under the Forest and Wildlife regulation.

References


