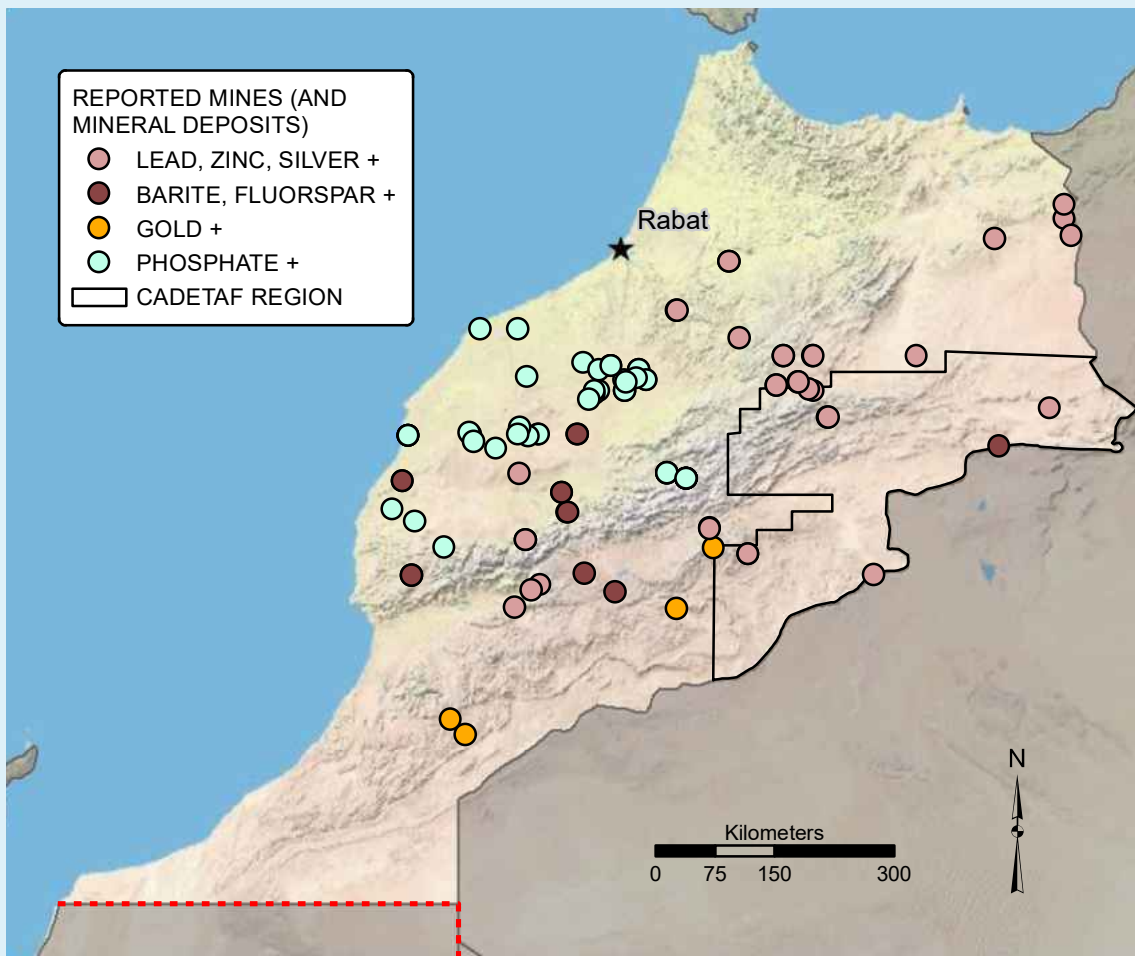


# Morocco

**Author: Rachel Perks**

## **Location of key mineral deposits and Zone CADETAF for ASM<sup>221</sup>**



## **Materials mined by ASM<sup>222</sup>**

- Barite, lead, zinc total: 495,710 tons (2013)
- Barite: 397,000 tons = 80% of total (2013)
- Total revenue to ASM in 2013: MAD 214 million = USD 22.68 million

<sup>221</sup>Map created by Daniel Stapper. Using Base map: US National Park Service, 2017; Mines and mineral deposits; USGS, 2018; MANAGEM, 2018; MEMSD, 2018c; CADETAF region: based on map provided by CADETAF and MEMSD.

<sup>222</sup>Data obtained from MEMSD and CADETAF during fieldwork visits to Morocco by Dr. Rachel Perks in 2014.

# Mineral governance framework

## Government priorities

- Liberalize commercialization and exploration of minerals in the CADETAF region
- Reduce artisanal zone to 6,000 km<sup>2</sup> and open 54,000 km<sup>2</sup> to prospecting and exploration
- Improve production techniques, working conditions, and mitigate environmental impacts

## Laws and policy

- 1951 Mining code regulating whole mining sector, updated in 2015 by *Dahir* no. 33-13
- *Dahir* no. 1-60-019 of 11 Jumada II (1960), established ASM region of *Tafialet* and *Figuig*
- *Dahir* no. 5 rejab 160-007 of 1380 (1960), established labor, safety, and training requirements of ASM

## Government institutions

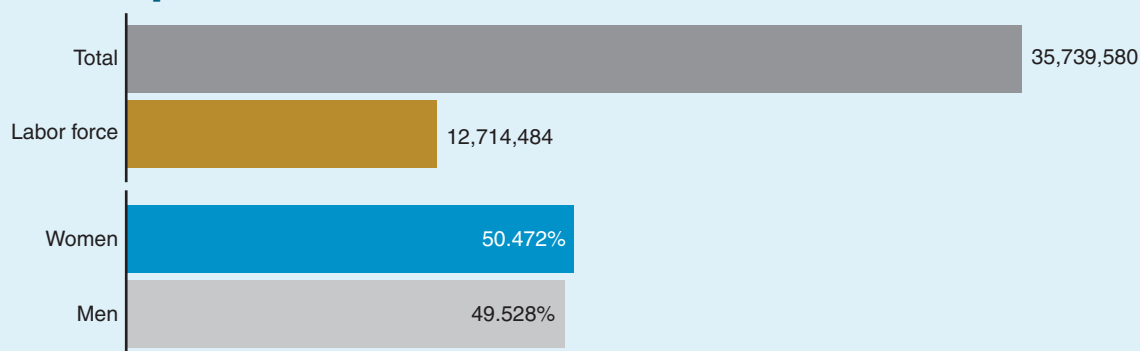
- Ministry of Energy, Mines, and Sustainable Development (MEMSD)
- *Centrale d'Achat et de Développement de la Région Minière du Tadialet et de Figuig* (CADETAF)
- *Djemmaa* (Council of Artisans) located in each mining area that administer mining rights

## Associations and member organizations

- None

# Economic and development

## 2017 Population<sup>223</sup>



## 2017 Classification (GNI per capita)<sup>224</sup>

- Lower middle income: USD 2,863

## 2017 Gross Domestic Product<sup>225</sup>

- USD 109.139 billion

## 2006/2007 poverty headcount ratio<sup>226</sup>

- Population on/below national poverty line: 8.9%
- Population living on <USD 1.90 per day: 3.1%
- Population living on <USD 5.50 per day: 16.2%

# Livelihoods

## Employment

- ASM: 5,000–10,000 (total),<sup>227</sup> 1,500 (barite)<sup>228</sup>
- LSM: 39,000 (total mining sector, 2014)<sup>229</sup>
- Licenses: 6,736 (total mining sector, 2014)<sup>230</sup>

## Gender participation in ASM

- Unknown

<sup>223</sup>World Bank, 2017b.

<sup>224</sup>Ibid.

<sup>225</sup>Ibid.

<sup>226</sup>World Bank, 2017.

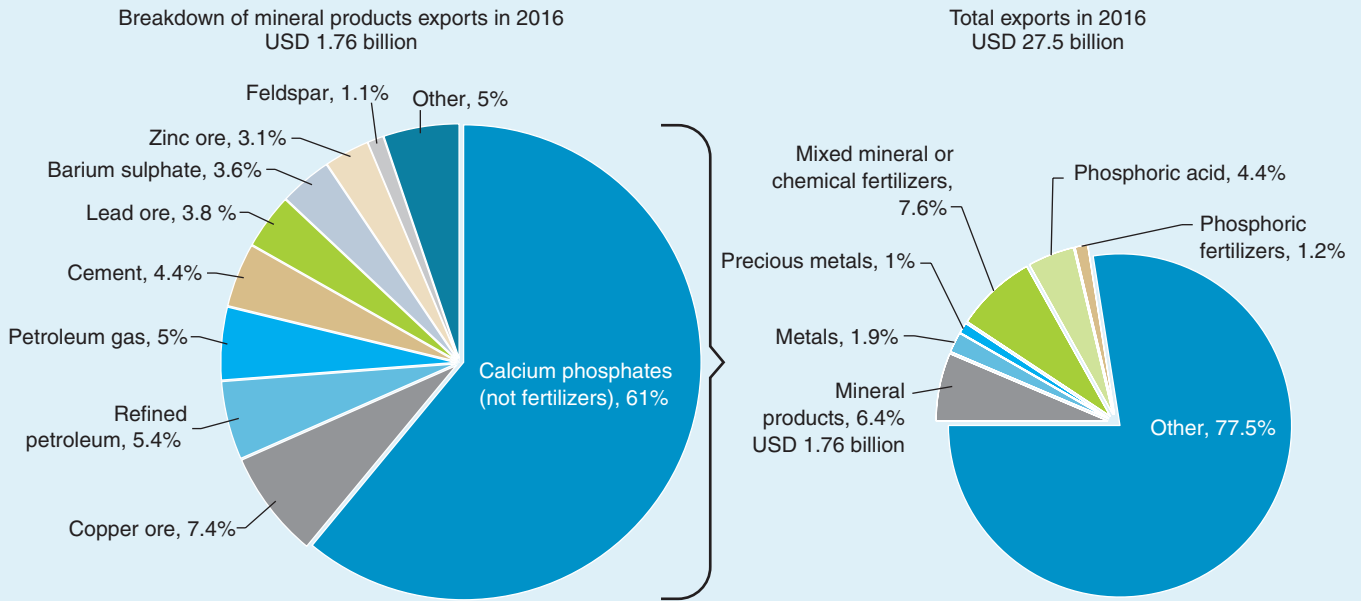
<sup>227</sup>Ibid.

<sup>228</sup>ILO, 1999, p. 8.

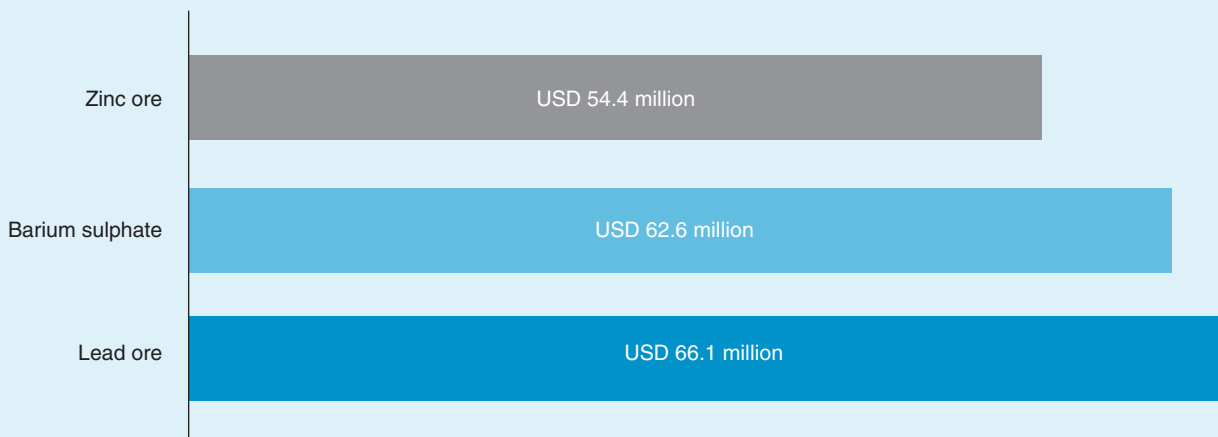
<sup>229</sup>MEMSD, 2018a.

<sup>230</sup>Ibid.

**FIGURE 8 CONTRIBUTION TO TOTAL, AND BREAKDOWN OF, MINERAL PRODUCT EXPORTS FROM MOROCCO IN 2016<sup>231</sup>**



**FIGURE 9 EXPORT VALUE OF KEY MINERALS EXTRACTED BY ARTISANAL AND SMALL-SCALE MINERS IN MOROCCO IN 2016<sup>232</sup>**



<sup>231</sup>The Observatory of Economic Complexity, 2018c.

<sup>232</sup>The Observatory of Economic Complexity, 2018c. *Note:* These figures are for the total value of zinc, barite, and lead (the main minerals mined by ASM in Morocco) exported from the country in 2016. They are not disaggregated between ASM and LSM sources.

## Mining sector summary

Morocco's mining sector is best known for phosphate (Figure 8). The country consistently ranks within the top three global producers and exporters of all forms, and it is home to approximately 77% of known global phosphate reserves.<sup>233</sup> In 2014, the country produced 31.8 million tons, accounting for 94% of the 33.8 million tons produced globally in the same year.<sup>234</sup> Beyond phosphate, Morocco is also recognized for its global output shares of arsenic (16%), barite (10%), cobalt (2%), and fluorspar (1%). Of these, barite is the only mineral which has a considerable portion derived from artisanal and small-scale producers, estimated to account for 90% of the country's production.<sup>235</sup> Traditionally, ASM activities also exploit small amounts of lead ores and zinc, while more recently the southern part of the country has witnessed a growth in small-scale gold mining.<sup>236</sup> As Morocco embarks on a series of mining sector reforms and modernization on a scale not seen since the 1960s, the need for accurate, reliable, and quantifiable data on the country's ASM sector is more pressing than ever before.<sup>237</sup>

## Mineral governance framework

Since 1960, almost all ASM operations are found in the mining regions of Tafilalet and Figuig where they have been governed under a special mineral regime—the Zone *Centrale d'Achat et de Développement de la Région Minière du Tafilalet et de Figuig* (CADETAF—Central Purchasing and Development of the Tadialet and Figuig Mining Region). This ASM area is separate from the 1951 mining regulations which cover all exploration and exploitation of large-scale operations in the rest of the country. Designed in part to address the increase in informal ASM activities that had overtaken the area following the collapse of industrial mining operations in the 1950s, the decree of 1960 (*Dahir* no. 1-60-019) created the Zone CADETAF to formalize and manage operations. Considered suitable only for the small-scale exploitation of barite, lead, and zinc, the 60,000 km<sup>2</sup> zone, which borders Algeria and is largely covered in desert, is managed by the CADETAF public institution that was created at the same time. CADETAF reports to the Ministry of Energy, Mines, Water and Environment and is mandated to manage and provide technical support services to small-scale miners operating in the zone, conduct research and exploration, and help commercialize and develop production. CADETAF is also responsible for buying and transporting minerals produced by ASM operators in the zone via collection centers, and developing and maintaining the market for the ores being extracted.

In an effort to commercialize production and secure additional investment into the ASM sector, in 1982 CADETAF gave permission to three private organizations to buy and trade minerals on its behalf. However, in recent years CADETAF has continued to struggle with the financial capacity necessary to manage, support, and monitor ASM operations across the vast operational territory. The zone remains extremely underutilized, with only 7% estimated to be currently exploited by ASM operations. And, without any modern geoscientific exploration having been undertaken, the areas that are most suitable for ASM activities and the full economic and development potential of all deposits in the zone are unknown. The reasons for mine site inactivity are multiple, such as a lack of technical and financial capacity for ASM operators to develop deeper underground workings, after much of the near surface deposits have now been exploited, as well as lower commodity prices.

Since 2013, the government, as well as small-scale miners, have therefore been in discussion with regard to reforming CADETAF to open the zone up to investment and LSM. However, with the majority of artisanal miners working independently (as of 2013, only three cooperatives were registered), there is no common voice or representation at the national government level. The CADETAF reforms, first tabled as part of discussions around the wider revised national mining code that was adopted in 2015 (*Dahir* no. 33-13),

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<sup>233</sup>USGS, 2013; 2014; 2018; AMDC, 2019.

<sup>234</sup>MEMSD, 2018a.

<sup>235</sup>UNECA, 2018.

<sup>236</sup>Ibid.

<sup>237</sup>Unless referenced or stated otherwise, the majority of the data reported in this country profile were obtained directly from MEMD and CADETAF during fieldwork visits to Morocco by Dr. Rachel Perks in 2014.

envisage a diversified mining economy in the zone (e.g., not limited to barite, zinc, and lead) with various options for exploitation and partnership to secure investment. For example, one suggestion was to provide a ‘first right’ opportunity to small-scale miners so that they can retain their permits, while, at the same time, tendering opportunities for medium- to large-scale companies to explore and exploit other parts of the zone. Such ASM sector reforms may require, among others, the following activities:

- Updating the *Dahir* law of 1960 to allow more conventional commercialization and investment practices for small-scale miners, such as the ability to sell minerals to private buyers
- Modernizing mining rights to allow for both exploration and exploitation to occur simultaneously
- Reducing the size of the artisanal zone to 6,000 km<sup>2</sup> and opening 54,000 km<sup>2</sup> to prospecting and exploration by medium- and large-scale operators
- Redefining the role of CADETAF in supporting small-scale mineral development
- Implementing a benefit distribution scheme to allow for more tangible sharing of potential revenues that may come from more modernized, medium- to large-scale mining investments

All these interventions, some of which are already under way, would be greatly aided by contemporary and reliable data on the functioning of the ASM sector. This includes data on the location, size, organizational setup, and value chains of operations, geological information, and potential private sector investment and buying opportunities, as well as accurate production figures in order to understand the contribution of the sector to the country’s economy.

## **Economy**

According to the Ministry of Mines, 39,000 people are employed across Morocco’s mining economy, predominantly in the phosphate sector. Mining comprised 10% of Morocco’s GDP in 2014 and 22% of national exports (by value).<sup>238</sup> As outlined, the majority of GDP value is derived from phosphates, followed by arsenic and barite, with ASM accounting for almost all of the production of the latter. However, mining data on the amount of production and revenue generated in Morocco are not regularly disaggregated between large-scale and small-scale operations, making reliable estimates that quantify the economic contribution, size, and importance of ASM very challenging. Furthermore, the MEMSD website<sup>239</sup> has very limited production data which only cover the years 2010-2014 (inclusive) and provide no estimates for ASM.

The data that are available therefore originate from figures obtained by the author during fieldwork to Morocco in 2014, CADETAF, and related government institutions. These state that a combined total of 495,710 tons of barite, lead, and zinc, was produced in 2013 (Figure 9), generating revenues of approximately Morocco durhams (MAD) 214 million (USD 22.68 million) for small-scale miners. Of this, 397,000 tons were barite, accounting for 80%. This compares to the 1,094,5 (sic) tons of barite (i.e., likely 1,094,500 tons) quoted on the Ministry of Mines, Energy and Sustainable Development’s website as having been produced in the same year by the whole country’s mining sector. If accurate, this would mean that, in terms of tons produced, ASM barite production accounted for 36% in 2013. A figure that does not tally with the 90% quoted by United Economic Commission for Africa (UNECA).<sup>240</sup> Clearly, there is a very significant data gap here.

While the production of barite, lead ores, and zinc has grown significantly over the past 15 years, up from a reported 93,447 tons in 2004, it is the government’s intention to further increase the contribution of mining to GDP through the set of reforms already outlined, including allowing for other companies to invest in activities through private buying arrangements. In terms of the current buying arrangements and with regard to how small-scale miners extract value from their operations, CADETAF has multiple collecting centers equipped with weighing, analyses, and storage facilities. Here, small-scale miners are

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<sup>238</sup>MEMSD, 2018a.

<sup>239</sup>Ibid.

<sup>240</sup>UNECA, 2018.

paid based on a rate that is calculated by deducting the costs associated with transport and export (CIF value),<sup>241</sup> and the addition of the following margins as prescribed by the Minister of Mines: alquifou (lead ore), MAD 300 per ton; barite, MAD 10 per ton; lead ores, 15%; and zinc, 10%.<sup>242</sup>

## **Livelihoods**

Data on the number of people directly involved in ASM are, like the production figures, sparse. A similar but more general country profile commissioned by UNECA<sup>243</sup> estimates there are ‘around 5,000-10,000’ artisanal miners in Morocco, though no reference for this figure is provided. But, it is the same as that given in the ILO’s 1999 study.<sup>244</sup> The numbers obtained by this author during the 2014 fieldwork, however, provide a different estimate altogether. According to her field research, official records, and interviews with government officials, in 2014 there were an estimated 4,000 small-scale mining permits in the Zone CADETAF, of which 300-350 were active. In total, only 1,500 artisanal and small-scale miners and mine owners work surface and near-surface deposits in the CADETAF zone. Unlike the majority of other countries where ASM tends to fair favorably for job creation, in Morocco the ASM sector appears to support the livelihoods of considerably fewer people than LSM.

Though sparse in activity and production, the deposits of barite are rich (up to 85% ore grade), making ASM a viable full-time livelihood for individuals in the region. In the majority of cases, the workings have been passed down from father to son since the late 1950s. In terms of ownership, ASM is therefore dominated by male manager/licensees, while data related to female participation in the sector are completely unknown. Generally, operations range from artisanal workings of less than 20 persons to underground mines with over 300 workers, involving considerable mechanization and processing facilities on site. Some sites are barely visible to the eye while others can be seen atop the hills that line the perimeter of the Rose Desert.

In terms of labor, safety, and working conditions and improving incomes and value addition activities, there is a high need for introducing basic personal protective equipment and education in mining and processing, increased financing partnerships, and market collaborations for artisanal miners beyond CADETAF. As the Zone CADETAF is currently undergoing a transformation, careful planning is required in order to minimize any loss of livelihood or income, while also maximizing the benefits to existing ASM communities. In this process, some small-scale miners may choose to cease operations, while others may wish to continue exercising their historical mineral rights. The transition therefore presents the opportunity to provide alternative, less arduous livelihood options, while also implementing and supporting miners to meet international labor standards and best practice social, environmental, and health and safety requirements, and improve production techniques to increase efficiency and income earning potential.

## **Key data needs**

- Annual production data from the Zone CADETAF, disaggregated by mineral and more detail on functioning of activities
- Gender disaggregation of labor statistics
- Mine-to-market value chain data
- A mixed methods livelihoods survey to determine extent of labor force, disaggregated by job type, gender, and age, among others
- Geological data to map the location and quantify the value of mineral deposits in the Zone CADETAF

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<sup>241</sup>CIF (cost, insurance, freight) is a standard international shipping agreement used in the transportation of goods between buyer and seller. In CIF agreements, the insurance and transport costs are borne by the seller up until the goods are received by the buyer.

<sup>242</sup>MEMSD, 2018b.

<sup>243</sup>UNECA, 2018.

<sup>244</sup>ILO, 1999, p. 8.



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