



Baseline Assessment of Development Minerals in Cameroon

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In Memory Of
Dr MICHAEL IZUCHUKWU AKAEGBOBI
Colleague and Senior Lecturer
Department of Geology, University of Ibadan
Died Sunday September 10 2017
Aged 62



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LIST OF ACRONYMS

ACP	African, Caribbean and Pacific Group of States
AMV	Africa Mining Vision
APME	Agency for the Promotion of Small and Medium Enterprises
ASM	Artisanal and Small-scale Mining
BCPME	Cameroonian Small and Medium Enterprises Bank
BNCAM	Artisanal and Small-Scale Mining Department
BRGM	Office of Geological and Mining Research
CAPAM	Framework for Support and Promotion of Artisanal Mining
CED	Center for Environment and Development
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CEMAC	Economic Community for Central African States
CESOF	Cooperative for the Provision of Services in Cameroon
CFP	Professional Training Center
CIG	Community Insights Group
CIMEC	Conference and Exhibition on Mines in Cameroon
CSO	Civil Society Organisation
DG	Directorate of Geology
DTC	Decentralised Territorial Collectivity
EGEM	School of Geology and Mining Engineering
EITI	Extractive Industry Transparency Initiative
EPA	Public Administrative Institution
EU	European Union
FMO	Forces for Maintenance of Order
FTP	Financial and Technical Partners
GICAMINES	Joint Initiative Groups of Artisanal Miners
GIS	Geographic Information Systems
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GPS	Global Positioning System
IBAF	Institute des Beaux Arts de Foumban



IMF	International Monetary Fund
IMP	Institute of Commodities
INS	National Institute of Statistics
IRGM	Institute of Geological and Mining Information
ISS	Sahel Higher Institute
IUCN	International Union for Conservation of Nature
KP	Kimberley Process
MINDCAF	Ministry of Domains, Cadastre and Land Affairs
MINDUH	Ministry of Housing and Urban Development
MINEPAT	Ministry of Economy, Planning and Territorial Management
MINEPDED	Ministry of the Environment, Nature Conservation, and Sustainable Development
MINESUP	Ministry of Higher Education
MINFI	Ministry of Finance
MINMIDT	Ministry of Mines, Industries and Technological Development
MINPMESA	Ministry of Small and Medium-Sized Enterprises, Social Economy and the Arts
MINTP	Ministry of Public Works
MINRESI	Ministry of Scientific Research and Innovation
MINREX	Ministry of External Relations
MIPROMALO	Local Materials Promotion Authority
NGO	Non-governmental Organisation
OCBB	Observatory of the Baka and Bantou for Education, Environment and Community Development
PDAC	Prospectors and Developers Association of Canada
PIASSI	Integrated Program for Support to Actors in the Informal Sector
PRECASEM	Geological Mapping and Natural Hazards, Mining Sector Capacity Building Project
PWYP	Publish What You Pay
RECTRAD	Network of Traditional Chiefs
REFACOF	Central African Women's Network for Community Forest Management
RELUFA	Network for the Fight Against Hunger



REMAP/CEMAC	Project for Strengthening the Governance of Raw Materials in Central Africa
REPAR	Network of Parliamentarians
RETIE	Network of Parliamentarians for Transparency in Extractive Industries
RDBMS	Relational Database Management Systems
SCKP	Kimberley Process Certification Scheme
SDSG	Sustainable Development Strategies Group
SME	Small and Medium Enterprise
SOCAVER	Cameroonian Glass Company
SWOT	Strengths, Weaknesses, Opportunities, Threats
UNDP	United Nations Development Programme
WWF	World Wildlife Federation



EXECUTIVE SUMMARY

Introduction

The ACP-EU Development Minerals Programme is a pioneering €13.1 million capacity building program that aims to build the profile and improve the management of Development Minerals. The program is an initiative of the African, Caribbean and Pacific (ACP) Group of States, financed by the European Union and the United Nations Development Programme (UNDP), and implemented by UNDP.

Development Minerals are minerals and materials that are mined, processed, manufactured and used domestically in industries such as construction, manufacturing, and agriculture.¹ Development Minerals are economically important close to the location where the commodity is mined and include industrial minerals, construction materials, dimension stones and gemstones.² These minerals typically have stronger production linkages with the rest of the national economy and therefore have a potential to provide significant contribution to GDP.

Development Minerals, can thus help countries avoid “resource curse” and significantly contribute to the goals of resource led development supported by the Africa Mining Vision³, with the sustainable mining sector (i) supporting the development of a competitive supply industry that can serve the sector at home and beyond national borders and can become a sustainable business sector in its own right, and (ii) supporting the transformation and economic diversification of the host country’s non-extractives economy.

In order to support these efforts, Community Insights Group (CIG), in partnership with Sustainable Development Strategies Group (SDSG), were commissioned to carry out a baseline assessment of Development Minerals in Cameroon that highlights current dynamics and key issues relevant to improving the sector. The study covered five components:

- Component 1: Profile of the range of commodities mined, the sites of extraction and beneficiation, and the businesses and employees involved in the sector;
- Component 2: Review of relevant laws, regulations, plans and policies;
- Component 3: Analysis of the current institutional and technical operating environment;
- Component 4: Environmental, health and safety, and socioeconomic impact analyses; and
- Component 5: Market and value chain analyses for priority Development Minerals in Cameroon and the level of integration and interlinkages with other sectors of the economy.

¹ Franks, DM, Pakoun, L and C Ngonze. 2016. Development Minerals: Transforming a neglected sector in Africa, the Caribbean and the Pacific. United Nations Development Programme.

² Industrial minerals: substance of economic value, exclusive of metal ores, mineral fuels, and gemstones (e.g. barite, bentonite, borates, calcium carbonate, clays, diatomite, feldspar, granite, gypsum, industrial sand, kaolin, silica, soda ash, talc, wollastonite and zeolite). Construction material (a sub-category of industrial minerals sometimes called ‘industrial rocks’): substances used in the construction of infrastructure, housing and other built structures (e.g. gravel, limestone (cement), construction sand, aggregate, scoria, glass, ceramics, bricks). Dimension stones (a sub-category of industrial minerals and construction materials): rock quarried for the purpose of obtaining blocks or slabs that meet specifications as to size (width, length, and thickness) and shape (e.g. granite, marble, slate, sandstone). Semi-precious stones: a mineral crystal or rock that is generally cut and polished to make jewelry, but that does not include diamond, ruby, emerald and sapphire (precious stones). Examples of semi-precious stones include quartz, amethyst, garnet, aqua-marine, opal and pearl.

³ Africa Mining Vision, United Nations Economic Commission for Africa, <http://www.africaminingvision.org> (last visited 9 December 2017).



Approach and methodology

In order to acquire a comprehensive understanding of the sector, the study took a phased approach using a mix of research methods including a review of secondary research, focus group discussions, individual interviews and quantitative surveys. In total, 588 individuals from artisanal and small scale mining participated in the study across 19 sites, and seven regions.

The prioritised Development Minerals for study which included sand, common clay, pozzolan, granite/basalt and sapphire were based on consultations during a workshop with the Cameroon ACP-EU Development Minerals Programme Country Working Group and other stakeholder participants.

The initial qualitative research phase involved focus group discussions and interviews with 134 individuals at 10 sites, and included various stakeholders such as producers, local community members, public administrators, other actors such as other players in the value chain (such as suppliers, processors, and buyers), site managers, representatives of trade unions and health centre managers. The qualitative phase allowed for the definition of the target groups and indicator framework that would provide the parameters for the quantitative phase of the study. Additionally, it provided key insights related to Component 4, namely, environment, health and safety, and socio-economic impacts. The quantitative research phase followed, and was carried out across 16 sites and included 454 individuals representing workers from five mineral value chains and economic activities from mineral exploration and extraction to end-user.

Key findings

Component 1: Profile of the Development Minerals Sector

Development Minerals are present across the country. These include construction minerals such as sand and pozzolan and the semi-precious gemstone sapphire. Some commodities such as sand are found in all 10 regions, while others such as pozzolan, limestone and quartzite are more or less localised. The ACP-EU Development Minerals Programme census in Cameroon (2017) confirmed the following known deposits:

- *Far North:* clay; aggregates; laterite; alluvial sand
- *North:* clay; aggregates; marble; alluvial sand
- *West:* clay; pozzolan; aggregates; alluvial sand
- *Adamaoua:* tin; sapphire; aggregates; alluvial sand
- *East:* aggregates (granite, gneiss); alluvial sand
- *Centre:* aggregates (gneiss); quartzites; alluvial sand
- *Southwest:* aggregates (basalt, granite); alluvial sand
- *South:* aggregates (gneiss, granite); alluvial sand
- *Littoral:* aggregates (basalt); pozzolan; quartzite; alluvial sand
- *Northwest:* clay; pozzolan; aggregates (basalt, granite, iron); alluvial sand

Sand is the most extracted mineral by artisanal miners in Cameroon, accounting for 56% of artisanal miners and 58% of artisanal mining sites (ACP-EU Development Minerals Programme, 2017). Intensive artisanal extraction takes place in riverbeds. In areas poor in river sand, sand tends to be replaced by pozzolan and gravel sand, which share some of the attributes of sand for construction.

There is a prevalence of artisanal and small-scale mining. The census of small operators and artisanal miners counted 8869 actors and identified 7733 of these by name. Of the 7733,



6962 (90%) are artisans (employees and artisanal miners combined), 649 are small operators and 122 are a group of small traders⁴ and carriers. There is a high predominance of artisans among the total actors involved in Development Mineral exploitation. At the national level, 90% of the construction materials sub-sector is comprised of artisanal miners, 8.3% small operators and 1.6% other actors. These findings reflect the low industrialisation of the sub-sector.

The Development Minerals sector is largely informal. Of the 480 sites recorded during the census⁵ carried out by the ACP-EU Development Minerals Programme (2017), only 17.3% are private, which can mean that either they have an operating license or the land on which the exploitation took place belonged to an individual or to a village community. The remaining and vast majority of sites, being in the public domain, are not subject to an exploitation license. This indicates that the Development Minerals sector is largely informal. These figures are consistent with the general trend in Cameroon in which the informal sector plays a leading role, accounting for 90% of employment⁶.

Table 1: Number of sites and % informal sites by region

Region	Sand		Clay		Pozzolan		Sapphire		Granite		Basalt	
	Number	% informal	Number	% informal	Number	% informal	Number	% informal	Number	% informal	Number	% informal
Littoral	32	55%			6				1	100%	2	50%
Centre	53	67%	1									
East	10	37%	1	No data					3	100%		
South	7	80%							6	50%		
South-West	21	79%							2		8	
North-West	5	15%	1	100%					3	67%	13	39%
West	31	36%	6	75%	7	57%			4	50%	29	63%
Adamaoua	14	79%					9	100%	3	67%	1	67%
North	17	100%	5	100%								
Far North	17	0%	6						9	100%	6	100%
TOTAL	207	56%	20	86%	13	57%		100%	31	67%	59	67%

⁴ Small businesses are usually run by women on and around sites.

⁵ See the report on the census of small scale and quarry workers involved in the Development Minerals sector in Cameroon.

⁶ National Institute of Statistics, main report of ECAM3, December 2008.



Component 2: Legal and policy framework

Legal frameworks are in place for the artisanal mining sector. There are several legal frameworks in place guiding artisanal mining and quarrying in Cameroon. The 2016 Mining Code, in particular, provides a comprehensive framework that includes an innovative approach to classifying non-industrial mining. There are also clear objectives for the minerals sector, which include raising standards of living and a commitment to advance Cameroon's economic and social development, as seen under Article 1 of the 2016 Mining Code.

Over a decade of experience advancing governance and formalisation of the artisanal mining and quarrying, including establishing necessary programs, oversight (CAPAM), and enforcement (BNCAM). Legal frameworks are strengthened through the formation of various governance mechanisms. Under Article 1 of Decree No. 2012/432 of 01 October 2012, MINMIDT is responsible for the formulation and implementation of policy. MINMIDT works through CAPAM, the Artisanal and Small-Scale Mining Department, BNCAM, and with other ministries such as MINEPDED to oversee regulation of artisanal mining and quarrying. In particular, CAPAM oversees artisanal mining, BNCAM aids with monitoring and compliance, and MINEPDED is responsible for conducting and evaluating environmental and social impact assessments, as well as issuing environmental and social compliance certificates.

The Government is striving towards the recognition and regularisation of artisanal and small-scale mining. The Government of Cameroon has ambitions to formalise the artisanal mining sector, create its own gold reserves, and improve the conditions and living environments of mining artisans and neighbouring populations. This can be seen through various initiatives and policy objectives. The 'Support to the Development of Mining Activities' is an ongoing project managed by CAPAM. The current program is built around the valuation of mineral resources in each district of Cameroon, and a concrete and decentralised model for economic growth and increased employment. CAPAM also designed and promoted a new type of exploitation in the mining sector called 'semi-mechanised artisanal mining', which led the government to take a number of measures for reorganisation of the mining sector.

Examples of policy objectives include:

- The introduction of corporate tax and the increase of ad valorem tax in artisanal and small-scale mining;
- The introduction of mining titles for artisanal and small-scale mining;
- A right of inspection on the transaction of mining titles; and
- A requirement for approval of the Minister of Mines before the issuance of artisanal and small-scale mining authorisations.

Efforts to develop local and regional authorities are underway. This can be seen through decentralising local and regional authorities, along with support to build capacity to manage the mining sector. The survey results did note some issues with coordination between national agencies and local authorities. These and other challenges and opportunities are related to the decentralisation process. Such efforts should continue, with focus on providing trained professionals to work on local levels.

Financial programs exist for artisanal miners and small operators, although these are difficult to access. Cameroon has a wide variety of programs that offer financial support for artisanal miners and small operators. These include the Integrated Program for Support to Actors in the Informal Sector (PIASSI) under the Ministry of Employment and Vocational Training; the Agency for the Promotion of Small and Medium Enterprises (APME) under the



Ministry of Small and Medium Enterprises and the Social Economy, and the Cameroonian Small and Medium Enterprises Bank (BCPME). However, lack of access to financing persists despite availability of these programs due to the informal nature of the mining activity.

A reading of the documentation related to the allocation of permits for quarry exploitation reveals the existence of an advisory commission⁷ which defines the zones conducive to artisanal mining as well as the rules for the protection of the environment.

Constraints surrounding the process for use of land, both in the regulations and in practice. Article 95 (2) of Decree No. 2002/648/PM of 26 March 2002 stipulates that expenses relating to the definition of artisanal mining areas by the Departmental Delegate in charge of mines as well as all other costs inherent in the monitoring and control of this activity will be borne by the municipal authority⁸. However, they also specify that the municipal authority has only an advisory role⁹. Thus, in practice the municipal authorities are only informed of the existence of a quarry permit after the area has been declared conducive to quarry activity and the operating authorisations have been issued by the Regional Mining Delegate.

The Regional Delegate must, in theory, consult with the Assistant Director of the Mining Cadastre before making a decision on a site request for artisanal quarrying and once the authorisation is issued, a copy must be sent to the National Cadastre. In reality, however, this practice does not often take place. Often, copies of issued licenses do not reach MINMIDT in Yaoundé. It is possible to have several permits granted for the same land since there is no coordination between the national level and the regional level. The lack of coordination between the national Mining Cadastre and the land allocation system administered by the Regional Delegations leads to a lack of traceability of mining rights and contributes to a lack of transparency in relation to decision-making on land use.

There are issues with 'fee collectors' at mine sites. Less than 17% of miners surveyed reported they are required to pay a fee to someone to secure the right to mine, other than legal taxes. This rate was 0% among surveyed miners of pozzolan and sapphire, and highest among surveyed miners of sand, about 25%. This is an achievement given the informal nature of the mining activity, and the low number of registered miners. Most miners who indicated paying some sort of fee reported that it is paid to a local commune. It is unclear at this time how this fee is being utilised, as the Finance Law of 1962 requires that such local funds be placed in a common account, making it difficult to trace by a particular source.

Independent control of mining equipment. Over 85% of miners surveyed reported that they own their mining equipment as opposed to renting it. This indicates greater autonomy among the miners, and lack of any corrupt or negative influence that may result when miners are required rent equipment from a particular company. In other countries, problems often result when the rental equipment market is controlled by one company. Such monopolies often have powerful influences on miners and mining operations, and may take advantage of miners by artificially controlling rental fees or making other unreasonable demands.

⁷ Art. 95 du Décret n° 2002/648/PM du 26 mars 2002, fixant les modalités d'application de la loi n° 001 du 16 Avril 2001, portant Code Minier [Decree No. 2002/648/PM of 26 March 2002, setting procedures for the application of Law No. 001 of 16 April 2001 on the Mining Code, Art. 95].

⁸ Art. 95(2) du Décret n° 2002/648/PM du 26 mars 2002, fixant les modalités d'application de la loi n° 001 du 16 Avril 2001, portant Code Minier [Decree No. 2002/648/PM of 26 March 2002, setting procedures for the application of Law No. 001 of 16 April 2001 on the Mining Code, Art. 95(2)].

⁹ Avec la Loi n° 2016/017 du 14 Décembre 2016, portant Code minier [Law No. 2016/017 of 14 December 2016, 2016 Mining Code].



The framework for artisanal mining and quarrying needs to complement the broader legal framework noted above, and utilise adequate and efficient monitoring and enforcement on local levels. Adequate enforcement requires ongoing public education on local levels to ensure that miners know the law and the steps they need to take, use of appropriate incentives and penalties, and adequately trained local staff for monitoring, inspections, and enforcement. Enforcement is a challenging area in Cameroon, as in many countries, particularly as the government has few mining professionals available to work on local levels.

There are opportunities to strengthen the legal and policy framework for Development Minerals:

- Educating miners on local levels regarding legal requirements and procedures necessary to obtain documentation and permits;
- Increasing promotion of mining associations and professional groups;
- Promoting the benefits of formalised mining, including greater access to loans and financial services to support mining activity;
- Providing education regarding occupational health and safety, financial accounting and management of savings, and other capacity building programs to benefit miners and their families;
- Increasing the availability of trained mining professionals available at local levels;
- Investigating any potentially illicit payments required of miners to individuals or groups at the mine site;
- Aiding miners in opening bank accounts, including savings accounts;
- Expanding access to electricity to the homes of miners who currently lack access;
- Fostering greater coordination and collaboration among government organs working in this sector, including in the permitting process, and in monitoring and inspections;
- Developing models for partnership with government, buyers and large-scale mines to facilitate access to technology, skills, knowledge, and markets;
- Developing methodologies or templates for distinguishing potentially viable ASM operations for targeted support;
- Encouraging integration of ASM into local level development plans;
- Considering setting common standards for admission and graduation for schools and academic institutions;
- Expanding programs that aid artisanal miners in accessing local and international markets;
- Ensuring that information needed to identify suitable areas for artisanal mining is updated and current; and
- Continuing efforts to effectively eliminate child labour in the artisanal mining sector.

Component 3: Institutional and technical operating context

Blurred institutional boundaries are apparent in the roles of all the actors involved in governing artisanal and small-scale mining activities.

Involvement of multiple actors in monitoring the sector. The main mission of CAPAM is to supervise artisanal mining. Concurrent with these powers, Article 81 of Decree No. 2012/432 01 October 2012 also entrusts the competence of the supervisory authority for artisanal miners to the regional mining delegation, which raises the problem of effective distribution of powers on the ground. There is also competing monitoring of mining activities between the Directorate of Mines and Brigade for Control of Mining Activities.

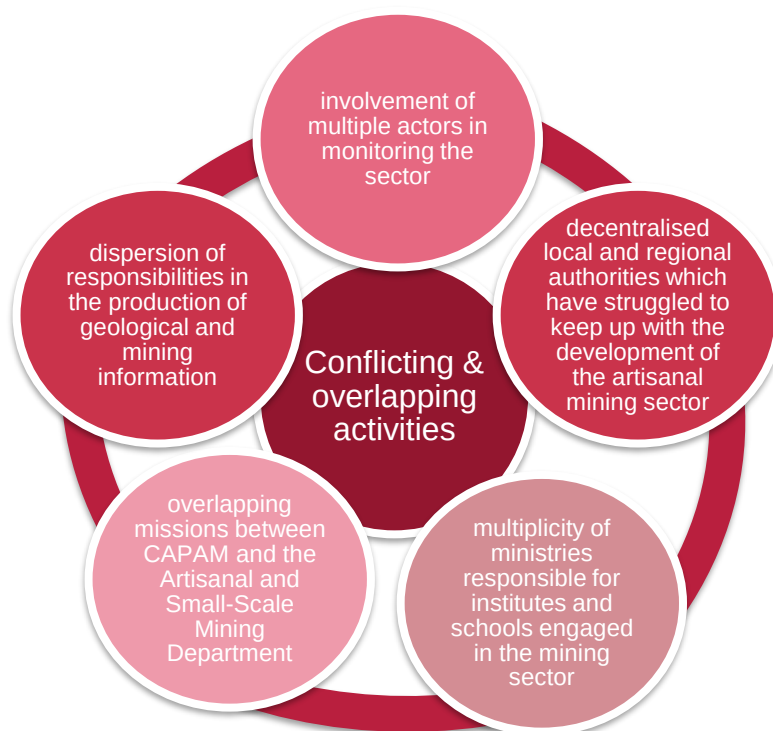


Figure 1: Conflicting and overlapping activities in governance of artisanal and small-scale mining activities

Dispersion of responsibilities in the production of geological and mining information. A review of the responsibilities of the various governance bodies demonstrates that they are simultaneously assigned responsibilities for the production of geological and mining information. With regard to MINMIDT, this responsibility is entrusted simultaneously to the Directorate of Mines through the Sub-directorate of the Mining Cadastre¹⁰, the Sub-directorate of Geological Prospecting¹¹ as well as the Centre of Geological and Mining Information, to which is entrusted the centralisation of geological and mining information at the national level.

¹⁰ Art. 34 du Décret n° 2012/432 du 01 Octobre 2012, portant organisation du Ministère des Mines, de l'Industrie et du Développement Technologique [Decree No. 2012/432 of 01 October 2012, on the organization of the Ministry of Mines (MINMIDT), Art. 34].

¹¹ Art. 38 du Décret n° 2012/432 du 01 Octobre 2012, portant organisation du Ministère des Mines, de l'Industrie et du Développement Technologique [Decree No. 2012/432 of 01 October 2012, on the organization of the Ministry of Mines (MINMIDT), Art. 38].

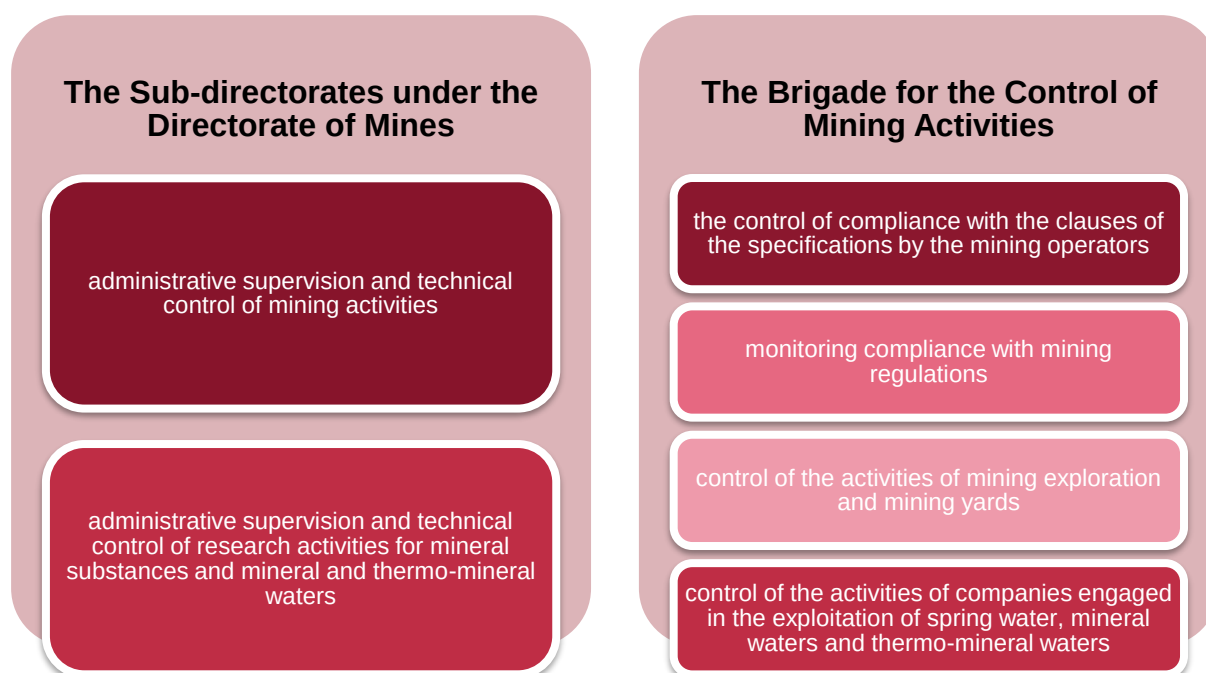


Figure 2: Roles of Sub-directorates & Brigade for the Control of Mining Activities

Overlapping missions between CAPAM and the Artisanal and Small-Scale Mining Department. CAPAM and the Artisanal and Small-Scale Mining Department are both responsible for supporting the development of the artisanal sector and are working with the National Brigade to formalise the sector by all available means, including equipment, training and financing.

Multiplicity of ministries responsible for institutes and schools engaged in the mining sector. The multiplicity of schools, institutes and initiatives reflects a demand for capacity building in the artisanal mining sector in general and Development Minerals in particular. It may be appropriate to respond to these demands by consolidating the efforts undertaken so far.

Decentralised local and regional authorities which have struggled to keep up with the development of the artisanal mining sector. While the decentralisation process puts communities at the heart of the natural resource development initiatives, there are many factors that do not allow communities to fulfil their role. For example:

- Incomplete drafting of regulatory texts to accompany the decentralisation process;
- Lack of effective control over the implementation of the legal and regulatory framework of the artisanal mining sector;
- Lack of qualified personnel on issues specific to the mining sector; and
- Lack of collaboration with the various decentralised services involved in the management of mineral resources.

Component 4: Analysis of environmental, health and safety, and socioeconomic impacts

The environmental impacts of artisanal mining activities in Cameroon are generally limited in extent. The main impacts are associated with the removal of the vegetation cover



for mineral extraction, including soil erosion, generation of dust, deforestation related to firing processes in clay production, and impacts on riverine ecosystems from sand mining. When the scale of the activities increases, cumulative impacts in an area become important when the number of miners and the scale of the activities grow, increasing the magnitude of environmental impacts and introducing new impacts. Additionally, rehabilitation of abandoned mining sites on land was not observed.

Table 2: Environmental impact variations by mineral

Environmental impact	Im- Clay	Granite (gravel)	Pozzolan	Sand	Sapphire
Households affected by mining activities	Limited impacts	Limited impacts	Limited impacts	Limited impacts	Excavation holes in the ground
Main environmental impacts	Soil erosion Deforestation and air emissions Wastewater if chemicals are used	Limited dust and soil erosion Dust, noise and vibrations from near-by industrial sites (granite)	Some dust and soil erosion	For sites in rivers: Water quality, aquatic life, river geomorphology	Soil erosion
Rehabilitation	Not done. Easier with one large site than many smaller sites	Leaves bare rock face that is difficult to rehabilitate without access to additional support	Needed, as typically associated with fertile soils	Not done. Difficult to rehabilitate without access to additional support	Difficult to rehabilitate without access to additional support, as soil must be obtained to fill holes, and not done

Impacts related to land tenure and access to land. In some cases, those sites close to urban areas, local artisanal miners and community members felt that decisions about land use were made without consulting them or considering their interests. Inadequate compensation was also a concern, as was the allocation of artisanal and industrial mining permits, which could jeopardise existing small-scale mining activities. These concerns are exacerbated by a context where some local communities expressed concern about their access to agricultural land following the allocation of land by regional/national authorities to large corporations for the purposes such as large-scale agriculture, electricity distribution and road expansion. Although difficult to capture in an indicator, a significant amount of competition for land use was evident, particularly close to more urban areas. Although few complaints were reported related to artisanal mining operations, these operations were reportedly constrained in favour



of other uses, particularly by large companies. The rating assigned to land tenure issues thus reflects competing land use and issues arising from granite, sand and pozzolan extraction in urban areas.

Artisanal mining creates significant localised job opportunities. The majority of artisanal workers were originally from the local area or moved to the community to get work and had lived there for more than 10 years and were living with their families. Exceptions are sand mining activities close to large urban areas (e.g. along river Mungo close to Douala) and sapphire, where only 40% of miners were from the local area.

Artisanal mining is commonly complemented by other livelihood and income generation activities. In Cameroon the seasonality of mining as well as a range of other factors mean that many artisanal miners supplement their income with agricultural activities, particularly where there was a lack of job opportunities.

Significant risks and impacts surrounding health and safety. Severe issues surrounding health and safety were found related to work-related injuries and accidents as well as the lack of personal protective equipment (PPE) awareness and usage.

Although there were relatively low reports of *recent* accidents, the severity of these accidents is relatively high: just under 30% reporting that their latest accident prevented them from working for more than one week, with the highest rates related to granite mining. On average, just under half of the accidents prevented work for at least one week, and about 20% prevented work for 2-3 days. The highest accident frequencies being related to pozzolan mining, followed by granite and then sand. The main reasons given by respondents for accidents were the misuse or poor manipulation of equipment or tools, and slips or falls. Equipment failure was also cited by pozzolan miners, bad weather by sapphire miners and landslides for granite miners.

The types of work-related injuries and pains from artisanal mining are mainly injuries sustained to hands, feet, and back pain. On average, more than half of respondents had experienced a hand injury, about 40% had experienced a foot injury, more than half had pain in the lower back, and more than 70% had backaches. Fewer injuries related to clay miners, although this mineral was associated with the highest rate of injuries from burns (just under 20%), which is consistent with the practice of firing or baking clay products.

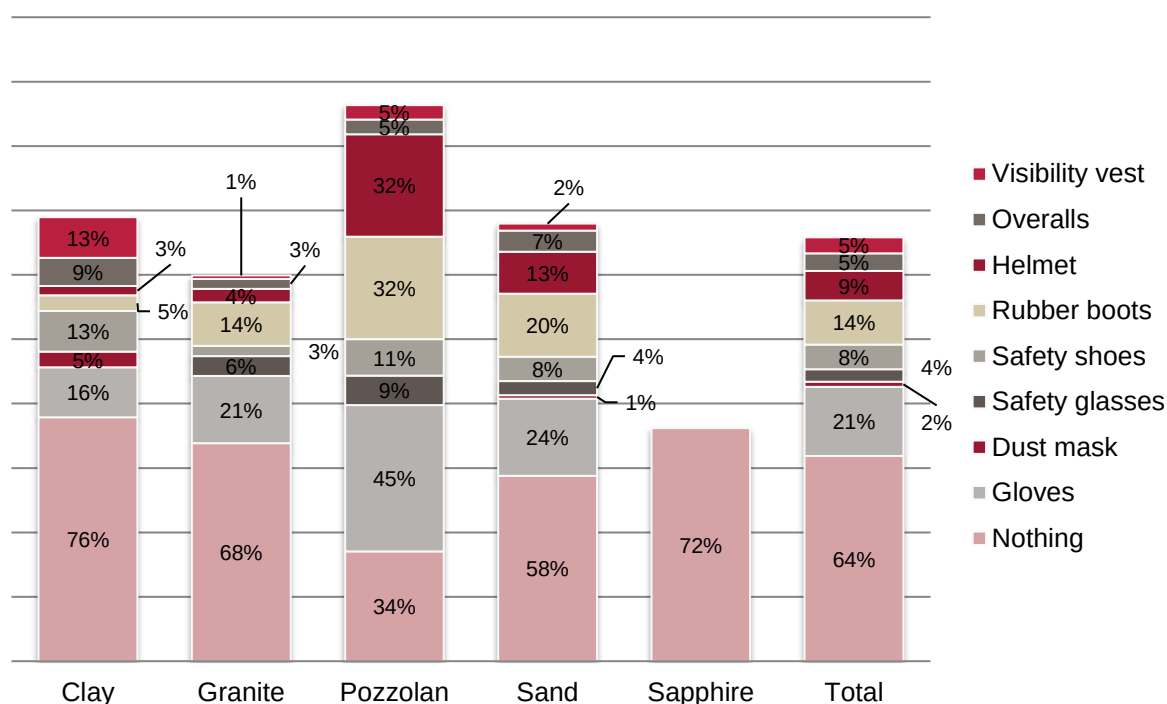


Figure 3: Personal protective equipment used by workers

Challenges surrounding labour and working conditions. Beyond health and safety risks and health issues, those respondents that mentioned a desire to pursue an alternative activity, 40% of them cited this was due to low income/revenue generation, and manual labour (about another 40%). Given the informal nature of the sector (most do not have written contracts), there is the general risk of exploitation surrounding labour and working conditions.

While there was no evidence to suggest that the employment of children below the age of 18 was widespread, prevented children from completing compulsory education, or involved tasks that are detrimental to children's health. Children below 18 were reported to be employed during the school holidays or after school. As confirmed in the quantitative survey, children were reported to be involved in transport, crushing gravel, collecting firewood, and loading/offloading minerals. Child labour in transport from the site was mainly reported for clay and quartzite and typically carried on workers' heads. Loading and offloading was reported for sand.

Artisanal mining is complemented by other livelihood and income generation activities. In Cameroon the seasonality of mining as well as a range of other factors mean that as many as 80% of artisanal miners supplement their income with other activities, such as agriculture, particularly where there was a lack of job opportunities.

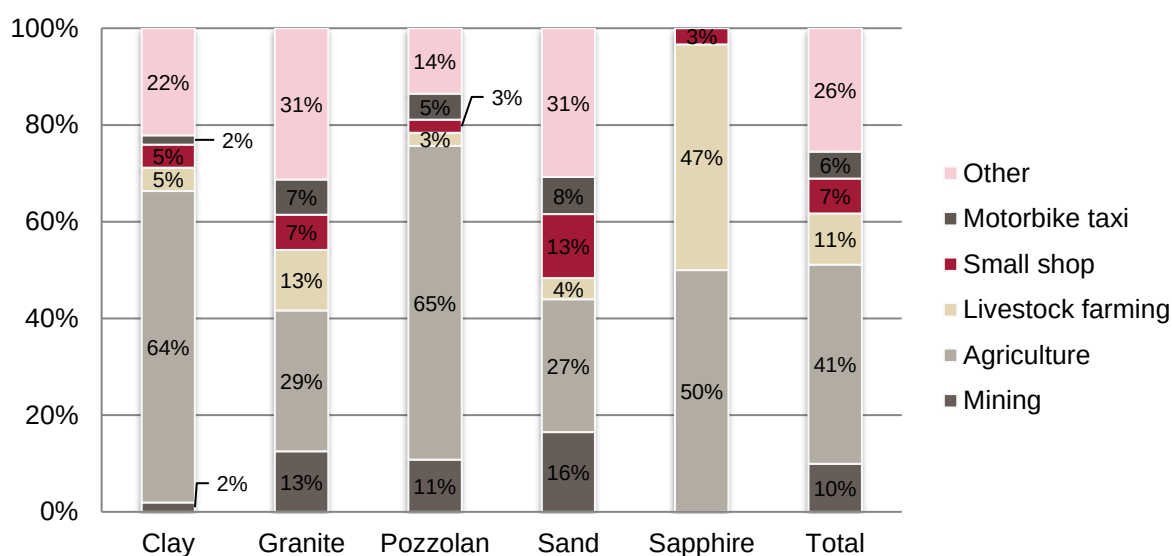


Figure 4: Main source of income by mineral

Component 5: Market study and value chain analyses

Sand is the most extracted Development Mineral. Demand for construction minerals such as sand and pozzolan is linked to the growth in population, housing needs and construction sector boom. For instance, demand for sand is spread all over the territory, but particularly in Douala, Yaoundé and main regional cities, from buyers such as site managers of residential development, civil works companies and individuals. It is also the most extracted mineral by artisanal miners in Cameroon, accounting for 56% of artisanal miners and 58% of artisanal mining sites (ACP-EU Development Minerals Programme, 2017) (see Box 1).



BOX 1: Snapshot of sand production in Cameroon

Sand prices vary across quarries and regions, according to the distance from the quarry, road access, local competition, seasonality and other factors. Sand prices also vary according to place value, e.g. “Mulanga sand”, “Batié sand”, “Sanaga sand”, etc., with Sanaga sand considered the best in the market.

Sand is an essential construction material with different usages according to the sand grain calibre:

- *Fine sand*: referred to as *trenchant*, used for coating and as an aggregate mixed with a binding agent such as lime or cement. Fine sand is slightly more expensive than other types of sand. The standardised grain size for fine sand is 0/2.
- *Medium sand*: also called *moyen tranchant*, is sized 0/4 and used for masonry mortar.
- *Coarse sand*: used for concrete foundations and roads with a grain size of 0/6.
- *Mixed sand*: referred to as *tout venant* or *vrac*, is sand mixed with gravel and organic waste. It is less expensive and is not a standardised material.

According to the ACP-EU Development Minerals Programme (2017) census, there are 301 sand sites with an average of 39 miners per site. Based on data collected from the 2017 census and the Mother Quarry production, the following data can be extrapolated for Cameroon:

- Annual artisanal sand production is approximately 4,3 million tonnes
- Annual artisanal sand sales at mining sites can be estimated at 8,7 billion FCFA
- Annual artisanal sand transport costs about 26 billion FCFA
- More than 17,000 individuals work at mining sites during peak activities

Pozzolan has untapped commercial markets, such as replacement of salt in metallurgy and applications for agriculture. In general, pozzolan attributes and its uses remain unknown nationwide. Intensive artisanal pozzolan mining activities are relatively recent and will probably increase gradually as the local construction sector discovers the property of the mineral. As such, there is an opportunity to develop new markets for pozzolan through education and marketing for construction professionals. At the moment, based on MINMIDT and Ancien CIAC data:

- Annual artisanal pozzolan production in Cameroon is approximately 870,000 tonnes
- Annual artisanal pozzolan sales at sites can be estimated at 587 million FCFA
- Annual artisanal pozzolan transport costs can be estimated at 4,2 billion FCFA

Opportunities exist for gravel and dimension stones due to the existing large domestic demand (provided the cost of local production is competitive), as well as potential for import substitution of tiles and dimension stone. In addition, CAPAM and SOMARC possess valuable experience in stone processing applications and markets. They also own imported cutting and polishing equipment. SOMARC has demonstrated interest in Cameroonian market development and stone processing in general and could potentially be explored as a resource organisation. New opportunities for quartzite sand seem to be present, as this appears to be a relatively new product for which demand is increasing, appreciated for its decorative features as well as for construction purposes. Extraction and processing of quartzite as a



dimension stone, also called 'Pouma stone', is limited to a few communities in rural Pouma. Sites are small, with women active in processing the gravel, which presents job creation opportunities.

Employment opportunities related to sapphire are hindered by difficulties related to market access. Sapphire production and beneficiation provide opportunities for employment and revenue in remote rural areas. There is currently a lack of market access, particularly to export markets, which should be further explored. Moreover, while CAPAM has been trying for several years to find markets for the raw stone or investors for the stone cutting centre, this has been without much success. There is also the challenge of sapphire having a difficult downstream value chain when implementing locally or even internationally.

Value retained by artisanal miners is low. While artisanal activities are intensive for sand and have potential to become more intensive for pozzolan or dimension stones, the value retained by artisanal miners (measured by revenues per capita) is low. This implies that sector organisation efforts should not undermine this fragile revenue. Instead, efforts should reduce speculation over land ownership while finding a fair approach to ensure the host community still benefits from mining proceeds.

Semi-mechanised quarries have an impact on artisanal quarry pricing. The study found that operators have difficulties competing with semi-mechanised operations. In the case of sand for instance, at Mother Quarry, a 10m³ truck of sand was 35,000 FCFA before the arrival of the semi-mechanised quarry. With the latter charging a price per truck of 30,000 FCFA, the artisanal mine had to decrease its own price to 33,000 FCFA. According to the President of the Artisanal Association, they have seen their sales decrease by 30-50%. However, artisanal activity has been maintained as they can offer different grain sizes as opposed to the semi-mechanised mine, which sells humid or wet coarse sand with organic material from the riverbed.

Transportation represents the largest segment of the value chain. Any formalisation of this activity and change in bargaining power of transporters would be a long-term challenge involving a strong political agenda. It would also involve substantial capital expenditure to try to decrease the metric tonne/km price. This price is also linked to the site's accessibility and overall fleet condition. For short or medium-term development programs, actions on other parts of the value chain will probably have more measurable impacts.

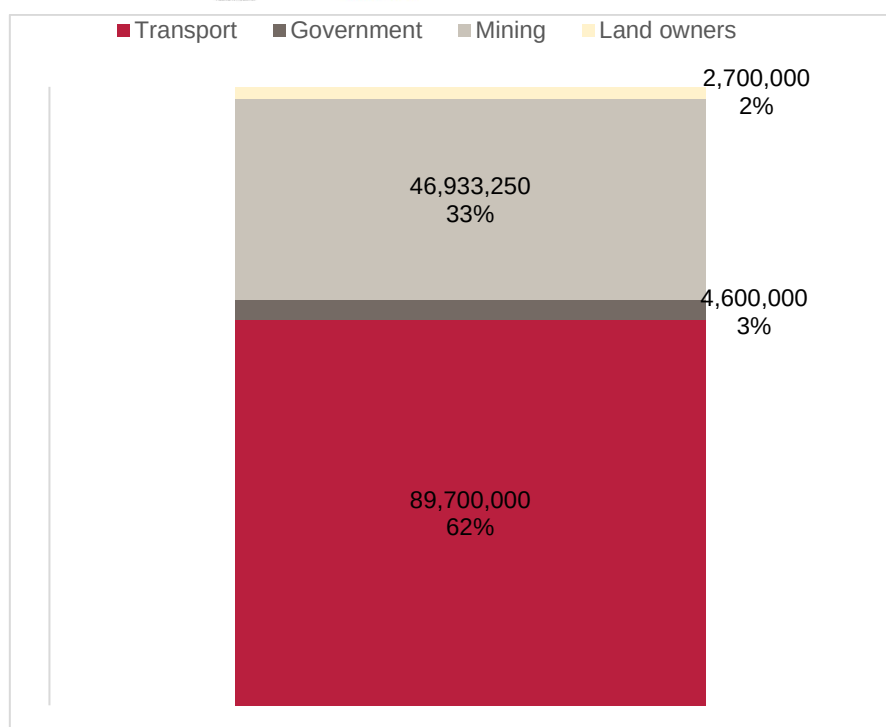


Figure 5: Relative value added by value chain segment for Mother Quarry site (Note: 'landowners' does not refer to legal property but to customary land possession)

Small producers of stone or clay products in remote environments have difficulties in accessing the market. Based on the ACP-EU Development Minerals Programme (2017) census and data collected from the study, artisanal clay production can be estimated at 50,000t with sales of approximately 1,2 billion FCFA. Development of a strategy for access to market (involving marketing and rethinking the distribution network) would benefit the value chain and the income of small producers.

Innovation and creativity are clearly evident at Fouban Institute of Beaux Arts and pottery techniques are well-mastered in Bamessing. Prescraft's social enterprise business model is also innovative. Prescraft has built a large network since its inception in 1969. Although the current business model (commenced in 2011) does not yet appear to be sustainable, their knowledge of the international fair trade and exports markets is valuable. Additional constraints are the aging Marom potters and the lack of access to inputs, some chemical products and cones cannot be found locally.

Artisanal pozzolan activity is threatened by industrial quarries and undercutting of prices. At least one industrial pozzolan quarry is in the permitting process. The quarry would primarily supply the cement industry, however, it is possible that they will also sell to the local market. As a result, current prices will probably be cut to an extent that may jeopardise the artisanal quarries. However, the effect could be mitigated at the regional level by a decrease in price of the construction material.

Some additional constraints include:

- **Lack access to finance across the minerals:** Despite this diversity of opportunity, access to finance is one of the major difficulties for artisanal miners. The reasons for the low access to financing are mainly that artisanal miners operate for the most part without any authorisation. This situation leads to their non-eligibility for the various financial



support programs. Additionally, the security of assets is not guaranteed as the theft of e.g. motors was reported in the qualitative phase. This is sometimes followed by the capsizing of the boat for lack of funds to replace the motor.

- **High transport costs:** Transport costs are high and poor road quality hinders the transport of minerals from site during the raining season. Transport logistics and costs to main consumer centres (large cities and international) is a particular obstacle to the development of a decorative pottery industry. For instance, at Mulanga, a 10m³ truck of sand is purchased by a transporter for 30,000-35,000 FCFA. In Bonaberi (Douala suburb), 18km away, the transporter will sell the truck between 65,000 and 80,000 FCFA. CAPAM and the Ministry have identified the issue of transporters' margins and their effect on sand price and limited margins for producers. As of yet, a solution has not been found, which may be because transporters hold strong political influence in Cameroon.
- **Granite is difficult to extract and process with artisanal methods:** Whether for dimension stones or gravel, the rock is difficult to crack with artisanal methods and/or poses significant health and safety hazards. However, SOMARC referred to artisanal dimension stone quarries in Nigeria and China, whose models could be explored.

Recommendations

Listed below are recommendations for consideration, noting the responsible institution in accordance with their current mandate. Any recommendations that are directed to CAPAM should be considered as interim until the decree has been finalised establishing the "structure for management and promotion of artisanal mining" as set out in the 2016 Cameroon Mining Code.

Recommendations for PRECASEM to support the establishment of clear governance arrangements in the Development Minerals sector

1. Finalise the decree establishing the "structure for management and promotion of artisanal mining" as set out in the 2016 Cameroon Mining Code. This decree will ensure clarity of roles and reduce duplication of efforts.
2. Develop procedures for involving local authorities (CTD) in the identification and demarcation of artisanal mining areas, as set out in the text of application of the 2016 Mining Code.
3. Boost current efforts to promote coordination and collaboration among government organs involved in the permitting process, and in monitoring and in inspection. There is overlap and competition of monitoring responsibilities between the Directorate of Mines and BNCAM, possibly resolved by delegating monitoring roles from the Directorate of Mines to BNCAM.
4. In collaboration with the Artisanal and Small-Scale Mining Department of MINMIDT, develop a procedure for allocation of mining permits that involves the local community, including the establishment of effective grievance mechanisms through which community members can express their concerns and have complaints addressed.

Recommendations for CAPAM, Artisanal and Small-Scale Mining Department, PRECASEM and UNDP to coordinate multiple efforts to formalise the sector

5. Map out and eliminate duplication/overlap of formalisation activities between CAPAM and the Artisanal and Small-Scale Mining Department
6. Develop a procedure to ensure formalisation efforts take into account local community concerns that formalisation jeopardises their existing mining activities. As the land on which the mining sites are located is for the most part owned by the local community or state, formalisation has potential to lead to conflict related to land tenure. The procedure would ensure any campaigns concentrate on avoiding speculation over land



ownership while finding a fair approach to ensure the host community still benefits from mining proceeds.

7. Improve existing campaign efforts of CAPAM, based on a review involving the views of workers and artisans, stakeholders (e.g. MIPROMALO, SCPK, CSOs, religious authorities, associations of mayors, RECTRAD, REPAR, ETIE) to identify what truly incentivises formalised mining (within, and in addition to, greater access to loans, financial services and affordable health insurance, equipment, training and financing); what are the risks of undermining the fragile revenue of artisanal miners; how to avoid land tenure conflict; and which are the most effect tools for sensitisation and mechanisms for registration. In selecting campaign channels of communication, consider that while most miners have a mobile phone, many sapphire miners do not (about 60%).

Recommendations to strengthen the technical capacity of public institutions involved in the Development Minerals sector, in collaboration with PRECASEM

8. Undertake a gap analysis of the programs delivered by schools and academic institutions against the needs of MINMIDT. Such an initiative would involve the Institut des Beaux Art de Foumban (IBAF) (under the University of Dschang), School of Geology and Mining Engineering (EGEM) (founded at the University of Ngaoundéré) under the Ministry of Higher Education (MINESUP); all the Departments of Earth Sciences of all universities in Cameroon; MIPROMALO Professional Training Center (CFP), which is authorised by the Ministry of Employment and Vocational Training; and private initiatives such as the Institute of Commodities (IMP)
9. Develop a multi-year training plan for e.g. MINMIDT, CAPAM, MIPROMALO, SNPK and IRGM based on a needs analysis, in line with the strategic objectives set out in the Government Performance Project. The plan could be implemented through a partnership agreement between MINMIDT and the School of Geology and Mining of Ngaoundéré for the training of future managers of the geological and mining sector, continuing training of administrative staff, upgrading of existing staff and accelerated training of young recruits. The training plan would consider the needs below expressed by CAPAM management:
 - a. Prospecting, exploitation and processing of artisanal mining products
 - b. Mineral Resource Estimation
 - c. Better management of the mining environment
 - d. Safety and hygiene in mining sites: Audit and risk assessment; Health and Safety Plan; and Waste management
 - e. Alternative income generating activities
 - f. Optimal revenue management and promotion of associations
 - g. The training plan would also support targeted upskilling of geological services capabilities of MINMIDT and IRGM, specifically in terms of assessing geophysical or geochemical mineral reserves.

10. Extend the existing PRECASEM programme that trains local authorities in environmental, social and health performance in the gold sector to Development Minerals.

Recommendations for the General Secretariat of MINMIDT to improve the mining inspection system

11. Ensure adequate resources in terms of personnel, equipment and vehicles
12. Provide specialised hands-on training, with field visits, to help strengthen the capacity of staff to take on the responsibility for inspection.



13. Clarify roles and improve coordination with regard to inspections among the different inspection services, e.g. National Mine Brigade, Division of Geological Services, CAPAM and its regional offices.

Recommendations for MINEPDED to address the cumulative and legacy impacts of mine sites, in collaboration with the Mining Directorate of MINMIDT, and with the support of multi-lateral and bilateral donors and PRECASEM

14. Develop a strategy to address the cumulative impacts of mining activities in close proximity on land as well as in rivers.
15. Develop a strategy to rehabilitate abandoned mining sites on land, especially in the case of sapphire. Lack of rehabilitation causes land degradation and can be a nuisance for the local community, particularly when the site cannot be utilised for alternative purposes after mining, and where potential hazards are left behind, e.g. deep excavation holes remaining from sapphire mining, which can lead to serious accidents.

Recommendations for Sub-directorate Mining Cadastre to improve access to geological and mining data, with support from multilateral and bilateral donors and PRECASEM

16. Complete the PRECASEM initiative that aims to establish a mechanism for the centralisation of geological data within the cadastral subdirectory. This would help address the problems of overlap between various bodies simultaneously assigned responsibilities for the production of geological and mining information, e.g. within MINMIDT, this responsibility is entrusted simultaneously to the Directorate of Mines through the Sub-directorate of the Mining Cadastre and the Sub-directorate of Geological Prospecting as well as the IRGM (which belongs to the Ministry of Scientific Research and Innovation).
17. Establish a mechanism to improve cross-sectoral coordination of multiple initiatives underway to improve geological and mining information, e.g. MINTP, MINMIDT, CAPAM, MIPROMALO.
18. Integrate artisanal mining authorisations into the new publicly available online mining cadastre (which does not currently contain the titles of artisanal mines) in order to bring more visibility to the sector and avoid problems of overlapping. The artisanal component of the mining cadastre should be supported by a modern and digitised GIS.

Recommendations for CAPAM to strengthen the environmental, social and health performance of the Development Minerals sector

19. Support the widespread implementation of the 2016 Mining Code requirement providing for benefit-sharing arrangements that require a proportion of the taxes collected to be administered by the local community. This allows local community leaders to decide how a proportion of taxes collected in connection with mining activities can be used for projects that benefit the local community e.g. building a health centre, school, or community centre.
20. Encourage integration of artisanal mining into local level development plans that have the input of local communities and the various decentralised services involved in the management of mineral resources. This would help address the problem of municipal authorities being only informed of the existence of a quarry permit after the area has been declared conducive to quarry activity and the operating authorisations have been issued by the Regional Mining Delegate.
21. Promote improvement of access roads to sites in local development planning. Much would be gained in time, efficiency and cost by improving the access roads to sites, and this presents a potential local employment opportunity.



22. Explore synergies and opportunities with health authorities/campaigns, e.g. malaria prevention efforts or vaccination campaigns targeting mining sites.

Recommendations for CAPAM to develop the skills of artisanal miners

23. Focus efforts on increasing the quality of raw minerals and processed output which would benefit the entire value chain, more than on increasing production. Addressing this area would not only require training but also access to more sophisticated tools and equipment, where access to finance facilities would be needed.
24. Provide education regarding occupational health and safety, financial accounting and management of savings. Addressing non-use of PPE, which is not unique to artisanal mining, will require commitment of mining site owners/operators/heads of site and sustained external interventions, including technical assistance, practical training, and possibly subsidising good quality PPE, all on a continuous basis, not just a once-off exercise.
25. Review current public campaign efforts to promote benefits of artisanal mining associations based on more in-depth research on the reasons that would incentivise miners to participate in associations (e.g. gaining influence and purchasing/negotiation capacity, assistance in opening bank accounts (including savings accounts), improving access to loans, affordable health insurance, quality PPE, capacity building and improved health and safety.
26. *Mineral-specific recommendations to develop market access*
27. The responsible institutions for implementing each recommendation are indicating below. All suggested initiatives could potentially be supported by UNDP in collaboration with PRECASEM.

Sand

28. Expand the pilot project to regulate the sand market that was started in April 2016 by MINMIDT and the Cooperative for the Provision of Services in Cameroon (CESOF), which included adoption of metrological standards for sand trading. Standards for sand would increase the value added to production and to construction.	MINMIDT
29. Increase the quality of concrete products by training on new material/techniques. Such training would only benefit the sector as long as it guarantees an increased income for the player. A pilot phase could serve to evaluate the benefits.	CAPAM
30. Formalise dock tenants to monitor speculative activities. Customary rights to land tenure have an impact on price due to speculation. Adequate monitoring would benefit the downstream value chain.	CAPAM

Clay

31. Establish a dry port in Bamenda/Bamessing, with a group agreement with an international transporter to facilitate exports.	CAPAM
32. Improve ease of access to glazing materials, including facilitating import in bulk, passage through customs, training in their use to manage environmental impacts	MIPROMALO
33. Support Prescraft in improving its effectiveness in promoting Cameroon crafts at the international level while having local livelihood impacts.	MINPMESA



34. Improve pottery techniques of Marom and Boula Ibbi potters, by re-researching know-how (which in Maroum appears to be concentrated in an a very small group of elderly potters) and developing an access to market strategy.	MIPROMALO, IBAF
35. Link Fouban students with Prescraft to foster original design and re-research and development.	IBAF, Prescraft
36. Support MIPROMALO in their efforts to strengthen the technical capacity of craftsmen and promoting the utilisation of clay products.	UNDP

Pozzolan

37. Develop new markets for pozzolan through education and marketing amongst construction professionals.	CAPAM, PROMALO, MINH DU	MI-
38. Standardise grain size production to increase the quality of mineral and outputs as with sand.	CAPAM	

Sapphire

39. Develop a fair-trade production model, which is potentially a large-scale program as it would cover the whole value chain from the organisation of producers' organisation to international marketing support. This would also entail marketing efforts for positioning Cameroon sapphire as fair trade.	CAPAM	
40. Support the current Kimberley Process Certification Scheme (SCPK), which enables the identification of various actors involved in the sapphire chain, as well as the minerals admitted to the SCPK Cameroon framework with a view to its certification.	UNDP, PRE- CASEM	
41. Support CAPAM in its current efforts to find investors for a sapphire cutting centre and a viable network to export sapphire.	UNDP	

Gravel and dimension stones

42. Develop the stone pavement and cobblestone market. A more precise study would be needed on the techniques and a pilot phase to test the market potential.	CAPAM
43. Assess the potential of granite processing in-country at a semi-industrial level. SOMARC, currently importing granite, could be an interesting resource partner to assess and develop the sector.	CAPAM



1 RATIONALE FOR A BASELINE STUDY OF DEVELOPMENT MINERALS IN CAMEROON

The ACP-EU Development Minerals Programme is a pioneering €13.1 million capacity building program that aims to build the profile and improve the management of Development Minerals. The program is an initiative of the African, Caribbean and Pacific (ACP) Group of States, financed by the European Union and the United Nations Development Programme (UNDP), and implemented by UNDP.

Development Minerals are minerals and materials that are mined, processed, manufactured and used domestically in industries such as construction, manufacturing, and agriculture.¹² Development Minerals are economically important close to the location where the commodity is mined and include industrial minerals, construction materials, dimension stones and gemstones.¹³ These minerals typically have stronger production linkages with the rest of the national economy and therefore have a potential to provide significant contribution to GDP.

Development Minerals, therefore, can help countries avoid “resource curse” and significantly contribute to the goals of resource led development supported by the Africa Mining Vision¹⁴, with the sustainable mining sector (i) supporting the development of a competitive supply industry that can serve the sector at home and beyond national borders and can become a sustainable business sector in its own right, and (ii) supporting the transformation and economic diversification of the host country’s non-extractives economy.

The Development Minerals sector provides essential inputs for national economic development in infrastructure, manufacturing, construction and agriculture and therefore has the potential to be of high value in terms of national development. Compared with other minerals, the Development Minerals sector has a stronger link with the local economy and the potential to generate more local jobs, with a greater impact on reducing poverty. The sector, however, operates in an uncertain legal and regulatory environment, with a scarcity of information on geological data that exacerbates the risks of costly exploration and discourages investment. In addition, weak or non-existent support services such as vocational training, capacity building, access to technology, finance, appropriate equipment, investment and market information, contribute to avoidance of the sector.

Community Insights Group (CIG), in partnership with Sustainable Development Strategies Group (SDSG), were commissioned to carry out a baseline assessment of Development

¹² Franks, DM, Pakoun, L and C Ngonze. 2016. Development Minerals: Transforming a neglected sector in Africa, the Caribbean and the Pacific. United Nations Development Programme.

¹³ Industrial minerals: substance of economic value, exclusive of metal ores, mineral fuels, and gemstones (e.g. barite, bentonite, borates, calcium carbonate, clays, diatomite, feldspar, granite, gypsum, industrial sand, kaolin, silica, soda ash, talc, wollastonite and zeolite).

Construction material (a sub-category of industrial minerals sometimes called ‘industrial rocks’): substances used in the construction of infrastructure, housing and other built structures (e.g. gravel, limestone (cement), construction sand, aggregate, scoria, glass, ceramics, bricks).

Dimension stones (a sub-category of industrial minerals and construction materials): rock quarried for the purpose of obtaining blocks or slabs that meet specifications as to size (width, length, and thickness) and shape (e.g. granite, marble, slate, sandstone).

Semi-precious stones: a mineral crystal or rock that is generally cut and polished to make jewelry, but that does not include diamond, ruby, emerald and sapphire (precious stones). Examples of semi-precious stones include quartz, amethyst, garnet, aqua-marine, opal and pearl.

¹⁴ *Africa Mining Vision*, UNITED NATIONS ECONOMIC COMMISSION FOR AFRICA, <http://www.africaminingvision.org> (last visited 9 December 2017).



Minerals in Cameroon that highlights current dynamics and key issues relevant to improving the sector. Specifically, the study covered five components:

- Component 1: Profile of the range of commodities mined, the sites of extraction and beneficiation, and the businesses and employees involved in the sector;
- Component 2: Review of relevant laws, regulations, plans and policies;
- Component 3: Analysis of the current institutional and technical operating environment;
- Component 4: Environmental, health and safety, and socioeconomic impact analyses; and
- Component 5: Market and value chain analyses for priority Development Minerals in Cameroon and the level of integration and interlinkages with other sectors of the economy.

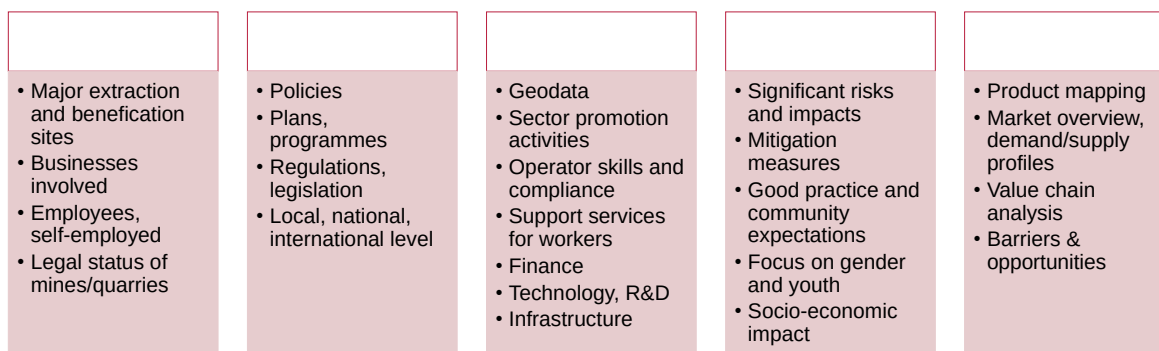


Figure 6: Components of the Development Minerals baseline study for Cameroon

2 APPROACH

2.1 Overview and Scope

The baseline study was conducted through a phased approach using a mix of research methods, including a review of secondary research, focus group discussions, individual interviews and quantitative surveys. The total respondents, for both qualitative and quantitative research phases, amounted to 588 respondents across 19 sites, and seven regions.

At each phase, the study team worked with the ACP-EU Development Minerals Programme team in Cameroon as well as the Country Working Group to agree on process and methodology for the study. The Country Working Group is a multi-stakeholder platform set up by the Programme to ensure participatory implementation of activities in the country.



Figure 7: Steps to complete baseline study

2.2 Prioritisation of minerals for assessment

The ACP-EU Development Minerals Programme hosted a workshop facilitated by the study team in Douala, Cameroon on April 27 & 28, 2017 to launch the baseline study and engage key stakeholders in detailed work planning. The workshop included representatives of the Cameroon ACP-EU Development Minerals Programme Country Working Group and other stakeholders. The objectives of the workshop were to:

- Present the methodology for the baseline study;
- Select key minerals for the study to evaluate;
- Validate relevant stakeholders to consult and key issues to explore; and
- Inform a detailed implementation plan for data collection.

Participants were engaged in an exercise to select the priority minerals on which the baseline should focus. These were determined by a number of considerations and criteria as shown in the table below.



Table 3: Criteria proposed by the project team to prioritise priority minerals

CURRENT EXPLOITATION LEVEL	POTENTIAL MARKET SIZE	TECHNICAL COMPLEXITY (EXTRACTION)	TECHNICAL COMPLEXITY (PROCESSING)	GEOGRAPHIC LOCATION
Socio-economic impact: proportional to the activity's intensity Market size: current exploitation level Short vs. long term: exploitation level determine length needed to develop the sector	Socio-economic impact: proportional to the market size Potential to supply other sectors Capacity to generate value added at local and national level	Capacity to generate employment for youth and women: extraction methods determine the number of jobs and level of qualification required. Capital required for extraction	Capital required for processing: required capital has an impact on the capacity to generate local value added (number of local players and centralisation of processing units) Capacity to generate employment for youth and women: the processing or beneficiation methods impact the number of jobs and the qualifications required Short vs. long term	Socio-economic impact: proportional to the territories with mining activities Extent of exploitation

A rating scale was applied during the workshop with participants asked to analyse, prioritise and select key minerals.

Table 4: Criteria rating scale

RATING	CURRENT EXPLOITATION LEVEL	POTENTIAL MARKET SIZE	TECHNICAL COMPLEXITY (EXTRACTION)	TECHNICAL COMPLEXITY (PROCESSING)	GEOGRAPHIC LOCATION
Low (1)	Little to no mineral exploitation	Little or no demand	Industrial extraction only (or non-viable if artisanal)	Heavy Industry	Available in one or two regions
Medium (2)	Moderately exploited mineral	Moderate demand	Potentially artisanal extraction but involving explosives and/or semi-mechanised	Light Industry	Available in 3 to 5 regions
High (3)	Intensively exploited mineral	High demand	Artisanal extraction	Artisanal processing or mineral with no processing	Available in 6 regions or more



After review and discussion with workshop participants, agreement was reached on the following priority commodities for the study: sand, common clay, pozzolan, granite/basalt and sapphire¹⁵.

2.3 Qualitative research phase

The main objective of the qualitative field work was to define the target groups and indicator framework that would provide the parameters for the quantitative phase of the study.

2.3.1 Preparatory meetings

As part of the preparatory work for the qualitative fieldwork, a proposed schedule, data collection tools, and methodology were shared with the Country Working Group during a workshop held 27-28 April 2017. The schedule and approach were further clarified through drafting, discussing, and finalising a Inception Report which served as a detailed work plan.

2.3.2 Geographical coverage of the fieldwork

The qualitative fieldwork was conducted in the geographical regions indicated in the table below.

Table 5: Overview of visited sites

MINERAL	REGIONS/SITES: PLANNED	REGIONS/SITES: ACTUAL
Sand	Southwest - Mungo River	Littoral - Mungo River Mother Quarry
Clay	West - Fouban & factory in Bamessing	West - Fouban (Marom site & Institut des Beaux-arts de Fouban) West - Bamenda (PRE-SCRAFT)
Pozzolan	West - Foubot	West - Foubot (former CIAC & Pouoloum sites)
Sapphire	Southwest - Mamfe, Mbiamé	No visited sapphire sites due to security concerns at the time of the site visit
Granite (gravel and stone)	Littoral - Pouma Centre - Nkometou	Littoral - Pouma (Sokolle 2 & Song Nleng sites) Centre - Nkometou

2.3.3 Methodology

In total, 134 individuals participated in the first phase of field research. The main data collection method was in-depth interviews, using a semi-structured questionnaire developed for each stakeholder group defined in the next section.

Focus groups were used to elicit information relating to Component 4, namely, environment, health and safety, and socio-economic impacts. The main features of this method are that field researchers facilitate rather than direct discussions, and questions are open, group-

¹⁵ While Sapphire is usually considered a precious stone, it's inclusion in the study was justified on the grounds that there is low level of activity in the exploitation of other coloured (semi-precious) stones and in the interests of diversifying the analysis beyond construction materials and industrial minerals.



oriented and aimed at information-sharing. Particular emphasis in the questioning was placed on the role of women and young people at the sites, as well as their experiences of impacts related to these sites.

The deployment of the fieldwork was facilitated by members of the Country Working Group. They assisted with preparations to visit the sites and with facilitating the mobilisation of stakeholders in the field. The study team worked closely with local resource persons such as the MINMIDT departmental delegate, CAPAM agent and ACP-EU Development Minerals Programme focal point for the West region.

2.3.4 Stakeholder groups

Data was collected from four stakeholder groups: producers, local community, public administration, and other actors. Not all of the groups were engaged at each site, due to time and other constraints; the scope and timeline of the qualitative field work allowed the study team to spend an average of one day at each site. The four stakeholder groups were defined as follows:

- *Producers*: workers in mining quarries, self-employed workers or mine employees
- *Local community*: individuals living in the vicinity and in villages near mining quarries
- *Public administration*: town halls and ministerial departments, including the Ministry of Mines, CAPAM
- *Other actors*: other players in the value chain (such as suppliers, processors, and buyers); site managers; representatives of trade unions and health centre managers

The figure below depicts the sample profile and number of participants in each category. While the figure notes 139 engagements, five individuals were engaged through both personal interviews and focus group discussions as they belonged to more than one group. In total, 134 individuals participated in the qualitative phase of the study.

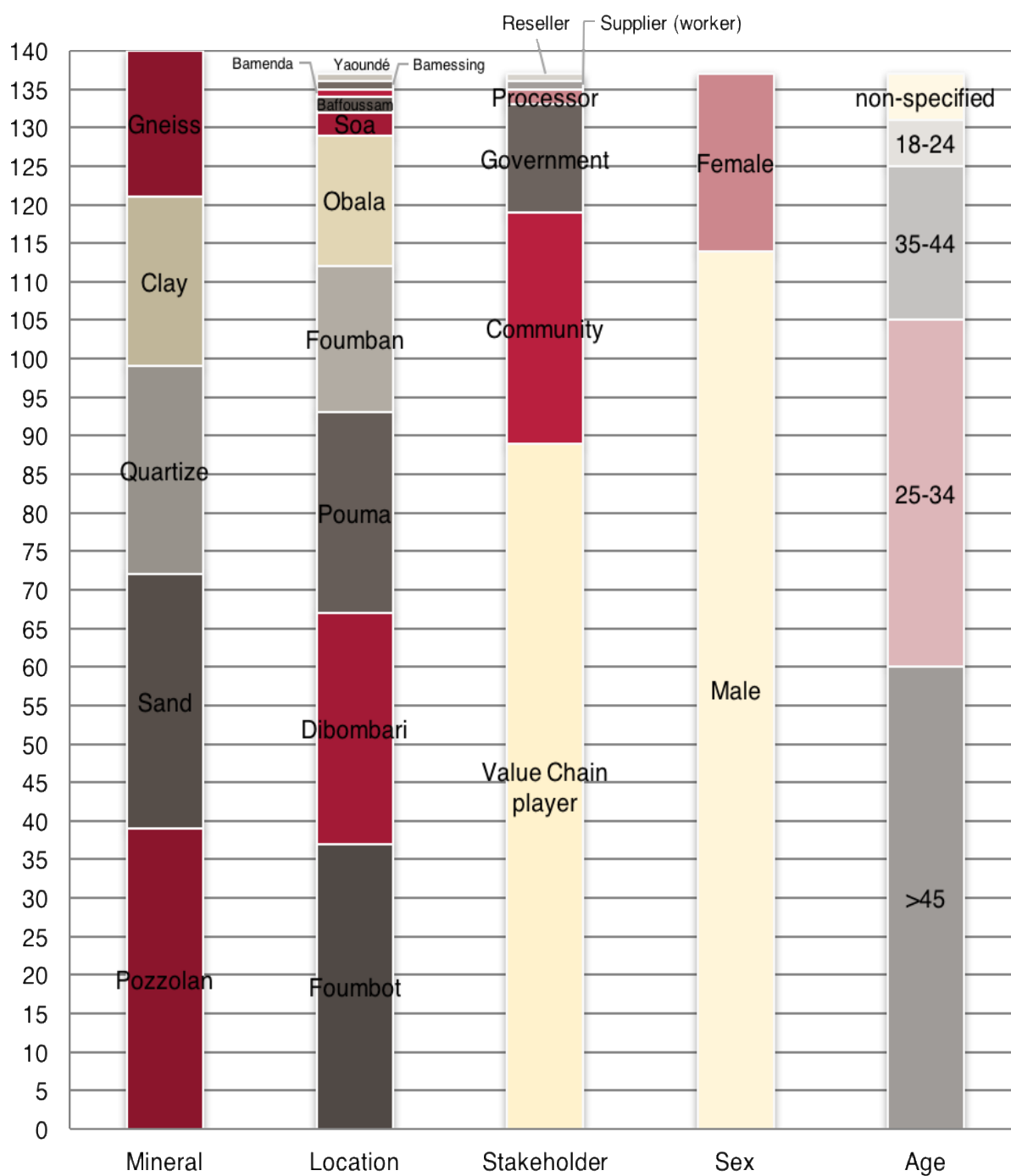


Figure 8: Participant profile (numbers of participants)



2.4 Quantitative research phase

The main objective of this phase was to validate and quantify the findings and hypotheses emerging from the qualitative research. Given the lack of quantitative data on the Development Minerals sector in Cameroon, the survey included a sample of 454 respondents across 16 sites distributed amongst the five (5) priority minerals.

2.4.1 Target groups

Quantitative research was carried out by conducting 454 interviews across 16 different sites, representing workers across five mineral value chains and across all of the following economic activities in each of the five priority minerals:

- Mineral exploration and extraction
- Processing of mineral or semi-finished products
- Transportation of mineral or finished and semi-finished products
- Purchase / resale of the mineral or finished and semi-finished products
- Provision of goods and services to stakeholders in the mineral value chain
- End use of mineral or finished products

A total of six survey instruments were developed with input from Programme stakeholders and tailored to each of the following sub-groups:

- Self-employed worker in extraction or across the value chain
- Self-employed artisan working for one or several operators in extraction or across the value chain
- Technical or administrative staff, supervisor or Chief Executive working for an operator or company
- Head of a mineral extraction site
- Operator or owner of a company involved in extraction, transport or supply of mineral sector
- Operator or owner of a company involved in processing, sale, resale or end-use of mineral sector

2.4.2 Methodology

The quantitative research component involved the following activities:

- A consultative meeting and discussions between CIG-SDSG, the ACP-EU Development Minerals Programme team and the Cameroon Country Working Group to determine and agree on final site selection, itinerary, survey questions and indicators;
- A two-day planning session between CIG-SDSG and GIMERC to review overall methodology, itineraries and field logistics;
- Familiarisation and training of researchers on the completion surveys and issues of informed consent;
- Multiple field trips for data collection;
- Uploading and return of data collection documents to CIG;
- Data entry, cleaning, review and analysis;
- Additional field trip for final data collection; and
- Final data entry, cleaning, review, and analysis.

2.4.3 Sampling approach

Respondents were surveyed at the sites described in the table below or in the nearest economic centre. Quota sampling (non-parametric) was applied to achieve at least five interviews in each respondent category, at each site. Quotas for male and female respondents were



applied. These quotas differ across mineral and category of value chain player, and were informed by the qualitative phase of the survey as well as a census conducted by the ACP-EU Development Minerals Programme (2017)¹⁶. In total, the survey achieved 23% female participation.

The sites were selected based on consultation with the ACP-EU Development Minerals Programme team and the Country Working Group. The target sites were selected to ensure cross-regional coverage with particular focus on the areas covered by the Programme for Cameroon (Adamaoua, East, Extreme North, North). The same sites that were involved in the qualitative phase were also included, thus enabling the collection of a more robust data set from these sites and increasing the evidence base for future interventions. All the selected sites were exploited using artisanal means.

During the field work, a few sites were substituted in consultation with members of the Cameroon Country Working Group for the following reasons:

- Site did not correspond to the type of mineral that was anticipated to be present; and
- There was no activity at the site and no one was aware of any previous activity.

The table below shows the planned sites selected and agreed to by the ACP-EU Development Minerals Programme and the Country Working Group as well as a more detailed description of the actual sites finally surveyed.

Table 6: Respondent profile by sites (planned vs actual) and sex

N°	PLANNED SITE	ACTUAL SITE	MEN	WOMEN
1	Missingléo	Missingléo	19	11
2	Pitoa	Boula Ibbi	10	19
3	Banyo	Banyo (Mardam)	28	2
4	Longtimbi	Longtimbi, Bertoua	22	8
5	Ebebda	Ebebda, Dsang, Olembé	23	7
6	Sa'a	Sa'a	23	7
7	Nkometou	Nkometou, Olembé	26	4
8	Song Nlend (Pouma)	Song Nlend (Pouma)	17	6
9	Yato	Yato, Douala (Bonaberi)	27	4
10	Djoungo	Djombe, Djoungo	10	1
11	Rive Sud-ouest du Mungo	Mother Quarry Mungo, Mudeka, Mundoni, Tiko, Muntengene, Buea	28	2
12	Bamessing (PRE-SCRAFT)	Bamessing (PRESCRAFT) and environs	22	8
13	Ancien CIAC	Pouoloum; Nkoundja; Baigom; Foubot; Bafoussam	26	4

¹⁶ In 2016, the ACP-EU Development Minerals Programme engaged GIMERC to implement a census of artisanal and small-scale miners involved in the exploitation of developmental minerals in Cameroon. About 480 sites were identified and information was collected from just over 7,700 actors throughout the national territory. The results were published in early 2017.



N°	PLANNED SITE	ACTUAL SITE	MEN	WOMEN
14	Pouoloum	Pouoloum; Nkoundja; Baigom; Foubot Bafoussam	26	4
15	Marom	Marom, Fouban	17	13
16	Institut des Beaux-arts	Annexe de l'institut Direction de l'institut	-	-
16*	MIPROMALO (to make up for Institut des Beaux-arts)	Nkolbisson (Yaoundé)	24	6
TOTAL			348	106

Table 7: Respondent profile by value chain component and sex

VALUE CHAIN COMPONENT	MEN	WOMEN	TOTAL
Mineral exploration and extraction	114	13	127
Processing of minerals or semi-finished products	57	24	81
Transportation of mineral or semi-finished products	49	6	55
Purchase/resale of mineral or finished and semi-finished products	40	22	62
Provision of goods and services to stakeholders in the mineral value chain	42	33	75
End use of mineral or finished products	46	8	54
Total	348	106	454

The quantitative fieldwork took place between 11 and 30 September 2017 at 16 sites. Data review and cleaning took place between September 30 to October 4, 2017, followed by a second field visit to complete surveys at a final site. The second field visit was conducted during the week of 11 October 2017. During the execution of the field work, several difficulties were encountered, including:

- Artisans who declined to provide information, more pronounced in the Northwest region;
- Blockade of transporters, or company managers in the case of the Djoungo pozzolan site;
- Inability to access the Djoungo pozzolan purchase and processing companies in the city of Douala;
- Absence of potential respondents at the site of the Fouban Institute of Fine Arts at the time of data collection;
- Certain elements of the value chain not existing at certain sites; and
- Low activity on the southwest bank of Mungo (due to the rainy season) and in one case lack of an extraction site (Pitoa).

2.4.4 Respondent profile

A total of 454 interviews were conducted within 16 sites over approximately 25 days. The sites are listed and mapped below.



Ancien CIAC
Bamessing (Prescraft)
Boula Ibbi
Djoungo

Ebebda
Longtimbi
Marom
Banyo (Mardam)

Missingléo (Maroua)
Mother Quarry (Mungo)
Nkolbisson
Nkometou

Pouoloum
Sa'a
Song Nlend (Pouma)
Yato

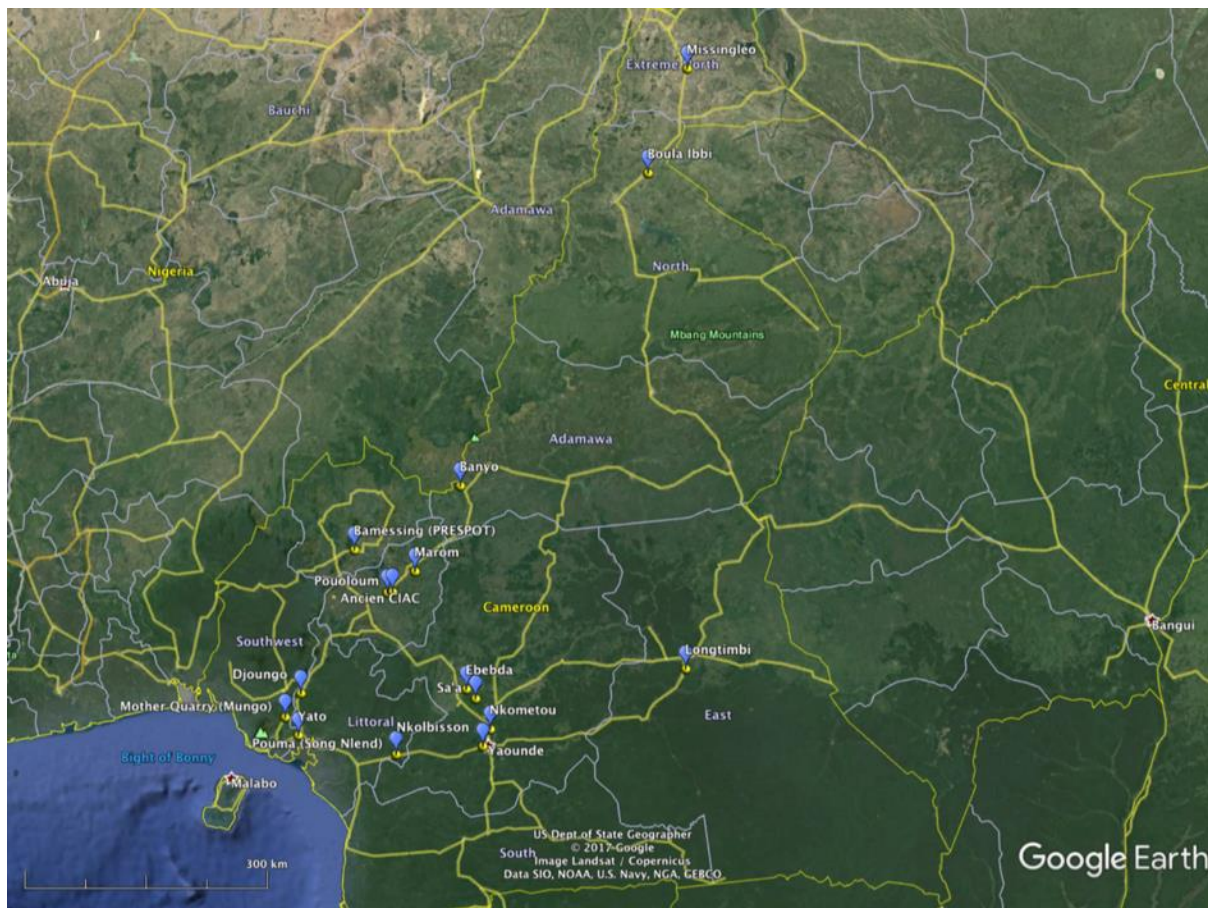


Figure 9: Mapping of survey sites



The figure below depicts the total number of respondents by mineral, including the breakdown by site location and sex. Note that only one site was visited for sapphire.

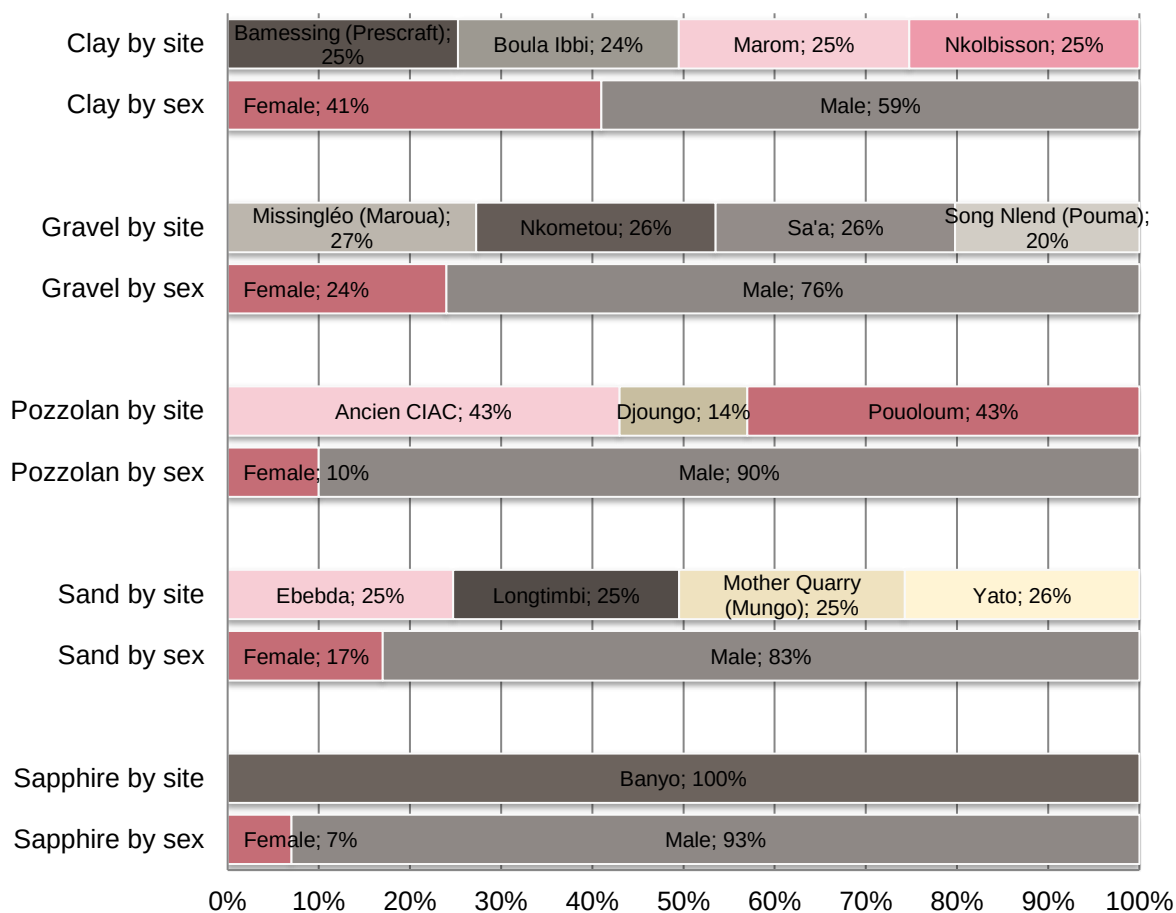


Figure 10: Respondent profile by mineral, site and sex



In total, respondents came from seven of the 10 regions in Cameroon. The Centre and West were most represented with 26% and 20% from those regions respectively.

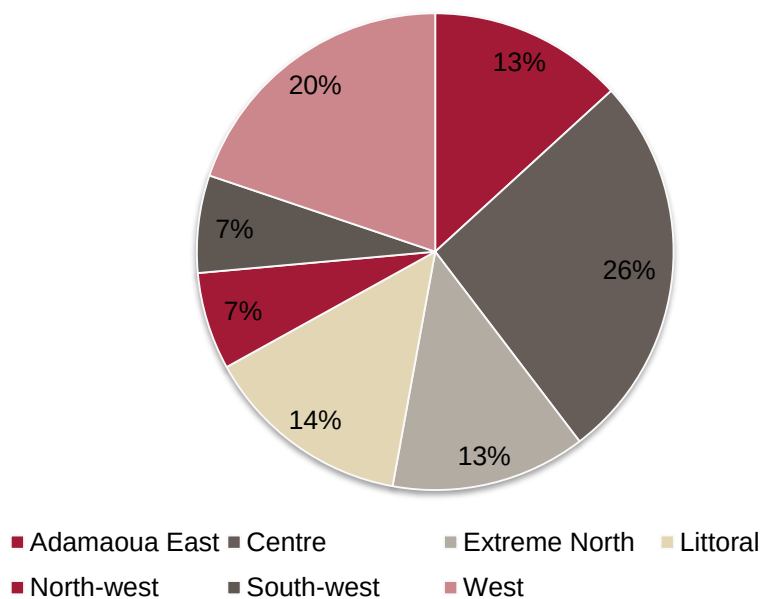


Figure 11: Respondent profile by region

Overall, the majority of respondents (69%) were between 25 and 44 years old.

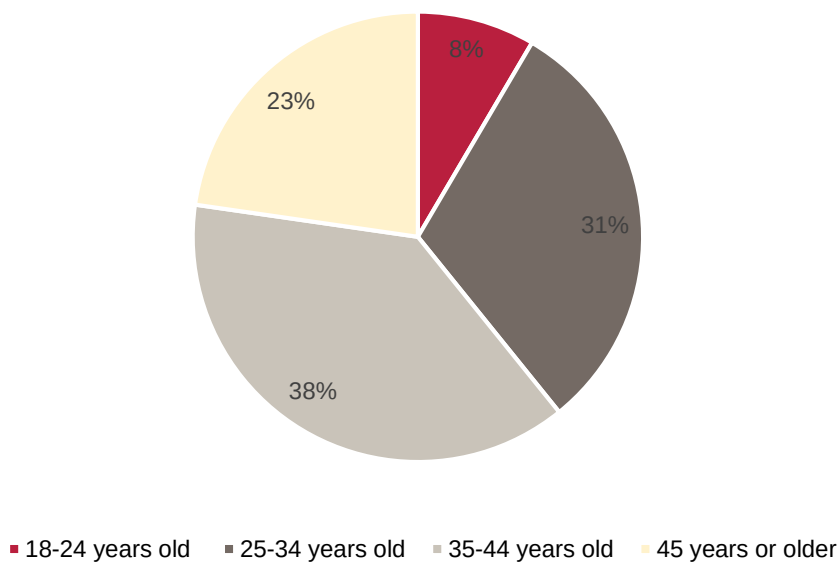


Figure 12: Respondent profile by age



Over three in four of the respondents (78%) were men. The chart below provides a breakdown of male and female respondents interviewed by site.

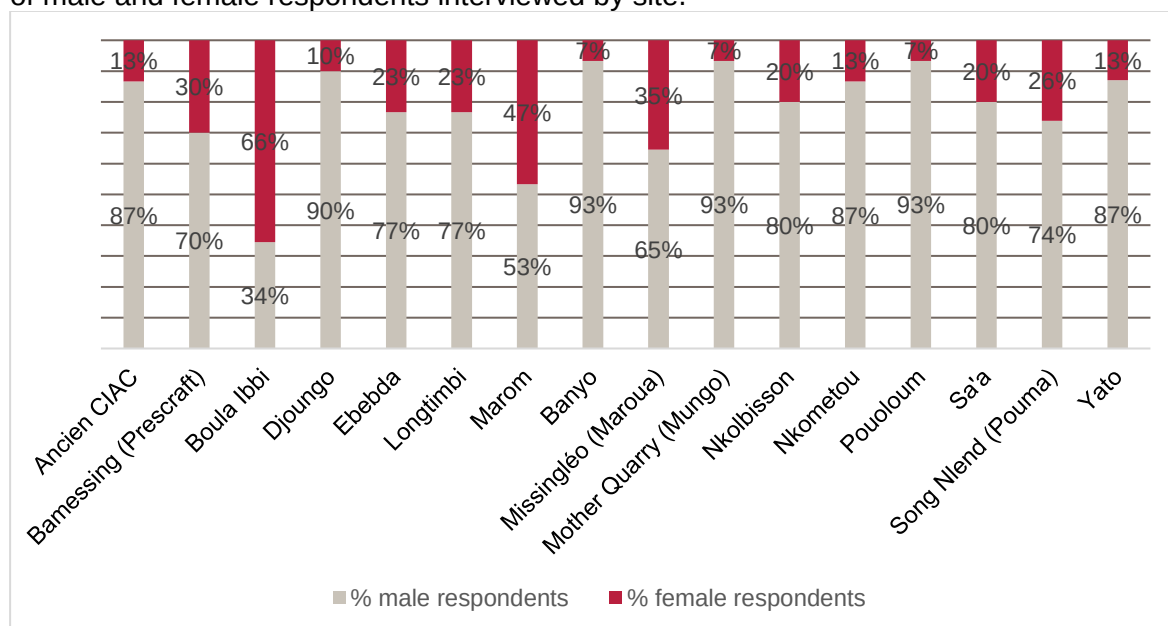


Figure 13: Respondent profile by sex and site

The following five charts depict the breakdown of respondents by mineral. Below is the overview for clay. Clay represents 26.2% of the respondent population; respondents for clay were from the Bamessing (Prescraft), Boula Ibbi, Marom and Nkolbisson sites.

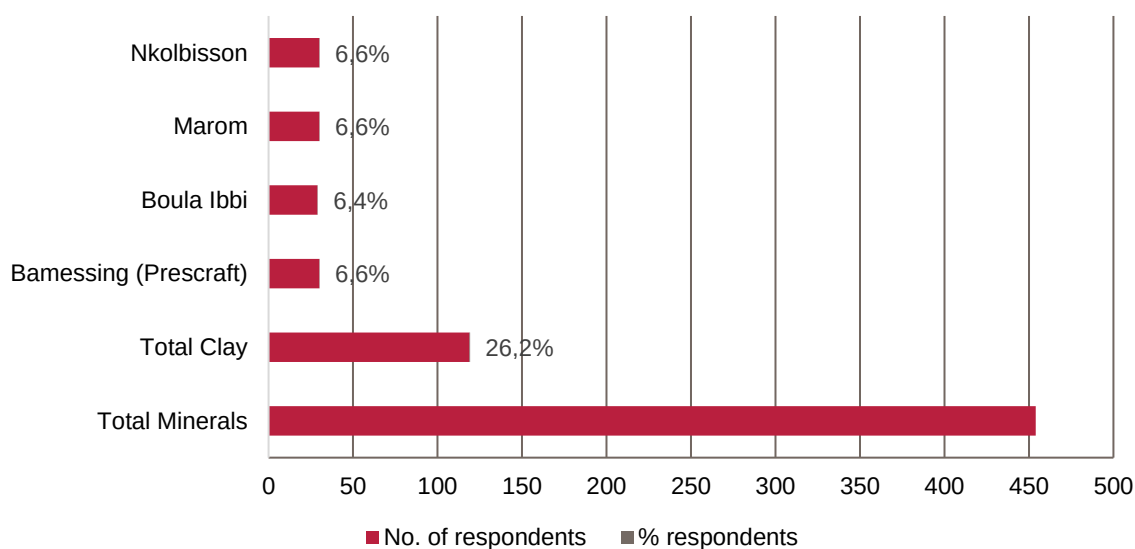


Figure 14: Respondent profile by clay site



Below are the respondents for gravel and dimension stones, including granite, basalt, quartzite and gneiss. Respondents were from four sites: Missingléo (Maroua), Nkometou, Sa'a and Song Nlend (Pouma) and represent 25.1% of the total sample.

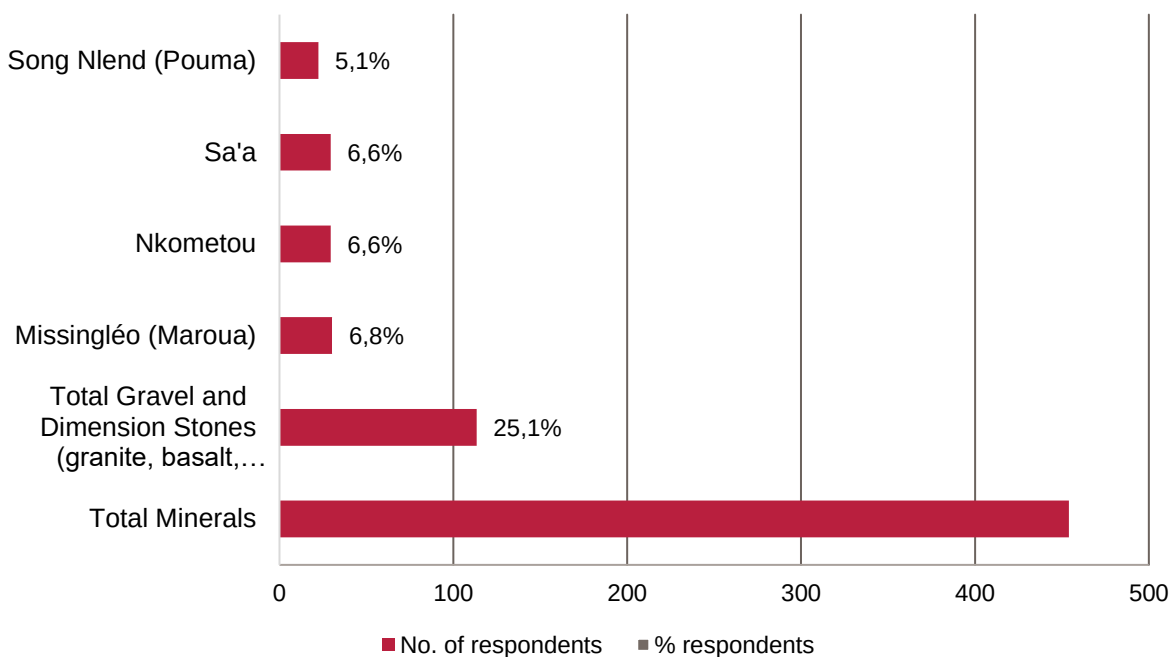


Figure 1: Respondent profile by gravel and dimension stones (granite, basalt, quartzite, gneiss) site

Pozzolan made up 15% of total respondent population; 70 respondents were interviewed over three sites.

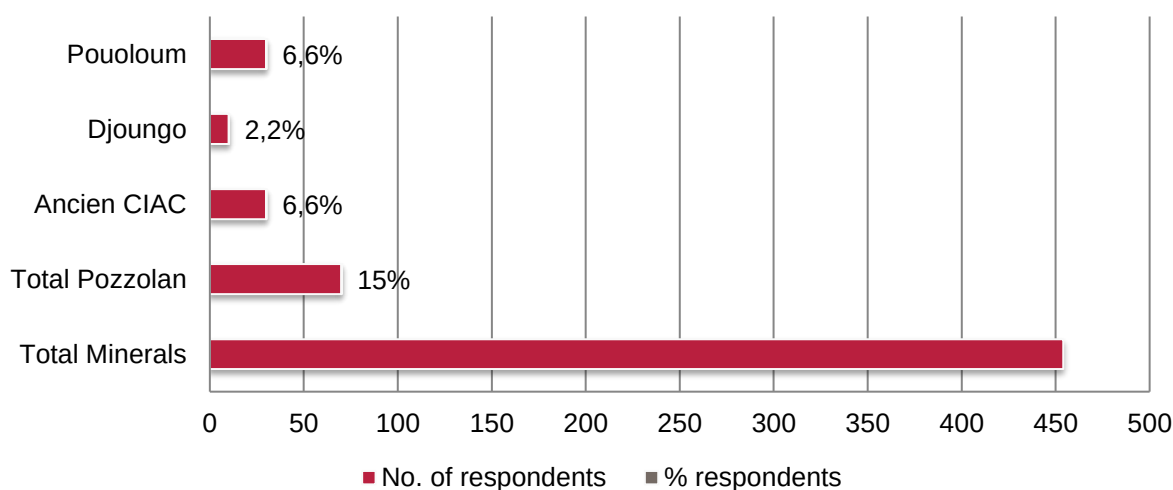


Figure 2: Respondent profile by pozzolan site



The sites for sand included Ebebda, Longtimbi, Mother Quarry (Mungo) and Yato where 121 (27%) people were interviewed.

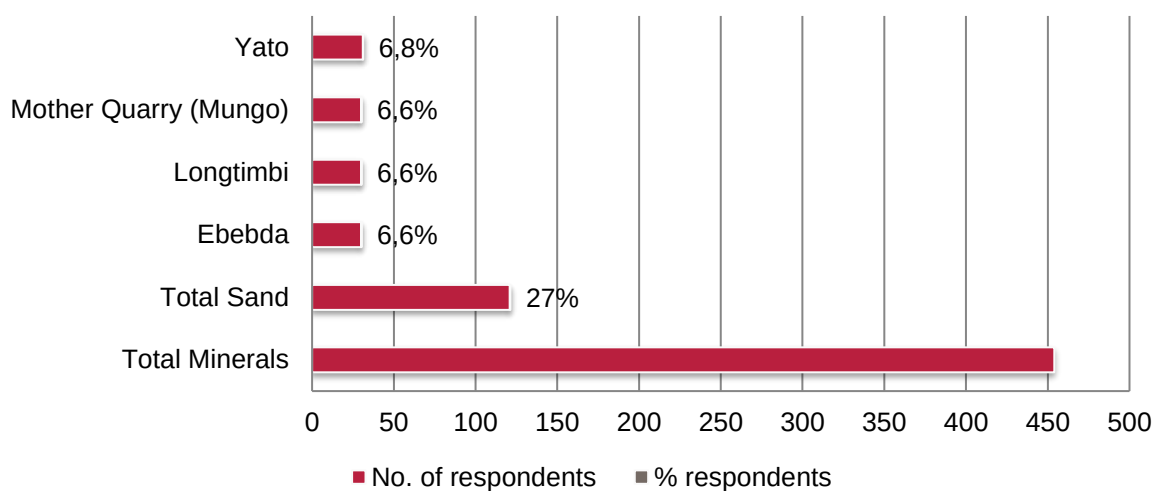


Figure 17: Respondent profile by sand site

The following chart presents the respondents for sapphire who were all located at one site, Banyo. Sapphire represents 6.6% of respondents.

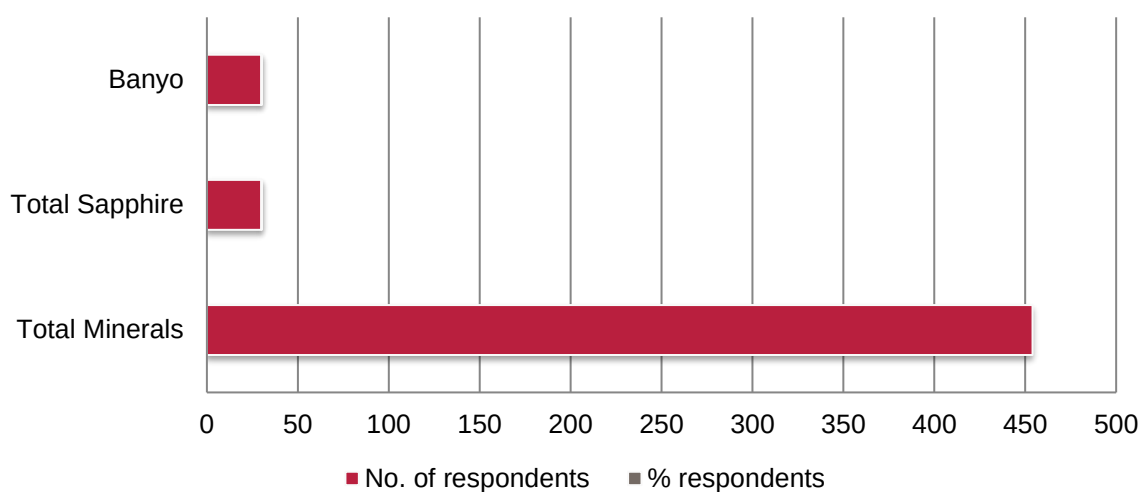


Figure 18: Respondent profile by sapphire site



3 PROFILE OF THE DEVELOPMENT MINERALS SECTOR (COMPONENT 1)

3.1 Geology and mineral potential of Development Minerals

Only a limited and partial view of the geological context of Cameroon exists, which significantly affects the evaluation of mineral potential¹⁷. The Office of Geological and Mining Research (BRGM) has not produced geological information since the 1980s. Since then, some data gathering has been carried out by the Institute of Geological and Mining Information (IRGM). Collectively, this information covers 40% of the national territory.

The ACP Secretariat database¹⁸ notes the existence of 43 geological maps at a scale of 1/200,000; 17 maps at 1/500,000; three at 1/1,000,000; and two at 1/1 500 000. Apart from this database there is an ongoing work supported by PRECASEM and MINTP. This work, which is further elaborated in Component 3, will contribute to filling the information gaps.

Existing literature in Cameroon¹⁹ revealed that Development Minerals are found throughout the country, as shown in the two figures below, respectively representing construction materials and industrial minerals. Some commodities such as sand are found in all 10 regions, while others such as pozzolan, limestone and quartzite are more or less localised. The ACP-EU Development Minerals Programme census in Cameroon (2017) confirmed the following known deposits:

- *Far North*: clay; aggregates; laterite; alluvial sand
- *North*: clay; aggregates; marble; alluvial sand
- *West*: clay; pozzolan; aggregates; alluvial sand
- *Adamaoua*: tin; sapphire; aggregates; alluvial sand
- *East*: aggregates (granite, gneiss); alluvial sand
- *Centre*: aggregates (gneiss); quartzites; alluvial sand
- *Southwest*: aggregates (basalt, granite); alluvial sand
- *South*: aggregates (gneiss, granite); alluvial sand
- *Littoral*: aggregates (basalt); pozzolan; quartzite; alluvial sand
- *Northwest*: clay; pozzolan; aggregates (basalt, granite, iron); alluvial sand

¹⁷ Environmental and Strategic Assessment of the Mining Sector Cameroon, 2016 (see <http://documents.banquemondiale.org/curated/fr/517531468227093619/pdf/SFG2264-EA-FRENCH-P122153-Box396266B-PUBLIC-Disclosed-6-14-2016.pdf>).

¹⁸ *Carte(s) referencee(s) pour la famille thematique "geologie" [Referenced map(s) for the theme family "Geology"]*, SECRETARIAT DU GROUPE DES ETATS D'AFRIQUE, DES CARAIBES ET DU PACIFIQUE BANQUE DE DONNEES MINIERES [SECRETARIAT OF THE AFRICAN, CARIBBEAN AND PACIFIC GROUP OF STATES MINING DATA BANK], http://mines.acp.int/html/CM_GEO_fr.html (last visited 9 December 2017). See also, Article 68 of the ACP-EU Partnership Agreement, recognising the importance of the ACP mining industry, Partnership Agreement Between the Members of the African, Caribbean and Pacific Group of States of the One Part, and the European Community and its Member States, of the Other Part, 23 June 2000, 2000 O.J. (L 317), http://www.europarl.europa.eu/intcoop/acp/03_01/pdf/mn3012634_en_3 [hereinafter Cotonou Agreement]. ACP States, investors and other interested parties are provided access to relevant available data through a website produced by BRGM, BRGM, <http://www.brgm.eu/websites/acp> (last visited 9 December 2017).

¹⁹ Mining Map of Cameroon; Report on the Support Program for Mineral Development (CAPAM) 2011-2016; Census report of artisanal and small-scale miners and quarries involved in the Development Minerals sector in Cameroon¹⁹ (UNDP, 2017); Reports of the IRGM;



EXTRAIT DE LA CARTE THEMATIQUE DES RESSOURCES MINERALES DU CAMEROUN SUR UN FOND GEOLOGIQUE (2001)
Auteur : NTEP GWETHPAUL, Ingénieur Général des Mines et de la Géologie, Promoteur et Coordonnateur du CAPAM.

LEGENDE

- 1- Pierre pour construction et ornement
- 2- Sable dur (Pure sand for glass work)
- 3- Pouzzolanes (Pozzuolama)
- 4- Calcaire (Lime stone)
- 5 - Marbre
- 6 - Argile (Clay)
- 7 - Cours d'eau
- n de reference (Reference number)
- Indice (Mineralisation sign)
- Indice important (important mineralisation sign)
- Gisement et reserve (Ore - Body)
- Forte présomption (High presumption of presence)

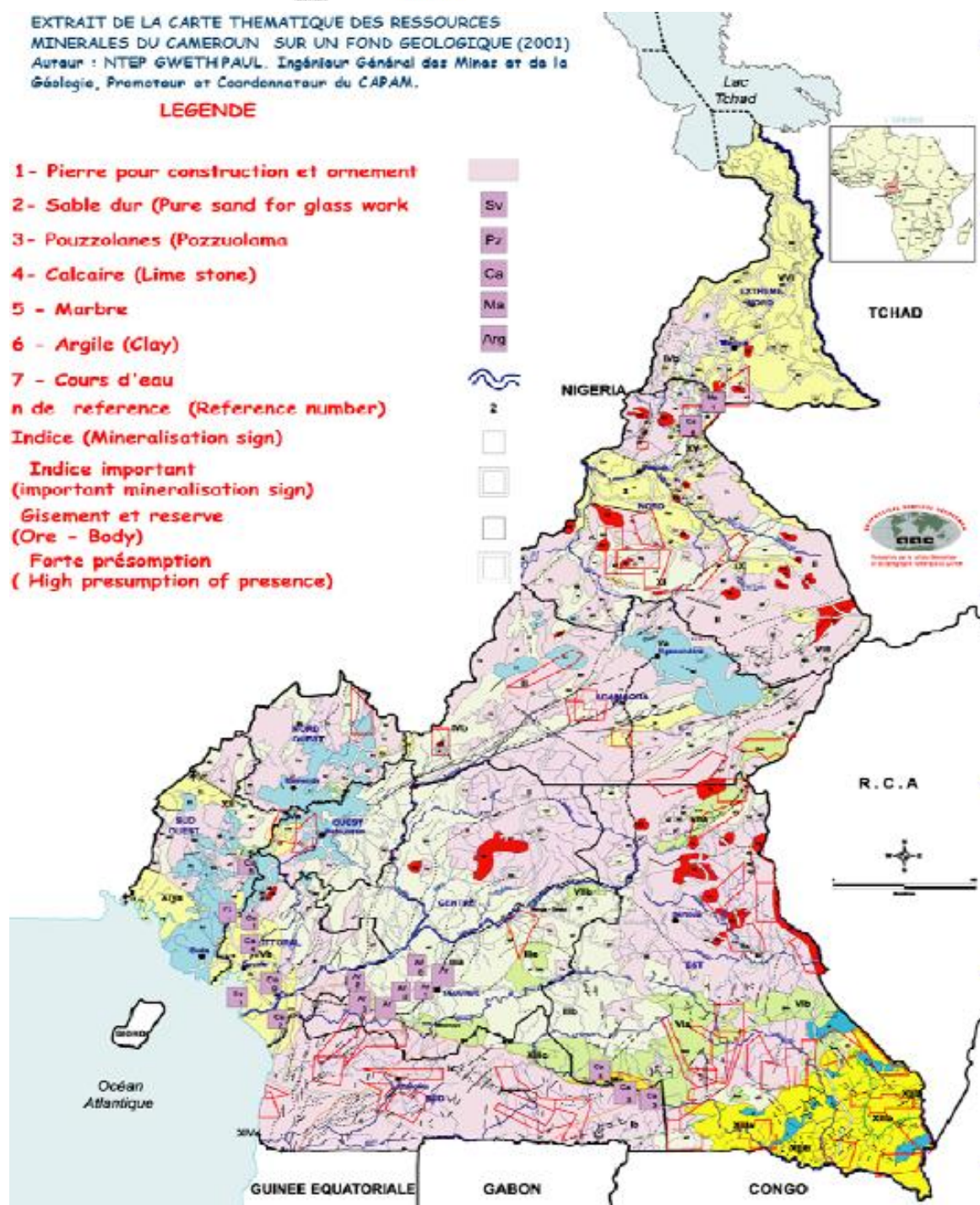


Figure 19: Map of Cameroon's geological and mineral resources for construction materials, (CAPAM, 2001)



EXTRAIT DE LA CARTE THEMATIQUE DES RESSOURCES MINERALES DU CAMEROUN SUR UN FOND GEOLOGIQUE (2001)

Auteur : NTEP GWETH PAUL, Ingénieur Général des Mines et de la Géologie, Promoteur et Coordonnateur du CAPAM.

LEGENDE

- 1 - Vivianite
- 2 - Arsenic (Arsenic)
- 3 - Phosphate (Phosphate)
- 4 - Kaolin (Kaolin)
- 5- Talc (Talc)
- 6 - Amiante (Amiantus)
- 7 - Graphite (Graphite)
- 8- Zirconium (Zirconium)
- 9 - Sel (Salt)
- 10 - Disthène
- 11 - Syenite Nephelinique

n de reference (Reference number)
Indice (Mineralisation sign)
Indice important (important mineralisation sign)
Gisement et reserve (Ore - Body)
Forte présomption (High presumption of presence)

The map displays the geographical distribution of eleven different minerals across Cameroon. Each mineral resource is represented by a specific color and symbol as defined in the legend. The background consists of geological formations. Neighboring countries labeled are Nigeria, Tchad, Guinée équatoriale, Gabon, and Congo. The Atlantic Ocean (Océan Atlantique) is visible to the west. An inset map shows Cameroon's location within Africa. A scale bar indicates distances up to 100 km, and a compass rose shows orientation.

Figure 20: Map of Cameroon's geological and mineral resources for industrial minerals (CAPAM, 2001)



3.2 Production profile of Development Minerals

Information on Development Minerals production can be gleaned through a variety of reports, rather than readily available data sources that systematically provide details of production by product, producer, site and region. For instance, aggregated information on production can be found in the 2014 EITI report and CAPAM reports.

Table 8: Production of the mining sector in 2014

ENTERPRISES	PRODUCTS	VOLUME IN TONNES
CIMENCAM	Clay	22024
	Limestone	130149
	Pozzolan	297592
	Sand	10114
RAZEL	Aggregates	194429
	Sand	126339
GRACAM	Aggregates	54811

Source: EITI Cameroon Report, 2014

Table 9: Trends in artisanal mining production across Development Minerals

SUBSTANCE	UNIT	YEAR					
		2011	2012	2013	2014	2015	2016
Sapphire	kg	120	128	138	145	153	162
Quartzite	m ³	150	250	350	455	545	665
Sand/Gravel river	m ³	1040	6490	22040	27140	35540	41640
Crushed stone aggregates	m ³	-	2100	7600	13950	28400	45850

Source: CAPAM, 2011

The data in the table above does not represent the actual production of these minerals. There are numerous reasons for this, including CAPAM only covering a limited number of sites. During its first phase of operation (2005 to 2009), CAPAM's focus was on gold and sapphire.



3.3 Prevalence of artisanal and small-scale mining

The census of small operators and artisanal miners counted 8869 actors and identified 7733 of these by name. Of the 7733, 6962 (90%) are artisans (employees and artisanal miners combined), 649 are small operators and 122 are a group of small traders²⁰ and carriers. From the table below, it is clear that there is a predominance of artisans among the total actors involved in Development Mineral exploitation.

Table 10: Distribution of actors according to their activity, sex and region

REGION	ARTISANAL MIN-ERS			SMALL OPERATORS			OTHERS (SMALL TRAD-ERS AND CARRIERS)			TO-TAL	FE-MALE	MALE
	MALE	FE-MALE	TOTAL	MALE	FE-MALE	TO-TAL	MALE	FEMALE	TOTAL			
ADA-MAOUA	952	203	1155	16	1	17	0	0	0	1172	204	968
CENTER	931	84	1015	189	49	238	3	25	28	1281	158	1123
EAST	227	89	316	28	0	28	0	0	0	344	89	255
FAR NORTH	499	511	1010	0	0	0	0	1	1	1011	512	499
LITTORAL	1291	29	1320	147	8	155	0	4	4	1479	41	1438
NORTH	423	121	544	23	0	23	0	0	0	567	121	446
NORTH-WEST	149	2	151	16	0	16	0	0	0	167	2	165
WEST	851	127	978	111	3	114	3	17	20	1112	147	965
SOUTH	293	43	336	26	0	26	24	40	64	426	83	343
SOUTH-WEST	135	2	137	32	0	32	3	2	5	174	4	170
TOTAL	5751	1211	6962	588	61	649	33	89	122	7733	1361	6372

Source: ACP-EU Development Minerals Programme, 2017 Census

3.4 Main extraction and recovery sites

3.4.1 Geographical location

There are many barriers preventing a detailed mapping of exploitation sites in Cameroon, including the low priority given to the sector, uncontrolled opening of exploitation sites, the

²⁰ Small businesses are usually run by women on and around sites.



remoteness of certain sites, and the lack of logistical, technical and human resources for monitoring sites within administrative authorities in general and MINMIDT in particular.

This study has relied primarily on geological data from the 2009-2016²¹ CAPAM implementation roadmap and the ACP-EU Development Minerals Programme (2017) census. MINMIDT has made efforts to place the mining cadastre²² online, however this cadastre is not exhaustive with regard to the exploitation sites of Development Minerals. While the cadastre provides information on the location and number of mining titles, it does not provide precise information such as the date of allocation of mining titles, the mineral(s) which are the subject of the permit and the area of the permit.

Products derived from the exploitation of Development Minerals are almost entirely destined to meet the needs of neighbouring urban populations. This is the case for the cities of Douala, Yaounde, Bafousam, Foumban, Garoua and Bamenda that capture most of the Development Minerals exploited in the sites that border them. These products are largely used for construction minerals, particularly in the case of sand and pozzolan that can be used in the construction of structures and other buildings.

Products requiring certain skill often undergo a first level of transformation before their transport to the large cities. Due to factors such as their isolation and the lack of adequate means of transport, the processing sites are generally not very far from the extraction sites. This is particularly the case with the exploitation of quartzite, clay, gravel and dimension stones. The table below illustrates the geographical distribution of transformation/manufacturing areas in relation to extraction sites.

Table 11. Location of extraction sites and corresponding processing/manufacturing areas

MINERALS	SITES	PROCESSING & MANUFACTURING AREA
Clay	Marom*	Marom, Foumban
	Boula Ibbi*	Boula Ibbi
	Bamessing*	Bamessing, Bamenda, MIPROMALO* (Yaounde)
	Nkolbisson	
Alluvial sand	Ebebda*	Yaounde*, Olembe
	Longtimbi*	Bertoua*
	Yato*	Douala, Limbe, Tiko, Mutenguene
	Mother quarry*	Douala, Limbe, Tiko, Mutenguene
Pozzolan	Ancien Ciac	Foumban*, Foumbot, Bafoussam*
	Pouoloum	Foumban*, Foumbot, Bafoussam*
	Djoungo	Djoungo*, Douala*
Quartzite	Song Nlend*	Song Nlend
	Sa'a*	Sa'a
Aggregates (Gneiss, granite)	Nkometou*	Nkometou
	Missengleo*	Minssengleo

²¹ See Annex 1.

²² CAMEROON MINING CADASTRE PORTAL, <http://portals.flexicadastre.com/Cameroon/en> (last visited 9 December 2017).



Sapphire	Banyo	No processing (Sapphire collected by CAPAM is stored in Yaounde*)

*Presence of a storage area of the raw product

3.4.2 Extent of formalisation of extraction sites

From a legal perspective, a formal site is one for which an artisanal mining permit has been issued by MINMIDT. Such a site is *de facto* private because the exploitation license gives its holder exclusive rights during the life of the authorisation. Of the 480 sites recorded during the census²³ carried out by the ACP-EU Development Minerals Programme (2017), only 17.3% are private, which can mean that either they have an operating license or the land on which the exploitation took place belonged to an individual or to a village community. The remaining and vast majority of sites, being in the public domain, are not subject to an exploitation license. This indicates that the Development Minerals sector is largely informal. These figures are consistent with the general trend in Cameroon in which the informal sector plays a leading role, accounting for 90% of employment²⁴. The table below provides a better appreciation of the distribution of formal and informal sites for the priority minerals analysed in this baseline study.

Table 12: Number of sites and % informal sites by region

REGION	SAND		CLAY		POZZOLAN		SAPPHIRE		GRANITE		BASALT	
	NO.	% IN-FORMAL	NO.	% IN-FORMAL	NO.	% IN-FORMAL	NO.	% IN-FORMAL	NO.	% IN-FORMAL	NO.	% IN-FORMAL
Littoral	32	55%			6				1	100%	2	50%
Centre	53	67%	1									
East	10	37%	1	No data					3	100%		
South	7	80%							6	50%		
South-West	21	79%							2		8	
North-West	5	15%	1	100%					3	67%	13	39%
West	31	36%	6	75%	7	57%			4	50%	29	63%
Adamaoua	14	79%					9	100%	3	67%	1	67%
North	17	100%	5	100%								
Far North	17	0%	6						9	100%	6	100%
TOTAL	207	56%	20	86%	13	57%		100%	31	67%	59	67%

Source: ACP-EU Development Minerals Programme, 2017 Census

²³ See Census report of artisanal and small-scale miners and quarries involved in the Development Minerals sector in Cameroon, UNDP 2017.

²⁴ National Institute of Statistics, main report of ECAM3, December 2008.



3.5 Larger companies involved in Development Minerals

The following list of companies, mostly foreign-owned, are principally involved in extraction, transport and commercialisation of construction materials and industrial minerals:

- CIMENCAM: clay, limestone, pozzolan, sand
- Dangote Cement: pozzolan
- RAZEL: aggregates, sand
- GRACAM: aggregates
- ROCAGLIA: marble, limestone, granite gravel
- SOMARC: marble

In addition to these companies, the 2014 EITI report provides information on the existence of around 40 companies holding a research permit for the exploitation of construction and industrial²⁵ minerals. The same report also provides production volumes for CIMENCAM, RAZEL and CRAGAM, see earlier in Table 8.

3.6 Political economy of the sector

The political economy of the sector is analysed at two levels in this section: the construction materials sub-sector and the gemstones sub-sector which is relevant to sapphire.

3.6.1 Construction materials sub-sector

A stakeholder mapping of this sub-sector identified four main groups: public sector stakeholders, the private sector, special interest groups and development partners. These are listed in the table below, followed by a more detailed description of each stakeholder group and analysis of power dynamics.

Table 3: Stakeholders in the political economy of Development Minerals in Cameroon

	PUBLIC	PRIVATE	SPECIAL INTEREST GROUPS	DEVELOPMENT PARTNERS
Sand	Public Ministry of Mines (Central and Decentralised Services), Decentralised Authorities (Mayors), Projects and Programs (CAPAM, MIPROMALO), PRECASEM, Universities and Training Schools (ISS, IBAF, etc.)	Owners of the shipyards (operator or village group), owners of canoes, divers, winders, unloaders and loaders, owners of wharf or deposit of sand	RETIE (Network of Parliamentarians for Transparency in Extractive Industries), REPAR (Network of Parliamentarians), RECTRAD (Network of Traditional Chiefs), Public What You Pay (PWYP), Development Committee, Religious Authorities, Media and other Producer Associations, Consumer Associations, etc.	World Bank, EU, ACP, UNDP, GIZ REMAP/CEMAC, etc.
Pozzolan		Quarry owners (village operators or groups), artisan miners (diggers and loaders), resellers, processors		
Clay		Artisanal miners, companies		
Quartzite		Workers, crushers		

²⁵ See Annex 2.



Public actors

This stakeholder group includes the central and decentralised administrations in charge of mines and quarries. PRECASEM and CAPAM play a role in the supervision and monitoring of the mining sector in general and Development Minerals in particular. The structuring and operation of CAPAM means that its brigade can be considered as public actors. These units include GICAMINEs, GICAMINE Unions and GICAMINE Federations. PRECASEM, through the establishment of mining cooperatives, also contributes to the strengthening of the artisanal mining sector in line with national mining policy objectives.

In addition to MINMIDT, there are other ministries and institutions in charge of mineral development activities. They can be identified by considering the impacts of the artisanal mining of Development Minerals, for example, the ministries in charge of the environment, forests and small and medium-sized enterprises in the social economy. MIPROMALO and the ministries responsible for scientific research as well as housing and urban development are among the public stakeholders who advocate for the use of local materials.

Decentralised administrations (Decentralised Territorial Communities) also participate in the management of Development Minerals. In the localities where these minerals are exploited, the empowerment of local taxation²⁶ is becoming more and more evident (discussed further in Component 4). This local mining administration charges a loading tax to each truck present on a mine site. Rights to charge taxes, and the amount of the tax, vary across municipalities. In the case of Foubot, carriers must pay 3000 FCFA to the commune for each truck loaded, while sand miners in Dibombarie pay 1000 FCFA per truck.



Figure 3: Boarding ticket in Foubot Commune - pozzolan transportation



Figure 4: Boarding ticket in Dibombarie Commune - sand transportation

In their role as mediator, traditional authorities often intervene in the management of conflicts at the exploitation sites. They also work to prevent conflicts through the establishment of rules of good conduct and the appointment of agents to ensure compliance with rules.

The parliamentarians as local elected representatives with legislative power are also public actors, and help develop the regulatory framework for the construction minerals sub-sector.

Private actors

Private actors include operators and artisanal miners. Artisanal miners include multiple types of value chain players depending on the mineral, e.g. for sand, operators consist of quarry and dock owners and artisanal miners consist of diggers and loaders. In addition to operators and

²⁶ Law N° 2009/019 of 15 décembre 2009 on local taxation



artisanal miners, there are transporters, processors and resellers. These roles are explained in more detail under Component 5. Based on available data, there are many more artisanal miners than small operators. At the national level, 90% of the construction materials sub-sector is comprised of artisanal miners, 8.3% small operators and 1.6% other actors. These findings reflect the low industrialisation of the sub-sector.

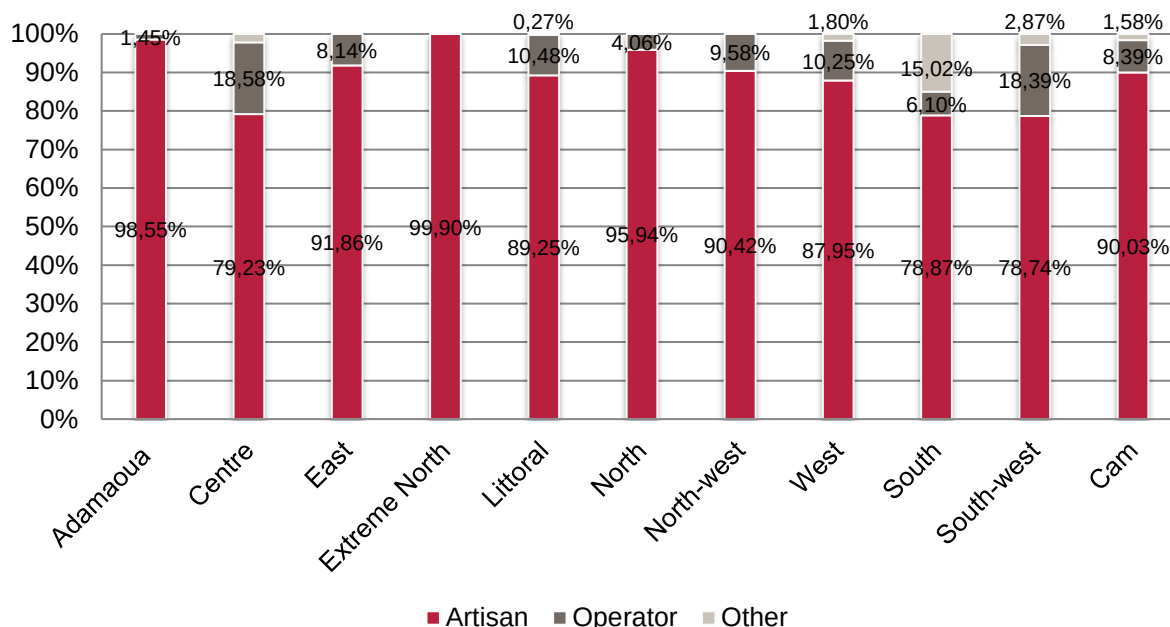


Figure 21: Distribution of artisans, operators and others by region (ACP-EU Development Minerals Programme, 2017)

Special interest groups

These groups include civil society organisations (CSOs), religious authorities, associations of mayors, networks or groups of traditional leaders (e.g. RECTRAD) and parliamentarians (e.g. REPAR and RETIE). To some extent, they participate in the monitoring and other public sector activities.

In 2013, REPAR monitored artisanal and industrial mining projects in Central, South and East regions. Traditional leaders participated in the revision of the Mining Code (adopted in 2016), as did national NGOs (CED, RELUFA, PWYP Cameroon, etc.) and international NGOs (International Union for Conservation of Nature (IUCN), World Wildlife Federation (WWF), etc.). These different actors are also involved in the monitoring of mining projects and in the implementation of governance initiatives such as the EITI and Kimberley Process (KP). Due to their knowledge of the extractive sector, they were involved in 2015 in the Strategic Environmental and Social Assessment (SESA) of the Cameroon mining sector.

Development partners

Development partners involved in the construction materials sub-sector include the International Monetary Fund (IMF), World Bank, African Development Bank, EU and German Cooperation (GIZ). The World Bank supports the Government of Cameroon through the financing of PRECASEM. GIZ, through the Project for Strengthening the Governance of Raw Materials in Central Africa (REMAP/CEMAC) project, has prioritised capacity building and improvement of the normative framework for the Economic Community for Central African States (CEMAC) extractives sector. These efforts have improved the development of the CEMAC regional



Mining Code, creating better linkages between instruments of national mining governance to the African Mining Vision. This Vision sets out the aspirational framework for artisanal mining, and is further discussed under Component 2 of this report.

Power dynamics amongst key stakeholders

The power dynamics in the construction materials sub-sector are manifested through the ability of each actor to influence the governance of development of construction materials. For the purposes of analysis, the ability of key stakeholders to be able to influence the sub-sector has taken into account the following dimensions: *standardisation; mapping of sites; production of information on authorisations and titles; production of data on quantity production and processing; production of revenue data, income redistribution, revenue management; and awareness raising, capacity building and monitoring.*

The stakeholders selected for the analysis have a role in the value chain of construction minerals and include: MINMIDT, MINFI, CAPAM, PRECASEM, financial and technical partners (FTP), EITI, traditional authorities, CSOs, Decentralised Territorial Collectivity (DTC), parliamentarians, institutions (specifically MIPROMALO), operators and workers/artisanal miners. An expert score was assigned to the ability of stakeholders to influence each of the variables listed above. A score of 0 means the actor has a low ability to influence a specific variable; 1 the actor has medium capacity to influence a variable; and 2 a strong ability to influence a variable. The final score given to a stakeholder is the sum of the scores for all the variables (maximum of 22 points). These scores are shown in the figure below.

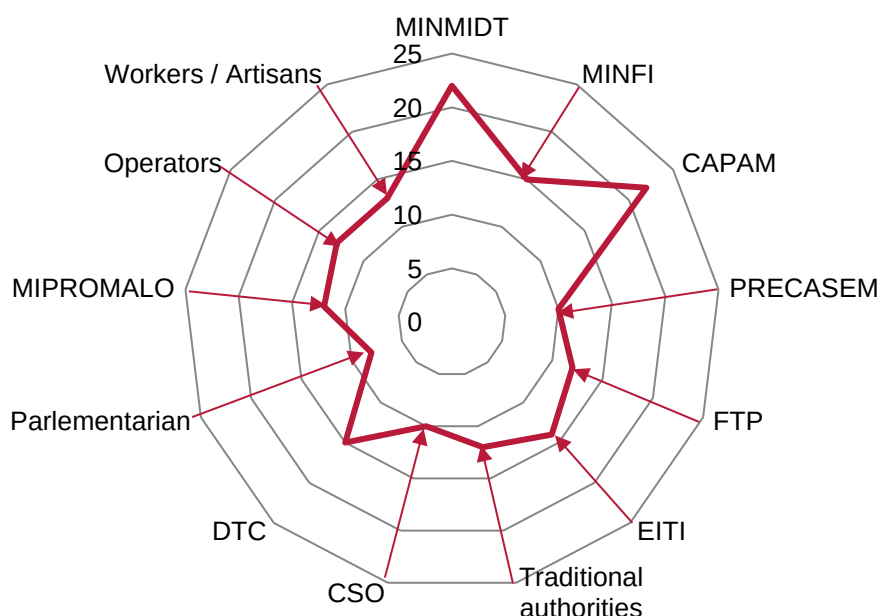


Figure 22: Power dynamics in the construction minerals subsector

As shown in the figure above, MINMIDT, CAPAM and DTCs have the highest capacity to influence the organisation of the Development Minerals sector. This reflects their level of involvement in the sector. DTCs and traditional authorities, because of their proximity to artisanal activity, influence the dynamics of the sector, as well as operators and artisanal miners, although to a lesser extent than MINMIDT, CAPAM and DTC. Their influence has consequences both for the standardisation of the sector and the monitoring of the entire value chain. With the exception of an effective decentralisation, DTC and traditional authorities have a major role to



play in the management of the sector through instruments such as local taxation, and land allocation for mining activity.

EITI, through its mandate of monitoring the entire value chain, provides visibility into the sub-sector and consequently identifies strengths and weaknesses that may lead to useful reforms.

PRECASEM and CSOs have low levels of influence in the sub-sector. This could be because they only have the ability to raise awareness on some gaps identified in the sub-sector, and ultimate decision-making remains with MINMIDT, CAPAM and DTCs.

Institutions such as MIPROMALO, and workers and artisans are agents of production and processing. They are key stakeholders in efforts to promote a more formalised sector. The low level of formalisation of this sector overall indicates a low level of sensitisation and ineffective registration mechanisms for artisanal miners and operators.

Even if the capacity of parliamentarians appears to be low as shown in the figure above, this group can still significantly influence the legal and regulatory framework of the mining sector.

3.6.2 Gemstones sub-sector

Stakeholder mapping

As with construction materials, exploitation of sapphire also involves the participation of public, private, civil society and development partner stakeholder groups. Public stakeholders are the same as those for construction materials. Following Cameroon's accession to the Kimberley Process (KP) in 2012, KP agents began working with CAPAM in the framework of the Monitoring and Evaluation Committee for Artisanal and Small-scale Mining Activities²⁷. The KP Certification Scheme (SCPK) enables the identification of various actors involved in the sapphire chain, as well as the minerals admitted to the SCPK Cameroon framework with a view to its certification. Notably, institutions such as MIPROMALO have no role in gemstones, including sapphire.

Power dynamics among key stakeholders

The analysis of power dynamics in this sub-sector has followed the same methodology as that for construction materials. The main difference between the two sub-sectors is the inclusion here of the KP, purchasing offices and collectors. For the purposes of this analysis, artisanal collectors have been grouped under artisans in the chart below.

²⁷ Arrêté n° 005356/MINMIDT/CAB of 11 August 2014, portant la création, l'organisation et le fonctionnement du Comité de suivi et d'évaluation des petites activités minières mécanisées [Order No. 005356/MINMIDT/CAB of 11 August 2014, on the creation, organization and functioning of the Monitoring and Evaluation Committee for small mechanized mining activities].

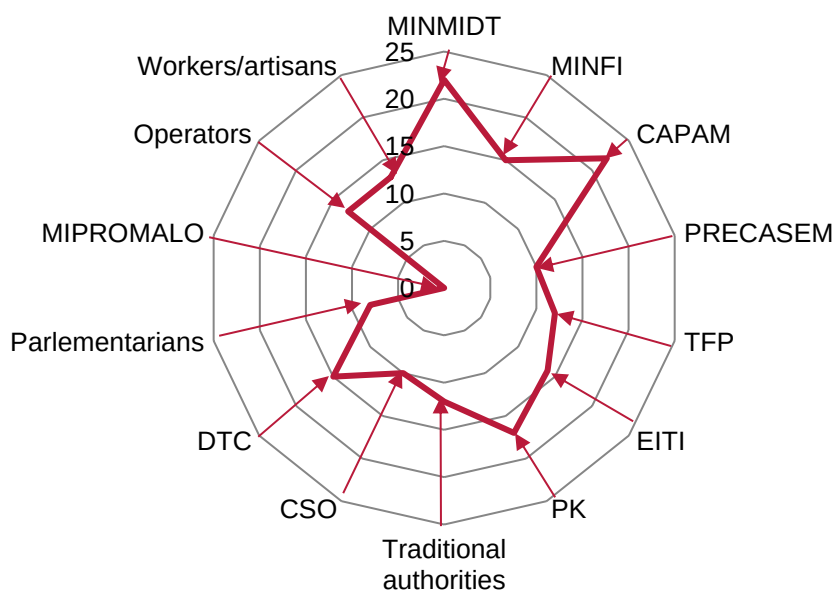


Figure 23: Power dynamics in the gemstones subsector

These results indicate that MINMIDT and CAPAM are the major players in the gemstones subsector. The KP, with regard to sapphire certification, has significant involvement in the subsector, its main instrument being the SCPK. Purchasing offices, collectors and artisanal collectors also have an influence, albeit smaller. This may be explained by the fact that collectors and buying offices have limited activities in proximity to exploitation sites, unlike the KP and CAPAM which cover the entire national territory.

3.7 Economic importance

3.7.1 Trends in government revenues generated by Development Minerals

Government revenues from the production of Development Minerals have been growing steadily since 2011. The growth could be explained by technical progress, increases in demand and the number of formal and informal producers in the sector as artisanal miners acquire experience over the years and new sites are explored. A further factor driving growth is the installation of CAPAM agents in some production sites. The role of these agents is to organise small producers into associations, collect taxes and monitor production. The table below shows the annual government revenues reported from Development Minerals for the period 2011 to 2016.



Table 4: Trends in government revenue from minerals production (FCFA), 2011-16

ORE VALUE	2011	2012	2013	2014	2015	2016	TOTAL	SHARE (%)
Crush- ed gravel	-	362,250,000	1,311,000, 000	2,364,975, 000	4,830,000, 000	7,909,125, 000	16,777,350, 000	3,6%
Sand	63,313,848	395,102,763	1,341,766, 548	1,652,247, 918	2,163,628, 998	2,534,989, 068	8,151,049,143	1,8%
Quart- zite	240,120,000	400,200,000	520,260,000	728,364,000	872,436,000	1,064,532, 000	3,825,912,000	0,8%
Sap- phire	61,994,356, 641	66,230,637, 999	71,112,693 608	74,858,186, 006	78,913,650, 190	83,795,705, 799	436,905,230, 543	93,8%
Total	62,297,790, 489	67,388,190, 762	74,285,720, 156	79,603,772, 924	86,779,715, 188	95,304,351, 867	465,649,541, 686	100%

Source: CAPAM, 2016

Due to sapphire's high market value and government being the main purchaser, sapphire contributes to almost all of (93.8%) of the government revenues generated by these four minerals. However, it is important to note the upward trend in sand and crushed gravel production: during the periods 2011 to 2016 and 2012 to 2016 these both experienced growth rates of around 95%, respectively. It is important to note the level of informal production across these commodities has a major impact on the generation of revenues.

The incomes obtained by the artisans are functions of the quantities produced and the price of the ore. The price of sand at the quarry varies according to the seasons and region. The price of ornamental stones, sapphire and quartzite depend in particular on the size, colour and quality of the stone. These parameters demonstrate the fact that the average income of the artisanal miners is the result of multiple variables and constraints. Notwithstanding, revenue per capita of quarry workers is low, as discussed further in Component 5.



3.7.2 Contribution of mineral development revenues to the extractive economy

The contribution of Development Minerals (specifically sapphire, quartzite, gravel and aggregates) to Government revenues generated by Cameroon's extractive industries increased between 2011 and 2016²⁸, growing from 6.3% in 2011 to 14% in 2016, as shown in the graph below.

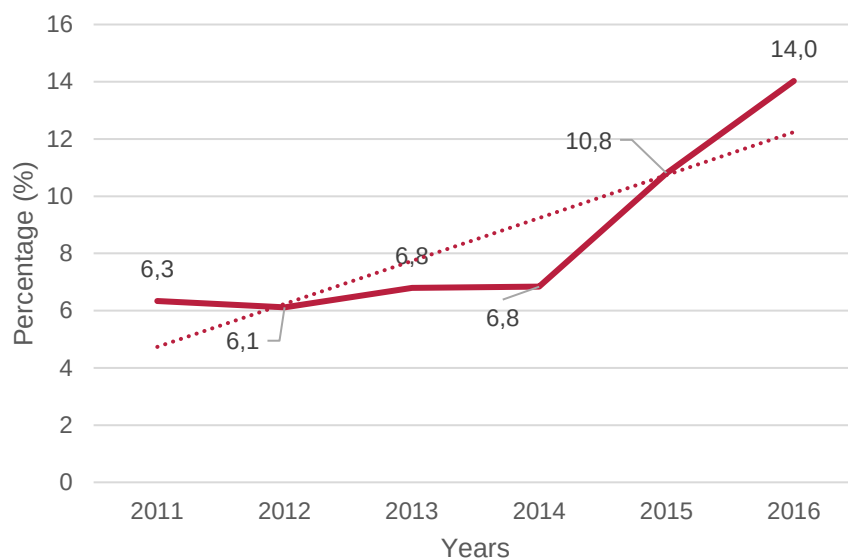


Figure 24: Contribution of Development Minerals to Government revenues generated by the extractive sector, 2011 to 2016 (CAPAM and INS)

This graphic shows that between 2011 and 2016, the contribution of the mining sector has been more important than stated in the 2014 EITI report. The informal sector has had a substantial impact on the contribution of the mining sector to the economy. The gap observed between the EITI report and the CAPAM/INS report can be explained by the following:

- EITI deals only with previously certified data and reports made by formalised artisanal miners and operators.
- Even if all artisans and operators were formally registered, a gap would still be observed because of the materiality threshold. The materiality threshold does not take into consideration all companies, but only those with incomes above the materiality threshold during the period covered by the EITI report.

For both reasons, informal activities are not represented in the EITI data.

²⁸ NIS, 2016.



4 LEGAL AND POLICY FRAMEWORK (COMPONENT 2)

4.1 Mapping of relevant sector policies, regulations, legislation, plans and programmes

The minerals sector in Cameroon operates within a law and policy framework that includes, but is not limited to, the elements shown in the table below. A list of laws and policies identified throughout the preparation of this report is provided in Annex 3.

This study identifies relevant national and international law and policy in Cameroon. Local level policies were not identified in this study, nor were such policies referenced by interviewees in the field components of our research. There is, however, an effort underway to develop decentralised local and regional authorities, and help them build capacity to manage the mining sector. Survey results did note some issues with coordination between national agencies and local authorities. These and other challenges and opportunities related to the decentralisation process are further discussed under Component 3.

Table 5: Cameroon law and policy framework

Administrative & Public Law	Anti-corruption Law	Artisanal & Small-scale Mining
Banking Law & Finance	Commercial Law	Constitutional Law
Cooperatives	Criminal Law (Domestic)	Criminal Law (International)
Cultural Property (International)	Disabled Workers	Education, Vocational Guidance & Training
EITI & Transparency	Electricity	Emergency Management
Environmental Law (Domestic)	Environmental (International)	Equality in Opportunity & Treatment
Expropriation	Human Rights Law	Inspection
Intellectual Property Law	Labor	Land Use & Construction, Property
Leases & Payment of Royalties	Migrant Workers	Mining & Quarrying
Occupational Safety & Health	Old Age, Invalidity, & Survivors Benefit	Social Security Standards
Tax Law (Domestic)	Trade	Tripartite Consultation



This section focuses on select key laws and policies most relevant to the development of the minerals which are the focus of this study: sand, common clay, granite, pozzolan, and sapphire. However, we note that the laws and policies discussed in this report operate within a broad legal framework.

After a review of the mining legislation and policies of Cameroon, the general conclusion is that Cameroon has the majority of the elements of an appropriate law and policy framework for the artisanal mining sector in place. Because the focus of this study is limited to the artisanal mining and quarrying sector, national legislation that might apply to large-scale mining or other sectors was not reviewed.

Policy objectives

The Government of Cameroon has provided clear policy objectives for the minerals sector. Law No. 96/06 of 18 January 1996, a revision to the 1972 Constitution, includes an affirmation that the people of Cameroon, in the pursuit of exploitation of natural resources, will: “*ensure the well-being of every citizen by raising the standard of living of the people without discrimination,*” and “*affirms [Cameroon’s] right to development and its willingness to devote all its efforts to achieving it.*” Law No. 96/06 further affirms the readiness of Cameroon to engage in international cooperation to achieve these objectives, while respecting the sovereignty and independence of Cameroon.

Article 1 of the 2016 Mining Code also clarifies objectives of Cameroon regarding mineral development, stating that the Act and regulations made under the Act aim to “*foster and encourage research and the exploitation of the mineral resources necessary for the country’s economic and social development and the fight against poverty.*”

Cameroon has thus professed its commitment to developing minerals in a manner that results in greater social equality, and lasting economic and social development across the country. Cameroon has included promotion of a responsibly managed artisanal and small-scale mining sector as a key component of its development strategy.

Artisanal mining

Cameroon has long recognised the importance of the artisanal mining sector to contribute significantly to the country’s economic and social development. The country has ambitions to formalise the artisanal mining sector, create its own gold reserves, and improve the conditions and living environments of mining artisans and neighbouring populations. In pursuit of these outcomes, the Government of Cameroon established the ‘Support and Organisation of the Artisanal Miners’²⁹ program in 2005. This program ended in 2009 and was followed by a program titled, ‘Support to the Development of Mining Activities’, an ongoing project managed by CAPAM. These programs are part of a broader strategy to launch Cameroon to emerging country status by 2035. The current program is built around the valuation of mineral resources in each district of Cameroon, and a concrete and decentralised model for economic growth and increased employment. CAPAM also designed and promoted a new type of exploitation in the mining sector called ‘semi-mechanised artisanal mining’, which led the government to take a number of measures for reorganisation of the mining sector.

²⁹ Ministry of Mines, Industry and Technological Development, CAPAM, <http://minmidt-gov.net/en/major-projects/capam.html> (last visited 9 December 2017).



The Government of Cameroon continues to strive toward the following key policy objectives related to artisanal mining:

- Recognition and regularisation of artisanal and small-scale mining;
- The introduction of corporate tax and the increase of ad valorem tax in artisanal and small-scale mining;
- The introduction of mining titles for artisanal and small-scale mining;
- A right of inspection on the transaction of mining titles; and
- A requirement for approval of the Minister of Mines before the issuance of artisanal and small-scale mining authorisations.

Key legal provisions

Key legal provisions governing sand, common clay, granite, pozzolan, and sapphire include:

- Law No. 2016/017 of 14 December 2016 (2016 Mining Code);
- Joint Decree No. 003950 MINFI/MINMIDT of 01 June 2015 enabling CAPAM to collect the ad valorem tax on mineral substances and the monthly instalment of corporation tax payable by companies engaged in low-mechanised artisanal mining on behalf of the General Directorate of Taxation and specifying the methods of carrying out its task;
- Decree No. 2014/2349/PM of 01 August 2014, modifying and supplementing certain provisions of Decree No. 2014/1882/PM of 04 July 2014;
- Decree No. 2014/1882/PM of 04 July 2014, amending and supplementing certain provisions of Decree No. 2002/648/PM of 26 March 2002;
- Article 85 of Decree No. 2012/432 of 01 October 2012, reorganizing MINMIDT, which provides that the Minister in charge of mines may, as necessary, create by order, Regional Brigades for the Control of Mining Activities; and
- Decree No. 2002/648/PM of 26 March 2002 setting the procedures for the application of Law No. 001 of 16 April 2001 on the Mining Code.

The priority minerals analysed in this study are exploited primarily by non-mechanised artisanal means. These minerals, with the exception of sapphire, are ‘quarry materials’ within the meaning of Article 88 of Decree No. 2002/648/PM of 26 March, 2002. This Decree details requirements for implementation of Law No. 001 of 16 April 2001—Cameroon’s prior mining code. Although the 2016 Mining Code recently replaced the 2001 Mining Code, Decree 2002/648/PM remains the most current detailed description governing the minerals in this study and therefore continues to govern this sector.

The 2016 Mining Code defines artisanal ‘non-industrial mining’ as *“the operation consisting in using traditional methods and processes to extract and concentrate top- or sub-soil mineral substances at a maximum dept of ten (10) metres, and obtaining marketable products”*.

The preceding definition applies to the minerals addressed in this study.

The 2016 Mining Code also defines ‘semi-mechanized non-industrial mining’ as *“mining exploitation carried out within the framework of an authorization of semi-mechanized artisanal exploitation of the precious and semi-precious substances which uses at most three (03) excavators (mechanical shovels), a dredging machine with possibly other equipment such as the mineralized gravel washing machine or the concentration of mining products, the use of chemicals in the treatment is strictly prohibited.”* The only gemstone in our study was sapphire. However, there were no semi-mechanised activities in the sapphire site that was part of our field study. While we note that this definition *does not* apply to the minerals addressed in this study, we do recognise the relevance of semi-mechanised non-industrial mining to the broader



development minerals sector in Cameroon and the possibility of expanded use of such methods in the future.

The development minerals sector can learn from the experience of semi-mechanized non-industrial gold mining in Cameroon, where miners have erected dams, redirected rivers or streams, and dug large holes without the necessary authorisation—often in or near areas where communities farm, hunt, or gather.³⁰ The environmental, social, and economic impacts have been exacerbated by the tendency of these miners to abandon mine sites without rehabilitation.³¹ This activity was largely unabated under the 2001 Mining Code, which did not include a definition for semi-mechanized non-industrial mining.³² The 2016 Mining Code addressed this gap—a big step forward for regulating this sector and its impacts in Cameroon.

Land tenure and allocation of mining licenses

Land tenure laws in Cameroon distinguish three categories of land³³:

- **The public domain**, consisting of land held by the State for the benefit of the Cameroonian people. These are inalienable lands in the public domain of maritime, river, land and air³⁴;
- **Private land**, which is characterised as being registered on behalf of a beneficiary. This includes the private domain of the State³⁵, decentralised public authorities and private individuals³⁶; and
- **Unregistered land**, which represents the largest part of the country's land, and is grouped into the national domain category³⁷.

Registration is the only way to acquire land tenure. In addition to this method, there are titles that give the holder rights to use and manage resources for commercial purposes. This includes permits and licenses to exploit quarry resources. Unlike land titles, these titles are

³⁰ University of Cape Town. 1 June 2017. The Cameroonian Mining Code: Closing a Void to Save the Environment, <http://www.mlia.uct.ac.za/news/cameronian-mining-code-closing-void-save-environment>.

³¹ University of Cape Town. 1 June 2017. The Cameroonian Mining Code: Closing a Void to Save the Environment, <http://www.mlia.uct.ac.za/news/cameronian-mining-code-closing-void-save-environment>; Djibril, et al. 2017. "Artisanal gold mining in Batouri area, East Cameroon: Impacts on the mining population and their environment." 9 *Journal of Geology and Mining Research* 7.

³² University of Cape Town. 1 June 2017. The Cameroonian Mining Code: Closing a Void to Save the Environment, <http://www.mlia.uct.ac.za/news/cameronian-mining-code-closing-void-save-environment>.

³³ Ordonnance n° 74/1 du 06 Juillet 1974, fixant le régime foncier [Ordinance No. 74/1 of 06 July 1974, establishing the Land Regime].

³⁴ Art. 3 du Ordonnance n° 74/2 du 06 Juillet 1974, fixant le régime domanial [Ordinance No. 74/2 of 06 July 1974, establishing the national domain Art. 3].

³⁵ Art. 10 du Ordonnance n° 74/2 du 06 Juillet 1974, fixant le régime domanial [Ordinance No. 74/2 of 06 July 1974, establishing the national domain Art. 10].

³⁶ Art. 2 du Ordonnance n° 74/1 du 06 Juillet 1974, fixant le régime foncier [Ordinance No. 74/1 of 06 July 1974, establishing the Land Regime, Art. 2].

³⁷ Art. 14 du Ordonnance n° 74/1 du 06 Juillet 1974, fixant le régime foncier [Ordinance No. 74/1 of 06 July 1974, establishing the Land Regime, Art. 14].



issued on fixed areas and for fixed periods of time³⁸. Land³⁹ and mining systems⁴⁰ have provided a mechanism for ensuring the rational use and development of land in the general interest of citizens. Land title registration is further discussed in Component 4.

A reading of the documentation related to the allocation of permits for quarry exploitation reveals the existence of an advisory commission⁴¹ which defines the zones conducive to artisanal mining as well as the rules for the protection of the environment.

Although, in principal, consultation with the competent administrative, communal and state authorities is a significant step in the process for the rational use of land, there are constraints, both in the regulations and in practice, which ultimately limit implementation and effectiveness of this practice. Article 95 (2) of Decree No. 2002/648/PM of 26 March 2002 stipulates that expenses relating to the definition of artisanal mining areas by the Departmental Delegate in charge of mines as well as all other costs inherent in the monitoring and control of this activity will be borne by the municipal authority⁴². However, they also specify that the municipal authority has only an advisory role⁴³. Thus, in practice the municipal authorities are only informed of the existence of a quarry permit after the area has been declared conducive to quarry activity and the operating authorisations have been issued by the Regional Mining Delegate.

The case of the pozzolan site in Foubot called 'Ancien CIAC' demonstrates the tension between the legislative will to place the municipal authorities at the heart of the process that determines which areas are conducive to quarry activities and the actual practice. In this case, the Commune of Foubot stated that it was not consulted before the site was declared conducive to the quarry activity and the operating authorisations had already been granted.

It should also be noted that, most of the time, artisanal activities start spontaneously without the competent administrative, State and local authorities being sought out by the operators. The formalisation of the activity only occurs after activity begins, if at all. This is exemplified in the exploitation of Moungo river sand and Pouma quartzite. In both cases, it was not until the exploitation of the mineral resources at these sites had begun that the administrative, State and municipal authorities took measures to supervise and regulate the activities.

The Regional Delegate must, in theory, consult with the Assistant Director of the Mining Cadastre before making a decision on a site request for artisanal quarrying and once the authorisation is issued, a copy must be sent to the National Cadastre. In reality, however, this practice does not often take place. Often, copies of issued licenses do not reach MINMIDT in Yaoundé. It is possible to have several permits granted for the same land since there is no coordination

³⁸ L'Autorisation d'exploitation d'une carrière artisanale semi-mécanisée est valable pour une durée de deux (02) ans, à compter de la date de notification. Elle est renouvelable pour la même durée. (Authorization to operate a semi-mechanized artisanal quarry is valid for a period of two (02) years from the date of notification. It is renewable for the same duration.)

³⁹ Art. 6 du Décret n° 76/166 du 27 Avril 1976, fixant les modalités de gestion du Domaine National [Decree No. 76/166 of 27 April 1976, to establish the terms and conditions of management of national lands, Art. 6].

⁴⁰ Art. 41 du Décret n° 2014/1882/PM du 04 Juillet 2014, modifiant et complétant certaines dispositions du Décret n° 2002/648/PM du 26 Mars 2002 [Decree No. 2014/1882/PM of 04 July 2014, amending and supplementing certain provisions of Decree No. 2002/648/PM of 26 March 2002, Art. 41].

⁴¹ Art. 95 du Décret n° 2002/648/PM du 26 mars 2002, fixant les modalités d'application de la loi n° 001 du 16 Avril 2001, portant Code Minier [Decree No. 2002/648/PM of 26 March 2002, setting procedures for the application of Law No. 001 of 16 April 2001 on the Mining Code, Art. 95].

⁴² Art. 95(2) du Décret n° 2002/648/PM du 26 mars 2002, fixant les modalités d'application de la loi n° 001 du 16 Avril 2001, portant Code Minier [Decree No. 2002/648/PM of 26 March 2002, setting procedures for the application of Law No. 001 of 16 April 2001 on the Mining Code, Art. 95(2)].

⁴³ Avec la Loi n° 2016/017 du 14 Décembre 2016, portant Code minier [Law No. 2016/017 of 14 December 2016, 2016 Mining Code].



between the national level and the regional level. The lack of coordination between the national Mining Cadastre and the land allocation system administered by the Regional Delegations leads to a lack of traceability of mining rights and contributes to a lack of transparency in relation to decision-making on land use.

This lack of traceability also contributes to creating illicit transaction opportunities since there is no guarantee that official documentation on the allocation of land delivered in the regions is transmitted centrally.

Environmental requirements

The principal environmental requirements applicable to the quarry sector of the mining industry are:

- 2016 Mining Code Sections 135 to 140;
- Order No. 0069/MINEP of 08 March 2005 fixing the different categories of operations subject to environmental impact assessment, Article 3(E);
- Article 9 of Decree No. 2013/0171/PM of 14 February 2013 setting the procedures for environmental and social impact assessment;
- Article 95 of Decree No. 2002/648/PM of 26 March 2002 setting the procedures for the application of Law No. 001 of 16 April 2001 on the mining code, Article 95. Specifically, Article 95 states that:

The Divisional Delegate of Mines shall, after consultation with the competent administrative and land authorities, define, in conjunction with the local council authority, the areas suitable for non-industrial extraction as well as the protection of the environment. He shall post them and inform his superiors.

We note that Cameroon's Mining Code does not contain any provisions specific to women's rights or child labour in the mining sector. However, the Government of Cameroon, through Order No. 69/16 of 27 May 1969, concerning the work of women, Order No. 69/17 of 27 May 1969, concerning child labour and Order No. 2014/082/PM of 17 August 2014, establishing, organizing, and operating the National Committee Against Child Labour, is working on these issues. Cameroon also has a Committee on the Elimination of Discrimination against Women and in 1994 ratified the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). Cameroon also ratified the African Charter on Human and Peoples' Rights in 1989, and signed the Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa in 2006.

Worker health and safety requirements

The principal worker health and safety provisions relevant to the minerals sector are:

- Section 171(2) of the 2016 Mining Code Section 133, which states at 133(4):

Before undertaking exploration or mining activities, the holder of a mine or quarry title shall draw up rules relating to safety, health, hygiene and prevention of occupational hazards for the proposed works, which shall be submitted to the joint approval of the ministers in charge of mines and labour. Once such approval is granted, the mining or quarry title holder shall comply therewith.

- Decree No. 2002/648/PM of 26 March 2002 setting forth the procedures for the application of Law No. 001 of 16 April 2001 on the mining code. Article 109 states that:



Safety measures shall be implemented in any mining operation, notably as concerns:

- *procedures for extracting the volume exploited;*
- *scouring of the top soil in open quarries;*
- *consolidating pits, galleries or other underground structures or open excavations;*
- *the arrangement and dimension of pillars in underground works;*
- *the use of explosives.*

Taxation

Taxation of quarries is governed by Section 171(2) of the 2016 Mining Code, which determines the amounts of fixed duties for quarries as follows:

Quarry license

- *Grant: CFAF 1 500 000;*
- *Renewal: CFAF 2 000 000.*

(b) Quarry permit

- *Grant: CFAF 2 000 000;*
- *Renewal: CFAF 2 500 000;*
- *Transfer: CFAF 3 000 000.*

The duties for non-industrial mining are:

(a) Non-industrial mining operator's card

- *Grant: CFAF 10 000;*
- *Renewal: CFAF 20 000.*

The 2016 Mining Code, Section 171(2) also sets duties for individual mineral substance collectors, non-industrial mining licenses, licenses to open a marketing office for mining substances derived from non-industrial mining, and small-scale mining permits, among others.

Section 173 of the 2016 Mining Code sets the amount of the area royalty, determined by basic cadastral units as CFAF 10/m²/year for a non-industrial mining license. Section 173 also sets the amounts of the State land concession rights as CFAF 25/m²/year for quarrying mining licenses and permits.

Finally, Section 175 of the 2016 Mining Code sets the amount of ad valorem tax on commercial non-industrial and industrial quarry substances as follows:

- *unconsolidated materials (clay, stones, laterite, pozzolan, sand, etc.): CFAF 350/m³*
- *hard materials (stones): CFAF 350/m³*

Additional provisions specifically related to quarrying

As most of the minerals that are the subject of this study are 'quarry materials', it is important to note that there are additional specific legal provisions related to quarrying. These are provided in the 2016 Mining Code Part III, Chapter I, which specifies the 'Common Provisions Relating to the development of Quarry Substances', including who can undertake quarry activity in Cameroon, specifics of quarry license allocation, and obligations of holders of quarry licenses, and Chapter II, which provides 'Provisions Specific to Each Type of Quarry', including non-industrial quarries.



4.2 Enforcement/implementation achievements and challenges

As provided in Article 1 of Decree No. 2012/432 of 01 October 2012, the Ministry of Mining (MINMIDT) is responsible for the formulation and implementation of policy. MINMIDT works through CAPAM, the Artisanal and Small-Scale Mining Department, BNCAM, and with other ministries such as the Ministry of the Environment, Nature Conservation, and Sustainable Development (MINEPDED) to oversee regulation of artisanal mining and quarrying. Specifically, CAPAM oversees artisanal mining, BNCAM aids with monitoring and compliance, and MINEPDED is responsible for conducting and evaluating environmental and social impact assessments, as well as issuing environmental and social compliance certificates. These government organs and their roles are further discussed in Component 3. The remainder of this section will discuss what was gleaned from desk-based research and from the field regarding policy enforcement and implementation achievements and challenges.

4.2.1 Achievements

Legal frameworks for artisanal mining and quarrying

The existence of legal frameworks for artisanal mining and quarrying in Cameroon is an achievement in itself. These frameworks are strengthened by the formation of CAPAM, the Artisanal and Small-Scale Mining Department, and BNCAM. The framework for artisanal mining and quarrying must complement the broader legal framework noted above, and utilise adequate and efficient monitoring and enforcement on local levels. Adequate enforcement requires ongoing public education on local levels to ensure that miners know the law and the steps they need to take, use of appropriate incentives and penalties, and adequately trained local staff for monitoring, inspections, and enforcement. Enforcement is a challenging area in Cameroon, as in many countries, particularly as the government has few mining professionals available to work on local levels.

Efforts to develop local and regional authorities

As noted above, efforts are underway to develop decentralised local and regional authorities in Cameroon. Such efforts should continue, with focus on providing trained professionals to work on local levels.

Financial programs for artisanal miners and small operators

As discussed in Component 3, Cameroon has a wide variety of programs that offer financial support for artisanal miners and small operators. These include the Integrated Program for Support to Actors in the Informal Sector (PIASSI) under the Ministry of Employment and Vocational Training; the Agency for the Promotion of Small and Medium Enterprises (APME) under the Ministry of Small and Medium Enterprises and the Social Economy, and the Cameroonian Small and Medium Enterprises Bank (BCPME). However, as noted below, lack of access to financing persists despite availability of these programs due to the informal nature of the mining activity.

Few issues with ‘fee collectors’ at mine sites

Less than 17% of miners surveyed reported they are required to pay a fee to someone to secure the right to mine, other than legal taxes. This rate was 0% among surveyed miners of pozzolan and sapphire, and highest among surveyed miners of sand, about 25%. This is an achievement given the informal nature of the mining activity, and the low number of registered



miners. Most miners who indicated paying some sort of fee reported that it is paid to a local commune, as described in the public actors subsection in Component 1 above. It is unclear at this time how this fee is being utilised, as the Finance Law of 1962 requires that such local funds be placed in a common account, making it difficult to trace by a particular source.

Independent control of mining equipment

Over 85% of miners surveyed reported that they own their mining equipment as opposed to renting it. This achievement indicates greater autonomy among the miners, and lack of any corrupt or negative influence that may result when miners are required rent equipment from a particular company. In other countries, problems often result when the rental equipment market is controlled by one company. Such monopolies often have powerful influences on miners and mining operations, and may take advantage of miners by artificially controlling rental fees or making other unreasonable demands.

4.2.2 Challenges

While Cameroon has successfully advanced its artisanal mining and quarrying sectors, there is still significant work to be done to address remaining enforcement and implementation challenges. Detailed quantitative statistics on many of the points described below are provided in Annex 7.

Informal Mining Persists

Informal mining presents a challenge. Survey responses from artisanal miners showed that only 30% of all artisanal miners had documented authorization to mine, less than 9% of workers mining gravel and dimension stones were authorised, and less than 4% mining sapphire were authorised. The primary reasons for not having documented authorization were that the miner did not know the “legislation and the steps to be taken”, and that the document were “not necessary for [the] activity”.

54% of all supervisors or owner/operators surveyed indicated the operation is legally registered, whereas 23% indicated being informal. 72% of legally registered supervisors or owner/operators indicated being a sole proprietorship. The lowest incidence of registration among respondents was in the mining of sand, where only 29% of supervisors or owner/operators indicated they were registered. About half of all supervisors indicated they believed that authorisation was not required.

81% of survey respondents indicated that they believe their work is in good standing with the law, however, responses to inquiries relating to the legality of miner operations were generally low compared to other questions.

When asked about payment of taxes, responses varied widely. 40% of supervisor or owner/operators surveyed indicated they never pay taxes. Another 60% responded that if they do pay taxes, it is only under the table.

Only 10% of the supervisor or owner/operators surveyed stated the burden of taxes is holding back development of their business, and only 3% indicated that the price of their goods has changed over the past 10 years due to changes in costs or taxes. One owner indicated the cause of his worst sales year between 2008 and 2017 was a “change in taxes.”



Yet, while only one quarter of supervisor or owner/operators surveyed stated that they have had difficulty with the administration, 80% of those noting problems with the administration indicated it was directly related to taxes. A few respondents stated that disagreements with the government over taxes has caused discontent within the company.

Lack of mining associations and professional groups

Associations can provide tremendous advantages to miners and generally help promote responsible mining. Less than 17% of all miners surveyed indicated having membership in an association or professional group. These numbers are lower than the figures obtained in the ACP-EU Development Minerals Programme census (2017) (30% of workers organised across Cameroon), however they vary across minerals. None of the surveyed miners of sapphire were members of an association or professional group, while 41% of miners of pozzolan were members of an association or professional group. Membership is also higher for operators/owners/supervisors compared to self-employed artisan workers.

The most commonly cited benefits include assistance transitioning from one job to the next and legal defense. Several miners responded that the professional association sets the price for minerals. Other miners responded that associations help manage disagreements and conflicts arising in the workplace. The role of associations in conflict management are further discussed in Component 4.

Lack of miner access to financing and financial services; Low levels of financial management skills

Another challenge is lack of access to financing for better and more efficient equipment and other inputs needed for mining activity. Less than 5% of miners reported that they have used a loan to finance their activity. Likewise, less than 10% of miners responded that bank loans or line of credit services were available to them. Many respondents state that, among other things, access to financing or loans would provide opportunities to improve or expand their business. About half of respondents surveyed stated that access to new equipment would provide an opportunity to improve or expand their business. Just over 25% of respondents stated that difficulty in accessing credit is holding back the development of their business.

Furthermore, more than 60% of miners reported that they do not have a bank account. Lack of access to financial services could leave miners vulnerable to outside influences and reduce likelihood of saving revenue from mining for future use. While a number of financial programs are available, miners working outside the formal sector are not eligible for these programs, which could be promoted, if not already, as a major incentive for formalisation.

Additionally, about half of miners indicated they do not keep financial accounting of income. Improving financial accounting skills and habits is one area where greater capacity could be built among miners and is the subject of training provided by the ACP-EU Development Minerals Programme.



Health and Safety Concerns at Mine Sites

Survey responses indicated a number of health and safety concerns, including a considerable number of injuries at mine sites.

Over half of miners stated that they have had an accident or injury on the worksite. A dozen miners stated they are not able to continue working in mining because of problems with their health in general. 50% of supervisor or owner/operators surveyed stated that there had been at least one accident at their operations in the past; some denied there being any accidents at their operations. At least one supervisor or owner/operator responded that there had been deaths on their work-site, one noted “someone died,” and one noted “someone died in water”. At least one respondent indicated that an accident or series of accidents on the worksite caused their worst sales year between 2000 and 2017.

The most common injuries among miners were general injuries, particularly to the hands and feet, general aches and pains, pain in the back and kidneys, and fatigue. Miners reported the highest cause of accidents was mishandling equipment or tools, followed by a fall or misstep, and tool or equipment failure. Supervisors or owner/operators surveyed reported far fewer incidents of tool or equipment failure and far more incidents of mishandling. Other health problems include disease, primarily malaria.

About half of supervisor or owner/operators stated they have provided safety equipment to workers, including: boots or rubber shoes, gloves, goggles or glasses, masks and hard hats. Half of supervisors or owner/operators stated they have not provided safety equipment to workers, and one respondent employer stated that they do not know whether their operation provides safety equipment to workers. The most common reasons reported by miners surveyed for not wearing safety equipment or clothing to work were: the lack of resources to purchase equipment; that the equipment is not required and is not provided by employers or management; and that good quality equipment is either not available or not affordable.

On a more positive note, miners have reasonable access to health care centres. 80% of miners indicated that they could reach a health centre within 30 minutes, and more than 60% have a healthcare centre within walking distance of their worksite.

Additionally, a few respondents stated they are not able to continue working in mining because of problems with risks to their security.

Expanded miner education and capacity building regarding mine health and safety are needed and could help reduce accidents and injuries, and even prevent accidental deaths, at mine sites.

Lack of Collaboration Among Government Organs, on National and Subnational Levels

Field research also led to some reports of lack of collaboration among national and subnational government organs, and overlap and competition of monitoring responsibilities among government organs, namely the Directorate of Mines and BNCAM. These issues should be resolved, possibly by delegating monitoring roles from the Directorate of Mines to BNCAM. This is further discussed in Component 3.



Quarry Permit Decisions Lack Input from Municipal Authorities

Stakeholders reported that quarry permit decisions are made on regional levels without adequate input from municipal authorities.

Lack of Qualified Mining Professionals on Local Levels

Additionally, there is a lack of qualified personal with experience in the mining sector available on local levels.

The next section provides further analysis of the strengths and weaknesses of Cameroon's law and policy framework.



4.3 SWOT analysis of most salient policies and legislation

Table 6: Summary of SWOT analysis of Cameroon's law and policy framework

Strengths • A robust legal framework covering administrative, environmental, equal opportunity, financial, human rights, inspection, labour, land use, mining and quarrying, occupational health and safety, transparency, and other areas • Clear objectives for the minerals sector, which include raising standards of living and a commitment to advance Cameroon's economic and social development • Over a decade of experience advancing governance and formalization of the artisanal mining and quarrying, including establishing necessary programs, oversight (CA-PAM), and enforcement (BNCAM) • Innovative categorical definitions for artisanal mining and quarrying embedded within the Mining Code and related Decrees • A system of collecting taxes from artisanal mining and quarrying activity • Efforts underway to create decentralised local and regional authorities • Miners appear to own their mining equipment • Most miners reported that they are not required to pay a fee to anyone in order to mine (excluding legal taxes) • Financial support programs for miners	Weaknesses • Informal artisanal mining and quarrying remains prevalent in Cameroon, particularly because miners do not know what steps they are required to take to obtain authorisation, or believe that it is not necessary • The vast majority of miners are unorganised in any association or professional group, which could be advantageous to miners and help promote responsible mining • Almost all of the miners surveyed reported lack of access to financing for mining activity, and lack of access to a bank account • Ongoing safety concerns at mine sites, as evidenced by reported injuries • Lack of training of mining professionals available at local levels to support miner education and capacity building, monitoring, inspections, and enforcement • Lack of adequate coordination and collaboration among government organs, on national and local levels • Quarry permit decisions are made on regional levels without adequate input from municipal authorities • Lack of provisions in Mining Code specific to gender or child labour issues
Opportunities • Education regarding legal requirements for artisanal mining and quarrying, and the steps necessary to obtain documentation and permits could increase compliance • Support to establish mining associations or professional groups could help advance education regarding legal frameworks and good practices in the sector • Promote the benefits of formalised mining, including greater access to loans and financial services to support mining activity • Provide education regarding occupational health and safety, financial accounting and management of savings, and other capacity building programs to benefit miners and their families. • Increase the availability of trained mining professionals available at local levels	Threats • When asked about fees paid in order to mine (excluding legal taxes), 32 responded "yes" and most of those specified that they paid fees to the "commune." These payments should be further explored to avoid any negative influences • The very low level of access to bank accounts among artisanal miners leaves them vulnerable to outside influences, and reduces the likelihood of saving revenue from mining for future use • Lack of coordination and collaboration among government organs, including in the permit process and in monitoring and inspections • General lack of adequate human resources, technical skill, and law and policy enforcement at local levels



The table above summarises the strengths, weaknesses, opportunities and threats facing relevant to Cameroon's law and policy framework for artisanal mining and quarrying, and enforcement and implementation of this framework.

The SWOT analysis suggests that Cameroon should take advantage of the following **opportunities**:

- Educate miners at local levels regarding legal requirements and procedures necessary to obtain documentation and permits;
- Increase promotion of mining associations;
- Promote the benefits of formalised mining, including greater access to loans and financial services to support mining activity;
- Provide education regarding occupational health and safety, financial accounting and management of savings, and other capacity building programs to benefit miners and their families; and
- Increase the availability of trained mining professionals available at local levels.

The analysis further suggests that Cameroon should minimise the following **threats**:

- Investigate any potentially illicit payments required of miners to individuals or groups at the mine site;
- Aid miners in opening bank accounts, including savings accounts;
- Expand access to electricity to the homes of miners who currently lack access;
- Foster greater coordination and collaboration among government organs working in this sector, including in the permitting process, and in monitoring and inspections.

4.4 The Africa Mining Vision (AMV) and its Framework of Action

4.4.1 Overview of the AMV, Pillar IV and the Framework of Action

The African Union and the United Nations Economic Commission for Africa led development of the Africa Mining Vision (AMV) in 2008.⁴⁴ The AMV envisions “transparent, equitable, and optimal exploitation of mineral resources to underpin broad-based sustainable growth and socio-economic development.”

This vision will be achieved through, among others:

- knowledge development;
- market integration;
- good governance;
- mine safety;
- gender and ethnic inclusivity;
- environmental and social safeguards;
- strategic local and regional development;
- economic diversification,
- sector competitiveness;
- infrastructure development;
- incorporation of both commercial and small-scale mining;

⁴⁴ *Africa Mining Vision*, UNITED NATIONS ECONOMIC COMMISSION FOR AFRICA, <https://www.uneca.org/publications/africa-mining-vision> (last visited 9 December 2017).



- an artisanal and small-scale mining sector that stimulates entrepreneurship, improves livelihoods, and advances integrated rural, social, and economic development; and
- vibrant and competitive national, continental, and international capital and commodity markets.

This section will focus specifically on AMV guidance regarding the artisanal and small-scale mining (ASM) sector. The AMV notes the incredible importance of the ASM sector to Africa, where at least 3.7 million people are directly engaged in the sector and at least 30 million depend on it.⁴⁵ Harnessing this sector for sustainable social and economic development is thus key to fulfilling the AMV.

The Fourth Pillar of the AMV pertains to ASM. The objective related to this pillar is to foster the establishment of resilient ASM communities. Country-level action items include

- Formalise ASM and upscale programmes to upgrade knowledge, skills and technology in the ASM sector;
- Mainstream ASM into poverty reduction strategies;
- Ensure gender equality;
- Eliminate child labour;
- Stimulate partnership with government and large-scale mining to facilitate access to technology, skills, knowledge, and markets; and
- Strengthen ASM associations.

These objectives were further actioned through the AMV Framework of Action. In 2011, the African Union Conference of Ministers Responsible for Mineral Resources Development developed an Action Plan for Implementing the AMV, to move the AMV “from vision to action”.⁴⁶ At the national level, the Framework calls for States to:

- Regularise and mainstream ASM into broad stream rural economic activities;
- Develop policies to encourage technical assistance for artisanal miners to upgrade them to small and medium-scale mining enterprises and promote local service providers in the sub-sector;
- Develop programmes to upgrade knowledge, skills and technology in the ASM sector;
- Develop models for partnership with government and large-scale mines to facilitate access to technology, skills, knowledge, and markets;
- Develop a financing and marketing strategy appropriate to the needs of ASM;
- Determine geologically suitable areas for ASM;
- Develop methodologies or templates for distinguishing potentially viable ASM operations for targeted support;
- Develop and strengthen ASM associations; and
- Implement international guidelines banning the use of child labour.⁴⁷

The next section provides an analysis of Cameroon’s policy and legislation under this Framework of Action.

⁴⁵ *Id.*

⁴⁶ AFRICAN UNION CONFERENCE OF MINISTERS RESPONSIBLE FOR MINERAL RESOURCES DEVELOPMENT, Second Ordinary Session, 12-16 December 2011, *Draft Action Plan for Implementing the AMV*, http://www.africamingvision.org/amv_resources/AMV/AMV_Action_Plan_dec-2011.pdf.

⁴⁷ *Id.*



4.4.2 Policy and legislation implementation gap analysis under the AMV Framework of Action

Table 7: The AMV Framework of Action: Implementation and Gaps in Cameroon

AMV FRAMEWORK OF ACTION	ACTIONS IN CAMEROON ⁴⁸	GAPS IN CAMEROON	LEVEL OF IMPLEMENTATION
Regularise and mainstream ASM into broad stream rural economic activities	MINMIDT is responsible for management of minerals and other natural resources and promotion of local industry. MINMIDT's responsibilities including local processing of mining, agricultural, and forestry products, in liaison with the Ministry of Agriculture and Rural Development, the Ministry of Forestry and Wildlife, and other relevant administrations. This provides opportunities to integrate ASM with other rural economic activities. CAPAM includes a broad steering committee, which includes a representative of the Minister for Economic Affairs, Programming and Regional Planning; a representative of the Chamber of Commerce, Industry, Mining and Artisanal Mining; the Director of Mines; a representative of artisanal miners, elected by peers; and others, providing opportunities to build bridges between ASM, regional planning, and promotion of ASM.	While there is commendable action at the national level, action at the local level is low. In Pouma, for example, it is unclear whether ASM activity was considered in the new development plan under preparation. Field research results indicated some conflicts between artisanal and semi-mechanised mining; artisans and communal and administrative authorities; within communities; and between municipal authorities and national authorities. These tensions may significantly slow efforts to mainstream ASM.	LOW
Develop policies to encourage technical assistance for artisanal miners to upgrade them to small and medium-scale mining enterprises and promote local service providers in the sub-sector	CAPAM works on technical assistance to artisanal miners, including sand miners. The Ministry of Small and Medium Enterprises and Social Economy aids artisans and small-scale miners in upgrading and building capacity.	There is no sapphire cutting in Cameroon, and finding markets for export has been difficult. These impediments narrow potential development benefits from sapphire. Little emerged from the surveys about experience with programs to move artisanal miners into small and medium-scale mining enterprises.	LOW
Develop programmes to upgrade knowledge,	CAPAM and BNCAM work on capacity building, frequently at local levels.	The efforts of schools and educational institutions could be better coordinated through setting	MEDIUM

⁴⁸ Further elaboration of the institutions involved is provided in Component 3.



AMV FRAMEWORK OF ACTION	ACTIONS IN CAMEROON ⁴⁸	GAPS IN CAMEROON	LEVEL OF IMPLEMEN- TATION
skills and tech- nology in the ASM sector	Numerous public schools and insti- tutes, and some private initiatives such as the Institute of Commodi- ties are engaged in the artisanal mining sector.	common standards for admis- sion and graduation, etc. Many miners, particularly those working outside of the formal sector, continue to face substan- tial technical difficulties. Many miners need further capacity building in exploration and ex- ploitation techniques, and greater knowledge of the legal and institutional framework of the artisanal sector.	
Develop models for partnership with govern- ment and large- scale mines to facilitate access to technology, skills, knowledge, and markets	No actions identified	No actions identified	NO ACTIONS IDENTIFIED
Develop a fi- nancing and marketing strat- egy appropriate to the needs of ASM	Programs are available to provide market strategies to artisanal min- ers, including CAPAM and the Arti- sanal and Small-Scale Mining De- partment, however, financial sup- port for artisanal miners of develop- ment minerals is lacking.	Artisanal miners continue to op- erate without authorisation, which leaves them ineligible for access to financing. Access to markets continues to be difficult for many artisanal miners. Issues with infrastruc- ture contribute to the difficulties. Transport of pottery products, for example, during the rainy sea- son can be difficult in rural ar- eas. Potters sometimes walk for hours to reach a market to sell their products. Many respond- ents working in a quarry stated that they primarily sell materials is the side of the road; some re- spondents stated they sell the materials only in a market; and a few respondents stated they sell the materials in a shop they own.	LOW
Determine geo- logically suitable areas for ASM	The Directorates of Mines and Ge- ology are focused on determining suitable areas for ASM, supported by agencies such as the Centre for Geological and Mining Information	Geological information is availa- ble, but is not regularly updated.	MEDIUM



AMV FRAMEWORK OF ACTION	ACTIONS IN CAMEROON ⁴⁸	GAPS IN CAMEROON	LEVEL OF IMPLEMEN- TATION
	and by the Ministry of Scientific Research and Innovation. Detailed geological and mining maps for Development Minerals are available through the Directorate of Geology, Geological and Mining Information Center, CAPAM, and the Institute of Geological and Mining Research (IRGM). Multiple efforts to improve geological information and secure funding for future improvements are underway.		
Develop methodologies or templates for distinguishing potentially viable ASM operations for targeted support	No actions identified	No actions identified	NO ACTIONS IDENTIFIED
Develop and strengthen ASM associations	CAPAM is working to promote associations, and to build their capacity. Some producers and workers form associations, Common Interest Groups, and cooperatives, but there is no systemic organisation of producers and workers.	Participation in ASM associations is generally low and could be improved.	LOW
Implement international guidelines banning the use of child labour	Cameroon's oldest relevant order on this topic is Order No. 69/17 of 27 May 1969, concerning child labour. More recent legislation includes Order No. 082/PM of 27 August 2014, establishing, organizing, and operating the National Committee against Child Labor. On October 22, 2014, the State of Cameroon, through the Ministry of Labor and Social Security, signed the protocol on the Country Program for Decent Work for the period 2014–2017. This includes the end of forced labour, child labour and discrimination in hiring and training.	Overall, participation of children in the artisanal sector is quite low in Cameroon, but does exist. When the ACP-EU Development Minerals Programme visited the Carrière Mère site for the 2017 census, for example, some children were present at the site. Children also assist with sorting and calibrating sapphire. Many respondent owner/operators surveyed indicated there are no full time child employees, but some indicated there are children under 14 working on the worksite; and some indicated there are children between the ages of 14 and 18 working on the site.	MEDIUM



4.5 Opportunities to strengthen the legal and policy framework for Development Minerals

As noted above, Cameroon has the majority of the elements of an appropriate law and policy framework for the artisanal mining sector in place. In particular, the 2016 Mining Code provides a comprehensive framework that includes an innovative approach to classifying non-industrial mining. The challenges in the legal and policy sphere are less the lack of legislation than they are from confusion in some cases regarding the roles of implementing agencies, and the limitations on capacity both in government and among mining practitioners themselves for robust implementation. This is visible, for example, in the area of formalisation, where it appears many miners are unclear regarding what the law requires and what is expected of them. Government efforts to build capacity are numerous and commendable, but have yet to reach all of the target audiences.

Based on the SWOT analysis and gap analysis under the AMV Plan of Action, the following present opportunities for improvement:

- Educating miners on local levels regarding legal requirements and procedures necessary to obtain documentation and permits;
- Increasing promotion of mining associations and professional groups;
- Promoting the benefits of formalised mining, including greater access to loans and financial services to support mining activity;
- Providing education regarding occupational health and safety, financial accounting and management of savings, and other capacity building programs to benefit miners and their families;
- Increasing the availability of trained mining professionals available at local levels;
- Investigating any potentially illicit payments required of miners to individuals or groups at the mine site;
- Aiding miners in opening bank accounts, including savings accounts;
- Expanding access to electricity to the homes of miners who currently lack access;
- Fostering greater coordination and collaboration among government organs working in this sector, including in the permitting process, and in monitoring and inspections;
- Developing models for partnership with government, buyers and large-scale mines to facilitate access to technology, skills, knowledge, and markets;
- Developing methodologies or templates for distinguishing potentially viable ASM operations for targeted support;
- Encouraging integration of ASM into local level development plans;
- Considering setting common standards for admission and graduation for schools and academic institutions;
- Expanding programs that aid artisanal miners in accessing local and international markets;
- Ensuring that information needed to identify suitable areas for artisanal mining is updated and current; and
- Continuing efforts to effectively eliminate child labour in the artisanal mining sector.



5 INSTITUTIONAL AND TECHNICAL OPERATING CONTEXT (COMPONENT 3)

5.1 Key institutional players, roles and responsibilities

This section includes a description of the institutions that are both directly and indirectly concerned with artisanal mining and with the development of the sector.

The institutional framework of Cameroon's artisanal mining sector is divided into three main categories: MINMIDT; other Ministries; and decentralised local and regional authorities.

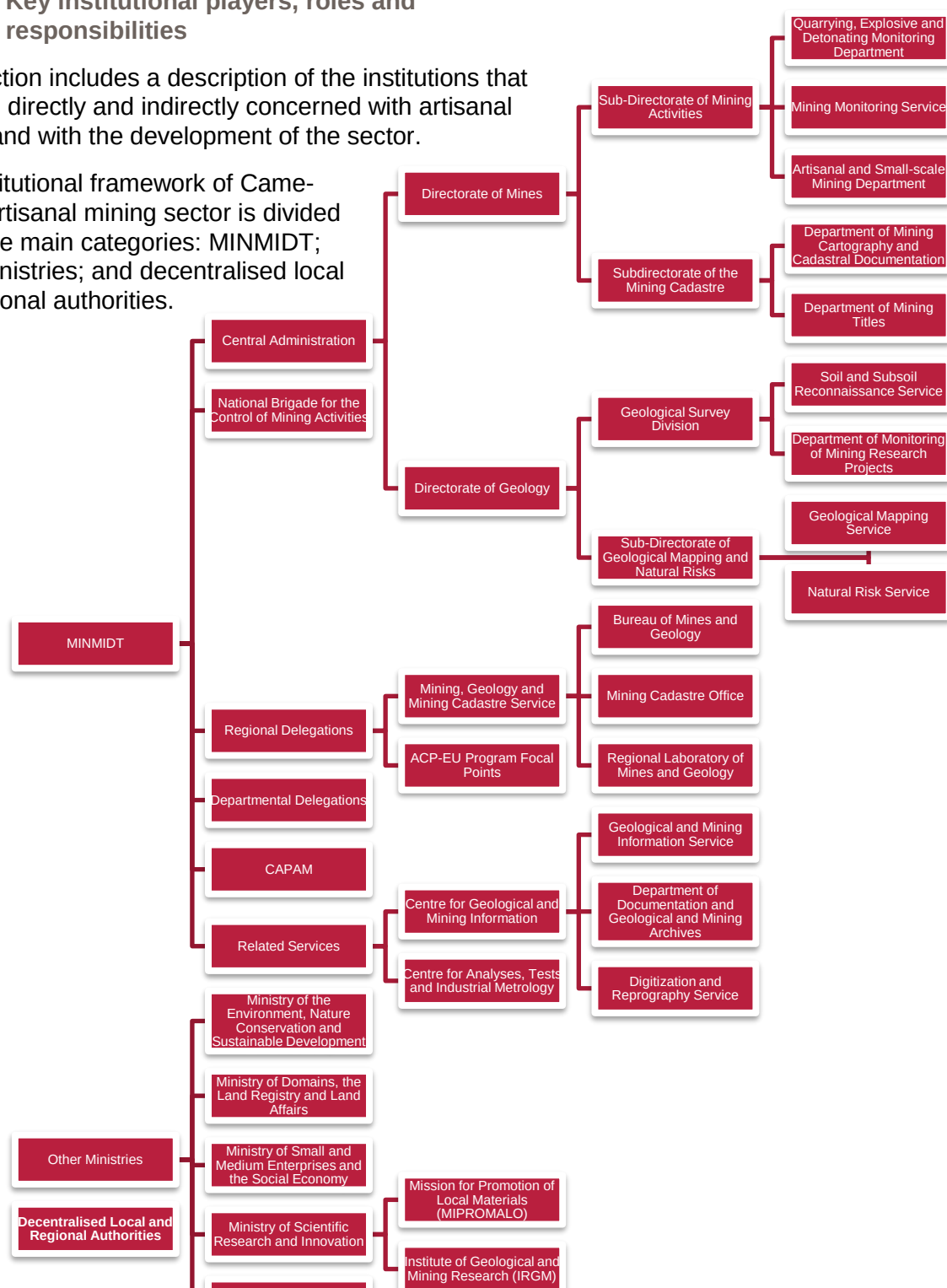


Figure 5: Institutional framework for Development Minerals in Cameroon



5.1.1 Ministry of Mines, Industry and Technological Development (MINMIDT)

In accordance with the provisions of Article 1 of Decree No. 2012/432 of 01 October 2012 on the organisation of MINMIDT, MINMIDT is responsible for the formulation and implementation of policy related to mining and industrial activities, and for strategies for technological development in the various sectors of the national economy. As such, MINMIDT is responsible for:

- mineral mapping;
- geological prospecting and mining activities;
- development of mineral, oil and gas resources;
- management of natural mineral and natural resources;
- monitoring of the upstream oil sector;
- promotion of local industry;
- development of industrial areas;
- promotion of private investment;
- promotion of investments in the mining, industry and technological development sectors, in liaison with the Ministry of Economy, Planning and Regional Development and the Administrations concerned;
- development and implementation of the country's industrialization plan;
- preparation, dissemination and follow-up of the implementation of the texts provided for in the Investment Charter;
- local processing of mining, agricultural and forestry products, in liaison with the Ministry of Agriculture and Rural Development, the Ministry of Forestry and Wildlife and other relevant administrations;
- technological development, in liaison with Scientific Research and Innovation;
- industrial technology monitoring in liaison with the administrations concerned;
- promoting and defending a quality label for products intended for the local market and for export, in liaison with the administrations concerned;
- follow-up of the activities of the National Office of Free Industrial Areas and of the Industrial Zone Management and Management Mission; and
- monitoring of standards and quality, in liaison with the administrations concerned.

These powers are exercised by the Minister of Mines, Industry and Technological Development to which are attached, apart from technical advisers and private secretaries, the services and organisations illustrated in the chart below.



Figure 6: MINMIDT's organisation and services



Central Administration

The Central Administration includes the services shown in the figure below. Of all the services, only the Directorates of Mines and Geology are focused on the artisanal mining sector.

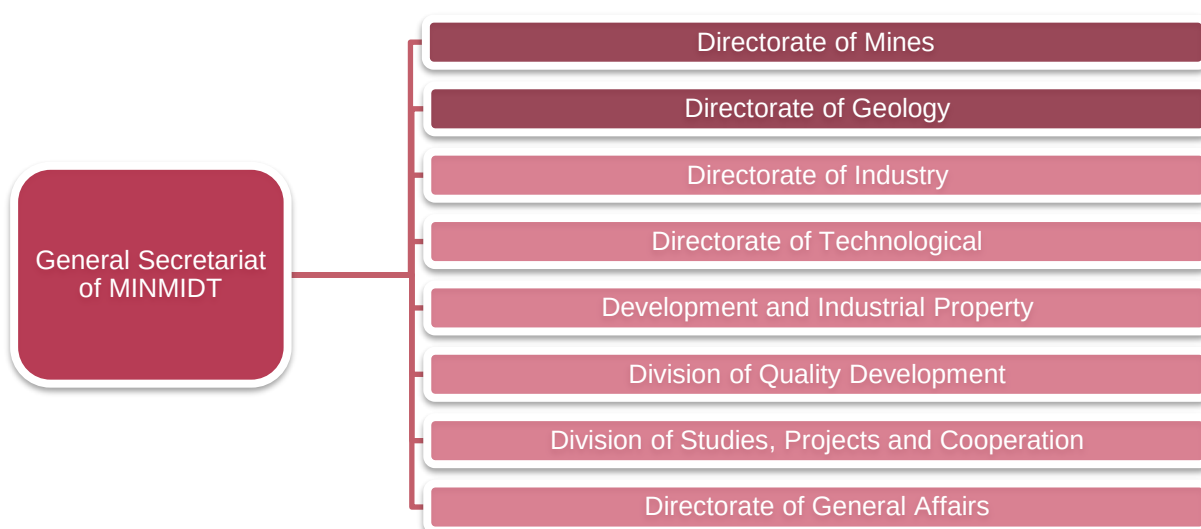


Figure 26: MINMIDT's Central Administration services

This *Directorate of Mines* was instituted by the decree organizing MINMIDT, which resulted from the division of the former Department of Mines and Geology into two directorates: the Directorate of Mines and Directorate of Geology. The duties of the Directorate of Mines, in accordance with Article 24 of the above Decree, are as follows:



Figure 27: Duties of Directorate of Mines

The Directorate of Mines subdivisions are described in the table below.



Table 8: Directorate of Mines Subdivisions

Sub-Directorate of Mining Activities	Quarrying, Explosive and Detonating Monitoring Department, which deals with: • administrative and technical supervision of quarrying, transport and marketing activities; • processing of applications for authorisation and preparation of acts relating to the operation of deposits of explosive substances; • processing of applications for authorisation and the preparation of acts relating to the operation of deposits of explosive substances; • controlling the movement of explosive and detonating substances; • consulting and awareness-raising for quarrying companies; • participation in the collection of statistical data on explosive and detonating substances; and • monitoring of the deposition of explosive and detonating substances.
	Mining Monitoring Service, responsible for: • processing of applications for authorisation and the preparation of acts relating to the marketing of mining substances; • administrative and technical supervision of the operation, transport, processing and marketing of mining substances; • participation in the collection of statistical data on the production, use and marketing of mineral substances; and • implementation of measures aimed at the optimum exploitation of mineral deposits.
	Artisanal and Small-scale Mining Department, responsible for: • follow-up of acts and operating authorisations relating to artisanal and small-scale mining; • monitoring and evaluation of the artisanal and small-scale sector; • administrative and technical supervision of the activities of artisanal and small-scale mining; • monitoring of the production, transport and marketing activities of artisanal and small-scale mining; and • participation in the monitoring of artisanal processing activities for mining products from the artisanal and small-scale mining sector.
	Department of Mineral and Thermal Water Monitoring (not relevant to study)
Sub-directorate of the Mining Cadastre	Department of Mining Cartography and Cadastral Documentation, which deals with: • development and updating of the national mineral and geological cadastral map; • monitoring of operations to secure the perimeters of mining titles; • digitization of mining and geological information; • maintenance and conservation of geological and mineral cadastral documentation; and • availability of cadastral mining and geological information.
	Department of Mining Titles, responsible for: • processing of applications for authorisation and the preparation of documents relating to mining titles and quarry permits; • processing of applications for authorisation and the preparation of acts relating to the exploitation of mineral waters, spring waters and thermo-mineral waters; • updating of the various mining records; • investigation of mining claims and quarry permits; and • notification of regulatory acts relating to mining titles and quarry permits.



The *Directorate of Geology (DG)* was created by the decree organizing MINMIDT and is responsible for:

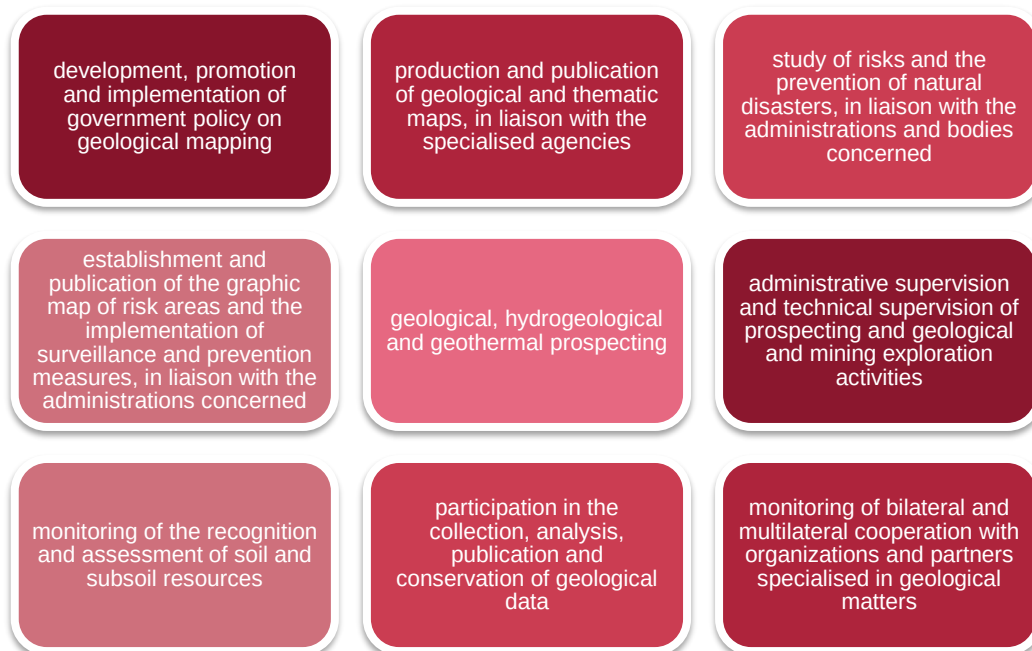


Figure 28: Duties of Directorate of Geology

This Directorate is comprised of two Subdivisions, presented in the table below.



Table 9: Directorate of Geology Subdivisions

Geological Survey Division, responsible for: • monitoring of soil and subsoil reconnaissance activities; • assessment of the geological reserves of deposits; • administrative supervision and technical control of research activities for mineral substances, mineral and thermo-mineral waters; • monitoring of mineral exploration activities; • validation of the results of analysis of samples of mineral substances; • processing of authorisation files for the shipment of samples of mineral substances to specialised laboratories; • monitoring of geological research activities; • inventory of national mining potential; • synthesis of reconnaissance and geological research reports; • participation in the elaboration of conventions and agreements relating to geological prospecting; and participation in the development of regulations for the recognition and exploration of solid mineral substances.	Soil and Subsoil Reconnaissance Service, which deals with: • monitoring of soil and subsoil reconnaissance activities; • participation in the assessment of the geological reserves of deposits; • the evaluation of the records of validation of the results of analysis of samples of mineral substances; • organisation of the administrative supervision and technical control activities of research missions for minerals, mineral and thermo-mineral waters; and • synthesis of reconnaissance and geological research reports. Department of Monitoring of Mining Research Projects, responsible for: • monitoring of mineral exploration activities; • participation in the elaboration of conventions and agreements relating to geological and mining prospecting; • participation in the development of regulations for the recognition and exploration of solid mineral substances; • monitoring of geological and mining research activities; and • and inventory of national mining potential.
The Sub-Directorate of Geological Mapping and Natural Risks is responsible for : • definition and implementation of strategies and actions for the prevention of natural hazards, in liaison with the administrations concerned; • surveying, geological, hydrogeological and geothermal mapping and publication, in liaison with the administrations and bodies concerned; • issuing, preparing and publishing mining indices and thematic indices, in liaison with the administrations and bodies concerned; • monitoring of the implementation of national geological mapping projects, in liaison with administrations and specialised bodies; • participation in the realization of studies of natural hazards of geological origin; • participation in the management of natural disasters of geological origin; • monitoring of maps of natural hazards of geological origin, in liaison with administrations and specialised agencies; • the development and updating of the national map of natural hazards of geological origin; and • the issuance of geological notices and advance notice required for the construction of works and the development of sites.	Department of Geological Mapping, responsible for: • the establishment and publication of geological, hydrogeological and geothermal maps; • the preparation and publication of thematic maps and mineral indices; • monitoring the implementation of projects for the realization of national geological mapping; and • identification of areas of natural hazards of geological origin and development of maps of risk areas. Natural Risks Department, responsible for: • implementation of strategies and actions for the prevention of natural hazards of geological origin; • preparation and follow-up of studies on natural hazards of geological origin; • organisation of the follow-up of the surveys of natural hazards of geological origin; • updating of the national risk map; and • issuance of geological notices and advance notice required for the construction of works and the development of sites.



National Brigade of Control of Mining Activities (BNCAM)

The National Brigade of Control of Mining Activities (BNCAM) was created by the decree organizing MINMIDT. This Brigade is responsible for:



Figure 29: Duties of BNCAM

Regional Brigades

Article 85 of Decree No. 2012/432 reorganizing MINMIDT provides that the Minister in charge of mines may, as necessary, create by order, Regional Brigades for the Control of Mining Activities, which are responsible for:



Figure 30: Duties of Regional Brigades



Regional Delegations of MINMIDT

The Regional Delegations are responsible for:

- coordination of departmental activities in the Region;
- monitoring of the activities of the Regional Mining Control Brigades;
- monitoring at the regional level of research programs oriented towards the valorization of raw materials of mineral, agricultural and forestry origin; and
- implementation of mining cadastre activities.

The Regional Delegations include the *Mining, Geology and Mining Cadastre Service* which is responsible for:



Figure 31: Duties of Mining, Geology and Mining Cadastre Service

The Mining, Geology and Mining Cadastre Service has three offices, namely:



Figure 32: Mining, Geology and Mining Cadastre Service Offices

ACP-EU Development Minerals Program Regional Focal Points also fall under the Regional Delegations. A focal point for the Western Region was designated⁴⁹ after the Minister of Mines, to follow-up on implementation of ACP-EU Development Minerals Programme activities.

⁴⁹ La Décision n° 001490/L/MINMIDT/CAB/nba du 10 Mai 2015 [Decision No. 001490/L/MINMIDT/CAB/nba of 10 May 2017].



Departmental Delegations of MINMIDT

Departmental Delegations are responsible for coordination and monitoring of all departmental activities, projects and programs; and monitoring and orientation of agricultural, forestry and mineral processing initiatives.

5.1.2 Framework for the Support and Promotion of Artisanal Mining (CAPAM)

CAPAM, established by Decision No. 238/MINMEE/CAB of 01 April 2003 of the Minister of Mines, Water and Energy and by Order No. 064/PM of 25 July 2003 of the Prime Minister, plays a role in coordination, organization, facilitation, support, promotion and development of artisanal mining, especially gold mining. The project is enabled through Article 70 of Decree No. 96/227 of 01 October 1996 on the organization of the Ministry of Mines, Water and Energy, which allows that assigning, by regulation, a project manager for implementation of certain major projects under the Ministry.

CAPAM is responsible for channelling artisanal mining products to formal channels and promoting cooperation with the private sector, development partners and non-governmental organisations. CAPAM is also responsible for :

- identification of existing and potential artisanal mining sites;
- organisation, at the level of each mining locality, of artisanal miners or cooperatives in groups of joint initiative;
- promotion of a gradual evolution of authorisations for artisanal exploitation research and exploitation permits;
- facilitating the access of the artisanal mine to modern equipment, facilities, training and technical assistance;
- facilitation of obtaining research permits or operating permits on the perimeters of artisanal exploitation;
- facilitation of access by artisanal miners and their socio-professional groupings, in particular to:
 - essential work equipment such as mining shovels, pans, sieves, motor pumps, washing tables and scales;
 - modern equipment and technologies; and
 - technical assistance for the prospecting, extraction, processing, reclamation of mineral substances not recovered by artisanal miners; marketing, safety and preservation of minerals; and environment protection;
- facilitation of access to micro-credits and micro-finance for artisanal miners and professional associations;
- training and development of artisanal miners and their professional associations;
- channelling artisanal mining products to formal channels;
- contribution, in liaison with the Ministry in charge of currency, to strengthening gold reserves of Cameroon within the framework of a partnership between the Ministry in charge of mines and the Bank of Central African States;
- contributing to the visibility of artisanal mining centres and to the improvement of living conditions of artisanal miners and populations surrounding artisanal mine sites; and
- promotion of cooperation with the private sector, development partners and non-governmental organisations.

As an organisation, CAPAM is comprised of, at the central level, a steering committee chaired by the Minister in charge of Mines and an executive body headed by the Coordinator, and at the local level, local consultation committees and decentralised units called ULATAM (local technical support units for artisanal miners). Each site is managed by two mining engineers or mining geologists recruited and assigned to reside on the mining site. The CAPAM Steering



Committee is responsible for defining, guiding and evaluating the activities of CAPAM, and as such it:

- plans, directs and evaluates the activities contributing to the achievement of the objectives assigned to CAPAM;
- reviews and approves the budget and finalises the annual accounts and financial statements of CAPAM; and
- takes any measure relating to the smooth running of CAPAM, e.g. forging partnerships or joint ventures.

The steering committee consists of the following members:

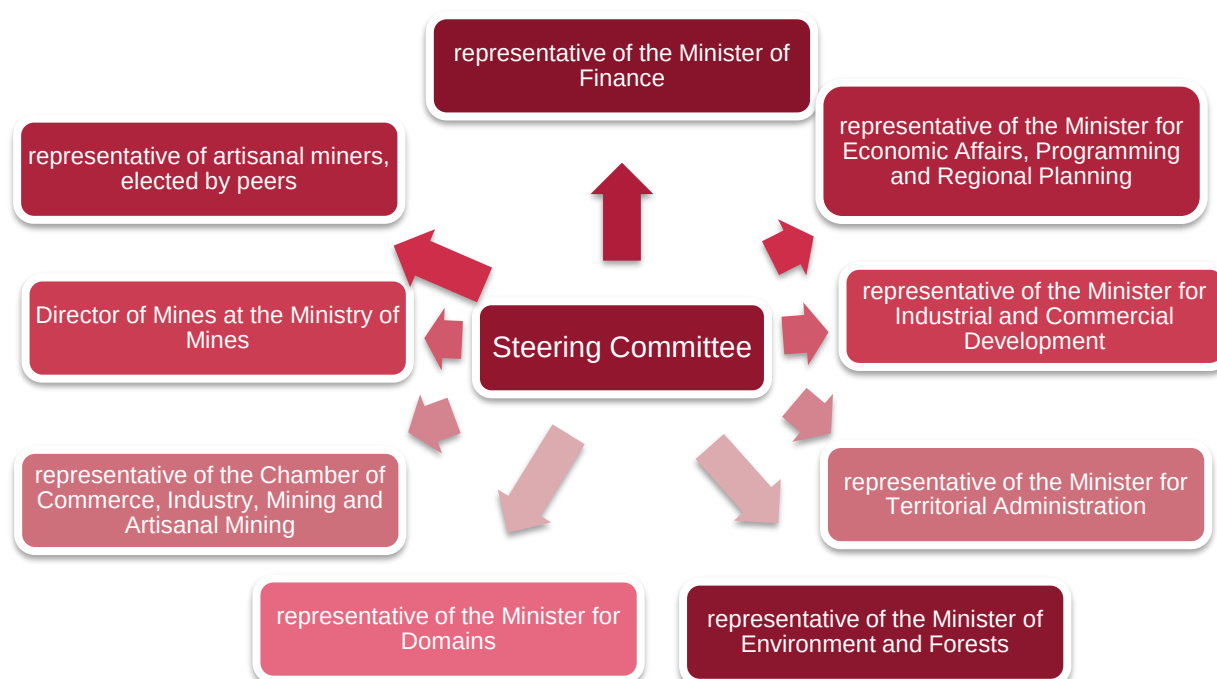


Figure 33: CAPAM Steering Committee Members

The chairman may, in an advisory capacity, appeal to any natural or legal person because of their competence or role in the field of artisanal mining. The steering committee meets, as necessary, at least two times a year, convened by its chairman. The notice of meeting, accompanied by the draft agenda, must be sent to the members of the steering committee at least 15 days before the date set for the meeting, except in case of emergency. The executive body of CAPAM is under the authority of a coordinator, supported by the operational units. The Coordinator is responsible for:

- execution of the missions of CAPAM;
- management of personnel;
- preparation and review of the CAPAM budget;
- internal management of CAPAM; and
- synthesis of CAPAM activity reports and statistics.

5.1.3 Related Services

Related Services include the Centre for Geological and Mining Information; Centre for Analyses, Tests and Industrial Metrology (not relevant for this study); and Institute of Geological and Mining Research. The role of the *Centre for Geological and Mining Information* includes:

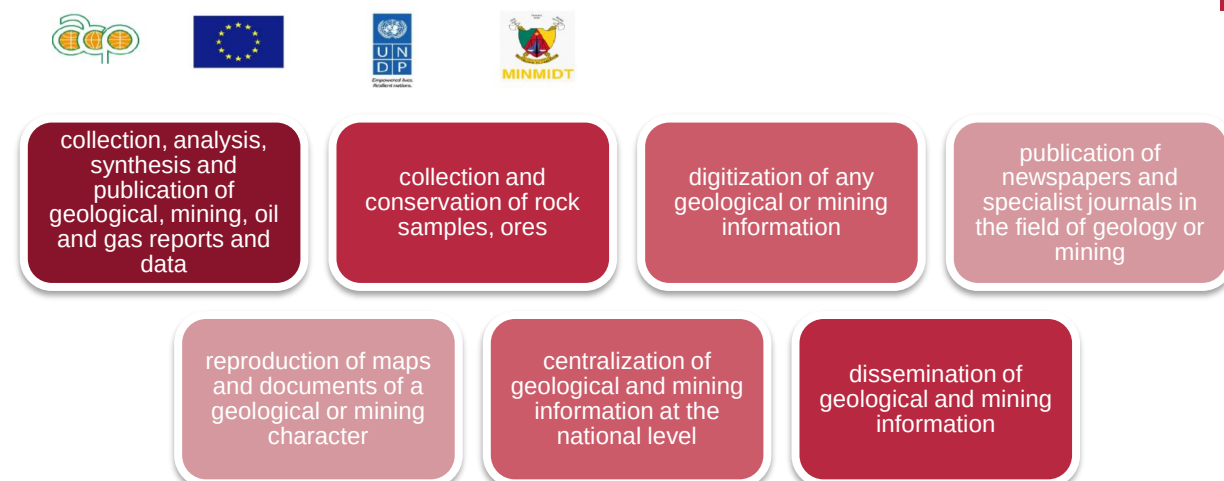


Figure 34: Centre for Geological and Mining Information Roles

The Centre for Geological and Mining Information provides the following services :

- *Department of Geological and Mineral Promotion* (not of relevance to this study)
- *Geological and Mining Information Service*, responsible for:
 - collection, analysis, synthesis and publication of geological, mining, oil and gas reports and data;
 - production, dissemination and exchange of geological and mining information;
 - centralization, updating and dissemination of geological and mining information;
 - production and dissemination of periodic reports and notes on mining activity in Cameroon; and
 - designing and publishing notes and journals related to geological and mining activity, in connection with the Communications Unit.
- *Department of Documentation and Geological and Mining Archives*, in charge of:
 - acquisition and conservation of textbooks and scientific journals relating to the mining, geology and hydrocarbons sector;
 - collecting, maintaining and preserving records relating to the mining, geology and hydrocarbons sectors; and
 - collection, holding and storage of rock samples and minerals.
- *Digitization and Reprography Service*, responsible for:
 - the digitization of all geological and mining information;
 - reprography of geological and mining documents;
 - the collection and conservation of geological, mining, oil and gas reports and data; and
 - collection and conservation of geological, geophysical, geochemical, thematic and mineral index maps as well as maps of natural hazards.

5.1.4 Structure for management and promotion of artisanal mining

Article 30 of the 2016 Cameroon Mining Code states that there shall be a structure within the State responsible for the monitoring and control, production, marketing and promotion of the processing of substances from artisanal and semi-mechanised artisanal mining activities. However the decree of organisation of this structure is not yet available.

5.1.5 Other ministries involved in the Development Minerals sector

The artisanal mining sector is subject to sectoral regulations other than mining regulations, therefore many administrations other than the mining authorities intervene in the exercise of artisanal mining activities. These are predominantly the following:

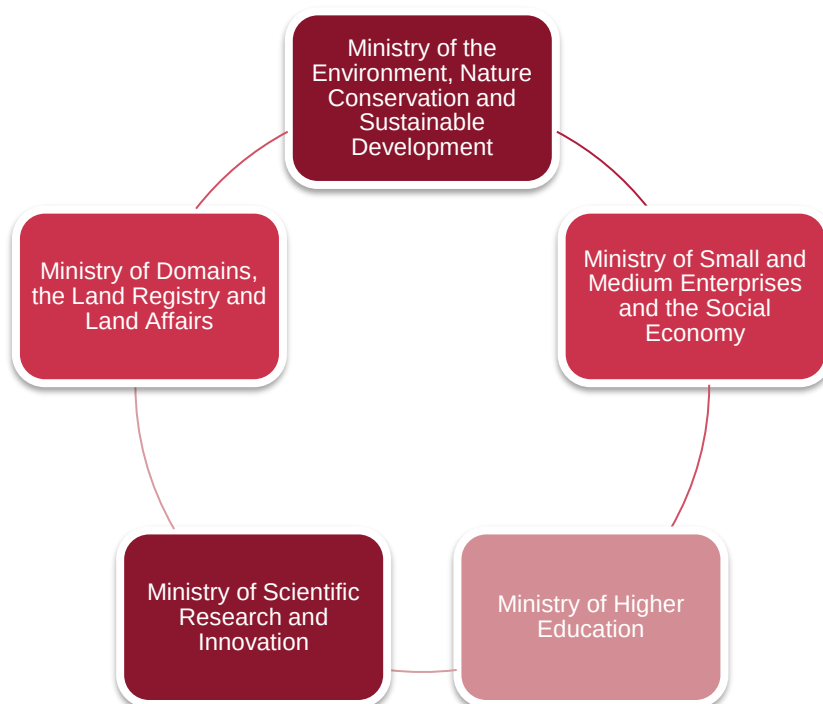


Figure 35: Other Ministries Involved in the Development Minerals sector

Ministry of the Environment, Nature Conservation and Sustainable Development (MINEPDED)

This ministry is responsible for carrying out and evaluating the environmental and social impact assessments of mining activities, as well as the issuance of environmental and social compliance certificates. The Interministerial Committee on the Environment, created by decree No. 2001/718/PM of 03 September 2001, amended by Decree No. 2006/1577/PM of 11 September 2006, occupies a prominent place in the process of approving these studies. Its members come from almost all Ministries and meet as necessary and at least once every quarter upon convocation by its president, who is a personality appointed by the Minister in charge of the environment.

The Ministry therefore oversees the strategy for environmental protection, the management of potential waste resulting from mining operations and the rehabilitation of mining sites.

Ministry of Domains, Cadastre and Land Affairs (MINDCAF)

Under Decree No. 2012/390 of 18 September 2012 on the organisation of the Ministry of Domains, Cadastre and Land Affairs, MINDCAF is responsible for the development and implementation of the Government's policy on land, cadastral and land matters. The involvement of this Ministry, in charge of land management, is required for making land available for a mining operation.

Ministry of Small and Medium Enterprises and Social Economy

This Ministry is responsible for the development, implementation and evaluation of the Government's policy on the development of small and medium-sized enterprises, social economy and artisans. This includes:



- promotion and supervision of small and medium-sized enterprises and artisans;
- identifying and studying the opportunities for migrants from the informal sector to become involved in artisanal and micro-enterprises;
- development of the social economy;
- promotion of entrepreneurship and private initiative;
- promotion of products of small and medium-sized enterprises and artisans, in liaison with the relevant professional organisations;
- establishment, in liaison with the professional organisations, of a data bank and projects for investors in the sectors of small and medium-sized enterprises and artisans;
- promotion of artisans;
- monitoring of the activities of aid agencies for small and medium-sized enterprises;
- monitoring of professional organisations of small and medium-sized enterprises and artisans;
- monitoring and informing the development of the informal sector; and
- study of any measures aimed at promoting information and training of the players in the informal sector

Ministry of Scientific Research and Innovation (MINRESI)

This Ministry intervenes in the field of mines through the Mission of Promotion of Local Materials (MIPROMALO) and the Institute of Geological and Mining Research (IRGM) :

- *MIPROMALO* was created by Decree No. 90/1353 of 18 September 1990 as a Public Institution with an Industrial and Commercial character. MIPROMALO is placed under the supervision of the Ministry of Scientific Research. The aim of MIPROMALO is to enhance the use of locally produced materials in order to reduce the cost of producing national equipment.
- *IRGM* was created by Decree No. 79/495 of 04 December 1979, the IRGM is placed under the supervision of the Ministry of Scientific Research and Innovation (MINRESI). This Institute is a Public Administrative Institution (EPA) of a scientific nature. The EPA status gives it considerable autonomy in management and economic resources managed by a Board of Directors. IRGM designs and executes research programs related to geological, mining, hydrogeological and energy data of Cameroon. In addition to these functions, the IRGM conducts geological mapping, evaluation of natural resources, development of databases of these mineral resources and the forecasting of natural hazards.



Ministry of Higher Education (MINESUP)

The ministry operates in the mining sector through its earth sciences institutions. These are the different faculties of the universities of Cameroon and more specifically the School of Geology and Mining Engineering (EGEM) and the Fouban Institute of Fine Arts of the University of Dschang.

5.1.6 Decentralised local and regional authorities

As a result of Act No. 96/06 of 18 January 1996, revising the Constitution of 02 June 1972 in Title 10 dealing with decentralised local authorities, a new legislative framework entered into force. It repealed certain provisions of Law No. 74/23 of 05 December 1974, relating to the municipal organization and that of 15 July 1987, on the creation of Urban Communities. The framework has a goal of decentralisation, and to enable communities to manage their own interests and shape their own future. This includes the management of natural resources.

5.2 Analysis of institutional capacity

Blurred institutional boundaries are apparent in the roles of all the actors involved in governing artisanal and small-scale mining activities. The following findings point to a number of conflicting and overlapping activities:

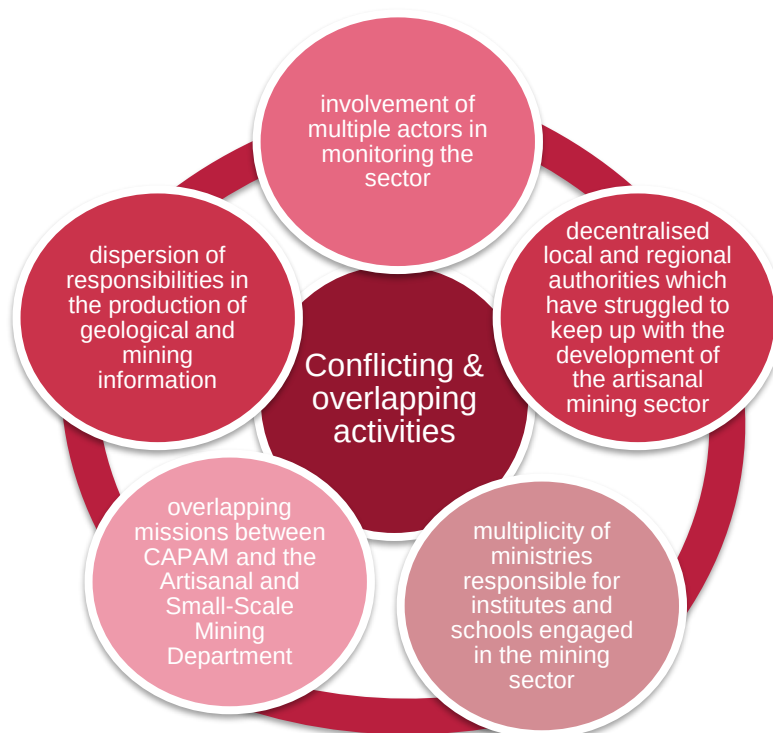


Figure 36: Conflicting and overlapping activities in governance of artisanal and small-scale mining activities



Involvement of multiple actors in monitoring the sector

As mentioned previously, the main mission of CAPAM is to supervise artisanal mining. Concurrent with these powers, Article 81 of Decree No. 2012/432 01 October 2012 also entrusts the competence of the supervisory authority for artisanal miners to the regional mining delegation, which raises the problem of effective distribution of powers on the ground.

There is also competing monitoring of mining activities between the Directorate of Mines and Brigade for Control of Mining Activities.

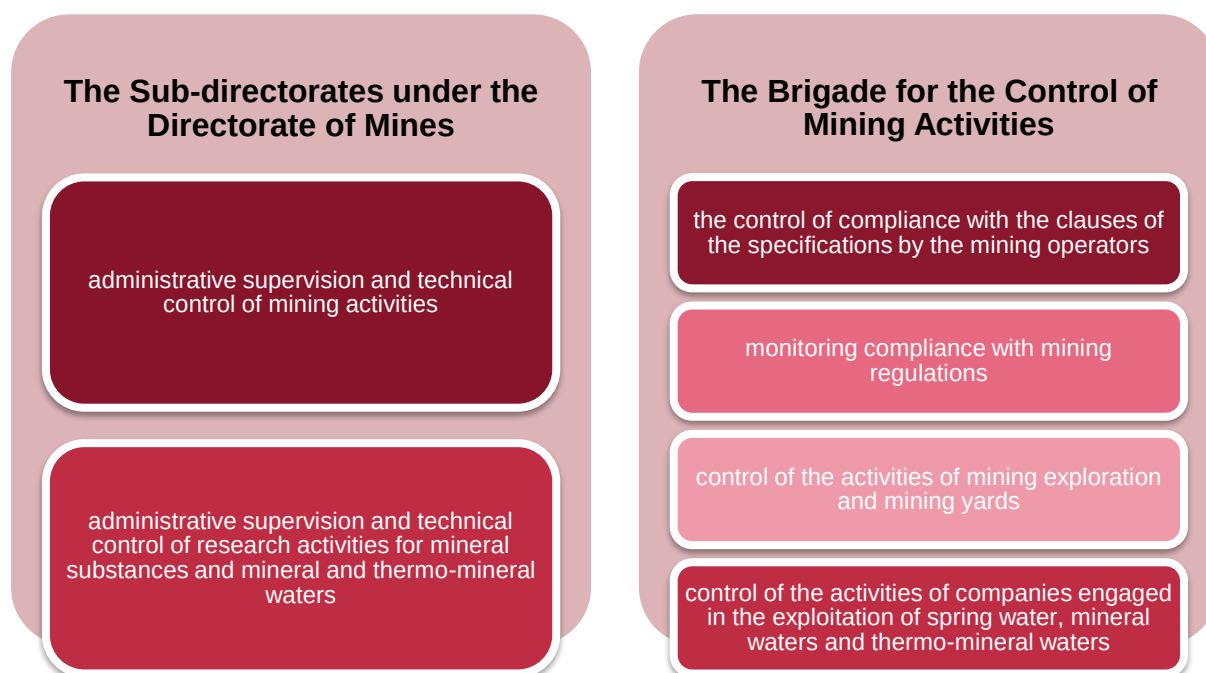


Figure 37: Roles of Sub-directorates & Brigade for the Control of Mining Activities

The Sub-directorates under the Directorate of Mines are in charge of:

- administrative supervision and technical control of mining activities; and
- administrative supervision and technical control of research activities for mineral substances and mineral and thermo-mineral waters.

Administrative supervision and technical control is given meaning in Article 148 (2) of Decree No 2002/1648 of 26 March 2002, which sets detailed rules for the application of Law No 001 of 16 April 2001 on the Mining Code, *“To ensure the preservation of all deposits, the safety of property and persons, the preservation of buildings, dwellings and roads, the protection and rational use of water sources, and the environment. To this end, officials responsible for administrative supervision and technical inspection shall, inter alia, carry out the necessary investigations and investigations to ensure compliance with the provisions of the Act, its implementing decrees and the Mining Convention and the right to access and inspect the sites, buildings, installations, structures, vehicles and other equipment used for mining purposes.”*



The Brigade for the Control of Mining Activities, however, is similarly responsible for:

- monitoring compliance with mining regulations;
- the control of compliance with the clauses of the specifications by the mining operators;
- control of the activities of mining exploration and mining yards; and
- control of the activities of companies engaged in the exploitation of spring water, mineral waters and thermo-mineral waters.

The exercise of supervisory activities by the Directorate of Mines raises questions as to the appropriateness of such controls for bodies which are involved in the performance of a number of mining activities, all applications for authorisation and permits, or the securing of the surfaces of the perimeters of these permits.

It is therefore advisable that the exercise of control powers be entrusted to a body which is not involved in the operational process of the mining process, such as the Brigade for the Control of Mining Activities, a body created by Decree No. 2012/432 of 01 October 2012 on the organisation of MINMIDT. The clear and exclusive definition of powers to control mining activities can only contribute to improving the efficiency of the various bodies and services involved in the mining activities process, in contrast to the current situation where several bodies participate in the control of mining activities.

Dispersion of responsibilities in the production of geological and mining information

A review of the responsibilities of these various bodies demonstrates that they are simultaneously assigned responsibilities for the production of geological and mining information. With regard to MINMIDT, this responsibility is entrusted simultaneously to the Directorate of Mines through the Sub-directorate of the Mining Cadastre⁵⁰, the Sub-directorate of Geological Prospecting⁵¹ as well as the Centre of Geological and Mining Information, to which is entrusted the centralization of geological and mining information at the national level. The table below indicates the holders of various types of data and the extent to which the data is accessible to the public.

⁵⁰ Art. 34 du *Décret n° 2012/432 du 01 Octobre 2012*, portant organisation du Ministère des Mines, de l'Industrie et du Développement Technologique [Decree No. 2012/432 of 01 October 2012, on the organization of the Ministry of Mines (MINMIDT), Art. 34].

⁵¹ Art. 38 du *Décret n° 2012/432 du 01 Octobre 2012*, portant organisation du Ministère des Mines, de l'Industrie et du Développement Technologique [Decree No. 2012/432 of 01 October 2012, on the organization of the Ministry of Mines (MINMIDT), Art. 38].



Table 20: Statue of geological and mining information availability and accessibility

DATA TYPE	AVAILABLE DATA TYPE	INFORMATION HOLDER	AVAILABLE SUPPORT TYPE	MEMORY STATUS	ACCESSIBILITY TO THE PUBLIC
Data on artisanal miners	Name, first name, age, sex, nationality, region of origin	CAPAM, Sub-Directorate of Mining Activity	Digital and analogue support	Not regularly updated	Accessible with prior authorisation
Company data	Name of owners	CAPAM, Sub-Directorate of Mining Activity	Digital and analogue support	Not regularly updated	Accessible with prior authorisation
Quarry data	Quarry Drop Map	CAPAM	Digital and analogue support	Not regularly updated	Accessible with prior authorisation
Production data	Quantity produced	CAPAM, Sub-Directorate of Mining Activity	Digital and analogue support	Not regularly updated	Accessible with prior authorisation
Data on the transport of minerals	Number of operators in the transport of building materials	MINMIDT Regional Delegation	Digital and analogue support	Not regularly updated	Accessible with prior authorisation
Geological data	Detailed geological and mining maps for Development Minerals	Directorate of Geology, Geological and Mining Information Center, CAPAM and IRGM	Digital and analogue support	Not regularly updated	Accessible with prior authorisation

There is no mechanism for centralization at this time. A solution may emerge from the Mining Sector Capacity Building Project (PRECASEM) underway, which has as a component the establishment of a mechanism for the centralization of geological data within the cadastral sub-directory.

The current difficulties of centralization are exacerbated by the fact that the IRGM belongs to another ministry, namely the Ministry of Scientific Research and Innovation, which in practice is not without its difficulties in collecting mining information.

There are multiple initiatives to improve geological information. While MINMIDT and CAPAM are requesting funds to improve geological and mining information, other initiatives are already underway. This includes ongoing research on localization and cartography of local building materials in Cameroon initiated by the Ministry of Public Works (MINTP) through the MINTP/Labogénie technical assistance agreement No. 294/CAT/MINTP/SG/CJ of 13 July 2010. The first results of this program provided information on the Adamaoua and Northwest regions.

Rather than undertaking sectoral exercises to improve geological and mining information, it seems crucial to capitalize on initiatives already underway.

Overlapping missions between CAPAM and the Artisanal and Small-Scale Mining Department

CAPAM and the Artisanal and Small-Scale Mining Department are both responsible for supporting the development of the artisanal sector and are working with the National Brigade to formalise the sector by all available means, including equipment, training and financing.



Multiplicity of ministries responsible for institutes and schools engaged in the artisanal mining sector

The Institut des Beaux Art de Foumban” (IBAF) (which sits under the University of Dschang), and the School of Geology and Mining Engineering (EGEM) (founded at the University of Ngaoundéré) fall under the Ministry of Higher Education (MINESUP). The same applies to all the Departments of Earth Sciences of all universities in Cameroon. The Mission for the Promotion of Local Materials (MIPROMALO) is under the supervision of the Ministry of Scientific Research and Innovation (MINRESI). The MIPROMALO Professional Training Center (CFP) is authorised by the Ministry of Employment and Vocational Training, by Order No. 0115/MINE-FOP/SG/DFOP/SDGSF/SACD of 11 August 2010.

In addition to these public institutes and schools, there are private initiatives such as the Institute of Commodities (IMP).

The multiplicity of schools, institutes and initiatives reflects a demand for capacity building in the artisanal mining sector in general and Development Minerals in particular. It may be appropriate to respond to these demands by consolidating the efforts undertaken so far. An analysis of the participation of MINMIDT in the guardianship could prove useful. For example, the conditions for admission and the graduation at the end of training courses could be set jointly by the Minister in charge of mines and the Minister for vocational training.

Decentralised local and regional authorities which have struggled to keep up with the development of the artisanal mining sector

While the decentralisation process puts communities at the heart of the natural resource development initiatives, there are many factors that do not allow communities to fulfill their role. For example:

- Incomplete drafting of regulatory texts to accompany the decentralisation process;
- Lack of effective control over the implementation of the legal and regulatory framework of the artisanal mining sector;
- Lack of qualified personnel on issues specific to the mining sector; and
- Lack of collaboration with the various decentralised services involved in the management of mineral resources.

5.3 Operating context for Development Minerals

5.3.1 Mining sector promotion activities

CAPAM and MIPROMALO are carrying out a series of activities aimed at promoting products resulting from the processing of Development Minerals in Cameroon. CAPAM and MIPROMALO regularly organise public awareness campaigns.

In addition to the efforts made by CAPAM and MIPROMALO, it is worth noting that the International Conference and Exhibition on Mines in Cameroon (CIMEC) is held every two years. CIMEC is organised by MINMIDT and aims to:

- encourage mining and related industries (drilling and drilling companies, analytical laboratories, expert firms, etc.) with proven experience to set up in Cameroon to develop local deposits and those of the sub-region;
- display mining projects that will soon return to production;
- contribute to the promotion and enhancement of the Cameroonian mining sector in general and that of the CEMAC zone in particular, so that it can more effectively support economic



policies for growth, poverty reduction, unemployment reduction and improvement of the living conditions of the populations; and

- in the medium term, to make Cameroon a regional platform for meetings, exchanges, promotion and trade with players in the mining industry and related activities in Africa and the rest of the world, at the same level as Investing in Africa Mining Indaba in South Africa or Prospectors and Developers Association of Canada (PDAC).

5.3.2 Relationship between institutions and operators/artisanal and small-scale miners

CAPAM, the Mining Brigade and Departmental Delegations of MINMIDT are the main entities with a frequent presence on the sites of exploitation. The relationships between these entities and the artisanal miners vary according to their missions. Technical and institutional capacity building missions are always very well received by artisanal miners, while missions to collect the various taxes applicable to the artisanal sector are generally not welcomed by artisanal miners. When the need for the latter arises, the state entities are accompanied by the Forces for Maintenance of Order (FMO).

Regularization by MINMIDT of sites whose establishment was not previously subjected to an operating permit often encounters strong resistance from artisanal miners.

5.3.3 Access to Finance

There are a wide variety of programs, agencies, and financial support banks for small operators. This is notably the case of the Integrated Program for Support to Actors in the Informal Sector (PIASSI) under the auspices of the Ministry of Employment and Vocational Training, the Agency for the Promotion of Small and Medium Enterprises (APME) under the supervision of the Ministry of Small and Medium Enterprises and the Social Economy of the Cameroonian Small and Medium Enterprises Bank (BCPME). Despite this diversity of opportunity, access to finance is one of the major difficulties for artisanal miners. The reasons for the low access to financing are mainly that artisanal miners operate for the most part without any authorisation. This situation leads to their non-eligibility for the various financial support programs.

5.3.4 Research & Development

The Fouban Institute of Fine Arts provides a 3, 5 and 8 year curriculum in the fields of fine arts and applied arts, as well as applied research services, services or professional training in the technical sectors corresponding to these activities. The teaching curriculum includes:

- Plastic arts and History of Art (sculpture, painting, drawing, engraving, ceramic art, art history and contemporary art);
- Decorative arts (stylism, model and textile arts, environmental arts); and
- Arts, technology and heritage (clays and metals technology, wood and fiber technology, heritage and museology).

Relevant research activities (basic and applied) focus on the following themes: Drawing/Painting, Clay and Ceramic Art, Metals and Metal Alloys, Wood and Fibers.

The Institute also supervises artisans, artists and local producers in the production of works of art and improvement of artistic techniques (through the transfer of technology), as well as through partnership and cooperation with public and private actors.

The research and development program of MIPROMALO is implemented by the Engineering Research Pole for Central Africa, which is a partnership with the Higher Institute of Advanced Materials and Mechanics (ISMANS), Le Mans and Euro Graduation Access, an international



consortium of training and research. The Engineering Research Pole has a research and engineering component with the following themes:

- Integrated research (in partnership with companies and training and research organizations);
- Local materials and green technologies (chemistry, materials, energy);
- Theoretical engineering transfer of technologies and skills, innovation knowledge economy and globalization;
- Engineering and transfer (to companies and research and training organizations);
- Mechanical design ;
- Computer-aided design ;
- Scientific and structural calculations;
- Design, ecodesign;
- Scientific and technical software;
- Continuing and professional training

In addition, the Engineering Research Pole has a continuing education program, including a topic on specialised techniques for local materials. The training modules are:

- Optimizing the performance of local materials;
- Ecological use of local materials;
- New technologies and local materials;
- Clays and ceramics implementation technologies;
- Wood implementation technologies;
- Characterization techniques of materials; and
- Science and technology of materials for technicians.

Research and development remains inadequate in the Development Minerals sector. Only clays and laterites are currently an integral part of the research programs of MIPROMALO and the Fouban Institute of Fine Arts described above. Furthermore, the absence of a mechanism for centralising the various university projects dealing with Development Minerals does not enable evaluation of the work carried out so far. Nevertheless, there are some publications of independent researchers on minerals, for example, on stability and resistance tests carried out by the Departmental Delegate of the Western Region to determine possibilities for use of pozzolan in construction and public works.

5.3.5 Gender and youth

There is no legal provision specific to gender and youth issues in the mining sector in Cameroon. However it should be noted that over the last few years, the promotion of gender has occupied a prominent place in Cameroon's national development policies and strategies. This has been demonstrated by efforts to promoting the rights of women and girls, ratification of the relevant international instruments and the establishment of dedicated institutions, at the head of which a Ministry for the Promotion of Women and the Family.

On October 22, 2014, the State of Cameroon, through the Ministry of Labor and Social Security, signed the protocol on the Country Program for Decent Work for the period 2014-2017. This calls for the end of forced labour, child labour and discrimination in hiring and training.

5.3.6 Workers associations and advocacy

In order to better organise their activities and meet their daily work needs, some producers and workers form associations, common interest groups and cooperatives. It is noteworthy that, even if freedom of association is guaranteed by Act No. 90/053 of 19 December 1990



regulating associations, there is no systematic organisation of producers and workers. As mentioned previously, less than 17% of all miners surveyed for this study indicated having membership in an association or professional group, however they vary across minerals. None of the surveyed miners of sapphire were members of an association or professional group, while 41% of miners of pozzolan were members of an association or professional group. Membership is also higher for operators/owners/supervisors compared to self-employed artisan workers.

Due to the mostly informal nature and risks associated with their activity, workers face several technical and financial difficulties, as well as difficulties related to low control of the market and harassment from public administrations. These lead to the following needs and expectations:

- Easy access to modern equipment;
- Easy access to bank credit to finance their activity;
- Establishment of health insurance specific to the workers of the sector;
- Capacity building in exploration and exploitation techniques;
- Capacity building on the legal and institutional framework of the artisanal sector;
- Reduction of taxes applicable to the artisanal mining sector; and
- Securing work spaces through the acquisition of mining licenses.

5.4 Skills gaps and training opportunities

The capacities of MINMIDT and CAPAM to monitor production, supervise artisans and promote products resulting from the processing of Development Minerals depends to a large extent on the performance of personnel. A training plan for organisations such as MINMIDT and CAPAM should be based on a needs analysis and should be multi-year, in line with the strategic objectives set out in the Government Performance Project.

The needs listed below were expressed by CAPAM management:

- Training in the prospecting, exploitation and processing of artisanal mining products
- Training in Mineral Resource Estimation
- Training for better management of the mining environment
- Training in safety and hygiene in mining sites
 - Audit and risk assessment
 - Health and Safety Plan
 - Waste management
- Training in alternative income generating activities
- Training for optimal revenue management and promotion of associations
- Improvement of geological information
 - Thematic mapping and statistics
 - Spatial geodesy (GPS)
 - Photogrammetry (interpretation of aerial photos)
 - Remote sensing (interpretation of satellite images)
 - Geographic Information Systems (GIS)
 - Computer graphics (graphic information)
 - Computer science applied to documentary engineering
 - Relational database management systems (RDBMS)
 - Data entry
 - Processing and storing data (databank)

It is recommended that a partnership agreement is signed between MINMIDT and the School of Geology and Mining of Ngaoundéré for the training of future managers of the geological and mining sector, in accordance with the normal mandate of the school, and also for the continuing



training of administrative staff, upgrading of existing staff and accelerated training of young recruits.

The training plan would also address further competency gaps identified as part of this study, described below.

Environmental and social monitoring and management skills within MINMIDT and MINEPDED

Some texts on application of the Mining Code have yet to be developed, notably the implementing texts concerning the zones prohibiting or protecting mining activities or the joint decree of Ministers in charge of mines and mining environmental impact assessments. Numerous technical and operational overlaps exist between MINMIDT and MINEPDED. In addition, MINEPDED agents do not have the same proximity to the artisanal sites and this situation makes it difficult to monitor the environmental impact of mining and artisanal operations.

In practical terms, it is recommended that MINMIDT recruit or be assigned specialists in environmental and social issues who may specialise in mining issues within MINMIDT. These specialists must be able to advise mining contractors and advise MINEPDED experts and social ministries on the specificities of the mining sector. Each ministry would still be able to play its full role, but under the coordination of MINMIDT and in particular the recommended environmental and social unit.

Community relations and conflict prevention skills in MINMIDT

The physical demarcation of mining sites is problematic, partly due to lack of coordination between the various actors involved in the process of granting authorisations for artisanal exploitation. Another factor is the somewhat unregulated nature of the opening of sites.

Following the granting of an operating license, licensees are required to physically demarcate their concession without the support of the Ministry, and the work is often poorly carried out, or not at all, then leads to conflicts of use around the limits.

Lack of authorisation to operate exploitation sites is a major obstacle to the prevention of conflicts. The process of allocating artisanal exploitation permits should be a mechanism for preventing conflicts. An operating license is accompanied by a specification which aims to ensure that social and environmental issues are taken into account in order to promote peaceful co-existence between operators and surrounding communities.

Value chain development, entrepreneurship and market analysis skills in CAPAM

One of the missions of CAPAM is to develop/strengthen the mineral value chain. In its strategic plan (2011-2016), CAPAM has identified and budgeted for a set of pre-feasibility studies on the valorisation and local processing of different types of mineral resources. The purpose of these studies is to assess the socio-economic impacts of this value-added operation, to raise interest among and involve local small and medium-sized enterprises, and to attract large investors. CAPAM's cash flow difficulties have not made it possible to carry out pre-feasibility studies.

The pre-feasibility studies envisaged by CAPAM would make it possible to evaluate entrepreneurial capacities and analyse the capacities of the local market.

Health & safety skills of artisanal miners

Although artisanal miners are concerned about health and safety, they commonly do not have knowledge or skills in this area. This is due, on the one hand, to the low level of schooling of



artisanal miners and, on the other, to the unregulated manner in which the sector is developing. Very few artisanal miners operate in compliance with the law. Absence of artisans' cards, absence of operating authorisation, absence of specifications and in some cases non-respect for the *cahier de charge*⁵² and failure to observe the rules of hygiene and safety characterised by the systematic lack of Personal Protective Equipment (PPE) are issues that have been observed at operating sites.

Financial management skills of artisanal miners

As raised under Component 2, more than 60% of miners reported that they do not have a bank account and about half indicated they do not keep financial accounting of income. Improving financial accounting skills and habits is one area where greater capacity could be built among miners.

5.4.1 Infrastructure and equipment gaps

The capacities of MINMIDT and CAPAM to facilitate and monitor the production and marketing of Development Minerals remain fairly low. This is due in particular to a shortfall in infrastructure and equipment.

Real Estate and Property Infrastructure

Despite some differences, the building facilities available to MINMIDT and CAPAM in general is rather poor. Some buildings are rented, and largely unsuitable, others are shared with other ministries.

The Central Administration offices are dispersed across several sites, and in most cases the premises are shared with other ministries. Two main poles can be considered for the Central Administration:

- Administrative centre, located in the heart of the administrative district; and
- Technical divisions consisting of the Directorate of Mines, Sub-Directorate of the Mining Cadastre and the Directorate of Geology.

CAPAM is based in a separate building in Omnisport district. The General Secretariat, General Inspectorate and General Affairs Department comprising the administrative centre are clustered in a building shared with the Ministry of Commerce, the Ministry of SMEs. This building (called the Rose Building) is an important administrative centre located in the city centre, close to many Ministries. With regard to the technical divisions:

- *Mines Department and the Mining Cadastre Division* under the PRECASEM program are housed together in the same building in the Bastos neighbourhood. These two entities benefit from particular attention from PRECASEM, which ensures the strengthening of its technical, institutional and human capacities. However, the Sub-directorate of Mining Activities, which is an arm of the Directorate of Mines, is located elsewhere, sharing the premises of the Directorate of Geology in the Nkolbisson district. From a functional point of view, this situation is not conducive to communication flow.
- *Directorate of Geology* located in the Nkolbisson neighbourhood is housed in a dilapidated building, unsuited to its function. The renovation work in progress prevents agents to move unhindered to their places of work. The absence of storage room for the archives implies that the archives are distributed through different rooms when they are not simply deposited

⁵² Technical mining term used in Cameroon (*cahier* means 'book')



in office space. Neither the allocated area nor the distribution of workspaces corresponds to the nature of the tasks.

- *Sub-Directorate of Mining Activities* and its various departments are located in the same building that houses the Directorate of Geology in the Nkolbisson neighbourhood.

At a functional level, the dispersion of services and Directorates across several buildings renders communication difficult. The working conditions are rather rudimentary, in terms of air conditioning and brightness of the workstations. It should be noted that some workstations are not sufficiently equipped.

CAPAM is located in a rather large building which offers a comfortable working environment for the staff. MIPROMALO is located on two sites. The central services (administration, research, analysis, training) are located in a modern building offering a comfortable working environment for staff. The processing unit is located in the Nkolbisson neighbourhood.

Observations on the Regional and Departmental Delegations facilities are more or less similar as that described above. These are characterised by: dilapidated buildings; narrowness of workspaces; lack of internal signage; inadequate computer equipment (computers); lack of internet connection; and non-networking of computers.

Technical equipment

An estimate of the technical equipment needs of MINMIDT and CAPAM is provided below. This estimate was undertaken by MINMIDT as part of their 2013-2017 acquisition plan, on the basis of a gap analysis for each workstation.

Table 21: MINMIDT acquisition plan 2013-2017

ENTITY	NEEDS	DETAILS
Directorate of Mines	Four-wheel drive vehicle (4WD)	
Sub-directorate of Mining Activity	High precision GPS	Garmin Oregon 550/Garmin 60 CX
	Topochaix compasses	
	Digital cameras	Canon/Sony
	Geological maps	per mineral
	Data-processing software	Licence QGIS 10
		Map Info + Discover (V.11.0)
		Adobe Illustrator CS
		Mapsource
Artisanal and Small-scale Mining Department	Four-wheel drive vehicle (4WD)	
	High precision GPS	Garmin Oregon 550/Garmin 60 CX
	Topochaix compasses	
	Digital cameras	Canon/Sony
	Geological maps	per mineral
	Geological maps	Licence QGIS 10



ENTITY	NEEDS	DETAILS
		Map Info + Discover (V.11.0)
		Adobe Illustrator CS
		Mapsource
Directorate of Geology	Four-wheel drive vehicle (4WD)	
Geological Survey Division	Four-wheel drive vehicle (4WD)	
	High precision GPS	
	Topochaix compasses	
	Flow meter	
	Geological maps	per mineral
	Resistimeters system prof	
	Digital cameras	
	Data-processing software	Licence QGIS 10
		Map Info + Discover (V.11.0)
		Adobe Illustrator CS
		Surfer V.9
		ResInv2D
		ERT LAB
	Laptops	High capacity
	Four-wheel drive vehicle (4WD)	Hilux
	Four-wheel drive vehicle (4WD)	Land cruiser
Sub-Directorate of Geological Mapping and Natural Risks	Four-wheel drive vehicle (4WD)	
	High precision GPS	
	Geological maps	
	Topochaix compasses	
	Digital cameras	
	Data-processing software	Licence QGIS 10
		Map Info + Discover (V.11.0)
		Adobe Illustrator CS
		Licence Quantum Gis
		Mapsource
Regional Delegations	Four-wheel drive vehicle (4WD)	
	High precision GPS	Garmin Oregon 550/Garmin 60 CX



ENTITY	NEEDS	DETAILS
Regional service for artisanal and small scale mining	Topochaix compasses	
	Digital cameras	Canon/Sony
	Geological maps	
	Data-processing software	Licence QGIS 10
		Map Info + Discover (V.11.0)
		Adobe Illustrator CS
		Mapsource
	Pocket altimeters	ALTI/BARO ADC RIDGE (SILVA)
	Polarised optical microscope	
Regional Mining Cadastre Service	Analytical or hydrostatic balances	
	Four-wheel drive vehicle (4WD)	
	High precision GPS	Garmin Oregon 550/Garmin 60 CX
	Topochaix compasses	
	Digital cameras	Canon/Sony
	Geological maps	
	Data-processing software	Licence QGIS 10
		Map Info + Discover (V.11.0)
		Adobe Illustrator CS
		Mapsource
Departmental Delegations	Pocket altimeters	ALTI/BARO ADC RIDGE (SILVA)
	Polarised optical microscope	
	Analytical or hydrostatic balances	
	Four-wheel drive vehicle (4WD)	
	Document management software	klastoo, atlanssian
	High precision GPS	Garmin Oregon 550/Garmin 60 CX
	Topochaix compasses	
	Digital cameras	Canon/Sony
	Geological maps	
	Data-processing software	Licence QGIS 10
		Map Info + Discover (V.11.0)



ENTITY	NEEDS	DETAILS
		Adobe Illustrator CS
		Mapsource
	Pocket altimeters	ALTI/BARO ADC RIDGE (SILVA)
	Polarised optical microscope	
	Analytical or hydrostatic balances	
	Four-wheel drive vehicle (4WD)	

Source: PRECASEM and Adam Smith, June 2013

Table 22: Mission of Promotion of Local Materials (MIPROMALO) needs expressed in terms of production equipment in pilot units for the recovery of materials (clays, laterites and sand)

TYPE OF MATERIALS	MA-	EQUIPMENT	QUANTITY
Shared			
Clay & Laterite		Crusher	4
Sand & Laterite		Cement mixer	3
Unspecified		Pallet jack	3
		Mixer	3
Specific to each material			
Clay		Extruder	2
		Shovel loader	1
		Kiln	2
Laterite		Hydraulic press with earth bricks	3
Sand		Vibrating table for tiles in micro-concrete	3
		Cement mixer	3
		Mold for tiles in micro-concrete	220

Source: MIPROMALO, 2017



5.5 Opportunities to strengthen the institutional and technical operating context for Development Minerals

The possibilities for Cameroon to develop the Development Minerals sector on a sustainable basis are highly dependent on MINMIDT's institutional and operational capacities. As discussed in this section, MINMIDT is not currently in a position to confront the challenges it faces, unless the necessary reforms are undertaken. This is due to the extensive overlap in functions that exists with other entities such as CAPAM. In its current configuration, CAPAM appears to be the most appropriate body for the development of neglected minerals in Cameroon. However the capacity of CAPAM to continue the work done so far seems to be compromised since the introduction of the 2016 Cameroon Mining Code relating to the structure for management and promotion of artisanal mining. The analysis conducted for this study shows that the overlap in roles between different State structures is holding back the development of the artisanal sector. Moreover, this assessment has also identified certain conflicts resulting from the lack of coordination among public administration actors.

Some opportunities to address the gaps observed in the institutional framework are as follows:

- Finalising the regulatory framework to implement the 2016 Mining Code, specifically on the organisation and operation of the State structure responsible for the monitoring and control, production, marketing and promotion of the processing of substances from semi-mechanised artisanal and artisanal mining activities.
- Strengthening the capabilities of the geological services of both MINMIDT and IRGM, specifically in terms of assessing geophysical or geochemical mineral reserves. This can be provided in university geological training institutions. In addition, a centralised geological information system should be established.
- *Improving the mining inspection system* by ensuring sufficient resources in terms of personnel, equipment, equipment and vehicles. Specialised hands-on training, with field visits, will also help strengthen the capacity of staff to take on this responsibility. Roles should be clarified and coordination improved with regard to inspections among the different inspection services, e.g. National Mine Brigade, Division of Geological Services, CAPAM and its regional offices.
- The recent move towards an online mining cadastre is undoubtedly a major advance. However, in its present form, this cadastre does not contain the titles of artisanal mines. It would be advisable to integrate artisanal mining authorisations into the mining cadastre in order to bring more visibility to the sector and avoid certain problems of overlapping. The artisanal component of the mining cadastre should be supported by a modern and digitised GIS. The implementation of such a program is urgent and will require appropriate human and financial resources.
- Strengthening the process of identification and demarcation of artisanal mining areas through better involvement of local and regional authorities (CTD). In the medium term it would be desirable for MINMIDT to include an allocation map in its mining cadastre which indicates areas dedicated to artisanal mining activities.

The need to establish a capacity building program for administration staff, as well as the to improve the infrastructural and technical capacity of some State structures such as MINMIDT, MIPROMALO and CAPAM has also been pointed out earlier in this chapter. These gaps are observed as significantly reducing the capacity of the State to fulfil its role in management of artisanal activities in Cameroon.



6 ENVIRONMENTAL, HEALTH AND SAFETY AND SOCIO-ECONOMIC IMPACTS (COMPONENT 4)

6.1 Overview

This section profiles the range of environmental, health and safety (EHS), and socio-economic impacts associated with the mining and beneficiation of the five focus minerals selected in this study. An overview is provided of the current state, significant risks and impacts imposed by the sector are identified and differences between the five focus minerals are highlighted. The chapter concludes with recommended mitigation and management measures.

The analysis is based on data collected both during the qualitative and quantitative fieldwork. The Social Framework⁵³ is used as a framework for analysis. This framework was selected for a number of reasons: it places human wellbeing at the centre of the analysis, draws on a number of other established livelihoods and wellbeing frameworks, is easy to communicate in simple terms, and has been applied effectively in the past by the study team. This component of the study also drew on The Toolkit for ASM Baseline Surveys in Africa⁵⁴ to define indicators characterising artisanal and small-scale mining communities.



Figure 38: Components of the Social Framework (Smyth and Vanclay, 2017)

In addition to the framework elements illustrated in the figure above, Health and Safety was added as a specific element, as was Gender. While these topics arguably sit respectively under the Community and People elements, they were considered significant enough to merit a standalone discussion. The table below lists the baseline indicators relevant to Component 4 and cross-references them against the Social Framework and the final elements applied in this study.

⁵³ EDDIE SMYTH & FRANK VANCLAY, THE SOCIAL FRAMEWORK FOR PROJECTS, A CONCEPTUAL BUT PRACTICAL MODEL TO ASSIST IN ASSESSING, PLANNING AND MANAGING THE SOCIAL IMPACTS OF PROJECTS, 25:1 DOI 65-80 (2017), <http://www.tandfonline.com/doi/full/10.1080/14615517.2016.1271539>.

⁵⁴ RICHARD NOETSTALLER, MARIEKE HEEMSKERK, FELIX HRUSCHKA, & BERND DRECHSLER, TOOLKIT FOR IMPLEMENTING ARTISANAL SMALL-SCALE MINING BASELINE SURVEYS IN AFRICA, COMMUNITIES AND SMALL-SCALE MINING (CASM), WORLD BANK, 2005.



Table 23: List of baseline indicators for Component 4

SOCIAL FRAME- WORK ELE- MENT	INDICATOR	ELEMENT IN BASELINE STUDY
Environment	- Households affected by mining	Environment
	- Main environmental impacts	Environment
	- Cumulative effects	Environment
	- Rehabilitation	Environment
	- Impact of climate change on mining	Environment
Land	- Land used for mining is privately owned	Land
	- Land tenure issues	Land
	- Miners' ownership of land used for agriculture	Land
	- Distance/ease of access to wood/charcoal	Land
People	- Transport time and mode to site	People
	- Miners with a mobile phone	People
	- Main illnesses in the community	People
	- Miners employed by someone with health insurance	People
	- Use of alcohol, drugs, painkillers by miners	People
Community	- Membership of professional association/union	Community
	- Occurrence and resolution of disagreements at sites	Community
	- Community cohesion	Community
	- Frequency and type of crimes in the community	Community
	- Intervention by police/military over last 12 months	Community
Culture	- Participation in religious events	Community
Community	- Work-related injuries and pain	Work H&S
	- Personal Protective Equipment (PPE) worn at work	Work H&S
	- Accident frequency and severity	Work H&S
Livelihoods	- Time spent mining	Livelihoods
	- Difficulties at work reported by miners	Livelihoods
	- Mining as a source of income	Livelihoods
Housing	- Distance from home to agricultural land	Livelihoods
	- Construction materials used for miners' houses	Infrastructure
Infrastructure	- State of the road to site	Infrastructure
	- Travel time to water source from site	Infrastructure
	- Travel time to health clinic from site	Infrastructure
	- Travel time to school from home	Infrastructure
	- Miners' access to electricity at home	Infrastructure
Livelihoods	- Work performed by women and income generated	Gender
Community	- Women's perception of security	Gender
Land	- Women ownership/access to land	Gender
Community	- Work performed by children below 18	Gender



Each indicator has been assigned a rating score using the following scale:

- 9 = exceptional,
- 8 = good,
- 7 = highly satisfactory,
- 6 = satisfactory +,
- 5 = satisfactory,
- 4 = satisfactory -,
- 3 = highly unsatisfactory,
- 2 = bad and
- 1 = critical.

The study team assigned ratings drawing on both the quantitative and qualitative survey results and assessment of impacts. A graphic summary of the ratings for each indicator is provided on the following pages, across all five minerals in total and by mineral. The different colours relate to different components. It should be noted that the scores have been assigned based on expert judgement for the purpose of communicating findings in a simplified manner. The detailed quantitative survey results for each indicator can be found in Annex 7.

The graphs below are followed by a discussion of significant issues and impacts by mineral. Differentiated and exceptional impacts for some minerals are also identified and discussed.

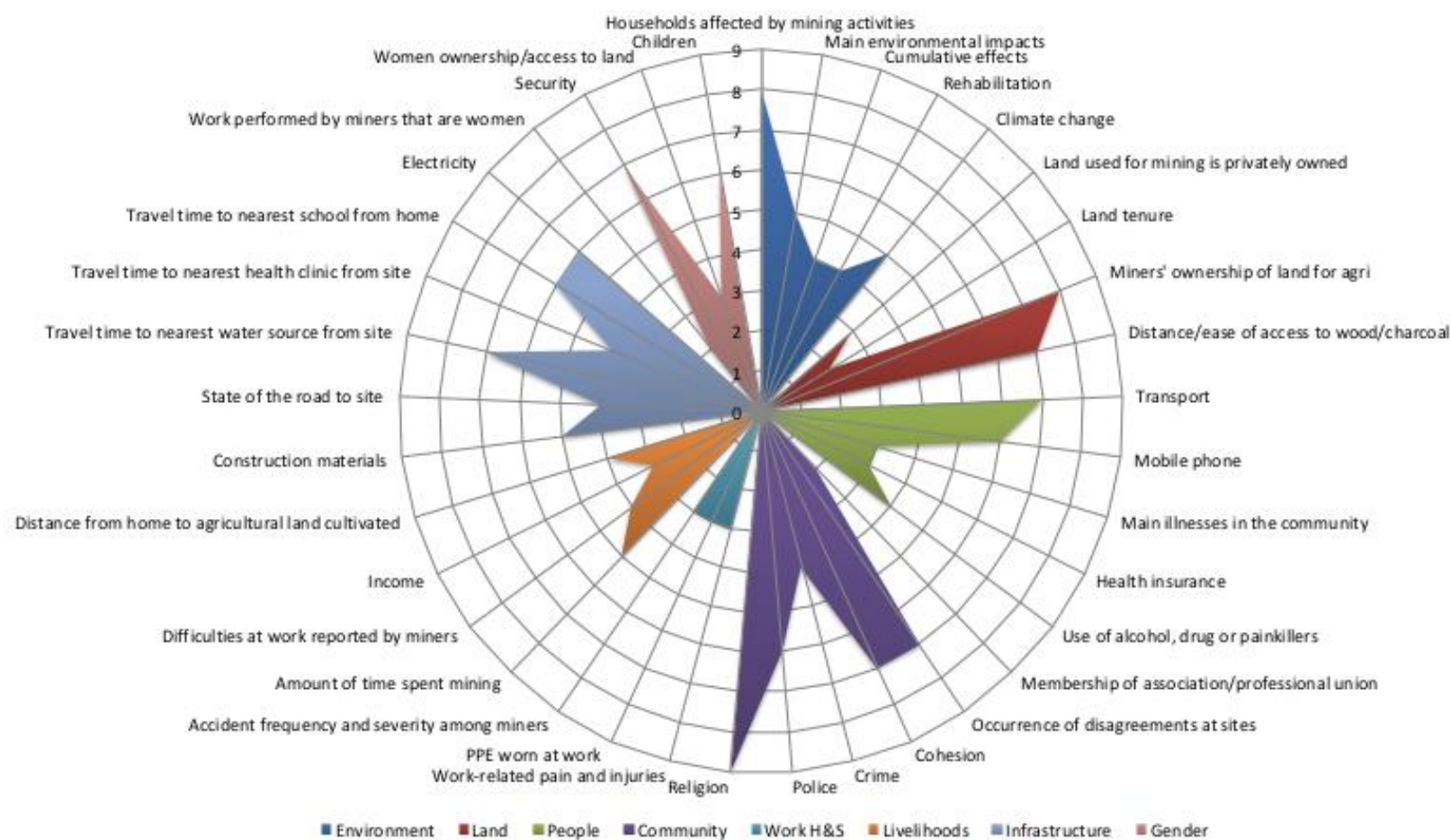


Figure 39: Component 4 indicator ratings for all five priority minerals

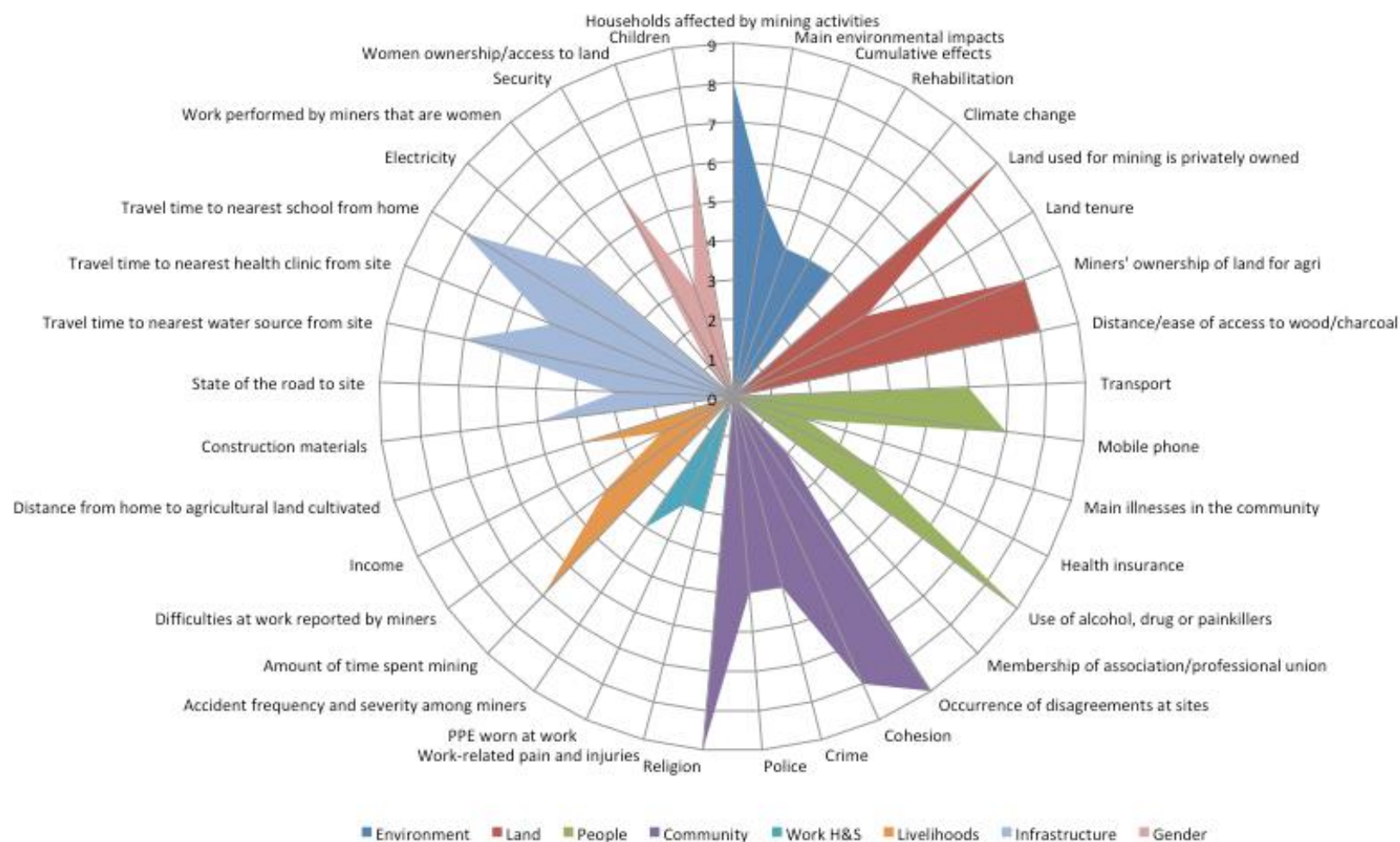




Figure 40: Component 4 indicator ratings for clay

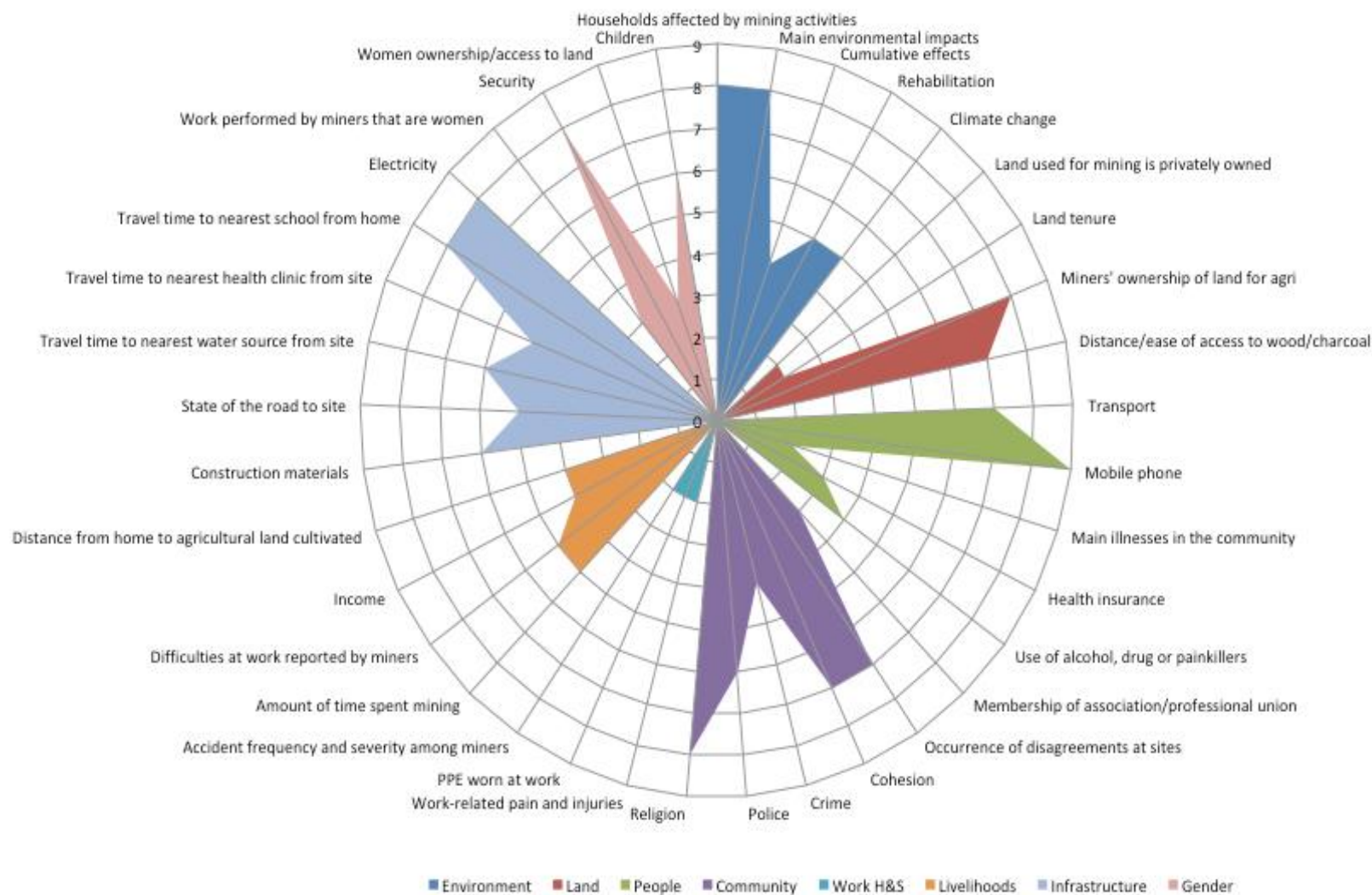




Figure 41: Component 4 indicator ratings for granite (gravel)

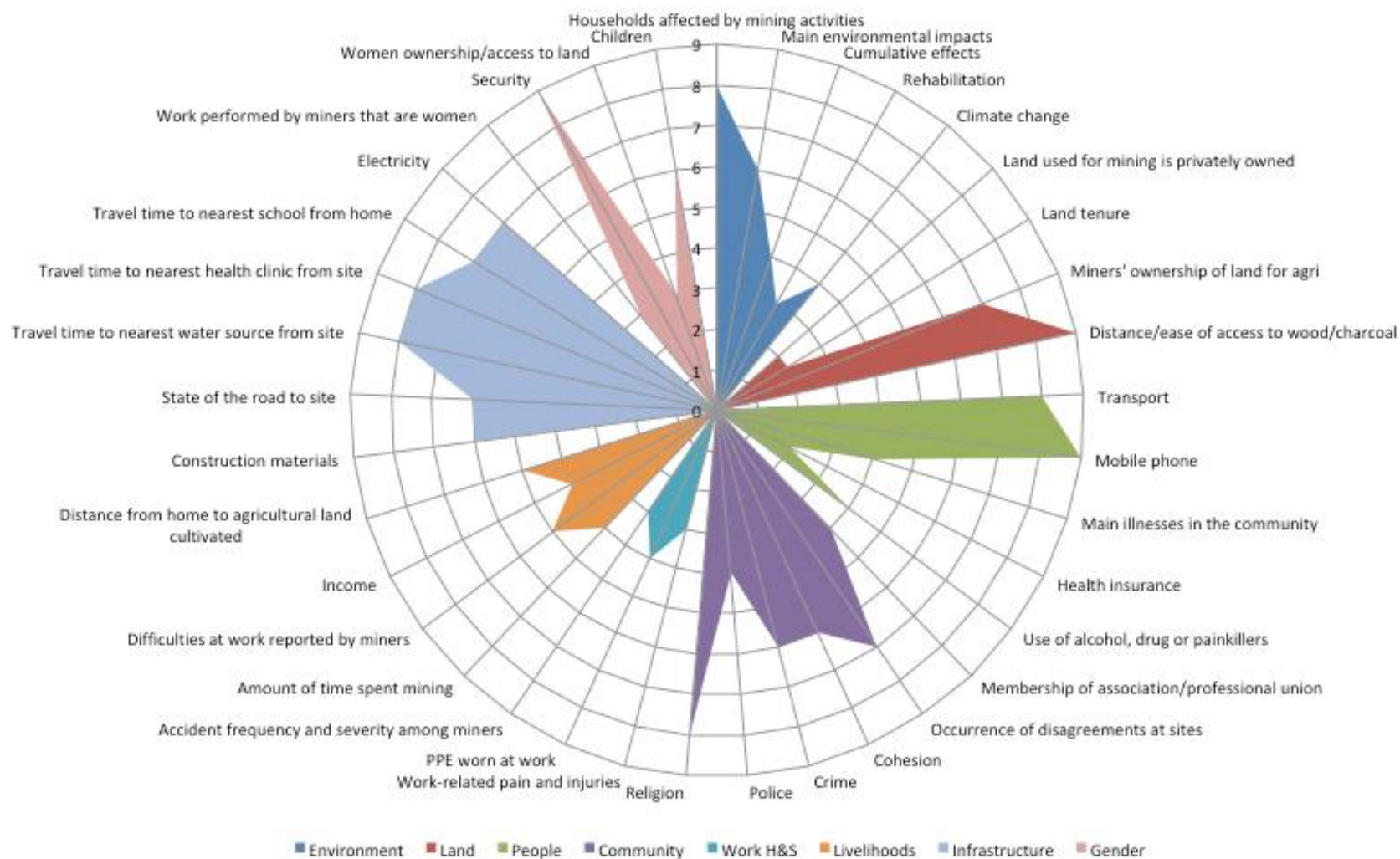




Figure 42: Component 4 indicator ratings for pozzolan

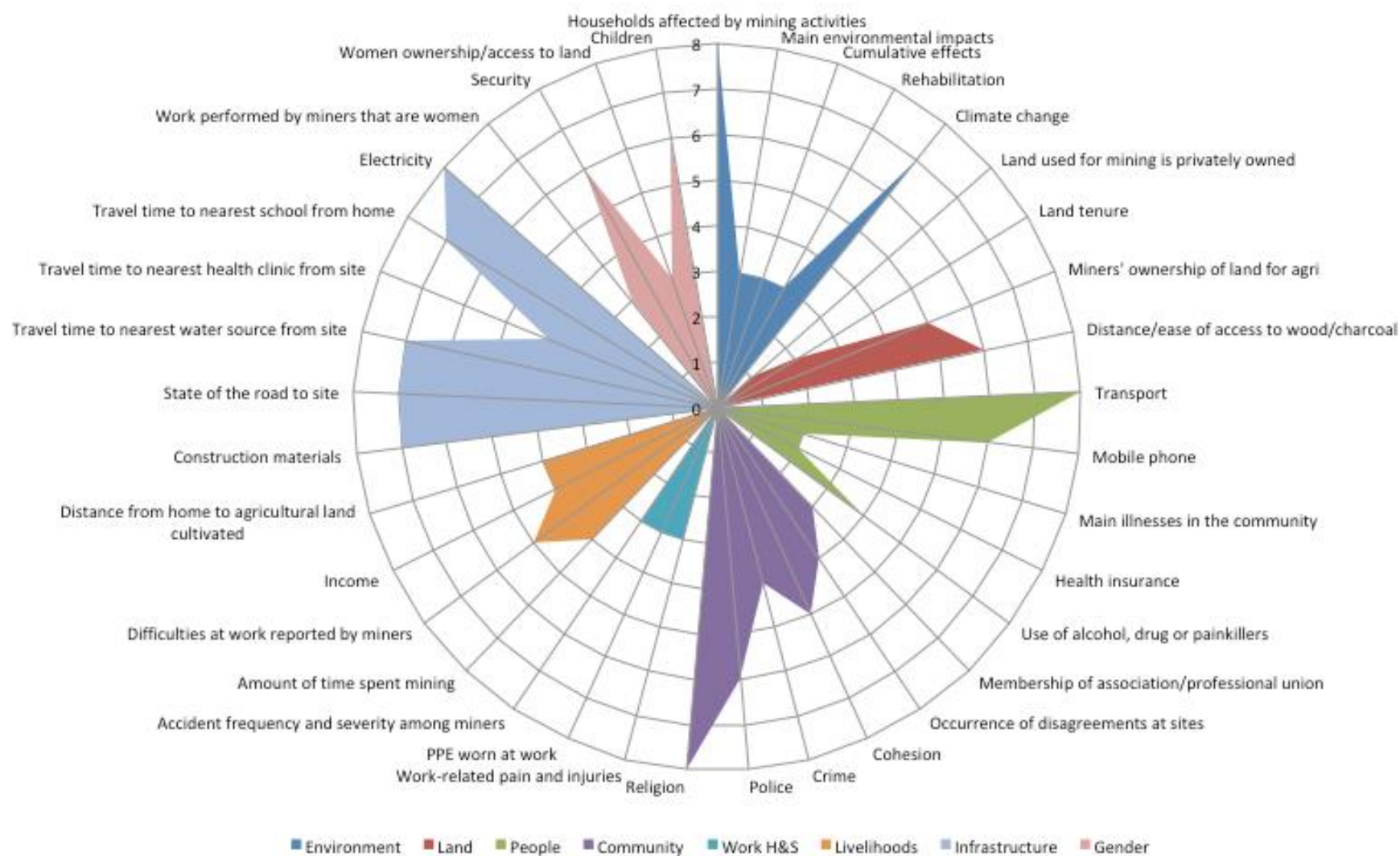




Figure 43: Component 4 indicator ratings for sand

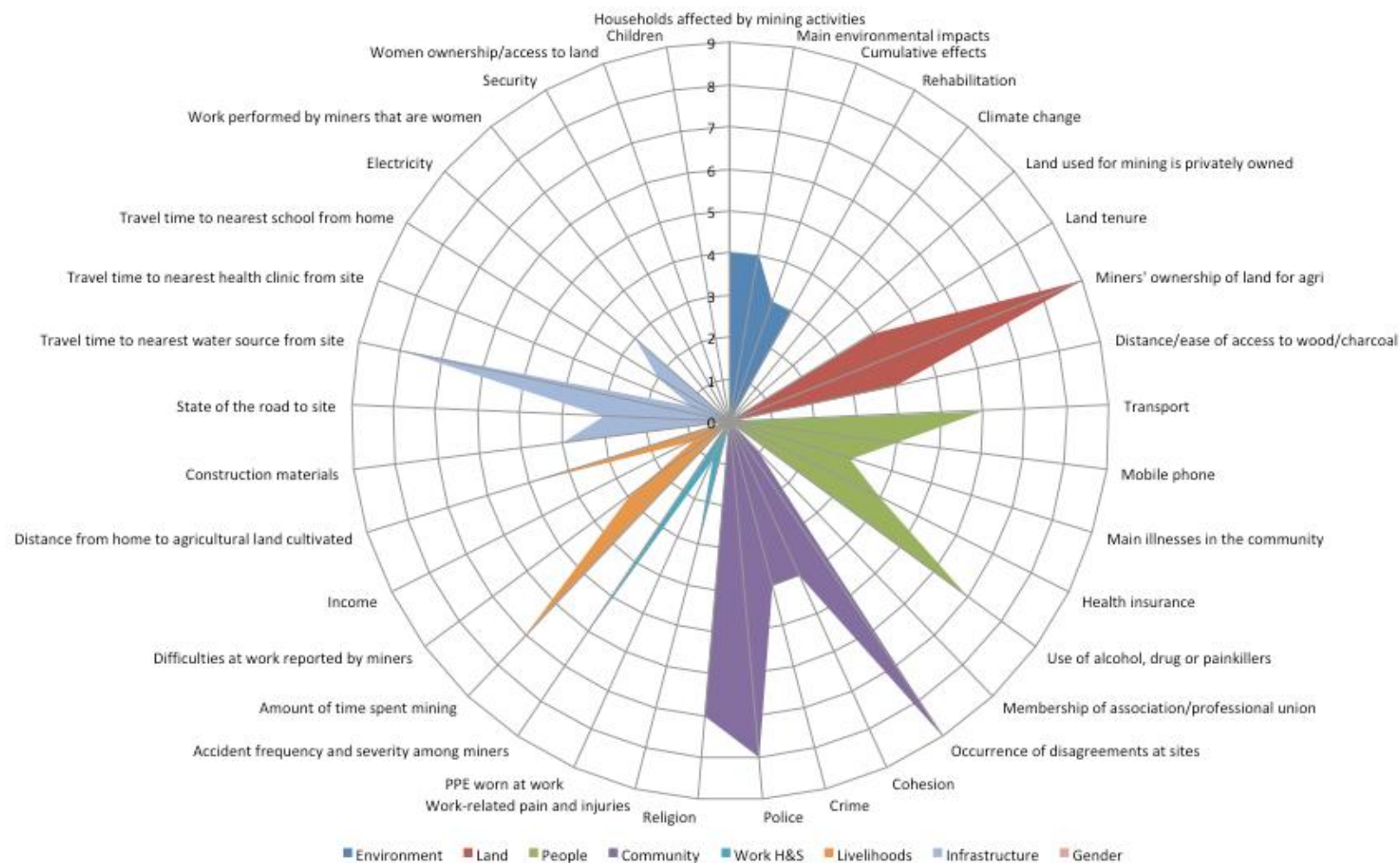


Figure 44: Component 4 indicator ratings for sapphire



6.2 Environment and land

Environmental issues

The quantitative survey considered environmental impacts on the local community (including miners) based on the percentage of households affected by mining activities (e.g. dust, noise).

No heads of sites, supervisors, or owners of companies reported receiving any complaints from local communities as a result of mining activities, and just 5% of artisanal miners reported knowing of households affected by mining activities. During the qualitative survey, few complaints were raised by the local community or village heads, which supports the low level of complaints. Of the few reporting impacts, the impacts related primarily to the failure to rehabilitate holes in the ground from sapphire extraction. The loss of agricultural land by farmers related to pozzolan, was reportedly compensated.

The impact of climate change is difficult to capture, with most respondents choosing not to answer or unable to assess the impacts. Of those that did answer, the question was simplified to relate to whether the respondent thought rain had increased or decreased (amount and/or intensity) compared to 5 to 10 years ago and whether this had an impact on mining activities. There may be a tendency (although not statistically valid due to the low number of respondents answering the question) that an increase in rain has slightly hindered extraction in the West region and decreased rainfall has improved extraction in the Centre region.

While the indicator for households affected by mining activities is useful, it does not fully capture the environmental impacts due to mining activities. The environmental impacts of artisanal mining activities in Cameroon are generally limited in extent. The main impacts are associated with the removal of the vegetation cover for mineral extraction, including soil erosion and generation of dust. Clay processing is associated with deforestation, as miners use wood as fuel for firing processes. This deforestation is sometimes mitigated by replanting, when done by larger, private companies like Prescraft in Bamessing as part of their commitments to the World Fair Trade Organisation. Replanting is monitored by the local authorities.

Clay processing also generates wastewater, which may contain chemical additives when untreated. Although many individual potters are not likely to use many chemicals in the fabrication process, if any, a variety of additives and chemicals are available today that are used to improve the quality and performance of ceramic products (and bricks). The range and extent of chemicals and additives used in Cameroon is not known and no studies exist providing this information. Prescraft reported difficulties obtaining certain chemicals that enable ceramic products to meet required quality standards for export e.g. to be dishwasher safe. The reason being that these chemicals are required to be imported at cost, with frequent delays going through customs, a process which involves at least three different ministries and frequent changes to laws and procedures. Additives and chemicals are particularly used in glazing, although chemicals used depend on the type of clay used, production process and end use, so there is no “absolute science” related to glazing. Typical additives used are silica, aluminium and other metallic oxides, which can if properly handled present a low risk of contamination. Wastewater from larger plants manufacturing ceramic products mainly consists of insoluble mineral components, making the water appear muddy, and could include small quantities of other materials.

No evidence of impacts on ecosystem services was found, although there could be future impacts on fish stocks from the cumulative impacts of sand extraction along rivers, e.g. in the Mungo river and estuary.

Cumulative impacts in an area become important when the number of miners and the scale of the activities grow, increasing the magnitude of environmental impacts and introducing new impacts, such as increased traffic and movement of trucks.



Figure 45: Environmental issues: removal of vegetation cover and contour changes in rivershore due to sand mining at Longtimbi

Rehabilitation was not observed to be done at excavation sites for any of the minerals. Lack of rehabilitation causes land degradation and can be a nuisance for the local community, particularly when the site cannot be utilised for alternative purposes after mining, and where potential hazards are left behind, e.g. deep excavation holes remaining from sapphire mining, which can lead to serious accidents. Rehabilitation, performed by artisanal miners, presents difficulties as it involves levelling ground and/or filling in holes created during mining activities. However, the reclamation of land in artisanal mining sites has been shown to be possible given the right circumstances, such as through prioritisation, community involvement and external financial support⁵⁵.

To summarise, the proportion of households reporting to be affected by mining activities e.g. by dust, noise or traffic, was low. These results could be influenced by the distance of houses to the mining sites and quarries, and do not fully capture the actual environmental impacts from small-scale mining, such as the removal of the vegetation cover for mineral extraction, soil erosion and generation of dust, deforestation related to firing processes in clay production, and impacts on riverine ecosystems from sand mining, e.g. in the Mungo river and estuary. When the scale of the activities increases, cumulative impacts become an issue, and rehabilitation of abandoned sites was not observed.

A good practice example of operating to minimum guaranteed environmental standards (as well as working conditions and wages) is the World Fair Trade Organisation certification of clay production, utilised in by Prescraft in Bamessing. Refer to Annex 8 for a detailed case study.

⁵⁵ For more see the Foundation for Environmental Security and Sustainability (FESS) in Sierra Leone project, supported by a grant from the Tiffany & Co. Foundation's Environment Program and the U.S. Agency for International Development (USAID), designed as a community-based, participatory process focused on reclaiming of land after artisanal and small-scale diamond mining and implementing of alternative land uses to promote productive livelihood opportunities for local residents, <http://www.fess-global.org/tiffany.cfm>



Figure 46: Environmental and community safe issues: excavation holes in sapphire mine site, Banyo

Table 24: Environmental impact variations by mineral

ENVIRONMENTAL IMPACT	CLAY	GRANITE (GRAVEL)	POZZOLAN	SAND	SAPPHIRE
Households affected by mining activities	Limited impacts	Limited impacts	Limited impacts	Limited impacts	Excavation holes in the ground
Main environmental impacts	Soil erosion Deforestation and air emissions Wastewater if chemicals are used	Limited dust and soil erosion Dust, noise and vibrations from near-by industrial sites (granite)	Some dust and soil erosion	For sites in rivers: Water quality, aquatic life, river geomorphology	Soil erosion
Rehabilitation	Not done. Easier with one large site than many smaller sites	Leaves bare rock face that is difficult to rehabilitate without access to additional support	Needed, as typically associated with fertile soils	Not done. Difficult to rehabilitate without access to additional support	Difficult to rehabilitate without access to additional support, as soil must be obtained to fill holes, and not done

Land

From the ACP-EU Development Minerals Programme census (2017), approximately one third of artisanal mining sites were reported to be privately operated, and two thirds publicly owned. Similarly, the qualitative survey results show that the land on which the mining sites are found is, for the most part, owned by the Commune or State, with the remaining 20-40% owned by

the village or individuals. This is not the case for clay, where excavation sites tend to be on land used by individuals or families. Interestingly, from the ACP-EU Development Minerals Programme census (2017), there is a higher proportion (45%) of publicly owned sites that are easily accessible, compared to privately owned sites (20% are easily accessible, defined as being less than 1 km from a good road). The 'radar graph' rating selected for this issue has assumed that privately-owned land is more desirable than publicly-owned land, aligning with the national policy of registering land and ensuring clear tenure.

Particularly close to urban areas, local artisanal miners and community members felt that decisions about land use were made without consulting them or considering their interests. Inadequate compensation was also a concern, as was the allocation of artisanal and industrial mining permits, which could jeopardise existing small-scale mining activities. These concerns are exacerbated by a context where some local communities expressed concern about their access to agricultural land following the allocation of land by regional/national authorities to large corporations for the purposes such as large-scale agriculture, electricity distribution and road expansion. Although difficult to capture in an indicator, a significant amount of competition for land use was evident, particularly close to more urban areas. Although few complaints were reported related to artisanal mining operations, these operations were reportedly constrained in favour of other uses, particularly by large companies. The rating assigned to land tenure issues thus reflects competing land use and issues arising from granite, sand and pozzolan extraction in urban areas.

Regarding access to natural resources, the results show that the distance or ease of access to wood/charcoal for cooking is generally less than 1 km (for 71% of respondents). There are significant variations, however, notably for sapphire, for which information was collected in the Adamaoua Region and where about 40% of the respondents travel less than 1 km, and half travel 1-5 km. Considering geographical location, mining sites in the Center, Littoral and Southwest Regions are associated with slightly higher travel distances (about 65%) compared to the Northwest and West Regions (about 90%).

One indicator measured in the survey was the ownership of land used for agricultural purposes. As most respondents also cultivated or had access to agricultural land, the percentage of persons owning the land they cultivate serves as a proxy for the extent of land ownership. Generally, about 75% of respondents own the land that they cultivate, with the lowest values found related to sand and in the Southwest Region. Interestingly, where miners' ownership of agricultural land is higher, access to wood/charcoal tends to be relatively easier.

6.3 People and community

People

The indicators for the People component relate to people's capacity to work, including their general health. Capacity to work is also linked with indicators such as age, education and

skills, which are presented as part of the respondent profile in the Approach section of this report, and gender, which is discussed in a separate section below.

The travel time to work for more than 75% of respondents is less than 30 minutes, and most travel by foot. This corresponds with the data collected in the ACP-EU Development Minerals Programme census (2017). Most of the remaining respondents travel between 30 minutes and one hour to work. Only respondents mining clay (less than 5% of respondents) and sapphire (less than 20%) have travel times to work of more than two hours. Very few respondents have their own motorbike or car (less than 4%), and these results include responses by heads of sites and owners.

The most frequent illness reported is malaria, with an average of 93% of respondents reporting it as the most frequent health problem in the community. Variations across minerals are shown in the diagram below and include typhoid fever, yellow fever and stomach infections. Variations are more likely to reflect regional/geographical variations rather than those related to the mining activities. In other words, these diseases are common to the surrounding areas and are not necessarily influenced by working conditions.



Figure 47: Access to mine site by motorcycle, Longtimbi

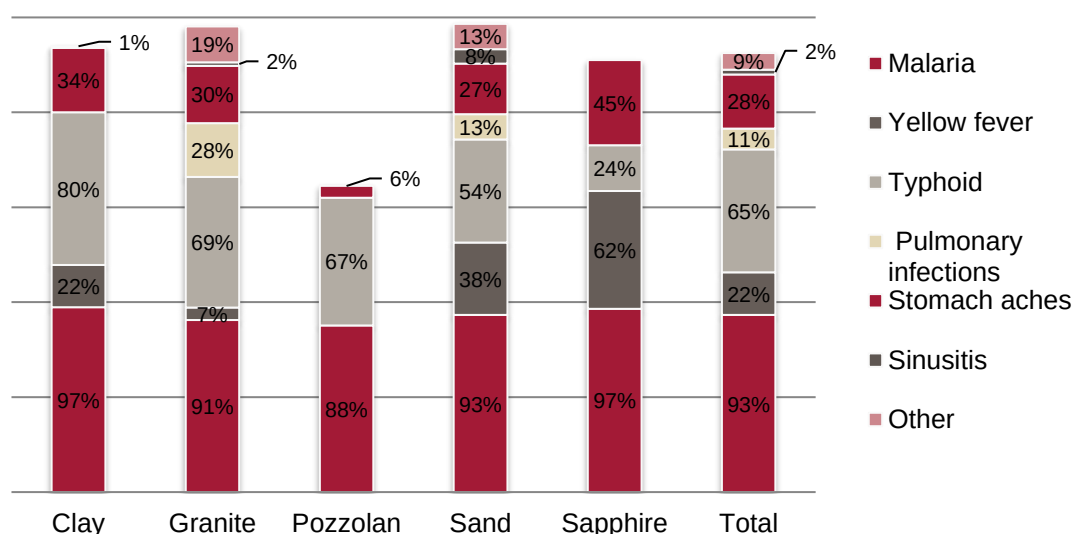


Figure 48: Most frequently reported illnesses

Considering the high incidence of illnesses, the importance of health insurance is also a useful indicator to monitor. Workers that were employed by someone else were asked if they had written contracts and if they received other benefits including a health insurance. On average, a third had written contracts, with the lowest percentages related to sand (less than 5%) and sapphire. On average, a third also reported having health insurance as a benefit, with higher percentages for clay and sapphire (about 55%).

Regarding the use of pain medication, which is result of the hard physical nature of the work carried out by artisanal miners, the survey showed that on average, just over 10% of respondents use pain medication; with just under half of these using medication from time to time, but 15% using medication at least once a day. The highest reported frequency of painkiller use was related to granite and sand.

There was no evidence to suggest that excessive use of alcohol/drugs was a widespread issue among artisanal workers. Even though 20% reported drinking several times a week there was no indication of how many units were consumed each time. The use of marijuana several times a week was reported by about 15% of respondents for sapphire and about 4% for sand, with an additional 2% reporting using the drug every day.

Culture

The majority (about 85%) of miners attend church or mosques, slightly less in the Littoral Region and those involved in the extraction of sapphire. This indicator may suggest that there is social cohesion, and this is not expected to differ significantly compared to the rest of the local community members. There is no indication that the practice of religion has a significant impact on artisanal mining. Interestingly, about 90% of respondents had a travel time of less than 30 minutes to attend religious services from their home, although this decreased to 70% for respondents mining sapphire, which could help explain the slightly lower attendance.



Figure 49: Catholic church of St. André, Pouma



Figure 50: Mosque at Njiombot II

Regarding the mystical significance or beliefs related to the mineral being exploited, the response rate was too low to draw conclusions. This was therefore disregarded as an indicator. Of those that responded, some mentioned pozzolan as having special significance, as well as the river from which sand is extracted, but this belief is more closely related to the significance of water than of sand.

Community

The majority of artisanal workers are not part of a professional association. The results of the survey showed that less than 20% of workers mining clay, sand and granite were organised, none in the sapphire site that was surveyed and about 40% for pozzolan. In aggregate, these numbers are lower than the figures obtained in the ACP-EU Development Minerals Programme census (2017) (30% of workers organised across Cameroon) and are higher for operators/owners/supervisors compared to self-employed artisan workers. Also, workers at five of the nine sapphire sites visited by the census (2017) were not part of an association.

Of the survey respondents that were part of an association, the benefits reported were for the most part related to mutual support/help (86%) and to a more limited extent to protecting rights (17%), and sharing experience (20%). No mention was made of benefits related to purchasing cheaper equipment.

Cohesion and benefit-sharing

The survey results show that artisanal mining of Development Minerals tends to be locally based. At least a quarter of mining site owners reside in a village close to the site and at least 80% originate from the same region as the site, with more than half living in the local community (village). The majority of artisanal workers (65% on average) were originally from the local area. Of the remaining 45% that moved to the community to get work, more than half had lived there for more than 10 years, and 80% were accompanied by their families. Differences were observed for sand and sapphire, where a higher proportion had moved to the area because of work (about 60%), and fewer workers were accompanied by their families (75% for sand and 55% for sapphire).

A good practice example observed of benefit-sharing to increase community cohesion is to allow local community leaders to decide how a proportion of taxes collected in connection with mining activities is used for projects that benefit the local community e.g. building a health centre, school, or community centre. See Annex 8 for a case study.

Conflict

Based on the institutional interviews and quantitative survey, five types of conflicts emerged:

- *Artisanal vs. semi-mechanised extraction*: After being granted authorisation to operate, the holder of the title has to demarcate their concession without the support of MINMIDT and the work is often poorly carried out or not conducted at all. The lack of clear demarcation then leads to conflicts over the limits of use. This is particularly the case for the exploitation of sand on the Mungo River where mechanised concessions overlap the artisanal sand extraction sites.
- *Artisans vs. communal and administrative authority*: The somewhat spontaneous development of artisanal mining activity sometimes leads to conflicts between artisans and local and administrative authorities when the authorities try to regularise the activity. This is particularly applicable to the exploitation of pozzolan from Foubot on the so-called Ancient CIAC site and the exploitation of sand on the Mungo River.
- *Communities vs. Communities*: Tensions between communities were observed to occur most frequently over the control of more recent sites with potential to create additional jobs for community members. Such tensions are particularly noticeable at the extraction sites of pozzolan from Foubot and at the extraction sites of Pouma quartzite.
- *Municipal Authority vs. Administration*: The conflicts usually occur when municipal authorities are not consulted prior to the allocation of quarry resource licenses by the national authorities. It may therefore happen that the sites allocated by the MINMIDT for exploitations correspond to an area previously retained by the municipal authority for the implementation of community projects included in its municipal development plan.
- *Work-related grievances at mine sites*: The reported occurrence of grievances at mining sites is low, with just 20% of respondents saying they have had a disagreement. The majority of disagreements were disputes with a colleague (about 70%), an operator (about 20%) or a supervisor (less than 5%). The causes of disputes were reported as mainly personal/lack of respect (about 40%), the way to carry out the activities (25%) or problems linked to salaries (just over 20%). While a good part of disagreements were resolved between the proponents themselves (about 40%), the majority (55%) were resolved by the head of site, a manager or producer, and only a small fraction (1%) involving a government entity. The frequency of disputes reported by heads of site, managers and producers was also relatively low, with the majority (about 60%) reporting that disputes were rare, 35% reporting that disputes occurred monthly and 8% weekly. Of the disputes reported, just 13% were viewed as unresolved. Although almost all disputes reported were viewed as resolved for sand, the frequency of disagreements was higher than average.

Security

The highest number of responses relating to crimes occurring frequently in the place of residence reported by miners were burglaries (18% of all cited crimes) and property damage (16%). There was some difference between the miners of different minerals: with murder being cited (about 17% of cited crimes) by clay and granite miners; property damage and fights (40% and 20%, respectively) reported for sand miners; and a high frequency of property damage (100% of cited crimes) reported by sapphire miners. The cause of crimes is unknown and it is not clear to what extent these crimes are resolved, if at all. There is also no evidence to suggest that insecurity is higher due to artisanal mining activities. In fact, in one pozzolan site, thief and burglary rates were reported to have decreased following the start of artisanal mining operations, which had provided young men with employment.

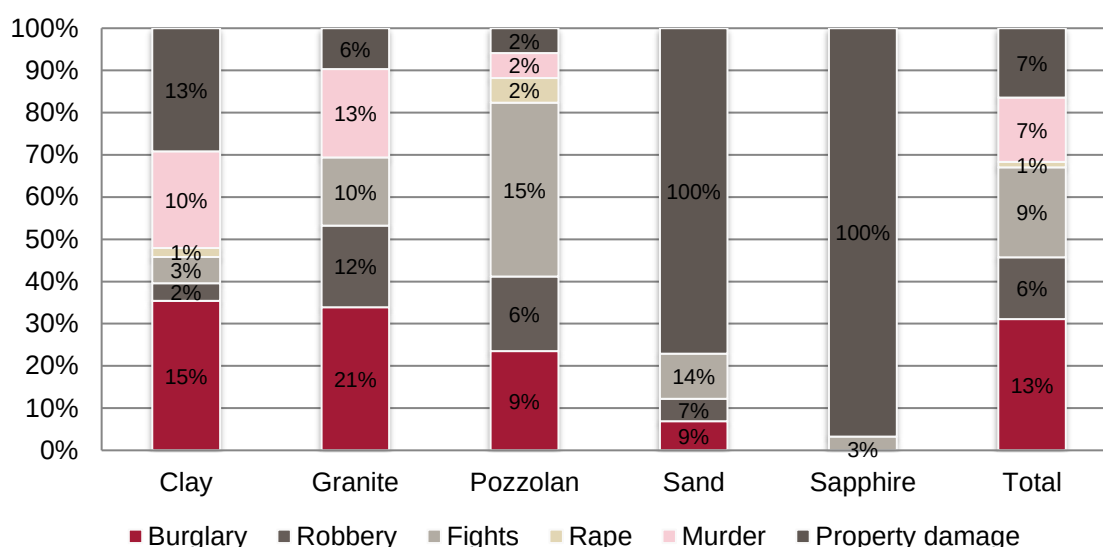


Figure 51: Percent of crimes where respondents answered the prevalence of crime as most frequent

When looking at all respondents, as per the figure above, burglary (total 13%), robbery (total 6%) and fights (total 9%) were the most prevalent responses across miners of all minerals, not including sapphire. When analysing the data by gender, the highest frequency of crimes cited by female miners of granite, was murder (16%), in comparison to men (4%). When considering only responses from clay miners, murder was cited more frequently by male respondents (14%) than by female (4%). For pozzolan miners, fighting was cited most frequently by both women (14%) and men (15%) when compared to miners of other minerals. Burglary, in general, was cited as most frequent by both men (total of 12%) and women (total of 14%), and for granite miners, in particular, it was cited most frequently by 24% of men and 20% of women.

Just under four in ten (38%) of the respondents reported police and military had intervened either on site or in the village due to crime within the last 12 months. A higher rate of intervention was reported for pozzolan miners (more than 60% of respondents reporting interventions) and less than 10% reported for sapphire miners. In the rating, it is assumed that a higher number of interventions is good, as the reasons for interventions reported correspond to the crimes reported.

During the qualitative survey, no evidence was found of mining activities being directly responsible for affecting crime rates. At one site, the theft of motors was reported. This is sometimes followed by the capsizing of the boat for lack of funds to replace the motor. Some responses suggested that crime levels were correlated with unemployment levels, with the presence of a mining activity increasing employment and therefore decreasing crime levels, particularly theft.

6.4 Worker health and safety

The types of work-related injuries and pains from artisanal mining are mainly injuries sustained to hands/feet, and back pain. On average, more than half of respondents had experienced a hand injury, about 40% had experienced a foot injury, more than half had pain in the lower back, and more than 70% had back aches. Fewer injuries related to clay miners, although this mineral was associated with the highest rate of injuries from burns (just under 20%), which is consistent with the practice of firing/baking clay products.

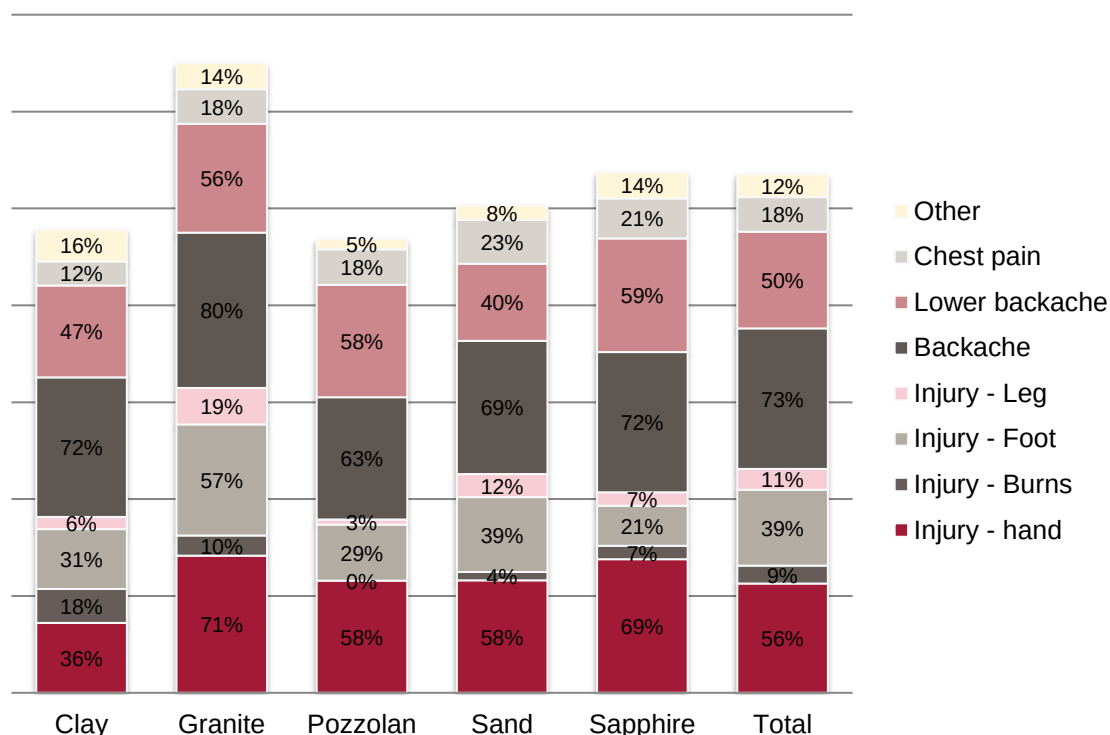


Figure 52: Frequency of reported work-related pains and injuries

Only 36% of workers reported wearing some form of personal protective equipment (PPE). During the qualitative fieldwork, it was also observed that not many workers were wearing appropriate PPE. This was particularly pronounced for sapphire miners, where more than 70% reported not wearing PPE. Of those that reported wearing PPE, workers mining pozzolan reported wearing the most PPE, particularly gloves (45%), rubber boots and helmets (both about 30%). This information alone does not indicate whether the PPE worn is necessary or appropriate for the work being carried out. It is therefore also relevant to consider accident frequency and severity.



Figure 53: Injury caused by metal wedge breaking, wedge still lodged in leg below the scar, gravel site at Pouma



Figure 54: Whisky used for pain relief from vibrations and on skin to relieve itching from bites, Pouma



Figure 55: Women breaking stone to make gravel, limited use of PPE, gravel crushing site at Song Nleng

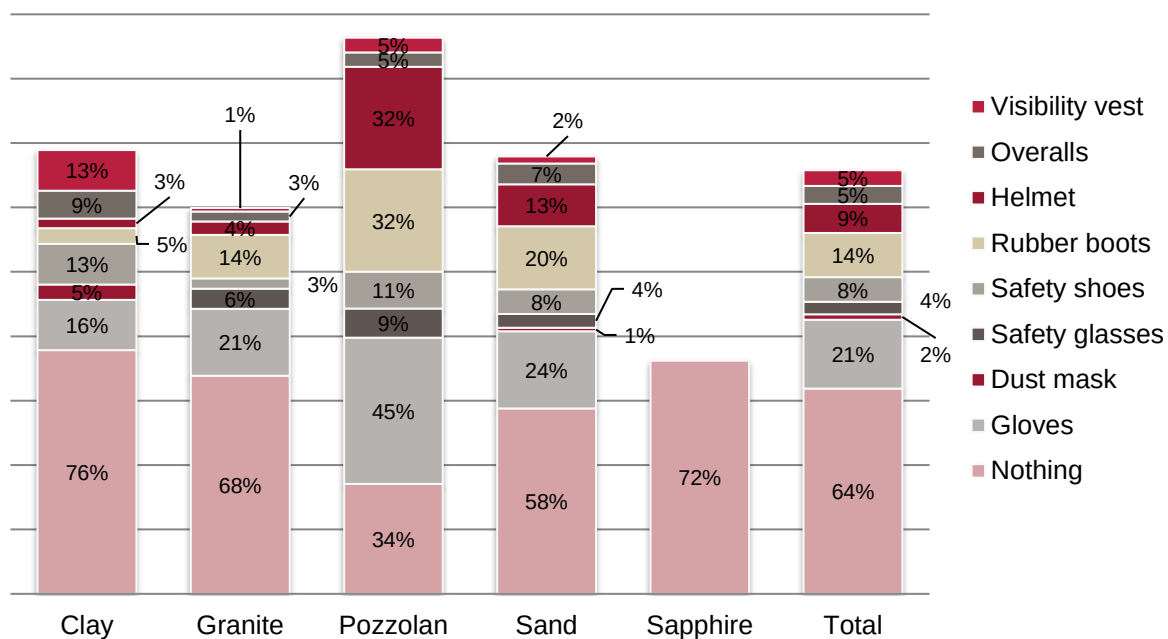


Figure 56: Personal protective equipment used by workers

Reasons given for not wearing PPE were mainly the lack of financing to enable equipment purchases (64% of respondents not wearing PPE), followed by the discomfort related to wearing PPE (about 25%). Some (just over 10%) considered PPE to be unnecessary. Lack of financing relating to PPE could also partly reflect the fact that there is no culture for using PPE.



Figure 57: The lowest use of PPE was reported in sapphire mining, Longtimbi



Figure 58: Use of PPE by workers at MIPROMALO

Just under half (45%) of all respondents said they had never had a work-related accident, with a further 24% saying that the date of their last accident had occurred more than one year ago. However, just under 5% reported having had an accident within the last week and just over 10% within the last month. The highest accident frequencies were related to pozzolan mining, followed by granite and then sand. Although these figures appear low, they are significant, and the severity of these accidents is relatively high: just under 30% reporting that their latest accident prevented them from working for more than one week, with the highest rates related to granite mining. On average, just under half of the accidents prevented work for at least one week, and about 20% prevented work for 2-3 days. The lowest accident severity was reported for sapphire mining, where the majority of accidents (more than 90%) did not result in time off work.

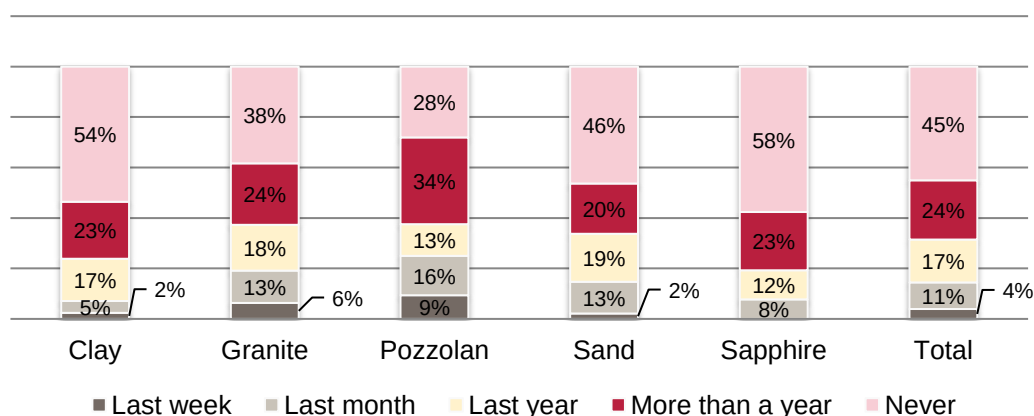


Figure 59: Date of last accident

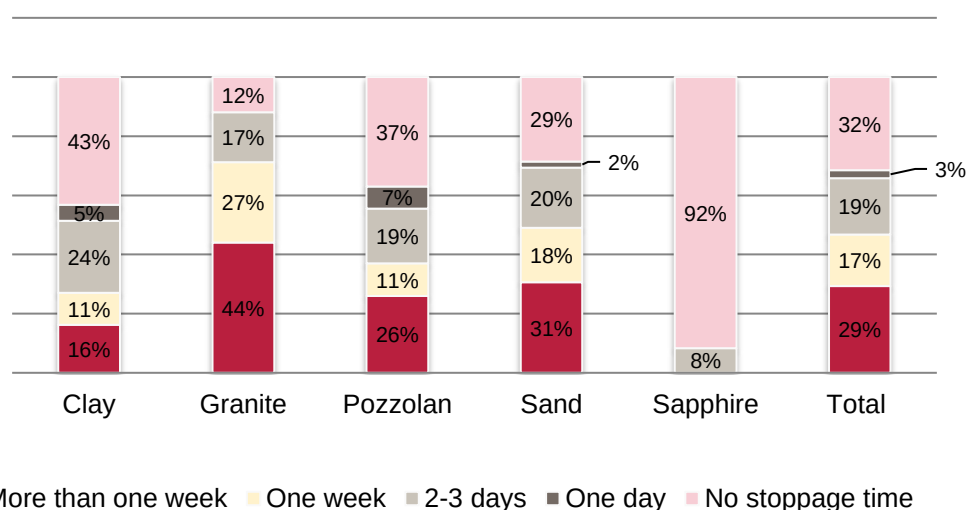


Figure 60: Length of time the accident prevented work

The main reasons given by respondents for accidents were the misuse or poor manipulation of equipment or tools, and slips/falls. Equipment failure was also cited by pozzolan miners, bad weather by sapphire miners and a landslide for granite miners.

6.5 Infrastructure and housing

Infrastructure

For the most part, the quality of the roads to sites was reported as being accessible by car/truck (about 50% of respondents). However, the variation between mineral types and sites was pronounced, with more than 80% of sites accessible by car/truck for pozzolan and sand, and more than 70% of clay sites only accessible by foot. However, despite being accessible by car/truck, the roads can be riddled with potholes, particularly during periods of heavy rain. The data for granite mining showed variation as well, with granite sites having the most paved access roads (more than 40%), and quartzite sites generally being accessible only by foot.



Figure 61: roads to pozzolan site, Denjimbot II



Figure 62: Paved access to sand loading site at for 4 wheel drive and motorcycles, Long-timbi



Figure 63: Access by foot only to Marom clay site

The average time travelled by respondents from work to get clean drinking water was less than 30 minutes (about 90%), and this did not vary much by mineral. For a majority of the remaining respondents, the travel time was between 30 minutes and one hour, with only a few percent reporting having to travel more than one hour.

The average time travelled by respondents for treatment for health problems and injuries from accidents was less than half an hour for the majority of respondents (just under 80%). This travel time varied considerably between minerals, with all respondents working with pozzolan reporting less than half an hour to the nearest health centre, compared to just under 15% reporting less than half an hour for sapphire. In general, no more than 2% of respondents stated it took them more than one hour to get the nearest health centre, apart from sapphire, with just over 60% reporting more than one hour's travel time.



Figure 64: Social infrastructure at Nijmbot II: health centre, water point and mosque adjacent to Chefferie and existing primary school. A new school is planned

The amount of time spent travelling from home to the nearest primary school was less than 30 minutes for more than 85% of respondents, apart from those mining sapphire, where less than 30% reported travel times of less than 30 minutes. Respondents mining clay and granite reported the lowest travel times to secondary school, with about 80% saying it took less than 30 minutes, and over 60% for pozzolan and sand.

Housing

Houses built of concrete blocks are typically viewed as the most desirable and therefore most costly to build. Thereafter, mud brick walls, followed by clay brick walls, followed by wooden walls are the least desirable. Similarly, metal sheet roofs are more desirable than roofs made of organic material. In this respect, two thirds of respondents mining sand, 45% mining pozzolan and granite, and 30% mining clay reported living in houses made of concrete blocks. Only 3% of respondents for sapphire reported living in houses made of concrete blocks.



Figure 65: House at Marom (clay)



Figure 66: Well-maintained house of workers at Pouma (gravel)



Figure 67: Traditional house at Boula Ibbi. Observe area for burning of pottery

Construction materials for houses is an indicator that may not be as straight forward as it first appears. On the one hand, the availability of materials used to make concrete have an influence on the cost and make it easier for respondents mining sand and pozzolan to purchase concrete blocks. Locally available construction materials play a part in determining the construction materials used. On the other hand, poor quality concrete blocks and metal roofing can be less comfortable to live in than a house with mud walls and organic roofing material. There is an interesting project in this respect in Foubman, where the aim is to produce clay bricks that can rival concrete blocks in cost, durability and desirability.

Electricity and communications

Most miners do have access to electricity in their homes, but many do not: 20% of miners surveyed indicated a lack of access to electricity at home. Lack of access to electricity can exacerbate challenges in promoting sustainable benefits to miners through the artisanal mining sector.

The majority of respondents (75-100%) have a mobile phone, although a relatively high number who are mining sapphire do not (about 60%).

6.6 Livelihoods

Just over half of all respondents working with granite, pozzolan and sand reported working every day except Sunday, and an additional 20% also reported working on Sunday. Most of the remaining respondents worked 3-5 days a week. Respondents working with clay worked less, with more than half working 3-5 days a week; and respondents working with sapphire generally worked more, with more than 70% reporting working every day including Sunday.

The number of workers at the quarry was reported to fluctuate depending on the season, with fewer during the rainy season (mid/end-June to October). However, activities were not reported to stop completely, with most working throughout the year (close to 90%, except for sapphire, where just over 50% worked throughout the year).

Working hours start between 6-8 am and finish between 3-5 pm for more than 80% of respondents. Working hours are generally longer for pozzolan and sand miners, with about half finishing work between 6-8 pm (and the rest between 3-5 pm). There were also some reports of work being carried out at night for pozzolan and sand miners, but these represented less than 5%.

Mining as a source of income

The study indicates that artisanal mining is complemented by other livelihood and income generation activities. The qualitative fieldwork suggested mining often supplemented income from agricultural activities, particularly where there was a lack of other job opportunities in the area. The quantitative survey results showed that about 80% of workers generally have supplementary income to mining.

Of those that reported currently working elsewhere in addition to mining, agriculture was reported as the main source of income by an average of about 40% of respondents, as shown in the table below. Mining was reported as the main source of income for an average of about 15% of respondents for granite, pozzolan and sand mining.

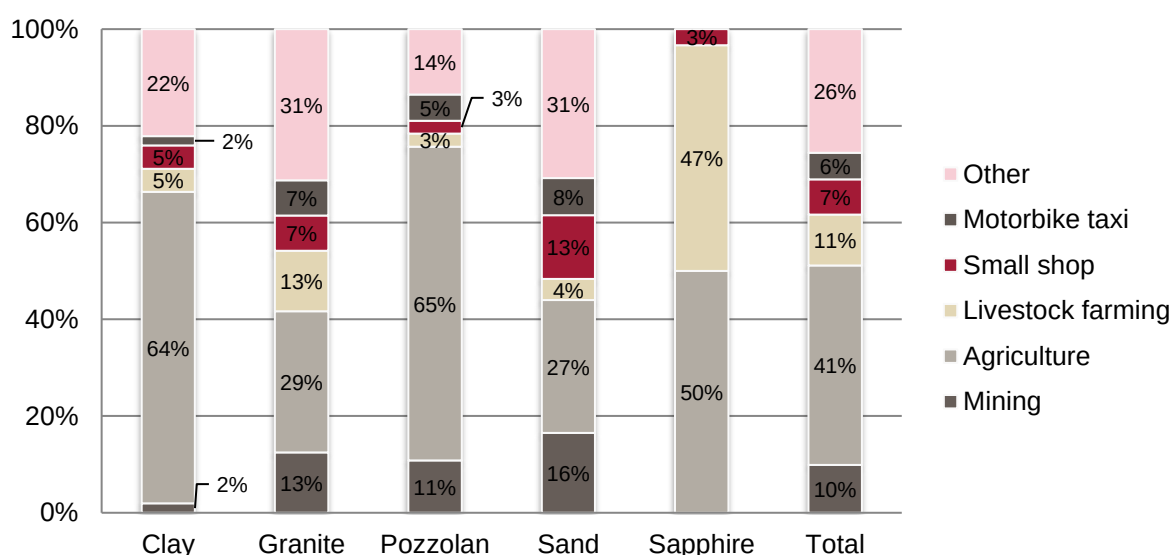


Figure 68: Main source of income by mineral

As agriculture is a relatively important source of income, an indicator selected for livelihoods was the distance from home to the agricultural land cultivated. On average, 15% of respondents spend more than one hour travelling to the land they cultivate, with half the remaining respondents spending between 30 minutes and one hour, and the other half spending less than 30 minutes. About two thirds travel by foot, with most of the others travelling by motorbike. Travel times were slightly reduced for pozzolan and sapphire miners, both with the highest percentage of respondents getting to the agricultural land by motorbike (about 30%).

According to the survey data, mining sites are more proximate than agricultural sites for most respondents, as 77% of total respondents spend less than 30 minutes travelling to the mine sites. 7% reported spending more than one hour (relatively more for clay miners at 12% and sapphire at 19%, reporting spending more than two hours).

Difficulties at work reported by miners

Jobs at mining sites do not often require more than primary education and most workers reported being trained on-the-job by friends or relatives. This work seemed to be regarded in a similar way to working at a construction site, as a source of cash income.

The quantitative survey results show that about 20% of respondents do not want to continue working as they do today. Instead, they would rather do an alternative activity such as opening a small shop, working in agriculture or working in the transport sector. Reasons given for this desire to change jobs are the perceived difficulties at work, low income/revenue (about 40% of those who want to change) and the difficult manual labour involved (about another 40%). The remaining reasons are mainly health problems, followed by health and safety risks and increased competition.

6.7 Gender and children below 18

In Cameroon the sector is typically dominated by young men between the ages of 25 and 34 (see respondent profiles for more information). This was shown both in the ACP-EU Development Minerals Programme Cameroon census (2017) and in this study. Cultural issues appear to play a role with women making up 44% of artisanal and small scale miners of Development Minerals in Uganda⁵⁶ and 41% in Zambia.⁵⁷ A significant minority of women in Cameroon do work in the sector (17.6%) and there is evidence of the presence of children below the age of 18 years at some sites.

Children below 18

During the qualitative fieldwork, children below the age of 18 years were not observed at the sites visited, however children below 18 were reported to be employed during the school holidays or after school. As confirmed in the quantitative survey, children were reported to be involved in transport, crushing gravel, collecting firewood, and loading/offloading minerals. Child labour in transport from the site was mainly reported for clay and quartzite and typically carried on workers' heads. Loading/offloading was reported for sand.

Survey responses from operators and owners of companies showed that less than 10% reported employing children below the age of 14, related to mining gravel and sand; and less than 15% employed children between 14 and 18, almost all of these respondents were miners of gravel and sand.

There was also no evidence from the survey to suggest that the employment of children below the age of 18 was widespread, prevented children from completing compulsory education, or involved tasks that are detrimental to children's health.

Women

The ACP-EU Development Minerals Programme Census in Cameroon revealed that 17.6% of artisanal and small scale miners of Development Minerals in Cameroon were female. Women's tasks typically differed from the men's. As witnessed during the qualitative fieldwork and confirmed in the quantitative survey, women often undertake roles such as the supply of food, crushing gravel, lighter transport as well as the production of clay products. Information from

⁵⁶ African, Caribbean and Pacific Group of States-European Union Development Minerals Programme. March 2018. Baseline Assessment of Development Minerals in Uganda Volume 1 at 62, <http://developmentminerals.org/index.php/en/resource/studies?view=download&id=30>.

⁵⁷ African, Caribbean and Pacific Group of States-European Union Development Minerals Programme. 2017. Report on the SNAP Survey Conducted on Development Minerals in Zambia.

operators and owners of companies showed that about 25% employ women in their company, and less than 5% of the employees at these companies are women.

The different tasks typically performed by women explains the significantly lower use of PPE by women for all minerals except granite, where women are often involved in crushing gravel and typically wear gloves, and sometimes dust masks and/or rubber boots. For granite, there is little difference in the use of PPE between men and women.

The diagram below shows that a lower proportion of women rely on mining as their main source of income compared to men. Women do not perform the same hard labour tasks as men at many artisanal mines, which could also explain the difference. Interestingly, more women report agriculture and small commerce as their main source of income compared to men.

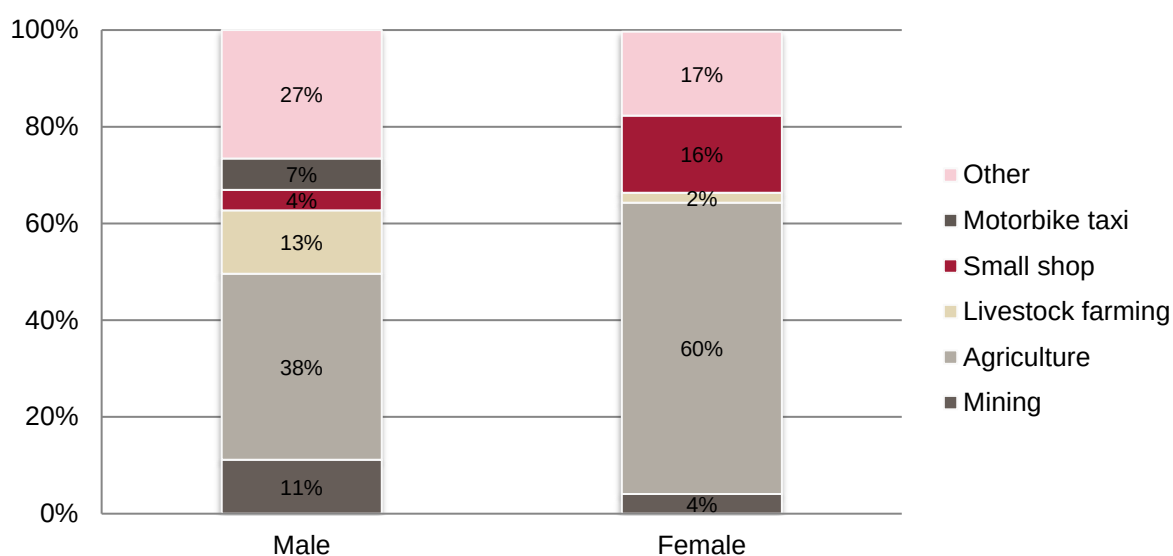


Figure 69: Main source of income by sex



Figure 70: Women's focus groups at Marom, clay production



Figure 71: Male and female workers crushing gravel at Missingléo



Figure 72: Workers at clay site Njimbot II, including women who provide the food

Although the number of respondents to the question was low, half of the women who replied said that if their husband passed away, they would not inherit his land. Women respondents also had a longer travel time to the agricultural land they cultivate than men (about 20% of women reported more than one hour compared to 10% of men), probably due to the fact that women reported travelling more by foot and have less access to motorbikes (about 80% of women reported walking compared to 60% of men).

Although women's tasks related to mining could be considered less physical, there is evidence to suggest that suppliers of food on site have much longer working days in reality than what was reported, and may be more vulnerable than the average woman in the same community. For example, if a typical day is reported as starting between 6-8 am and finishing at 3-5 pm, time is required to cook the food to be sold that day and transported from their home to the selling point. Similarly, after work, food needs to be prepared for the next day. Women suppliers expressed concern about having to purchase produce on credit and rely on earnings to

repay their debts, which made them particularly vulnerable on days when fewer workers were on site e.g. due to seasonal rains. Women working with clay products also reported low earnings, and the younger women were clearly interested in pursuing other jobs.

Interestingly, a similar proportion of women and men wanted to do another job, but the alternatives reported varied. More women expressed interest in opening a small shop (about two thirds) compared to men (about 30%).

There is no evidence to suggest that women felt more unsafe at mining sites compared to in their villages or that their access to mining sites was an issue. Women were observed to go to sites unaccompanied. The quantitative survey results indicated that on average 5% of respondents indicated women felt safe around where they live and their place of work, with the highest rates related to sand and clay mining. It should be noted that no answers were higher than 8%, but no women answered they felt unsafe.

6.8 Economic impacts

This section describes, by mineral, the revenues generated by taxation, job creation and procurement of goods and services.

6.8.1 Sand

Taxation

As observed at Mulanga, CAPAM is in the process of organising artisanal sand mining sites to collect national taxes on behalf of the Ministry of Mines. CAPAM recently started collecting 1,000 FCFA per 10m³ truck. Mother Quarry leaders reported an average of 7 to 15 trucks per day during the dry season with limited activity during the rainy season. This volume may be under-estimated. A conservative estimate of 8,000 trucks per year could yield 2.6 million FCFA of annual tax revenue if effectively enforced. Reportedly, collecting tax is a fastidious task because of resistance among producers. Producers believe they are already paying enough tax and/or the tax erodes already very low margins.

At Ebebdá, the respondents who referred to themselves as members of a professional miners' association reported the payment of mining rights to the Ministry of Mines every two years for between 250,000 and 300,000 FCFA annually.

The ACP-EU Development Minerals Programme Census (2017) reported 60 other sites of 100 artisans or more. Applying a conservative average of 10 trucks per day for these sites, the potential annual tax revenue per truck would be around 219 million FCFA.

At the commune level, a 1,000 FCFA communal tax per truck was observed from loaded trucks leaving the quarry at Mother Quarry and adjacent semi-industrialised quarry. The recovery rate for this tax seems to be higher and therefore the annual revenue from these two quarries should represent a minimum of 8 million FCFA for Dibombari commune. In Ebebdá, the communal tax was reported to be 3,000 FCFA per truck.

Customary landowners also often receive a payment declared between 10,000 to 250,000 FCFA per year and/or through a payment per truck of up to 5,000 FCFA.

Most of the operators of the artisanal quarries do not hold a title granting extraction authorisation. They are informal miners, paying communal taxes and, in some cases, the national tax newly recovered by CAPAM. The commune is the entity benefitting the most from mining tax revenues. At the landowner and village level, where landowner does not refer to legal property but to customary land possession, revenues vary widely from one site to another. Operators declared payments ranging from 20,000 to 250,000 FCFA a year to host villages.

Job creation

Artisanal sand mining is low-skilled labour-intensive work. A minimum of eight persons are required to load a 10m³ truck. The ACP-EU Development Minerals Programme Census (2017) individually registered more than 4,300 sand artisans, adding the number of artisans at peak activity recorded by site, the total estimation is more than 17,000.

Jobs offered in quarries are physically demanding but still prized by young men for the ability to get immediate cash and limited hours. A low-skilled worker can earn from 3,000 (by loading three trucks per day) to 20,000 FCFA a day depending on the worker's position in the extraction process and the intensity of activity on site. Different tasks are remunerated according to the difficulty involved. Divers, without whom there would be no sand extraction and who are considered as having the most difficult job, are paid the most (3,000 to 20,000 FCFA a day depending on experience and number of pirogues loaded). For some miners working in a quarry was not perceived to be a prestigious job. Several respondents mentioned some workers hiding their work at the quarry from their family. In one case a young worker explained that "it is better to work here than to steal for a living".



Figure 73: Workers unloading sand from dock and loading a truck at Yato

The number of workers at a quarry is reported to fluctuate depending on the season. The number is greatly reduced during the rainy season from mid/end-June to October, although activities do not stop completely.

Working hours were reported to be in most cases every day apart from Sundays, between 6 am to 3-5 pm. There are some reports of work being carried out at night and throughout the night by divers and pullers from 7 pm to 6 am.

At Mother Quarry and Yato, there is evidence to suggest that it had become more difficult to work at the quarry than previously, with those engaged saying that the distances travelled to excavate sand had increased. For example, the use of motor engines was now more-or-less indispensable to operations and saved between one and three hours each way compared to paddling (and depending on whether the direction of travel was with or against the current).

Having an artisanal and a semi-mechanised operation in the same immediate area at Mother Quarry lends itself to an interesting comparison in the difference in labour intensity. The artisanal quarry report utilising 200 workers for 7 to 15 trucks per day. Even if these numbers are accepted with some caution, they remain impressive compared to the seven employees for 35

trucks per day of the semi-mechanised quarry. Another difference lies in the level of education of the workers; semi-mechanised almost exclusively requires skilled workers (machine operators, administration and operations officers and managers).

Many indirect jobs are created through sand mining, especially around sites with more than 100 workers. A variety of opportunities lies around sand quarry supplies: boat sales, boat and motor rental, and tool sales. Services to workers also induce new jobs in housing, moto-taxi, catering and entertainment.

The downstream value chain also encompasses jobs linked to the transportation and sales of sand, the processing into bricks and concrete items and the overall construction sector where sand remains the principal raw material. To build an average sized house to international standards, 200t of sand is necessary, and 30,000t is needed for one km of motorway⁵⁸.

Procurement of inputs and services

As artisanal sand mining has a simple extraction process and no processing, the direct procurement opportunities are limited to boats (pirogues), boat motors supplies and maintenance and basic tools supplies (shovel, buckets). The size and materials used as equipment seem to vary from one site to another, with prices also varying.

Boats

Boats used by divers are called *pirogue* and made of wood. The boat makers are located at the quarry or within a 5km range. Six boat makers were interviewed in Yato, Ebebdá and Longtimbi during the quantitative phase and one was visited during the qualitative phase next to Mother Quarry. Four had started their business more than 10 years ago and two between five and 10 years ago.

A 7m³ boat will cost around 500,000 FCFA and last approximately five years at Yato; a 4m³ boat costs 100,000 FCFA at Ebebdá and can be used for three years; and a 6m³ boat in Longtimbi costs 20,000 FCFA for a life of one to three years. Fabrication time differs from the size of the boat, a Yato producer will need from 3 to 4 weeks to make a boat while a Longtimbi producer can make up to one boat a day and an Ebebdá producer two per week. Tools used for boat fabrication are common woodwork tools that can be sourced out of local shops and wood. The boat price is therefore linked to the price of wood. The Mother Quarry boat maker also indicated using copper wire to assemble the boat, which increases the price, however, guarantees a better quality boat. In Mother Quarry and Yato, tar is used to cover the pirogue before it enters water. In Longtimbi, boats are carved from a single piece of timber.

Some of the makers are using regular apprentices. Only the Yato producer noted paying a 10,000 FCFA fee to the site owner.

Boat-makers' activities are linked to the quarry activities. None of the makers interviewed ever used external financing to sustain their activity. Only one maker in Ebebdá reported having stock (three boats).

Only the Ebebdá makers are members of a professional association (AESEB), which they praise for fighting for their rights and facilitating mutual assistance and experience sharing.

All the boat makers are informal businesses. For Longtimbi makers, this is a secondary activity run in parallel with agriculture.

⁵⁸ Michael Welland. 2009. *Sand – A Journey Through Science and the Imagination*. Oxford University Press.

Boats and motor rental

Boats and motors are rented in the Mungo river sites. Renters reported fees of 10,000 FCFA for a boat and 20,000 FCFA for a motor. Clients tend to rent three boats and one motor per week for the price of 50,000 FCFA. There were no reports on the use of boat rental or of motors in Longtimbi and Ebebdä. In Mungo river sites, all the boat and motor renters are also mining producers (*exploitant minier*), with the exception of one respondent.

A boat engine (15 horsepower) price ranges between 1,5 and 2,5 million FCFA. There were some reports of motor thieves in Mother Quarry.



Figure 74: A boat is being repaired at Yato



Figure 75: Workman at Longtimbi shows his working tools. In the background, boats are different than those in Yato

Tools

Sand miners use basic construction tools such as shovels and buckets in plastic or in metal. Tools can be bought at local shop (*quincaillerie*) or made on order at a metal sheet workshop that primarily manufactures buckets. Each worker will use two to four shovels per year and, depending on the site organisation, the purchase will be the responsibility of the operator or the worker. In Longtimbi, miners also use the local tool *daba* (an adze).

Services to workers

Workers' catering, housing, transport and entertainment are the main services needed around a site with more than 100 miners. Food was observed to be sold by women either on sites e.g. under a shelter close to the riverbank or at restaurants in the immediate vicinity. A plate of food costs around 300 to 500 FCFA. Due to the hard physical nature of the work on site, many of the workers ate a few times a day, spending 1,000-1,500 FCFA per day on food and drinks. Evidence to support fluctuating activity on site was provided by women selling food. One supplier on site said that she did not come on site during the rainy season and had to survive on what she had made during the dry season. Another (restaurant) supplier stated that her turnover decreased by more than 70% during the rainy season.

Providing accommodation (renting rooms) to workers is another source of income at important sites, with example of rooms at Mulanga costing 1,000 FCFA per night or 5,000 FCFA per week. The number of rooms available was estimated to be about 30-50 in Mulanga, with more rooms on the other side of the river.

Taxi bike is also part of the local FCFA value chain, with 20% of the extraction worker respondents paying from 500 to 2,000 per day for transport by taxi bike, to and from the site.

Sand transport requires the procurement of trucks, mainly bought on the second-hand market with over 10 years of circulation, for a price of between 20 and 30 million FCFA. A truck loading at the Yato quarry to supply Douala needs about 30-35l of diesel a day (approximately 20,000 FCFA/day).

In summary, boats and motorboats appear to represent the highest part of the capital needed to develop an artisanal river sand mining operation. This barrier to entry could be overcome with the rental of boats and motors in some quarries. For purposes of comparison, semi-mechanised operations utilise costly equipment such as a dredger, a front loader (excavator) and a water pump, often bought on the second-hand market. A second-hand water pump costs around 30 million FCFA. A second-hand dredger costs between 100 to 150 million FCFA. Even at these buying prices, the opportunity cost of maintenance and disruptions to operations are high.

6.8.2 Clay

Taxation

Marom and Boula Ibbi miners and potters do not hold extraction permits nor do they pay taxes on extraction or other activities. Permission to extract clay is required of the customary landowner and a 1,000 to 5,000 FCFA yearly payment was reported by some Marom miners. In Bamessing, one miner working on order for Prescraft indicated making a payment to the Ndop Mine service, but he did not specify the amount.

Prescraft is a registered Private Limited Company whose beneficiation activities are regularly controlled by the Ministry of Mines, the Ministry of Environment and the Ministry of Labour. The company pays corporate taxes, however, these are negligible due to recurrent losses. It was also reported that there are many visits and controls by various ministries, which pose a burden on the small company. In addition, they have a self-imposed third party certification scheme that they pay for and are inspected on every third year by independent auditors.

An independent potter interviewed in Bamessing is a sole proprietor, who reported the imposition of high taxation by the tax administration. As is often the case with small entrepreneurs that cannot prove their income based on certified financial statements, taxation is not calculated on actual income, but is imposed as a fixed fee or based on cash holdings.

Job creation

The ACP-EU Development Minerals Programme census (2017) estimates the number of clay artisans at more than 1,600 spread across approximately 30 sites. Although a significant number of potters are also mining for their own needs, this is not always the case. Elderly potter women of Marom mostly buy clay from other village members. An individual potter interviewed in Bamessing also reported buying clay rather than extracting himself. In Boula Ibbi, all of the interviewees active in extraction were women and only half were also potters.

Excavating clay is hard manual labour done by both men and women (with the exception of Boula Ibbi). Miners and older children predominantly carry bags of clay, which can weigh as much as 50 kg, from the pit and deliver these to the potters by foot, with a rickshaw (*pousse-pousse*) or a moto. Women predominantly work as potters in Marom and Boula Ibbi, although in Bamessing men are also involved. In Marom, male potters were also common 20-30 years ago, but this is no longer the case. Working as a potter in Marom is a time-consuming process from kneading the clay, shaping, drying, baking and varnishing prior to transporting and selling it. Considering the time and money spent (on obtaining clay and transport), the amount earned at the market is low, e.g. 2,000 FCFA on a good day at a maximum of two times per week. If the potters go every week the revenue is approximately 16,000 FCFA per month. After associated costs of approximately 1,500 to 3,000 FCFA, the net amount is between 10,000 and 20,000 per month. Potters also have additional sales that can increase their average monthly revenue per day from buyers that arrive by truck to buy for tourist markets in Douala or Yaoundé. However, these trucks are irregular, frequenting less than once per month.

The Prescraft production centre in Bamessing provides jobs for 30 full time employees and relies on a network of 1,500 artisans (not only potters, but also wood and stone artisans). Prescraft also provides work opportunities associated with sales and uses transport services for its exports. However, being the only producers for an export activity among Bamessing Potters and hence providing a relatively low volume of product to the larger transport market, Prescraft's impact on the local transport economy is probably limited.

The Nkolbisson semi-industrial brick making site employs more than 20 persons. The presence of the site led to a food catering market for workers, evidenced by six street food stalls and one bar/restaurant interviewed during the survey.

Salaries within these types of semi-industrial production ranges between 50,000 and 65,000 FCFA/month for technical workers and up to 120,000 FCFA for administrative staff. Workers hold a written contract and are covered by extra benefits such as medical coverage and PPE equipment.

Procurement of inputs and services

Equipment and tools

Clay extraction in Marom, Boula Ibbi and Bamessing is artisanal with basic tools: shovels, wheelbarrows, digging axes, buckets and hoes procured from local stores (*quincaillerie*) and local ironsmiths. The replacement rate is high for most tools (less than a year). Prices of items hardly vary from one region to the other and remain under 3,500 FCFA/tool, except for a wheelbarrow priced at over 20,000 FCFA. Marom miners sometimes rent small equipment from within the community.

For transport of the clay to the selling point, Boula Ibbi miners and/or site transporter use a rickshaw (*pousse-pousse*), reportedly selling at 75,000 FCFA from local stores.

Marom and Boula Ibbi potters mainly use specific (non-pottery) small tools in the fabrication process: fork, toothbrush, cardboard, small knives, stone, etc. In addition, they use traditional

tools and inputs that they can make themselves or purchase within the community: traditional coating, baobab grain necklace, *papawal* (piece of wood that assists in controlling pottery thickness).



Figure 76: *Pousse-pousse* and small tools and *papawal* used by pottery makers in Marom and Boula Ibbi. Electric pottery machinery at Bamessing.

Specialised pottery equipment only seems to be used by Institutions (Foumban Art Institute and other art institutions) and by Bamessing potters. Mechanical potter's wheels are made in Bamessing, Ndop or Bamenda by local ironsmiths and cost between 140,000 and 200,000 FCFA. Professional potter's wheels or ovens are usually imported or bought through distributors. An imported 1m³ professional oven is reported to cost around 5 million FCFA.

Chemicals

Bamessing potters, and Prescraft potters in particular, use a more sophisticated production process with chemical inputs, some of which cannot be found in Cameroon. Some glazing material is imported and Prescraft mentioned having bought some specialised chemicals through MIPROMALO. Potters in Bamessing use cones to determine oven temperature. The cones are also imported.

Artists and pottery students also rely on paint, enamels and acrylic for their production.

Service to workers

Only important sites such as Nkolbisson, and to a much lesser extent Bamessing, are reported to attract specific services for workers such as street food vendors. Other sites are too small to induce on-site services to workers.

6.8.3 Pozzolan

Taxation

Operators at Terre Noire (Pouoloum) quarry are legally registered and as such are obligated to pay the extraction tax and *domanial* tax. The departmental delegate indicated that producers typically under-report the production and number of loaded trucks leaving the quarries. At Terre Noire, truck drivers are presented with a waybill at site by the loaders and the agent from the commune collects a tax on each truck.

At Ancien CIAC, the Comité de Développement Villageois of Njimbouot II, operator of the quarry, collects 20% of all proceeds. Communal taxes (1,500 FCFA per 12t truck, 3,000 FCFA per 20t truck and 1,000 FCFA per 7t truck) are also collected directly from truck drivers.

At Djoungo site, a semi-mechanised operation, the operating company is required to comply with applicable legislation and tax.

With regard to brick makers, the commune collects a tax for public space occupancy depending on the number of square metres occupied. A brick maker in Bafoussam indicated paying about 20,000 FCFA/year.

Job creation

The Departmental MINMIDT delegate interviewed for this study estimated 15 pozzolan quarries in the Foubot area and ACP-EU Development Minerals Programme census (2017) counted 378 pozzolan workers across eight sites.

Terre Noire and Ancien CIAC both claim approximately 60-70 workers on site and use a rotational working scheme. It is not clear if the number of workers indicated is an estimate of workers working on each given day or if it is the total of workers working at the quarry. At Ancien CIAC, workers from the different rotational groups were present following announcement of the fieldwork and these numbered higher than 100. At Terre Noire, only about 20 workers were observed during the site visit.

Due to the lack of job opportunities in the village and surrounding area, a rotational scheme has been devised in which workers are allocated six working days per month at the site. It is estimated that about 15% of the young people in the village work at the site. Work on sites excavating pozzolan is predominantly done by young men below the age of 30 living relatively close to the quarry. The same can be said of people making cement blocks. Neither job requires more than primary education and most workers have been trained on-the-job by friends or relatives.

Pozzolan extraction also provides jobs in mineral transportation, reselling and concrete bricks and making of other concrete items. At Bafoussam, 12 resellers and brick makers using pozzolan formed a union. In Foubot, three brick makers with a significant number of items stored on the street were identified and at least one in Fouban, all using pozzolan. These respondents from the downstream value chain each indicated 4-8 employees. Therefore, at least another 100 direct downstream jobs could be added to the pozzolan value chain. Seasonal workers from anglophone Cameroon also join the brickmaking sector.

Working downstream in the value chain making cement blocks seems to comprise mostly young men working to earn money when needed, compared to the steadier income job of working on site. However, this could also reflect the geographic location of the work, with work on site being more closely connected to a community than making cement blocks, which tends to be located along a paved main road close to a town or larger urban area.

Work at the quarry seems to be regarded in a similar way to working at a construction site, i.e. a good source of income for unemployed young men. However, the jobs are not necessarily seen as the most desirable long-term solution. For example, community leaders in Njimbouot II expressed concern that, although it had not happened yet, male children (12-15 years old) may be tempted to drop out of secondary school to earn money working at the quarry.

As in the case of sand, pozzolan semi-industrial quarries offer far fewer employment opportunities. For example, Djoungo quarry reports five full time employees for the production of approx. 20-25 trucks per day.

Procurement of inputs and services

Tools and equipment

Basic tools (shovels, pickaxes) are sourced from local markets and ironsmiths. Ancien CIAC workers reported that they had to buy their own shovel and that they needed to replace this every 2-6 months, while pickaxes were provided and shared among workers. At Terre Noire, operators provide tools. This implies that, potentially, almost 300 shovels are needed every 3-6 months in the Foubot area.

Moulds for concrete items are sourced from Foubot, Bafoussam and Yaoundé.

Semi-mechanised quarries require significant capital to buy equipment, such as a wheel loader (50 million FCFA) or an excavator (400-500 million FCFA).

Services to workers

No settlements were observed at both artisanal quarries. The only alternative activity seen was women carrying out small-scale onsite food sales.

6.8.4 Sapphire

Taxation

None of the miners and resellers interviewed in Mayo Banyo indicated paying taxes of any type. Furthermore, they did not indicate any fees or payment to landowners or chieftaincy.

The production joins a more formal part of the value chain when it reaches CAPAM or an authorised trader (*comptoir d'achat*). However, only 38% and 28% of producers respectively identified CAPAM or an authorised trader as one of their clients. Resellers interviewed during the survey were from the community and 100% of these resellers listed Sri Lankan clients, which may suggest an informal export corridor.

Job creation

The ACP-EU Development Minerals Programme census (2017) estimates 650 sapphire artisanal miners at the national level.

The profile of the Mayo Banyo respondents confirms that sapphire digging is carried out exclusively by men in the community. Most of these workers have limited education and live in remote environments. Only one woman was interviewed and her role was a sorter.

Community members (those aged at least 35) are also active in reselling at the local level to national and international resellers.

Limited induced employment was evident as only one street food restaurant was identified at the worksite level.

Procurement of inputs and services

Tools and equipment

Digging at Mayo Banyo requires basic construction tools such as shovels, bucket, adze (*daba*), pickaxe or machete. These tools are available in Banyo stores for prices between 1,200 to 2,500 FCFA.

A minority of diggers reported using a costlier piece of equipment in the form of a motor pump (400,000 FCFA).

Resellers are using motorbikes for transport between the extraction site and Banyo, which is either their own (450,000-500,000 FCFA) or a rental (15,000 – 20,000 FCFA/day).

Service to workers

Limited services to workers were found on site with only one street food restaurant identified at site level.

6.8.5 Gravel and dimension stones

Taxation

In Pouma, quartzite sites operate as a federation structured under CAPAM. CAPAM ran a program between 2012 and 2014 where, by buying the production, they also collected taxes (500 FCFA/m²). Currently, taxes are not being collected. The commune does not collect taxes, nor do they monitor activities, as the artisans are not registered with the commune. The Mairie had set up an open register for artisans (not only miners) to register themselves, however no one registered. The economic impact of quartzite stones appears to be very limited for Pouma and the commune representative was unsure if mining activity was considered in the new local development plan under preparation.

The Nkometou artisanal gravel site is no longer operational. The local artisans used to process waste rocks from industrial quarries, either on abandoned quarries or from deliveries made by Razel and the Lixian quarry, based on a community agreement. Nkometou artisans were not extracting. They had a few attempts to extract gneiss blocks themselves by heating the rock, however, it appears this was unsuccessful and not further pursued. The processing was undertaken without legal title and it is unclear if trucks loaded with their product were being taxed.

Missingléo and Sa'a sites are also informal although some respondents indicated paying a tax to the commune. One producer in Missingléo area reported paying a tax to the commune without specifying the amount. In Sa'a, one quarter of miner respondents indicated paying a 45,000 to 50,000 tax to the commune, three quarters of gravel processors reported a 3,000 FCFA annual payment, a small proportion of on-site transporters a 2,000 FCFA annual payment and resellers a 3,000 FCFA tax per load.

Job creation

The ACP-EU Development Minerals Programme census (2017) registered 122 sites of gravel and dimension stone and was able to identify more than 3,200 stone and gravel artisans. Job creation opportunities at these sites vary from one site to another. Extraction is typically done by men while processing is done by women only or a mix of women and men, depending on the site and region.

Extraction and processing of quartzite as a dimension stone, also called 'Pouma stone' is limited to a few communities in rural Pouma. Sites are small, with about 5-15 men. Women crushing gravel number approximately 15. A few children assist, for 200-500 FCFA, in head transport of stones from site to the road selling point.

Nkometou artisanal processing gives direct employment to about 50 workers when activities are underway. The ACP-EU Development Minerals Programme census (2017) did not register the Nkometou site, which is consistent with the lack of current artisanal activity in the area.

Along the value chain, transporters and resellers offer job opportunities as well as the entire construction sector in need of rubble, gravel and gravel sand. Indirect jobs comprise services to workers such as food stalls.

Procurement of inputs and services

Basic equipment is needed for artisanal stone extraction and gravel processing. Basic tools are found in local retail shops. Due to the resistance of the rock, the tools used are more

expensive than in other aggregate production such as crowbar or sledge hammer, which prices at around 15,000-25,000 per unit. In Missingléo, artisans prefer to rent such equipment from 200 to 1000 FCFA a day. Several artisans in Puma complained about the poor quality of some hammer brands such as Fokou.

Blades used to insert into cracks in order to separate the stone from the rock are light vehicle spare parts collected from a local garage. Women use homemade sieves from plastic kitchen sieves, as a proper sieve made from a local ironman would cost around 25,000-30,000 FCFA.

As sites are limited in number, procurement and services apart from tools are limited to head, wheelbarrow or rickshaw (*pousse*) transport, women selling food and juices, or moto-taxi to travel to site for those that live a bit further away.

The industrial quarries, with their accredited salespersons and transporters seated at the entrance gates, have induced small light construction settlements. A small restaurant run by women from the community has opened at the Razel quarry entrance.

For dimension stone processing, in general, costly imported cutting and polishing machines are used.

6.9 Opportunities to strengthen the environmental, health and safety and socio-economic performance of Development Minerals

Artisanal mining creates significant localised job opportunities. The majority of artisanal workers were originally from the local area or moved to the community to get work and had lived there for more than 10 years and were living with their families. Exceptions are sand mining activities close to large urban areas (e.g. along river Mungo close to Douala) and sapphire, where only 40% of miners were from the local area.

Artisanal mining is commonly complemented by other livelihood and income generation activities. In Cameroon the seasonality of mining as well as a range of other factors mean that many artisanal miners supplement their income with agricultural activities, particularly where there was a lack of job opportunities. There is no evidence to suggest that the employment of children below the age of 18 is widespread and prevents children from completing compulsory education.

Artisanal mining is often characterised by manual labour, evidenced by many workers experiencing back pain and injuries to hands and feet. A gendered division of roles was reported: women tend to sell food to workers on site, are involved in crushing gravel, lighter transport as well as the production of clay products.

In general, the Development Minerals sector in Cameroon is characterised by a low level of observed conflicts. This is important to note as artisanal mining in some neighbouring countries face significant issues related to 'conflict minerals'⁵⁹. Potential tensions related to land tenure were apparent at some sites, however little evidence was found of disagreements leading to escalated conflicts. Concerns were expressed by some miners in Njimbot II (Ancien CIAC), close to the town of Foubot, about the allocation of (artisanal and industrial) mining permits,

⁵⁹ The OECD defines 'Conflict minerals' as '*minerals from conflict-affected and high-risk areas*' and identifies these areas by '*the presence of armed conflict, widespread violence or other risks of harm to people.*' It further explains that '*high-risk areas may include areas of political instability or repression, institutional weakness, insecurity, collapse of civil infrastructure and widespread violence. Such areas are often characterised by widespread human rights abuses and violations of national or international law.*' (Source: OECD, *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas: Second Edition*, 2013, p. 13.)

which could jeopardise the existing community artisanal mining activities. The concern was that allocations were being made without consulting the local community (see, for example, the case study for pozzolan in Annex 8. Some communities involved in mining also expressed concern about their access to agricultural land, an important source of livelihood, following the allocation of land by regional/national authorities to large corporations for the purposes of e.g. large-scale agriculture, electricity distribution and road expansion. Inadequate compensation was also mentioned as an issue.

The following opportunities were identified, that if fully realised, would strengthen the environmental, health and safety and socio-economic performance of Development Minerals:

- More clearly defining land tenure and establishing a process for allocating land use rights that involves the local community, including the establishment of effective grievance mechanisms through which community members can express their concerns and have complaints addressed. This includes concessions for large companies within mining, agriculture etc., as well as infrastructure projects, smaller scale development and artisanal mining permits.
- Benefit-sharing with local communities of economic activities including artisanal mining e.g. allocating a proportion of taxes collected to be administered by the local community. This was observed at some of the sites and considered good practice.

Other opportunities, which would have relatively lesser but still significant impact, include:

- Addressing the cumulative impacts of mining activities in close proximity on land as well as in rivers, particularly related to sand extraction.
- Rehabilitation of abandoned mining sites on land, including making pits safe and restoring areas for alternative use e.g. agriculture.
- Further exploring how association membership could be made feasible and contribute to workers gaining influence and purchase/negotiation capacity, improving access to loans, capacity building and improved health and safety. The dissemination of information to artisanal miners via mobile phone could be considered given that most workers have a phone.
- Addressing non-use of PPE, which is not unique to artisanal mining. This will require commitment of mining site owners/operators/heads of site and sustained external interventions, including technical assistance, practical training, and possibly subsidising good quality PPE, all on a continuous basis, not just a once-off exercise. Heads of site/owners should require appropriate PPE of workers as a precondition for being able to work.
- Taking measures to further reduce the employment of children below the age of 18, especially in tasks that are similar to those carried out by men.
- Sealing roads and making other improvements to roads that are currently not easily accessible by car/truck. For artisanal mining, this could be done using funds from taxes already imposed on artisanal mining activities.
- Specifically for clay, investigating the types and amounts of chemicals used in production of ceramics and bricks, in order to (i) raise awareness at customs and increase ease of importing chemicals needed, and (ii) raise awareness at local authorities and potters relating to wastewater treatment options/requirements.

The following opportunities would have an equally significant impact on local communities in general, rather than artisanal mining alone:

- Campaigns to increase the number of workers with a written contract that includes health insurance as a benefit.
- Improving women's ownership and access to (particularly agricultural) land would significantly help women in the artisanal mining sector, as well as in general.

- Exploring synergies and opportunities with health authorities/campaigns, e.g. malaria prevention efforts or vaccination campaigns targeting mining sites. Quality and accessibility to general health services and health promotion have a direct effect on artisanal miners and their families.
- Decreasing the travel times reported to the nearest health centres as much as possible. It is worth considering establishing a system to transport injured workers to the nearest health centre faster e.g. local ambulance system.

The following constraints were noted:

- Transport costs are high and poor road quality hinders the transport of minerals from site during the raining season. Transport logistics and costs to main consumer centres (large cities and international) is a particular obstacle to the development of a decorative pottery industry.
- Pottery sales and activity are impacted by the economic downturn caused by the tense political situation in the North West region.
- The current method of pozzolan production presents several health and safety hazards. For instance, both quarries visited dig at the base of the pozzolan quarry face in order to make the mineral collapse, with a significant risk of injuring workers.
- Customary rights to land tenure have an impact on sand price due to speculation, which raises the need to organise dock tenants in order to monitor speculative activities. Adequate monitoring would benefit the downstream value chain.
- The CDV is the de facto operator of the pozzolan Ancien CIAC quarry. The Committee oversees workers' recruitment, establishes the boundaries of the quarry to avoid conflicts with agricultural activities and receives a 20% royalty from quarry proceeds. With the royalty, the CDV has been able to finance community infrastructure projects. From all the visited sites, this model appears to be most successful as it reduces conflicts in the area, seems to be widely accepted and is perceived to be fair and to benefit the entire community with a redistribution of wealth created in the form of community infrastructure. This model is also an opportunity to work with a single actor which is not only driven by profit but also by improving safety, production and infrastructure at the quarry. However, this model is not a legal entity, which presents risks. The legislation imposes requirements for a physical operator with a limited surface area (see Component 2). The current legislation is forcing the division of Ancien CIAC into seven leases given to seven individual operators. The allocation is in process, although widely criticised by the local workers. Tensions on the subject were visible during the visit and while contained for the moment, the situation has a potential to escalate.

7 MARKET AND VALUE CHAIN ANALYSIS (COMPONENT 5)

This chapter provides a market and value chain analyses for the priority Development Minerals and the level of integration and inter-linkages with other sectors of the economy.

The analysis is presented by mineral, and includes an overview of the organisation and types of operations, the respondents and sites included in the study, and a demand profile. The profile for each product includes market size, historical trends, consumers, location/geography, market share, price, and factors influencing price. Also included is a value chain analysis. Each section ends with some opportunities and constraints for the mineral based on the findings from this study. The chapter concludes with a summary of opportunities specific to each mineral value chain.

7.1 Sand

7.1.1 Organisation and *modus operandi*

Intensive artisanal sand extraction in Cameroon takes place in riverbeds. Quarries operate seasonally, based on the accessibility of the sand resource. The sand extraction activity schedule varies from one quarry to another but the quarries are typically active for eight months of the year, corresponding to the dry seasons. The sand studied in this baseline is construction sand, as opposed to silica sand which tends to be used in industrial processes.

Some differences in organisation were observed across sand extraction sites. The main differences lie in the status of the miners. In some sites such as Ebebda or Mother Quarry, workers are paid by task by the artisanal mining operator, while in other sites miners are small producers and sell their production themselves. This is clearly the case in Longtimbi and to some extent in some of the South West sites.

Table 25: Number and type of respondents providing information on sand value chains for the study

VALUE CHAIN COMPONENT	NUMBER	PERCENT
Mineral exploration and extraction	42	33%
Processing of minerals or semi-finished products	18	14%
Transportation of mineral or semi-finished products	18	14%
Purchase/resale of mineral or finished and semi-finished products	9	7%
Provision of goods and services to stakeholders in the mineral value chain	22	17%
End use of mineral or finished products	18	14%

It should be noted that the miners in Ebebda and in the South West sites who identified themselves as independent are divers. Also, some miners paid by the task still see themselves as independent as they are not bound to a single operator. Some of them work for different operators at the same site.

The status of the miner seems to influence slightly his willingness to remain a miner or not. Out of the independent miners surveyed, 60% are willing to continue their activity compared with only 46% of miners paid by the task.

A part from extraction, the other value chain players are common across all of the sand sites included in the baseline study. The figure below shows the value chain for the Mungo River Mulanga site. The Mulanga settlement also serves Yato quarry located on the same riverbank, across the bridge and opposite.

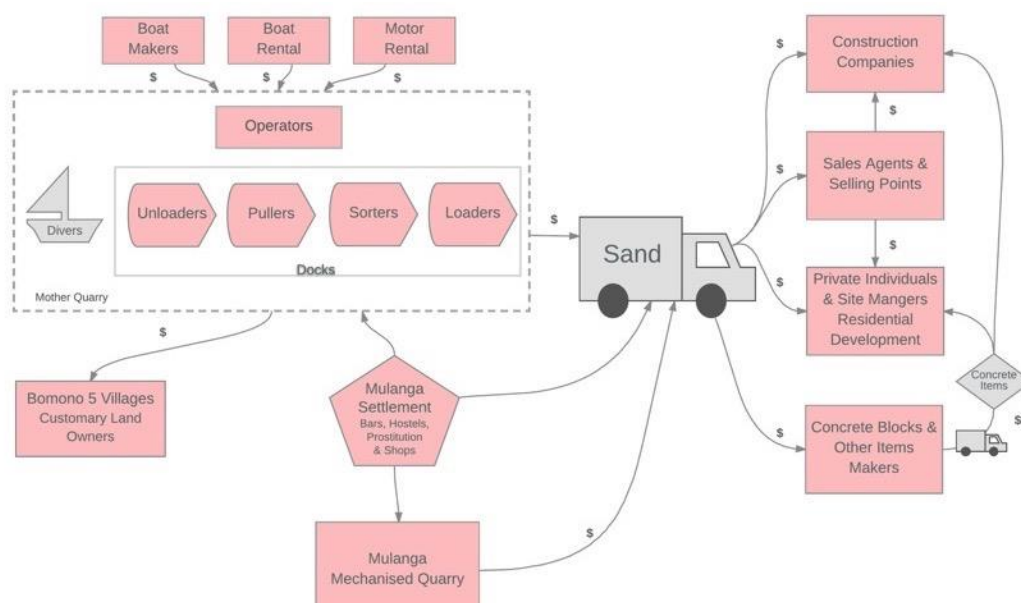


Figure 77: Example of a Mungo River sand site value chain (Mother Quarry/Mulanga)

Legal sand production requires an operating license. However, of the approximately 483 sand exploitation sites listed throughout the national territory, more than 80% have no operating license⁶⁰. This situation can be explained by the lack of human resources discussed in Component 3 and the resultant lack of monitoring and enforcement. In April 2016, MINMIDT and the Cooperative for the Provision of Services in Cameroon (CESOF) launched a pilot project to regulate the sand market. The anticipated immediate impacts were the stabilisation of the prices and market, as well as adoption of metrological standards for sand trading. The pilot project aims to strengthen the operating framework and the living conditions of the artisanal miners and other actors of the sector, as well as the local populations of the sites of artisanal exploitation of sand. One of the impacts of this pilot project is the deployment of CAPAM units in sand exploitation sites in the Centre, Littoral and Southwest regions.

Types of operation

Extraction: This operation is often carried out by a pirogue-diver, also called a digger, and consists of collecting the sand at depths of up to 3m.

⁶⁰ ACP-EU Development Minerals Programme. 2017. Census Report of Artisanal and Small-Scale Miners and Quarries Involved in the Development Minerals Sector in Cameroon. UNDP.



Figure 78: Seal used by divers for sand extraction



Figure 79: Workman unloading a boat

Unloading: This operation consists of transferring sand from boats (canoes) to the shore using shovels.

Transferring: This operation consists of transferring the sand from the shore to the dock using shovels.

Sorting: This step involves reassembling sand into stacks ready for loading, according to grain size if necessary.

Loading: This operation consists of loading the sand onto trucks.



Figure 80: Transferrer



Figure 81: Worker loading a truck

7.1.2 Demand profile

Products

Raw materials

Sand is the most extracted mineral by artisanal miners in Cameroon, accounting for 56% of artisanal miners and 58% of artisanal mining sites (ACP-EU Development Minerals Programme, 2017; refer to Table 7 of this report for production volumes from 2011 to 2016.) Intensive artisanal extraction takes place in riverbeds. In areas poor in river sand, sand tends to be replaced by pozzolan and gravel sand, which share some of the attributes of sand for construction.

Sand prices vary across quarries and regions, according to the distance from the quarry, road access, local competition, seasonality and other factors. Sand prices also vary according to place value, e.g. “Mulanga sand”, “Batié sand”, “Sanaga sand”, etc., with the latter considered as the best on the market. Sand colour will vary according to the mineral composition.

Sand is an essential construction material with different usages according to the sand grain calibre. The classification reported by the sand miners is as follows:

- *Fine sand*: referred to as *trenchant*, used for coating and as an aggregate mixed with a binding agent such as lime or cement. Fine sand is slightly more expensive than other types of sand. The standardised grain size for fine sand is 0/2.
- *Medium sand*: also called *moyen tranchant*, is sized 0/4 and used for masonry mortar.
- *Coarse sand*: used for concrete foundations and roads with a grain size of 0/6.
- *Mixed sand*: referred to as *tout venant* or *vrac*, is sand mixed with gravel and organic waste. It is less expensive and is not a standardised material.

Sands of varied sizes can also be mixed in the coating, mortar or concrete formulation adapted for a specific usage.

Artisanal sand is not standardised, as it would be in other regions or in industrial sites. At Mulanga site, workers reported knowing where to find fine sand as opposed to coarse sand by observing the river flow. Sand sizes are also referred to by their colour in some quarries.

Concrete construction and decorative products

Sand is used in the fabrication of concrete blocks (*parpaing*) and other concrete items for construction and decoration (nozzle, balusters, tiles, etc.). Sand, other aggregates, cement and water are mixed and casted in metal moulds. The item is then dried under the sun before storage and/or sales. The makers of concrete products observed during the qualitative field-work are artisans.



Figure 82: Micro-concrete roof tile used for roofing (Photo credit: MIPROMALO, 2017)



Figure 83: Pavement used for external flooring, Nkometou

The quality of artisanal concrete products is inconsistent as the mineral used is not standardised and formulation is often approximate. Production is made more difficult during the rainy season because of the drying needs and the increase in sand price.



Figure 84: Breeze blocks used for house building, Nkometou



Figure 85: Concrete nozzle, Nkometou



Figure 86: Ourdi used for cement platform, Nkometou

Consumers

The primary buyers of sand and concrete products are site managers of residential developments, civil works companies and individuals. Most clients buy on order, although there are also some depot/selling points for sand in the main urban areas. Producers of concrete items also work based on orders while the most established producers store some products and sell them at retail shops.

Demand for sand is spread all over the territory, but a high demand concentration is observed in Douala, Yaoundé and main regional cities. Yato and Mother Quarry sites mainly serve Douala while Ebebda sites serve Yaoundé and Longtimbi, Bertoua.

Market share, price, factors influencing price

The price of sand varies according to the grain size, distance from the quarry and seasonality. Sand is less expensive during the dry season while it increases during the rainy season due to the increase in river flow that makes diving perilous and the decrease in the accessibility of sites due to the difficulty of trucks navigating wet unsealed roads. In the main cities, a 10m³/16t truck price can vary from 55,000 to 190,000 FCFA, the higher range representing the rainy season price.

Table 26: Sand prices in main cities (transport included)

PRICE RANGE	YAOUNDÉ	BERTOUA	DOUALA
12t Truck	90-100,000		
16t Truck (10m ³)		60,000-80,000	60,000-80,000
20t Truck	150,000-210,000 (180,000 most quoted) for Sanaga sand, around 140,000 FCFA for fine sand		85,000-95,000

Transport costs vary according to distance to the city and different locations in the city. At Mulanga quarries, the reference selling price is the 10m³ truck (16t) at 33,000 FCFA at the artisanal mine and 30,000 FCFA at the semi-mechanised mine while a selling price of 65,000 FCFA in Bonaberi or approximately 80,000 FCFA in Douala centre was reported.

In 2015, 20t trucks were banned from entering Yaoundé, which led to increased prices. Several strikes from transporters in the past had, on each occasion, an important impact on the sand price. In 2015, a strike was initiated by transporters complaining about harassment by police and gendarmerie. Some transporters protested about having to pay 1,000 FCFA at each police checkpoint, often at more than 10 checkpoints on a trip. Poorly maintained trucks allegedly became targets for harassment by authorities who reportedly pressured transporters to pay, with the threat of banning their trucks from the road.

Semi-mechanised quarries have an impact on artisanal quarry pricing. At Mother Quarry, a 10m³ truck of sand was 35,000 FCFA before the arrival of the semi-mechanised quarry. With the latter charging a price per truck of 30,000 FCFA, the artisanal mine had to decrease its own price to 33,000 FCFA. According to the President of the Artisanal Association, they have seen their sales decrease by 30-50%. However, artisanal activity has been maintained as they can offer different grain sizes as opposed to the semi-mechanised mine which sells humid or wet coarse sand with organic material from the riverbed. The sand is directly pumped from the dredge without any sorting process. With the arrival of the semi-mechanised quarry, the artisans of Mother Quarry are no longer free to set their price and must align this with the semi-mechanised price.

The prices for concrete bricks and items are relatively homogenous when produced in proximity to a source of sand or substitute mineral (pozzolan or gravel sand). However, brick makers linked to Longtimbi site were not surveyed during this study.

Table 27: Sand breeze block prices around Mungo River

ITEMS	UNIT PRICES
Breeze block 10 (<i>Parpaing</i>)	150
Breeze block 12	200-225
Breeze block 15	200
Breeze block 20	300

7.1.3 Supply profile

Producers

Mining

Among the 36 sand survey respondents active in the extraction segment of the value chain, 14% are mining operators (*exploitant minier*) with one or more employees. These operators have been located along the Mungo River for more than 10 years and 60% are legal entities registered as sole proprietorships. Half reported one to five employees with 10 employees at peak activity, and half reported more than 50 employees with 100 employees at peak activity. Most employees are workers paid by the task or at the day.

All the Longtimbi miners interviewed reported being independent and selling their own production. The remaining survey respondents work for operators who pay them daily or by the task (divers, puller, loaders, supervisors etc.).

Data on unit prices, costs and revenues by value chain actor for Mother Quarry allowed the study team to develop 'value added' diagrams based on the total revenue at each stage in the value chain. The value-added diagram per value chain segment below is based on an annual estimate assuming production of 12 trucks per day during 8 months. The diagram that follows, on individual revenues per mining worker, is based on the annual revenue divided by the estimated number of workers in each category. The diagram is valid for interpreting proportions rather than for exact revenues. This is because many workers do not spend the entire week working, some operators have a larger crew than others, or there is a large discrepancy in the number of boats that boat owners rent.

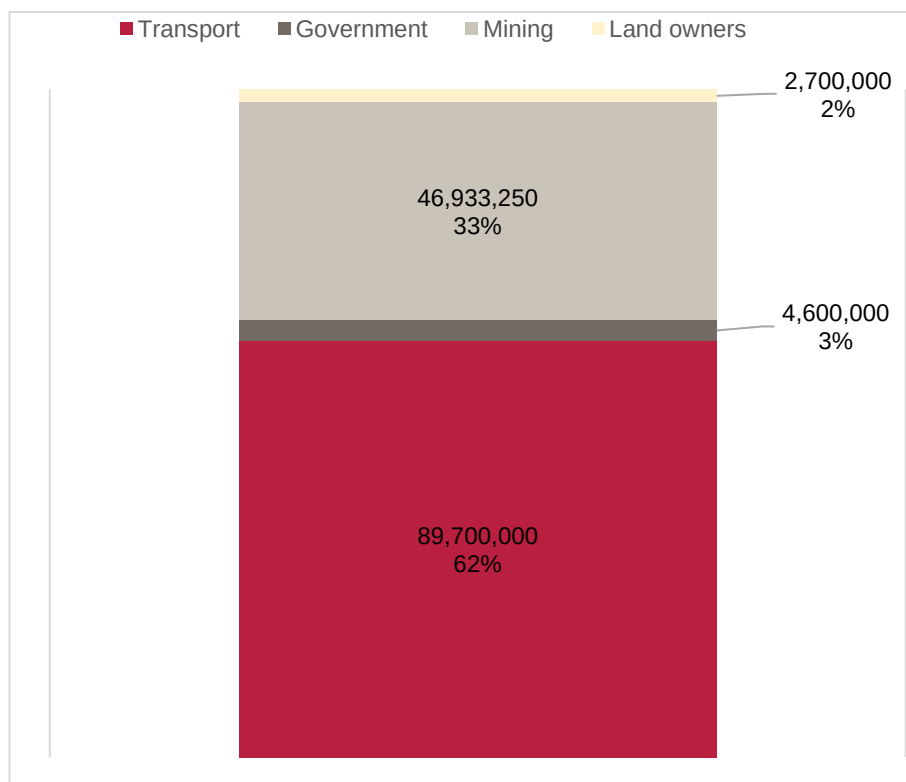


Figure 87: Relative value added by value chain segment for Mother Quarry site (Note: 'landowners' does not refer to legal property but to customary land possession)

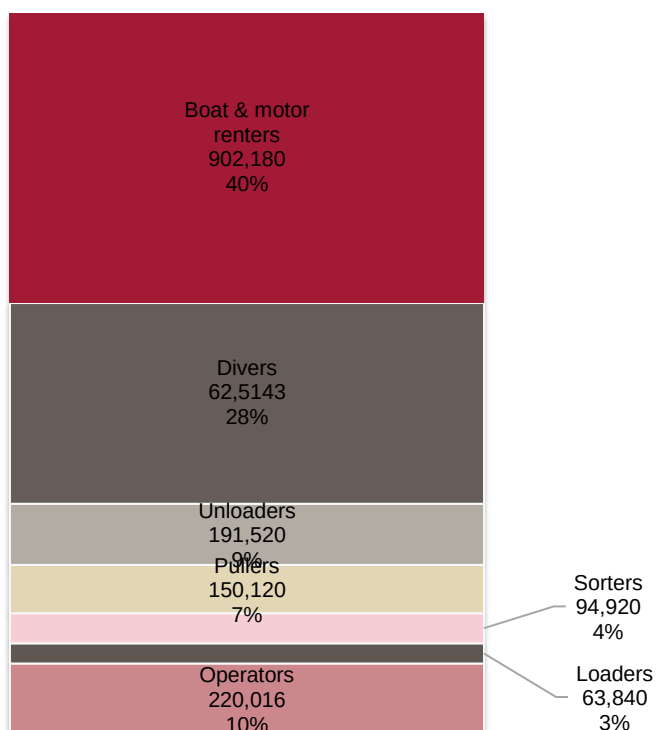


Figure 88: Relative value added by mining value chain players for Mother Quarry site (based on revenues/capital)



Figure 89: Relative value added by type of landowner for Mother Quarry site

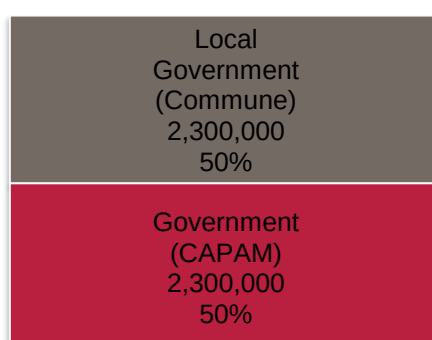


Figure 90: Relative value added by government institution for Mother Quarry site

In decreasing order, transporters, boat renters, divers and dock tenants are the players receiving the highest share of revenue in the value chain. In contrast, other extraction workers, operators and the village/community receive the smallest share of the sand revenues. Information gathered at other sites support this general view, with some differences in the revenue share of landowners or local government.

Transport

Fifteen percent (15%) of the total respondents of the survey for sand are in the transport business. Of the transporters interviewed, 23% are independent drivers owning their own truck, 66% are employees (drivers) of a physical person or an informal enterprise of 1 to 5 employees, and 1% are employees (drivers) of a formal company (Société Anonyme with 6 to 20 employees). Average monthly salaries for the drivers are 107,000 FCFA and only one respondent indicated being paid 10,000-15,000 FCFA per 20t truck.

Sand transport requires the procurement of trucks (mainly second-hand with over 10 years of circulation) for a price between 20 and 30 million FCFA. A truck loading at the Yato quarry to supply Douala needs about 30-35L of diesel a day (approximately 20,000 FCFA/day). Transporters are responsible for the payment of the communal tax from 1,000 to 3,000 depending on the sites. Registered businesses also pay annual taxes to the Transport Ministry (axle taxes) and to the commune for truck parking and the *patente* (commercial tax).

Resellers

In most cases, sales are arranged directly by the transporter. The quantitative survey also identified two types of respondents that are resellers without being transporters, which represents 6% of the total persons interviewed for sand. Along the southwest riverside of Mungo, some resellers are selling sand by the wheelbarrow for local consumers in need of less than a truck. They can also arrange a truck when the need arises but this does not seem to be their main activity. The wheelbarrow price is between 1,500 and 2,500 FCFA depending on the season and they sell between 5 to 10 wheelbarrows a day on a good day.

In Longtimbi, 100% of the resellers are women. They sell sand on the side of the road, with a wheelbarrow or a stack (*tas*) unit. A wheelbarrow sells for between 1,500 and 2,500 FCFA and a stack between 50,000 and 60,000 FCFA. They bring the sand from the site to the road selling point with a wheelbarrow. On good days, they sell between two to four stacks.

All resellers indicated having stocks from 20 to 100t or one to five stacks. Longtimbi resellers indicated a price increase in the past two to five years. Wheelbarrows (30,000 FCFA), shovels (1,500-2,500 FCFA) and in some cases safety equipment (gloves, plastic boots) were identified as the required equipment for their activities.

Brick and concrete items makers

Of the survey respondents for sand, 15% were processing sand into bricks and concrete items (baluster, nozzle, etc.). Half of the respondents were owners of an artisanal brick factory while the other half were employees. Only 11% of the brick factory workers were registered under a sole proprietorship. Both formal and informal companies tend to have 1 to 5 employees and a maximum of 10 employees at peak activity.

Wheelbarrows of sand are mixed with a bag of cement and water to obtain cement.

Breeze blocks are the items most sold and as such are included in the table below as a point of reference to evaluate activities. Half of respondents reported stocks of between 100 and 2,000 breeze blocks.

Table 28: Monthly consumption of cement and sand in production of breeze blocks

	UNIT	UNIT PRICE*	MONTHLY CONSUMPTION OR PRODUCTION
Cement	50kg bag	4,250-5,000 (Purchase price)	60 to 450
Sand	t	3,500-7,000 (Purchase price)	3 to 150
Breeze block	Breeze block	150-300 (Sales price)	4,000 to 15,000

Brickmaker employees are either paid by the task (1,500 FCFA per bag of cement), per day (3,000/day) or per month (35,000-50,000 FCFA/month). As a comparison, the legal minimum wage in Cameroon is 36,270 FCFA/month.

All the brick makers interviewed were using traditional processes: hand concrete mix, use of moulds and drying. Mould prices range between 2,000 and 30,000 depending on the size, complexity and material (plastic or metal) and can be used for 1 to 5 years. Basic construction tools are used: wheelbarrows, shovels, buckets and trowels.

Amongst the nine brick factory owners, only one respondent reported obtaining a loan for his activity (1,7 million FCFA over a year through ACEP).

Most enterprise owners reported keeping accounting records in a notebook and paying three different types of taxes to the commune: hygiene tax (15,000 FCFA/year), OTVP (*l'occupation temporaire de la voie publique* at 9,000-50,000 FCFA/year) and withholding tax paid to the public Treasury (*impot libérateur* at 50,000 FCFA/year).

Support services

Sand mine respondents identified a limited number of support services. Three are described below: professional associations, CAPAM and access to finance.

Professional associations

The Mother Quarry and Yato sites are organised through associations which register workers on site, provide financial assistance in case of injuries, manage conflicts and monitor the selling price per truck that has been agreed within its assembly.

CAPAM

CAPAM has started a program to collect taxes and also to better organise sites, starting with the registration of workers at site. At the national level, CAPAM has a sand program with some national organisational and commercial strategies. Refer to Component 3 for a discussion of CAPAM's activities.

Access to finance

Only one respondent in the quantitative survey (a brick maker obtained a loan of 1,7 million FCFA over a year through ACEP), and one operator interviewed during the qualitative survey had been able to access a loan. The latter could do so as he was also an employee of an established company and could borrow 4 million FCFA under a housing equipment loan at 19% interest over 24 months.

Transportation is the most capital-intensive segment of the value chain, requiring purchase of trucks. An operator at Yato and Mother Quarry sites requires capital of more than 2 million FCFA for a pirogue (500,000-700,000 FCFA) or for a motorboat (1-3 million FCFA). All remaining activities can be started with a capital below 500,000-1 million FCFA.

7.1.4 Conclusion: opportunities and constraints analysis

Opportunities

- *Demand for sand and concrete blocks is linked to the growth in population, housing needs and construction sector boom:* The sand economy is linked to construction demand, which in turn is linked to the country's economic growth. Growth predictions for Cameroon are around 4-5% for 2017 (it is worth noting, however, that the growth rate declined 5.8% in 2015).
- *Standardising sand production* would increase the potential to add value to production and to add value to construction. Increasing the quality of raw minerals and process output is, for example, an area that would benefit the entire value chain. Quality of construction is linked to the use of the appropriate sand grain size, shape and composition for specific applications. This aspect would create more benefits for the value chain compared to an increase in production.
- *Access to finance:* Addressing standardisation implies access to more sophisticated tools and equipment where access to finance facilities would be needed.
- *Moving operators into the transport business* could potentially increase fair benefit-sharing and reduce price in the main cities.
- *Concrete items products need quality improvement*, which could be supported by training on new material/techniques. However, such training would only benefit the sector as long as it guarantees an increased income for the player. A pilot phase could serve to evaluate the benefit.

Constraints

- *Limited margins for operators and difficulty to compete with semi-mechanised operations:* Semi-mechanised operations drive the selling price down, reducing the margin for the artisanal operators. A low sand price is good for the construction industry but jeopardises artisanal sand quarries. However, at Mulanga, artisanal miners maintain a competitive advantage based on quality that allows them to survive with a 3,000 FCFA/truck price differential. Nevertheless, operators' margins are tight and would have difficulty resisting a larger decrease in sand prices with current methods of production.
- *Lack of financial support to buy assets:* The informal aspect associated with artisanal sand mining makes it difficult to access a bank loan and facilities. The security of assets is not guaranteed as the theft of motors was reported in the qualitative phase. This is sometimes followed by the capsizing of the boat for lack of funds to replace the motor.
- *High transport costs:* At Mulanga, a 10m³ truck of sand is purchased by a transporter for 30,000-35,000 FCFA. In Bonaberi (Douala suburb), 18km away, the transporter will sell the truck between 65,000 and 80,000 FCFA. CAPAM and the Ministry have identified the issue of transporters' margins and their effect on sand price and limited margins for producers. As yet, a solution has not been found, which may be because transporters hold strong political influence in Cameroon.

7.2 Clay

7.2.1 Organisation and *modus operandi*

The type of clay focused on in this baseline study is common clay with construction material and arts and crafts as the main markets. This contrasts with kaolin or smectite, which are clays with pharmaceutical and/or industrial applications.

Three types of sites were included in the qualitative and quantitative survey:

- Traditional artisanal sites linked to an ancient pottery tradition (such as Marom or Boula Ibbi);
- Semi-industrial sites such as Nkolblisson, a brick factory launched by MIPROMALO; and
- Sites using both an ancient pottery tradition and some semi-industrial features (Bamessing/Prescraft).

The uniqueness of the clay value chain is that extraction and processing can often be done by the same player.

Table 29: Number and type of respondents providing information on clay value chains for the study

VALUE CHAIN COMPONENT	NUMBER	PERCENT
Mineral exploration and extraction	56	35%
Processing of minerals or semi-finished products	34	22%
Transportation of mineral or semi-finished products	15	9%
Purchase/resale of mineral or finished and semi-finished products	16	10%
Provision of goods and services to stakeholders in the mineral value chain	24	15%
End use of mineral or finished products	13	8%

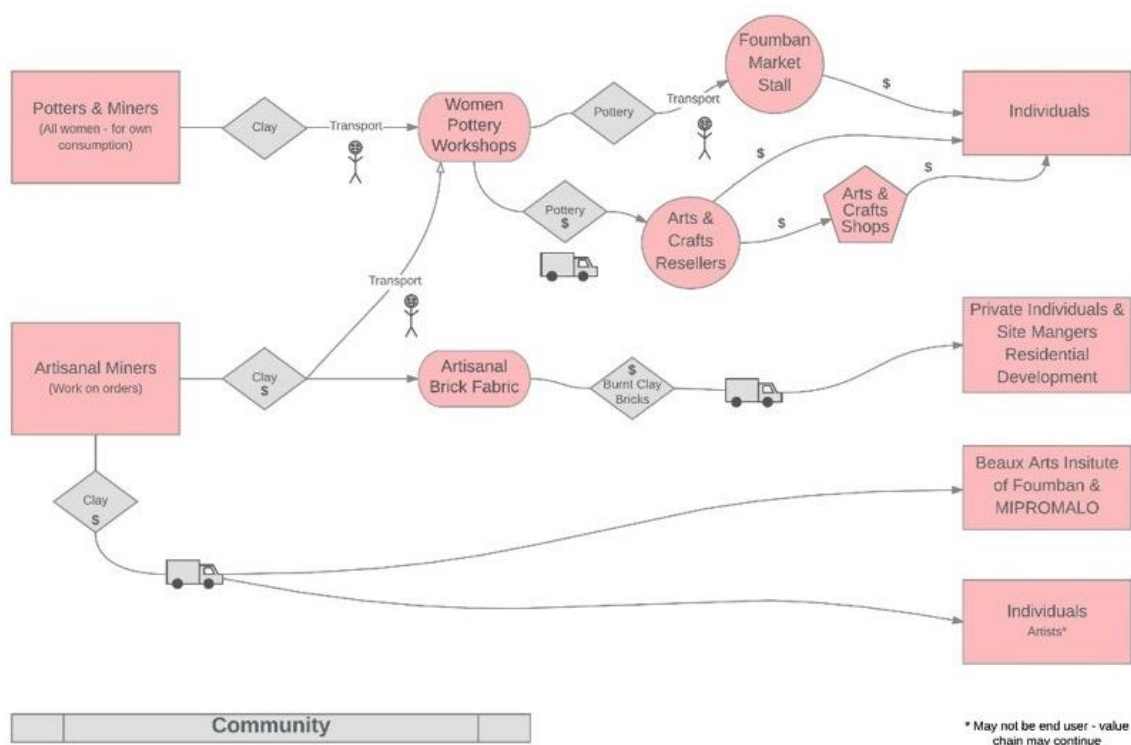


Figure 91: Example of a clay site value chain (Marom)

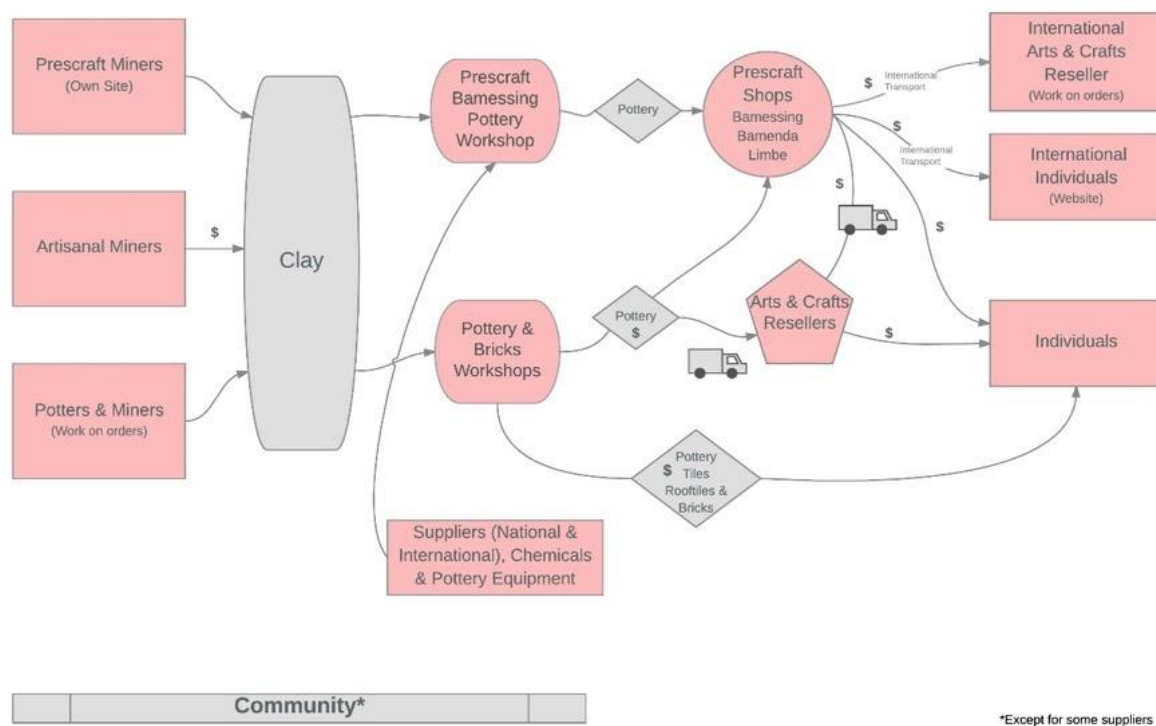


Figure 92: Example of a clay site value chain (Bamessing)

Types of operations

Digging / raw material supply: This operation consists of sourcing raw material and can be carried out by the artisanal miners themselves or entrusted to third parties from whom the artisanal miners will re-purchase.



Figure 93: Clay digging site (Marom village)

Modelling: This operation consists of reaching the desired shape from a volume of clay. It can be carried out by hand or with a mechanical or electric lathe.



Figure 94: Handmade modelling (Marom village)



Figure 95: Mechanic Tower (Bamessing)



Figure 96: Electric tower (Bamessing)

Pattern printing/decoration: This operation involves making drawings on the walls of the clay-based work.

Drying: This is a very delicate operation. All of the pottery must be dried before being baked. If the drying is too fast or not uniform, cracks may appear on the pottery during firing.

Firing: This operation consists of baking the pottery at temperatures that can reach more than 1,000°C. Wood firing is used by traditional potters of Marom and Boula Ibbi while Bamessing potters use a refractory brick oven. Fomba Institute of Fine Arts students use an imported professional oven. Several firings are necessary to make quality ceramics.



Figure 97: Artisan applying patterns onto a clay vase



Figure 98: Drying pottery in the open air



Figure 99: Clay brick oven

7.2.2 Demand profile

Products

Raw materials

Common clay is used by potters, artists and individuals for traditional house construction, burnt brick production and arts and crafts.

In Marom and Bamessing, common clay of distinct colours is extracted depending on the mineralisation. Buyers and users refer to the clay specification by its colour: brown, red, black, white and/or by its quality: first and second quality. One Bamessing individual potter used second quality clay for baked bricks and first quality for pottery.

Marom potters appear to prefer red clay but usually mix the different colours to get the swirled tints. In Marom, all clay colours are bought at the same price.

Table 30: Clay pricing at surveyed sites (range indicates price in dry-wet season)

	BAMESSING	MAROM	BOULA IBBI
Wheelbarrow	5,000 FCFA		
30kg bag		1000-1500 FCFA	
50kg bag		1500-2500 FCFA	500 – 600 FCFA

Marom miners indicated a substantial price increase (double) between two and five years ago motivated by site accessibility issues and demand increase.

Pottery

- *Traditional savoir-faire pottery:* Pottery is traditionally made from local clay in Marom and Boula Ibbi. Women potters either buy clay bags or mine the clay themselves. In Marom, they then mix the clay, sand and water and leave the mixture to set overnight. The next step is to grind the mixture with a pestle on a rock or a piece of wood. The potter then shapes the desired form with their hands and fires it on wood for three hours. The last step

involves coating using tree bark. The pieces of pottery are rustic and the colours uneven due to the traditional firing that is not easy to control. Potters create pots, plates, decorative pieces (e.g. birds, ashtrays in the shape of lions) or traditional ovens (*canari*) used by local households. The price of each piece is negotiated with the client and usually ranges from a few hundred FCFA to 1,000-2,000 FCFA. *Canari* seems to be the source for large equipment, which can cost 4,000 FCFA per unit in Boula Ibbi.

In Marom, the local pottery tradition seems to be quite old, in fact the village chief pointed out pottery belonging to his grandfather. It is interesting to note that this older pottery (probably from the first half of the twentieth century) was much more sophisticated, with better design and finishes than the recent models shown during the visit. It is unclear if this past know-how is still present in the village. The potters interviewed during the visit were women aged more than 45 years and although a few stated that their daughters were learning, the future of this pottery tradition is unclear. Being the only potters in that area, their production has a uniqueness and appeal to local residents and tourists. Potters sell their production to tourists visiting the village, passing through Fouban. This was confirmed by the guestbook presented by the village chief.

Marom Potters also sell their products every week in the Fouban market where they have a stall. They also receive bulk orders. These orders mainly come from Marom residents settled in Yaoundé or Douala who organise the sales at the arts and crafts shops and markets. The frequency of such orders was difficult to assess as some women appeared reluctant to discuss this.

In Boula Ibbi, potters reported selling on the road, in markets and at home for customers mainly of the extended North area.

- *Bamessing Pottery*: Bamessing pottery is very sophisticated, with pieces sold outside of the country that meet European and North American taste and quality standards. Production is based on orders, specifically for these markets.

The fabrication process is a mix of traditional and professional ceramic methods. The clay is bought or directly mined by the potter and then purified by sifting and drying (this takes from one week to one month). The potter prepares the mixture and shapes the form with a traditional locally-made tool or an electric tool. The first firing, usually made in a traditional brick oven, is called bisque and is controlled with temperature cones imported from Europe. After the first firing, the pottery is glazed and fired for a second time. Glazing materials are also imported from Europe. Local materials such as crushed stone and tree peel are used as paint.

Bamessing potters produce plates, pots and decorative pieces (figurines set, hanging bird nests, bird-shaped whistles, etc.), with retail prices ranging from 500 to 5,000 FCFA. They sell directly from their workshop or through resellers. Prescraft is an important buyer for individual potters. Potters are usually contracted for specific international orders, and Prescraft potter employees are already selling their own products in the Prescraft shops in Bamenda, Bamessing and Limbé. Prescraft sales pricing ranges from 500 to 5,000 FCFA per pottery item.



Figure 100: From left to right, traditional pottery from Marom, Boula Ibbi and Bamessing

- *Foumban Institute of Beaux Arts Pottery*: The Foumban Institute of Beaux Arts teaches students about ceramic making. Students' creativity is applied to the design and decoration of common kitchenware and decorative pots. Clay is also used here for art sculpture. For ceramics, the institute or its students buy clay from the Marom vicinity and then sift it. A master student explained the production process: after sifting, the clay dries, followed by the addition of kaolin for stabilising and pozzolan (no more than 5%) which helps decrease the cooking temperature. The mixture ferments over the course of a week and is then put through an extrusion press. The student shapes the desired form and proceeds to several firings in a professional oven.

Ceramics made by students during class are not sold, although some innovative pieces could probably find a buyer. Some master students earn a bit of money with special orders such as decorative ceramic mosaics.

Bronze

Bronze artisans in Foumban use clay in their fabrication process. These artisans were not interviewed during the fieldwork and therefore little information can be given on the role of clay in bronze making. Only one surveyed respondent – a ceramics teacher – indicated bronze making as a potential use for clay, which may imply that the bronze artisans have their own channel for clay supply.

Bricks and tiles

- *Mud bricks*: Local residents in Noun department use raw clay to make mud bricks for traditional houses. The clay is not stabilised or burnt and therefore construction is of low quality and fragile during the rainy season.
- *Fired bricks*: At Marom, a traditional community brick oven supported by an NGO investment had previously been used for special orders. However, recent oven activity was not evident during the field visit, attributed to infrequent orders.
- *Soil stabilised bricks*: while not observed in this study, are present in Cameroon. Workshops have been carried out, and UNDP is working with a cooperative in Mora who employ internally displaced people in soil stabilised brick-making and reconstruction.

A Bamessing potter displayed some burnt brick and tiles that he had produced, and in Foubam, Dr Njoya is working in an Institute extension building made from local baked bricks. This extension sells local ceramic products and serves as a demonstration site to prove to the local construction market that it is possible to build an affordable and lasting residential burnt brick house.

In Nkometou, the study team visited a former brick factory. The factory used to produce burnt clay bricks at what could be considered a semi-industrial pace (deduced more from the size of

the workshop than from the use of mechanical processes). After a few years of activity, business declined and was shut down by the owner, a business man from Yaoundé. The reason given by a former employee was the higher price compared to concrete blocks.

In Nkolbisson near Yaoundé, a semi-industrial site was opened in 2012 under MIPROMALO leadership with reported production capacity of 5 million bricks per year. Nkolbisson produces soil stabilised and refractory bricks priced as per the table below.

Table 31: Nkolbisson price list

BRICK SIZE	UNIT PRICE
Brick 20x9x2	100 FCFA
Brick 20x9x4	150 FCFA
Brick 20x9x7	200 FCFA
Brick 22x10.5x4	200 FCFA
Brick 20x4x2	100 FCFA
Brick 22x10.5x7	300 FCFA
Brick 22x6x4	150 FCFA
Brick 20x10.5x7	300 FCFA

Art sculpture: Independent artists and students from the Institute of Beaux Arts also use common clay from Marom to produce their sculpture art pieces.



Figure 101: Tiles for roofing



Figure 102: Brick house



Figure 103: Pottery and fine ceramics



Figure 104: Clay kitchen utensils



Figure 105: Vases used for transporting water displayed in a market

7.2.3 Supply profile

Producers

Based on the Marom site interviews, an approximation of the value added proportions has been produced, as shown in the figure below.

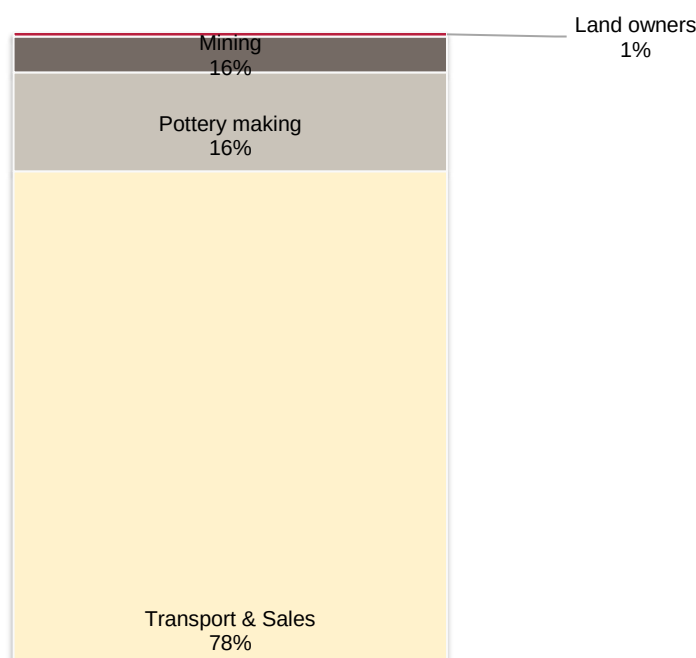


Figure 106: Value added by value chain segment for Marom clay site

Prescraft can be considered as a social enterprise. Until recently, Prescraft was managed and subsidised by a church. The company is now required to be self-sustaining. However, as recognised by the General Manager, some decisions are made on a social basis with direct repercussions on profitability. Prescraft is registering a regular annual loss (20-50 million FCFA) and it is unclear if this is due to the social purpose or to other flaws in the business model. The high cost of transport and difficulties getting imported materials such as glaze through customs as well as exporting finished products penalises the company relative to other international competitors that have easier access to market options.

The production centre only uses its own ovens for firing products and not ovens at home-based potters, in order to ensure homogenous quality products. The majority (70%) of the pottery made at the production centre in Bamessing is exported, and the rest is mainly purchased by tourists and people from other towns. It is unclear to what extent, if any, the production centre competes with other home-based potters in Bamessing and how many people in the village depend on pottery to earn a living.

Support Services

- *MIPROMALO/Foumban Institute/Belgian University research partnership*: Refer to Component 3 for more details on MIPROMALO's programmes.
- *Clay specialist*: Dr Njoya from Foumban Institute (Dchang university) is a valuable resource for projects and research linked to clay.
- *Access to Finance*: There is no evidence of potters or miners having any access to finance. Among all the survey respondents for clay, only three women potters of Marom acknowledged receiving small loans (15,000-50,000 FCFA) from local associations with short

periods (3 to 12 months). Further, Prescraft has not been able to access bank loans or facilities and can only draw on a 20% overdraft facility (a facility providing short-term loans to prevent overdrafts).

- *World Fair Trade Organisation (WFTO)*: As a WFTO certified entity, Prescraft can access a network of resources and has been invited at least once to an international fair.
- *Livelihood NGO*: From the qualitative field visit, there was some indication that the women potters are accustomed to institutional visitors and have probably had several contacts with NGOs. Past programs were indicated by the presence of a traditional brick oven built by an NGO. Their traditional activity and uniqueness in the area would make them a suitable candidate for an NGO interested in supporting livelihood activities. However, the women expressed they did not receive any help from a third-party NGO and supportive actions were not visible (the exception was reported to be assistance with setting up a stall in the Fouban market). The quality of products was observed to be low and there is a lack of focus on marketing. The reason given for no longer using the oven is the irregularity of orders. These aspects would need to be investigated before recommendations are made to assist the Marom potters. Women expressed the need for a community workshop, as currently each woman is working out of their home.

7.2.4 Conclusions: Opportunities and constraint analysis

Opportunities

- *Innovation and Tradition*: Innovation and creativity are clearly evident at Fouban Institute of Beaux Arts and pottery techniques are well-mastered in Bamessing. Prescraft's social enterprise business model is also innovative. Prescraft has built a large network since its inception in 1969. Although the current business model (commenced in 2011) does not yet appear to be sustainable, their knowledge of the international fair trade and exports markets is valuable.

Pottery tradition in Marom, Boula Ibbi and Bamessing appears to be ancient and therefore contributes important value to Cameroon's cultural heritage.

- *Soil stabilised bricks*: soil stabilised bricks have not been observed at the artisanal level during the baseline study, but are present in Cameroon⁶¹, and as such may present an opportunity as a competitor to concrete block production.

Constraints

- *Lack of access to inputs*: Some chemical products and cones cannot be found locally.
- *Aging Marom potters*: The future of the local pottery tradition is uncertain, as evidence of a young potters' generation was not apparent. Two-thirds of potters interviewed were 45 and older. Improvement of techniques and development of new business models are typically easier to implement with a younger generation. This is more than an income generation activity, it has cultural value for Cameroon. For this reason, the Marom context would need to be further investigated to identify how cultural heritage could be converted into a sustainable business model with appeal to a younger generation.
- *The high cost of transport and difficulties getting imported materials* such as glaze through customs as well as exporting finished products penalises the company relative to other international competitors that have easier access to market.

⁶¹ UNDP has supported the Youth Center for Lasting Peace and Development's project known as the "Briquette of Hope" which began in 2016. The aim of this project is to enable internally displaced to rebuild their homes and other infrastructures that have been destroyed. Since inception, the project has impacted more than 700 refugees based in Mora. At least 70% of the beneficiaries have been women.

- *Limited access to finance.*

7.3 Pozzolan

7.3.1 Organisation and modus operandi

Intensive artisanal pozzolan mining activities are relatively recent and will probably increase gradually as the local construction sector discovers the property of the mineral. The sector has to date been dominated by informal activities as most actors do not have artisanal mining licenses. Local administrative authorities are making attempts to regularise the situation of artisanal miners.

The field research discussed in this section covered two artisanal sites in West Region (Ancien CIAC, also called Njimbout; and Pouoloum, also called Terre Noire) and one industrial site in Littoral (Djoungo).

Pozzolan made up 15% of total respondent population; 70 respondents were interviewed over three sites.

Table 32: Number and type of respondents providing information on pozzolan value chains for the study

VALUE CHAIN COMPONENT	NUMBER	PERCENT
Mineral exploration and extraction	18	25%
Processing of minerals or semi-finished products	10	14%
Transportation of mineral or semi-finished products	14	19%
Purchase/resale of mineral or finished and semi-finished products	10	14%
Provision of goods and services to stakeholders in the mineral value chain	10	14%
End use of mineral or finished products	10	14%

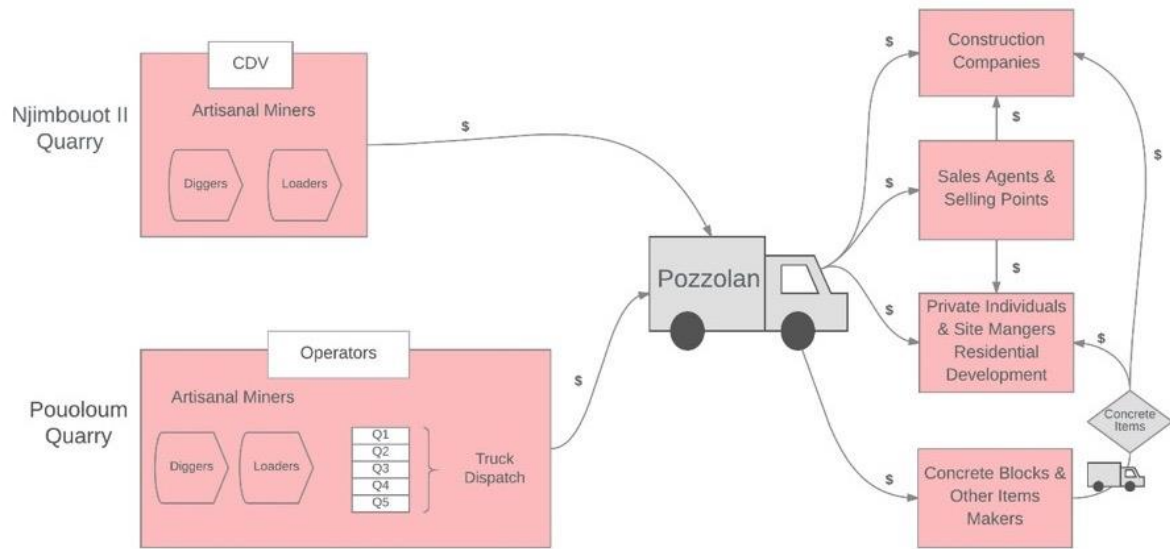


Figure 108: Pozzolan value chain in two West Cameroon sites: Foubot Njimbouot II and Pouoloum

Types of operations

Scouring: This consists of removing vegetation and layers of soil until the clay layer is reached. The largely manual operation is done using shovel and pickaxe, by both diggers and loaders.

Excavation: This involves removing the layers of pozzolan using a shovel. The operation is carried out by artisanal diggers.

Loading: This consists of loading the pozzolan onto trucks which drive directly onto the sites. This operation is conducted by the artisanal miner loaders.

Transport: The transport of pozzolan to construction sites or *depots* is done using trucks of varying size.



Figure 109: Worker excavating various layers of pozzolan

Processing: The transformation involves the manufacture of concrete blocks, concrete beams, and other derived products.



Figure 110: Truck loading at the Pouoloum site, truck used to transport pozzolan, breeze blocks

7.3.2 Demand profile

Products

Raw material

Pozzolan can be of a coarse or fine grain size, and is usually crushed and sifted in other parts of the world to obtain the required grain size, depending on the application. In West Cameroon, artisanal miners are not crushing or sifting the mineral, merely mixing different grain sizes and colour in some quarries. There seems to be little knowledge about pozzolan amongst artisanal workers. For example, *Terre Noire* (black soil or sand) is not identified as pozzolan by most of the respondents but as a different mineral, whereas it is in fact pozzolan in a fine grain form. Some of the attributes of pozzolan also appear to be unknown to the local economy.

In the Littoral region, pozzolan was exclusively considered for its backfilling applications and only one respondent cited pozzolan for road construction. Pozzolan has special attributes that can be valuable for certain type of constructions, it is lightweight (good when a lighter embankment for road construction is needed) and porous (can evacuate water faster).

Concrete and other roughcast/concrete blocks and items

Pozzolan can either be mixed with sand or it can replace sand in a concrete formulation.

Slow hardening cement

Pozzolan is used by the cement industry to produce specific types of cement (slow hardening). This use is not compatible with artisanal production and would require industrial pozzolan production. Nigerian cement manufacturer Dangote is currently in the late exploration/exploitation permitting process for an industrial pozzolan quarry in the Foubot/ Fouban area.

Ceramics/pottery

Pozzolan can be used in ceramics to reduce firing temperatures. A student ceramist in Fouban mentioned that he is using pozzolan (albeit in small amounts, not more than 5% of product composition) in his pottery.

Other products not observed in Cameroon

Pozzolan can also replace salt in metallurgy and has applications in agriculture as a soil amendment.

Consumers

Consumers are the same as those for sand, namely, individuals in residential building developments, construction companies and brick makers. In the West region, pozzolan's reach extends to the capital of Bafoussam and transportation costs inhibit a larger outreach. Djoungo quarry clients come from Douala.

Market share, price, factors influencing price

Pozzolan tends to replace river sand in Noun, as production of river sand is not well represented in the region. Producers talked about the cost advantages of replacing Batié sand (from a quarry) with pozzolan from the area. However, some brick makers still prefer to mix pozzolan with fine grain river sand.

Terre Noire (black soil or sand) pozzolan is more expensive than that of Ancien CIAC. A 20t truck sells at 35,000 FCFA. Buyers of *Terre Noire* complained of not being allowed to choose from which quarry subdivision (A1, B2, etc.) they can buy. All subdivision production is at the same price, whereas buyers and consumers place greater value on the black sand pozzolan (fine grain) mainly available at A1 than on the mixed grain size that other subdivisions offer. This situation has led to some conflict between operators of *Terre Noire*, buyers and the local administration. A local official issued an order authorising some buyers to buy only from A1, which was considered as unethical by operators, bypassing the informal agreement between *Terre Noire* operators.

According to respondents at Ancien CIAC, a 7t truck of pozzolan is sold at 9,000 FCFA. Depending on the distance to where the product is sold, the final price can vary between 35,000 and 70,000 FCFA.

In Bafoussam (27,3 km from Foubot), a 20t truck of pozzolan is sold for 120,000 FCFA and for 150,000 FCFA for *Terre Noire*. A 7t truck of pozzolan in Foubot is delivered for 50,000 FCFA. A 20t truck of pozzolan delivered to Yaoundé would cost more than 400,000 FCFA.

Exploitation at the current level is relatively recent (spanning five years) and corresponds with the local market discovery of pozzolan's attributes. A decrease in price has been observed, as well as a decrease in the number of trucks for some older quarries as new quarries opened.

Prices among quarries do not seem to be homogenous and even within the same quarry, different prices were stated. In Littoral, the Djoungo semi-mechanised quarry prices a 22m³ truck of pozzolan at 28,000 FCFA and a 10m³ truck at 18,000 FCFA, which places it below sand prices in the area. Loaded truck prices at Djoungo increased by 3,000 FCFA, regardless of their size, within the past 5 years.

7.3.3 Supply profile

Producers

Workers at Ancien CIAC and Terre Noire claim daily payment of between 2,000 and 12,000 FCFA, with an average of between 5,000-10,000 FCFA. With the rotational working scheme set up at each site, workers are spending eight days per month at Ancien CIAC and seven days at Pouoloum. Monthly incomes for artisanal workers therefore lie somewhere between 35,000 and 80,000 FCFA.

Both quarries claim between 10 to 20 trucks per day during the dry season, although it is difficult to establish the truck tonnage, whether 7t, 12t or 20t.

As mentioned, Terre Noire pozzolan is more expensive than that of Ancien CIAC. A 20t truck load sells at 35,000 FCFA. According to respondents at Ancien CIAC, a 7t truck of pozzolan is sold between 5,000 and 7,000 FCFA while a 20t truck load is sold between 15,000 to 20,000 FCFA. It can therefore be extrapolated that daily sales from Terre Noire are 200,000-400,000 FCFA for three to four operators, and 100,000-200,000 FCFA at Ancien CIAC. If the Comité de Développement villageois (CDV) is collecting 20%, they would receive between 20,000 and 40,000 FCFA per day. However, these numbers are probably underestimated as they are not commensurate with a 5,000-10,000 FCFA daily payment to each worker.

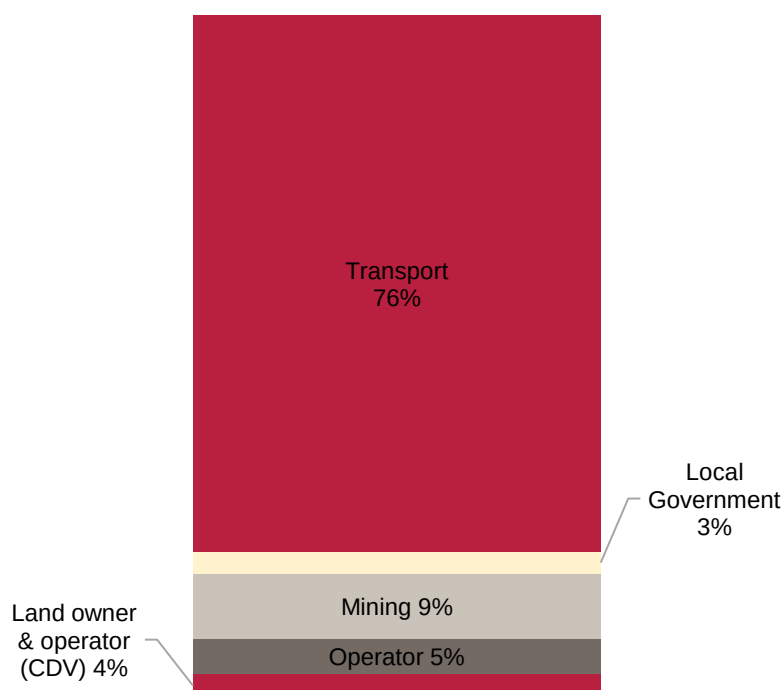


Figure 111: Value added by pozzolan value chain segment for Ancien CIAC quarry

A concrete blocks and items producer in Foubot indicated sales of up to 1,000 bricks/per day and 250,000-300,000 FCFA daily revenues ,while a Bafoussam brick maker reported sales up to 5,000-6,000 bricks per week (approximately 1,5 million FCFA).

Transport is organised by resellers, brick makers and individuals or construction companies. Potentially, more than 100 truckloads per day could move pozzolan from Foubot during the dry season (one truck can make several loads/deliveries per day).

Djoungo quarry reports sales of 20-25 trucks per day, which would indicate monthly sales of approximately 15 million FCFA during peak months (November through February).

Support services

Professional associations

All of the miners surveyed at the West Cameroon pozzolan sites reported being a member of a professional association. In Bafoussam, a union of brick makers is in the process of being created, with 12 members. The association's objective appears to include lobbying against the Mayor's project of relocating the current brick selling point to the periphery of Bafoussam.

Access to finance

There is no evidence of access to finance for operators and miners. One-tenth of brick makers and resellers had access to finance for amounts ranging from 20,000 FCFA to 2,000,000 FCFA. For example, a brick maker in Bafoussam, even while being in the informal market, reported being able to access a 12 month microcredit loan (1 million FCFA, 15% interest) to allow him to fulfil a brick order. Financial institutions quoted were AJECO and FIELLA.

Ministry of Mines

The departmental delegate appears to be active in attempting to organise and regularise the location of pozzolan sites.

CAPAM

CAPAM management is considering developing a pozzolan project in the West Region, similar to the programs being conducted for sand.

7.3.4 Opportunities and constraints analysis

Opportunities

- *Regular demand:* The pozzolan economy is linked to construction demand, which is in turn linked to the country's economic growth. Growth predictions for Cameroon are approximately 4-5% for 2017 (noting that the growth rate is declining, from 5.8% in 2015).
- *Other unused pozzolan applications:* Pozzolan has other untapped commercial markets, such as replacement of salt in metallurgy and applications for agriculture.
- *Certain areas replacing sand with pozzolan due to the high cost of sand:* Pozzolan tends to replace river sand in Noun, as production of river sand is not well represented in the region and is very expensive. Producers weigh the cost advantages of replacing Batié sand (from a quarry) with pozzolan from the area. However, some brick makers still prefer to mix pozzolan with fine grain river sand.

Constraints

- *Threat of industrial quarries:* At least one industrial pozzolan quarry is in the permitting process. The quarry would primarily supply the cement industry, however, it is possible that they will also sell to the local market. As a result, current prices will probably be cut to an extent that may jeopardise the artisanal quarries. However, the effect could be mitigated at the regional level by a decrease in price of the construction material.
- *A decrease in price has been observed, as well as a decrease in the number of trucks for some older quarries as new quarries opened.*
- *Different pricing and quarry classifications for Terre Noire (black soil or sand) pozzolan has created issues.* Buyers of Terre Noire complained of not being allowed to choose from which quarry subdivision (A1, B2, etc.) they can buy. All subdivision production is at the same price, whereas buyers and consumers place greater value on the black sand pozzolan (fine grain) mainly available at A1 than on the mixed grain size that other subdivisions offer. This situation has led to some conflict between operators of Terre Noire, buyers and the local administration. A local official issued an order authorising some buyers to buy only from A1, which was considered as unethical by operators, bypassing the informal agreement between Terre Noire operators.

7.4 Sapphire

7.4.1 Organisation and modus operandi

Sapphire sites were not visited during the qualitative research phase and only one site was visited during the quantitative research phase, with no chief of site interviewed. Therefore, less data is available to support information gathered from secondary sources.

Table 33: Number and type of respondents providing information on sapphire value chains for the study

VALUE CHAIN COMPONENT	NUMBER	PERCENT
Mineral exploration and extraction	24	56%
Purchase/resale of mineral or finished and semi-finished products	10	23%
Provision of goods and services to stakeholders in the mineral value chain	9	21%

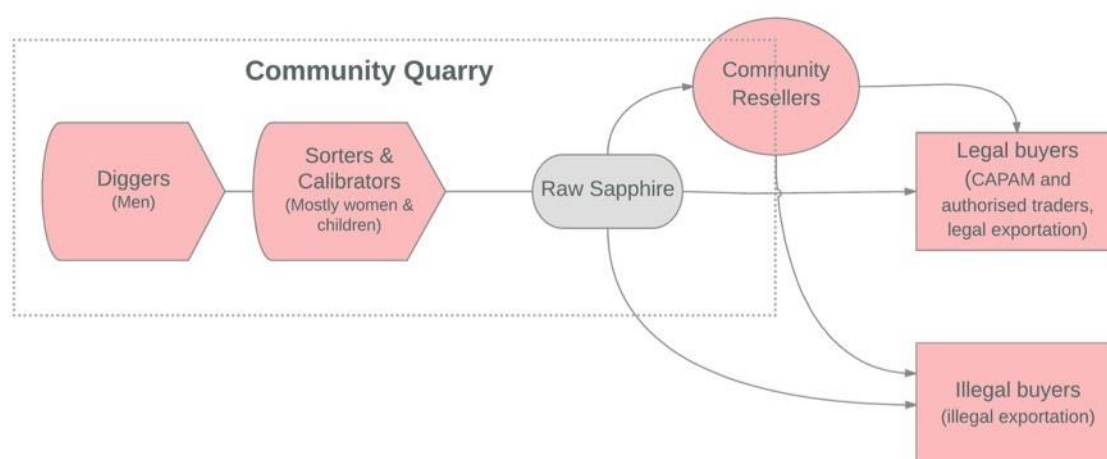


Figure 112: Sapphire value chain in Adamaoua site

Since CAPAM's inception, CAPAM has been organising the sapphire sector. Under the authority of the CAPAM mining brigade site manager, the Joint Initiative Groups of Artisanal Miners (GICAMINES), the Union of GICAMINES and Federations of GICAMINES have been formed. The Tignère site, as per in the figure below, illustrates the organisation of the sector.

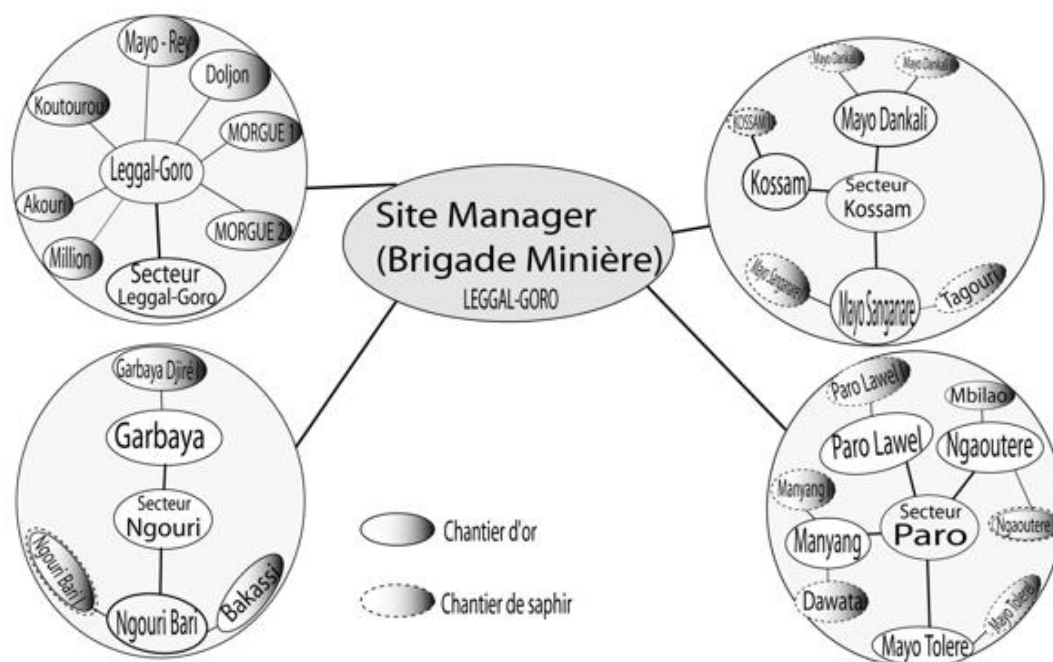


Figure 113. Operational structure of the Tignère mining site (CAPAM, 2011)

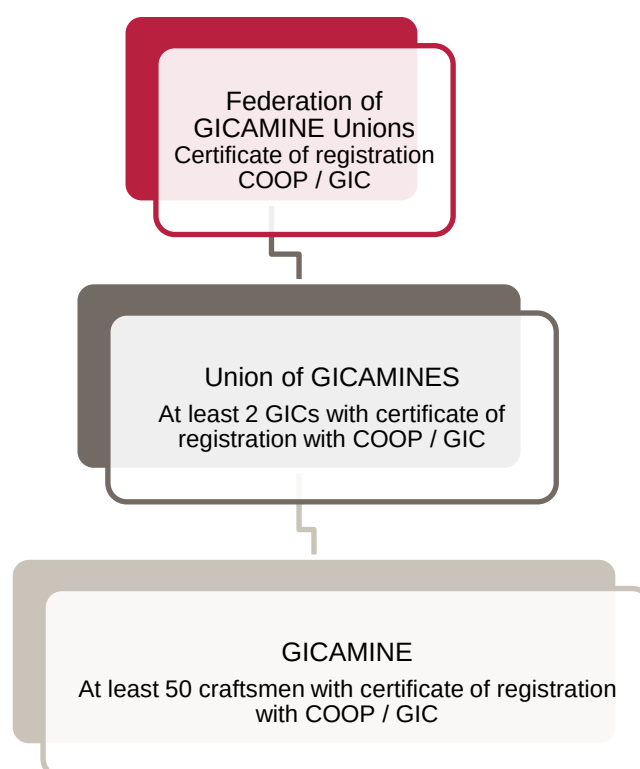


Figure 114. Organisational structure of artisans by CAPAM (CAPAM, 2011)

In order to address administrative non-compliance (e.g. mining without an artisanal mining license), CAPAM directs campaigns aimed at awareness and formalisation of the sector. These campaigns, focused on artisans, attempts to encourage artisans to group into GICAMINES. In addition to CAPAM, municipal authorities also encourage artisans to form

GICAMINES. The formalisation efforts of the sector are ultimately aimed at fighting poverty by improving the living conditions of licensed miners. Incentives to join GICAMINES include increased access to financing and markets for extracted sapphire.

Types of operation

Extraction: This activity is undertaken at the village and family level, and artisans usually live in the nearest villages. The extraction is done in the alluvium in flat river bottoms or on banks or even in the *eluvions*. In three cases the gravel is accessed under a covering, with thickness of up to three metres in flats and up to seven metres under banks, to produce a thickness of mineralised gravel of 5-20 cm. Stripping rates can therefore exceed 60 to 1, however this is rarely achieved.

The extraction is carried out by circular or rectangular wells of small sections: 2 m maximum diameter for circular wells and 3 m x 3 m for rectangular wells. The digging of the wells is generally done by the men, while the women carry up the buckets of debris. A well can be dug in two days by up to four people, and most often is dug by two people working together. The extraction is mainly carried out during the dry season and thus can last more than eight months of the year.



Figure 7: Sapphire extraction activities at Banyo site

Washing: The extracted gravel is transported in a bag to a water point and loosened by repeated dipping of the bag into the water. After this wash, the gravel is spread on a clean surface (often a rocky outcropping) and the sapphires are picked by hand before the gravel is dried.



Figure 116: Sapphire researcher in Eastern Region (RELUFA, 2013)

Gleaning: The gravel application areas are frequently re-inspected by children or even old women looking for forgotten sapphires. While large crystals are occasionally harvested, smaller crystals are more typical at this stage.



Figure 117: Artisan gleaning in a semi-mechanised craft yard (RELUFA, 2013)

There is no sapphire cutting in Cameroon. CAPAM developed a business plan to seek investors for a sapphire cutting centre. CAPAM also bought approximately 35kg of sapphire a few years ago, and held some discussions with Asian countries to export these, however the source was unsure what transpired since. It appears CAPAM was unable to find a viable network for export.

7.4.2 Demand profile

Products

Raw sapphire

Respondents refer to sapphire as grains and the value of a grain is determined based on its quality, size and colour combination. There are reports that there are still some communities unaware of the price of the stone they call *les bleus* (the blues), giving them away for a few small whisky bags or for a price below market value.

Cut sapphire

There is no sapphire cutting in Cameroon. CAPAM has developed a business plan to seek investors for a sapphire cutting centre.

Consumers

The value chain in Cameroon ends with resellers that will need to export the gemstones and resell it to a cutting centre.

It was reported that CAPAM bought approximately 35kg of sapphire a few years ago, held some discussions with Asian countries to export these, but so far a viable network to export it has apparently not been secured.

Miners and local resellers consistently report a lack of clients.

Price

Table 34: Mayo Banyo site prices

	PRODUCERS	LOCAL RESELLERS
Average range of price/g	2,500-10,000 FCFA	50,000-1,000,000 FCFA
Extreme range of price/g	1,000-50,000 FCFA	25,000-2,000,000 FCFA

Producers indicated a price increase between five and 10 years ago after they gained more experience. Previously, average prices were ranging between 500 and 5,000 FCFA per gram. Increases in price were also noted by local resellers two to five years ago. Previous average prices per gram ranged between 10,000 and 500,000 FCFA.

7.4.3 Supply profile

Producers

All artisans described themselves as independent and selling their own production, which raises the question of how the revenue is divided between digger and sorter. The woman sorter interviewed worked with her husband in the sapphire quarry, which could indicate a family producing unit. Producers sell stones at the site or along the road in Banyo. Miners acknowledge a production of two to four sapphire grains per day on good days. They also report increasing difficulty in finding stones on current sites.

Local resellers indicated selling three to eight grains of two to four grams each on very good days. However, 60% of these had only two to four grains in stock.

Support services

Professional associations

None of the respondents are members of a professional association.

Access to finance

None of the respondents have ever had access to finance.

CAPAM

CAPAM was recognised as a buyer by 38% of the producers. Some respondents indicated having received some support from an organisation, which is most likely CAPAM. The support consisted of equipment distribution and was deemed valuable by all the respondents.

7.4.4 Opportunities and constraints analysis

Opportunities

- *Rural employment opportunity:* Sapphire production and beneficiation provide opportunities for employment and revenue in remote rural areas.

Constraints

- *Lack of export market:* There is currently a lack of market opportunity, particularly in export markets, that should be further explored.
- *Difficult downstream value chain:* Sapphire has a difficult downstream value chain to implement locally or even internationally.
- *Market challenges:* CAPAM has been trying for several years to find markets for the raw stone or investors for the stone cutting centre without great success.

7.5 Gravel and dimension stones

7.5.1 Organisation and modus operandi

For this study, two types of sites were visited during the fieldwork:

- Gravel sites, such as those around Maroua (Missingléo) or Nkometou; and
- Mixed gravel and dimension stone sites such as Sa'a and Pouma.

The table below provides an overview of the respondents in the study.

Table 35: Number and type of respondents providing information on gravel and dimension stones value chains for the study

VALUE CHAIN COMPONENT	TOTAL	PERCENT
Mineral exploration and extraction	36	25%
Processing of minerals or semi-finished products	35	24%
Transportation of mineral or semi-finished products	15	10%
Purchase/resale of mineral or finished and semi-finished products	26	18%
Provision of goods and services to stakeholders in the mineral value chain	15	10%
End use of mineral or finished products	17	12%

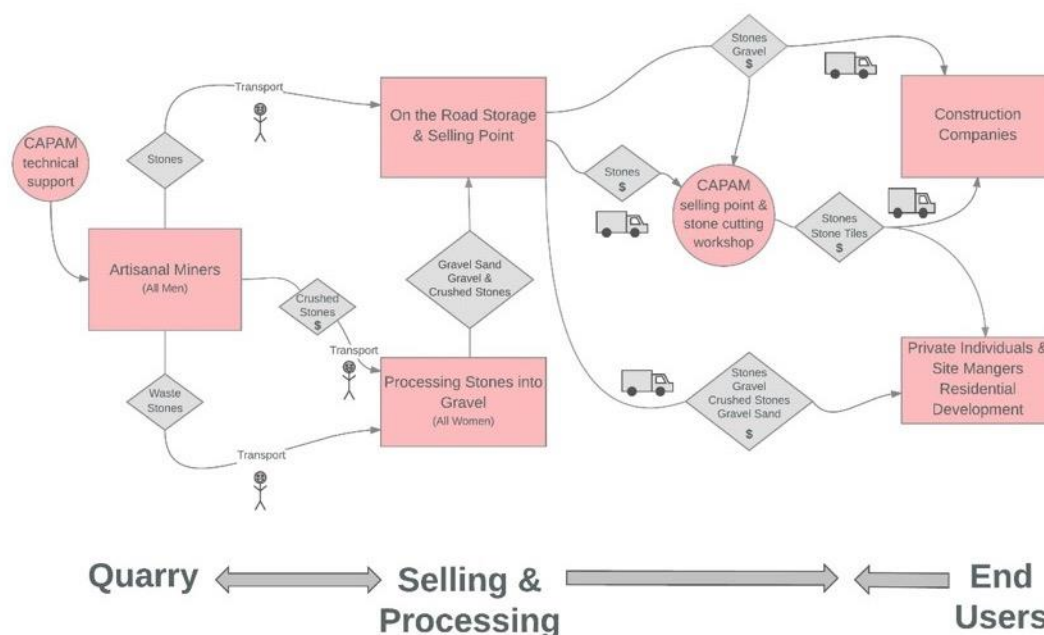


Figure 118: gravel and dimension stone mixed site (Song Nleng site, Pouma)

A typical gravel site includes the following extraction and processing steps:

Extraction: This consists of removing blocks of varying size from the bedrock.



Figure 119: Extraction of rubble from the mother rock

Transport: This operation consists of transporting the rubble from the extraction sites to the processing sites. Depending on the size of the rubble, transport is carried out by men, women and sometimes children.

Crushing: The operation consists of reducing the blocks of rubble to the form of gravel. Women and men participate in this operation.



Figure 120: Gravel production

Transport/resale: This is largely carried out by small economic operators who rent their trucks.



Figure 121: Gravel being loaded

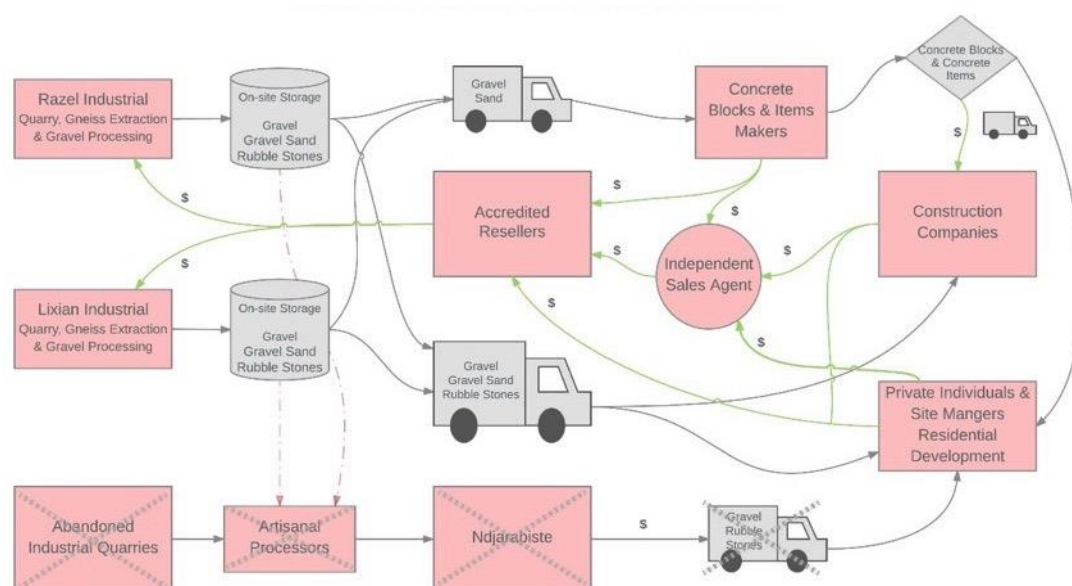


Figure 122: Value chain for a gneiss gravel sand site (Nkometou)

7.5.2 Demand Profile

Products

Dimension stones

- *Quartzite*: Pouma miners produce plates of quartzite stones of unstandardised sizes. Several colours are available depending on the rock iron oxide and grade of other minerals, i.e. white, pink, red, panther, grey or black. The stone is hard but contours are friable. The stone is used to cover exterior walls and exterior decorative pavements with the use of a glue or cement mortar. There is a contradiction between the observed high friability of the stone as well as the low respondent interest in the stone, and the popularity of the stone at local and regional level as well as the perceived hardness⁶².
- *Stones from other materials*: SOMARC (near Yaoundé) is buying marble stone from Figuil in the North region and processing it into carved stone.
- Sa'a also produces dimension stones sold by the square metre but information gathered during the quantitative survey does not allow for the possibility to understand the range of products offered.

Crushing stone

Pouma producers are carving small but thick plates into an oval form to be sold as stones for condiment grinding.

Gravel and rubble

⁶² See for instance information available geology.com: "The interlocking crystalline structure of quartzite makes it a hard, tough, durable rock. It is so tough that it breaks through the quartz grains rather than breaking along the boundaries between them. This is a characteristic that separates true quartzite from sandstone" (last visited May 28 2018) <https://geology.com/rocks/quartzite.shtml>.

Women in Pouma process quartzite gravel which is appreciated for its decorative features as well as for construction purposes.

Nkometou industrial quarries (Razel and Lixian) yield gravel of different sizes and rubble stones, while artisans tend to process gravels and rubble from the industrial or abandoned industrial quarries.

Missingléo and Sa'a produce gravel and rubble with predominant black colour in Missingléo while black, brown, mixed and white colours were mentioned in Sa'a. Size and colours are the factors of choice for clients.



Figure 123: Products from Pouma: cut tiles for wall decoration tombstones, gravel and rubble

Gravel Sand

Quarry sand is mixed with river sand to produce cement blocks and other construction and decorative concrete items.

Quartzite sand is sifted by women processing gravel. It appears that this is a relatively new product that they are offering and demand is increasing.

The CAPAM manager has been pondering the potential application of the quartzite sand/dust collected during the stone machine cutting process.

Tiles

CAPAM processed the quartzite plates into tiles for construction/decoration purposes and sold these. They fulfilled a few orders for clients before the activity was shut down because of a storm that destroyed the workshop in 2016 (now being reconstructed). However, the CAPAM manager recognised that a client base was limited due to the lack of selling points outside of Pouma.

SOMARC produces interior and exterior tiles from marble and granite.

Tombstones and other engraved products

SOMARC produces tombstones and engraved stones (for ceremony or commemorative tablets) from dimension stones.

Countertops (kitchen, bathroom)

SOMARC produces countertops for kitchen and bathroom from dimension stones.

Arts

Arts and crafts carving stone activity was observed on the road between Bamenda and Bamessing and mentioned by Prescraft. These were decorative sculptures and craft products

(ashtray, plates, etc.). In Foumban, decorative carved stones were also observed in private gardens. The mineral of the stones used is unknown.

Consumers

Outreach is mainly local or regional though specific dimension stones can attract clients from farther places. The main selling points for all of the sites are along the roads.

Pouma clients are individuals and construction companies. Clients like to buy mixed colours but seem to have a preference for the pink colour. Buyers are mainly local residents, however there are also buyers from Douala, Yaoundé and Kribi. According to respondents, buyers from outside the locality tend to be connoisseurs or stone-lovers.

Pouma road is the only selling point for Pouma stone and gravel. It is noteworthy that client demand is currently lower than the production capacity. CAPAM is attempting to improve the organisation of production and bought 2,000m²/month of stone from the local producers (all producers except one or two that preferred to remain independent) between 2012 and 2014. CAPAM was only able to sell off between 600 and 800m²/month and had to cease the buying agreement. According to CAPAM manager, the main issue was access to other markets in the absence of logistics and selling points outside of Pouma.

Clients of Nkometou industrial quarries come from Yaoundé and further. Since Lixian entered into production, there has been limited interest by external customers in reaching out to the artisanal processors. As a result, in the last year before the end of production, the few processors still in activity were mainly catering to the local community.

Market share, price, factors influencing price

Pouma's dimension stones prices can vary from 2,000 to 4,000 FCFA/m² while in Sa'a, a square metre is around 2,500 to 3,5000 FCFA.

In Pouma, the average price appears to be 2,500 FCFA. Black stones (not found in Song Nleng but in other sites nearby) sell for 5,000/m² reflecting their relative difficulty to be produced. Producers reported a decrease in the price of the stone, from 120,000 FCFA/m³ 20 years ago, 90,000 FCFA/m³ five years ago, to the current price of around 75,000-80,000/m³. The unit selling price changed from m³ to m² through CAPAM's intervention. Crushing stones is sold by women for between 1,500 and 5,000 FCFA depending on the size of the stone and negotiating power.

A wheelbarrow of gravel consistently sells for between 1,500 and 3,000 FCFA across all studied sites, with an apparent regular price of 1,500 to 2,000 FCFA depending on the colour of the stone. Women in Nkometou reported that white stone gravel is more expensive as it is more difficult to process. Gravel processing prices are reportedly increasing.

In Missingléo and in Sa'a, gravel and rubble can also be sold per bag, stack, per pick up, tricycle, 7t/12t or 20t trucks. A 7t truck price is around 80,000 FCFA, 12t for 100-110,000 FCFA and 20t for 130-140,000 FCFA in the Extreme North while a Sa'a 20t truck can reach 240,000-300,000 FCFA in Yaoundé.

Gravel sand is sold at 1,000 FCFA/wheelbarrow in Pouma. The sales of sand seem to be more recent and less established than gravel.

Prices are fixed by miners and processors, and driven by individuals' negotiations with buyers and the immediate cash needs of producers.

Tiles from CAPAM are sold at 13,500 FCFA/m² compared to Chinese imports at around 4,000/m². Marble tiles/cut stone at SOMARC are sold at 25,000 FCFA/m².

Nkometou artisanal gravel processing activity is now defunct due to the conflict over the community agreement signed with Lixian. The local administration prohibited Lixian from making deliveries to the community and as a result Razel decided to also cease their deliveries. Lixian quarry, along with other Chinese quarries opened in the area, have led to a significant drop in price. A ton of gravel by Razel before the Chinese quarries could sell for up to 18,000 FCFA, whereas it now sells for around 8,000 FCFA.

7.5.3 Supply profile

Producers

At artisanal producer level, gravel daily production is limited to a few wheelbarrows or a stack with limited associated revenues. In Missingléo, two-thirds of miners would prefer to change activity as they consider revenues to be too low.

Table 36: Pouma producers (men) and gravel processing (women) rough revenues estimate

UNIT	MONTHLY PRODUCTION	UNIT PRICE (FCFA)	MONTHLY SALES (FCFA)	MONTHLY COSTS (FCFA)	MONTHLY PROFIT (FCFA)	NO. OF ARTISANS	AVERAGE MONTHLY REVENUE PER ARTISAN (FCFA)
Men							
m ²	400	2500	1,000,000	4,300	995,700	5	199,140
Crushed stones	150	700	105,000		105,000	5	21,000
Women							
Gravel wheelbarrow	216	1700	367,200	1,200	366,000	7	52,286
Crushed stones reselling	150	2000	300,000	105,000	195,000	7	27,857
Sand wheelbarrows	75	1000	75,000		75,000	7	10,714

CAPAM commenced tile processing made from Pouma quartzite in 2012. Production was made on orders and remained limited (350m² over a 3-4 month period). Production ceased in 2016 following a storm that devastated the workshop. Machines are still available to re-launch production, however CAPAM has been waiting for the construction of a permanent workshop (concrete brick wall) since 2015. A conflict with the construction company was reported as being responsible for the delay.

The lack of current activity in Nkometou renders it difficult to assess the financial flows within the value chain. However, the local community perceived gravel processing as being a non-insignificant source of revenue for the community.

Support services

Professional association

A minority of miners and processors reported being members of a professional association (NNEM, TAPI NAFI, quarry GIC), except in Pouma where CAPAM fostered the creation of a GIC.

CAPAM

At Pouma, CAPAM has ran a program since 2012 to organise and control production, collect taxes, increase production and safety through equipment donation, organise sales and process the stone (with a research & development approach). Unfortunately, the sales component of the program did not work and has put an end to tax collection. Producers interviewed supported the buying scheme as it was a guarantee of steady financial flows. In contrast, regarding the donation in equipment, respondents considered these of poor quality. The CAPAM manager, however, mentioned that the local producers did not use tools provided by the program in order to change the method of production, preferring to continue with their traditional tools.

Access to finance

None of the respondents could access finance outside of existing community schemes such as tontine.

7.5.4 Opportunities and constraints analysis

Opportunities

- *Imports*: Substitution of high levels of importation of tiles and dimension stone.
- *High demand*: Large domestic demand, provided the cost of local production is competitive.
- *Experience*: CAPAM and SOMARC possess valuable experience in stone processing applications and markets. They also own imported cutting and polishing equipment. SOMARC demonstrated interest in Cameroonian market development and stone processing in general and could potentially be explored as a resource organisation.

Constraints

- *Granite is difficult to extract and process with artisanal methods*: Whether for dimension stones or gravel, the rock is difficult to crack with artisanal methods and/or poses significant health and safety hazards. However, SOMARC referred to artisanal dimension stone quarries in Nigeria and China, whose models could be explored.
- *The decrease in gravel pricing has made some artisanal quarries unsustainable*, as in the example of Nkometou where artisanal gravel processing activity has also become defunct due to the conflict over the community agreement signed with Lixian. The local administration prohibited Lixian from making deliveries to the community and as a result Razel decided to also cease their deliveries. Lixian quarry, along with other Chinese quarries opened in the area, has contributed to a significant drop in price. A ton of gravel by Razel before the Chinese quarries could sell for up to 18,000 FCFA, whereas it now sells for around 8,000 FCFA.

7.6 Opportunities to strengthen markets and value chains of priority minerals

While artisanal activities are intensive for sand and have potential to become more intensive for pozzolan or dimension stones, the value retained by artisanal miners (measured by revenues per capita) is low. This implies that sector organisation efforts should not undermine this fragile revenue. Instead, efforts should reduce speculation over land ownership while finding a fair approach to ensure the host community still benefits from mining proceeds.

Transportation represents the largest segment of the value chain. Any formalisation of this activity and change in bargaining power of transporters would be a long-term challenge involving a strong political agenda. It would also involve substantial capital expenditure to try to decrease the metric tonne/km price. This price is also linked to the site's accessibility and overall fleet condition. For short or medium-term development programs, actions on other parts of the value chain will probably have more measurable impacts.

Small producers of stone or clay products in remote environments have difficulties in accessing the market. Development of a strategy for access to market (involving marketing and rethinking the distribution network) would benefit the value chain and the income of small producers.

Opportunities specific to each mineral value chain are offered below.

Sand

Standardising sand production would increase the potential to add value to production and to add value to construction. Increasing the quality of raw minerals and process output is, for example, an area that would benefit the entire value chain. Quality of construction is linked to the use of the appropriate sand grain size, shape and composition for specific applications. This aspect would create more benefits for the value chain compared to an increase in production. Addressing this area implies access to more sophisticated tools and equipment where access to finance facilities would be needed. Specific training on calibrating material/methods could be experimented in a pilot site. Such an initiative would have an impact on raw mineral price and the market willingness to pay would need to be evaluated during the trial phase.

- Concrete items products need quality improvement, which could be supported by training on new material/techniques. However such training would only benefit the sector as long as it guarantees an increased income for the player. A pilot phase could serve to evaluate the benefit.

Clay

- There are no logistics facilities in Bamenda/Bamessing, key clay production areas. However a dry port with a group agreement with an international transporter could facilitate exports.
- There is very little information available on glazing materials. It is likely that bulk imports could ease availability in-country.
- Prescraft is an interesting model to leverage and would benefit from support in enhancing its effectiveness in promoting Cameroon crafts at the international level while having local livelihood impacts.
- Pottery techniques in Marom and Boula Ibbi could be enhanced, based on research in traditional know-how (which appears to have been lost in Marom) and new production techniques. These two production areas would also benefit from defined access to market strategy.
- Fouban students are creative and Prescraft has developed a successful production and marketing model. There is an opportunity to link the two organisations to foster original design and research and development.
- Potential opportunity for standard fired bricks to be explored through further research.

Pozzolan

- Pozzolan attributes and its uses remain unknown nationwide. There is an opportunity to develop new markets for pozzolan through education and marketing of construction professionals.
- As for sand, the standardisation of grain size production would increase the quality of mineral and outputs.

Sapphire

- There may be an opportunity in developing a fair-trade production model, which would cover the whole value chain from the organisation of producers' organisation to international marketing support. This would also require marketing efforts for positioning Cameroon Sapphire as fair trade.

Gravel and dimension stones

- There could be an opportunity to develop the small paving stone (cobble stone) market as this may be easier to produce than large stone. A more precise study would be needed on the techniques and a pilot phase to test the market potential.
- SOMARC is currently importing granite and could be an interesting resource partner to assess the feasibility and develop the granite processing sector at semi-industrial level.

8 SUMMARY OF FINDINGS AND SUGGESTED PRIORITIES FOR ACTION FOR SECTOR STAKEHOLDERS IN CAMEROON

Overview of the Development Minerals included in the Baseline Study

The full potential of Development Minerals production in Cameroon is still unknown as the available geological information covers only 40% of the country⁶³, however, the information available points to an abundance of a large range of minerals and materials important for domestic economic use. Region-specific occurrence for each mineral is as follows:⁶⁴

- *Far North*: clay; aggregates; laterite; alluvial sand
- *North*: clay; aggregates; marble; alluvial sand
- *West*: clay; pozzolan; aggregates; alluvial sand
- *Adamaoua*: tin; sapphire; aggregates; alluvial sand
- *East*: aggregates (granite, gneiss); alluvial sand
- *Centre*: aggregates (gneiss); quartzites; alluvial sand
- *Southwest*: aggregates (basalt, granite); alluvial sand
- *South*: aggregates (gneiss, granite); alluvial sand
- *Littoral*: aggregates (basalt); pozzolan; quartzite; alluvial sand
- *Northwest*: clay; pozzolan; aggregates (basalt, granite, iron); alluvial sand

Sand as in this study is *alluvial* and used for construction, as opposed to silica sand used in industrial processes. Sand is the most extracted mineral by artisanal miners in Cameroon, accounting for 56% of artisanal miners and 58% of artisanal mining sites (ACP-EU Development Minerals Programme, 2017). Quarries are typically active for eight months of the year, corresponding to the dry season. Activities include extraction by a pirogue-diver (or digger) collecting sand at depths of up to 3m, unloading from boats to the shore using shovels, transferring from the shore to the dock using shovels, sorting into stacks according to grain size and loading onto trucks. Many indirect jobs are created (especially around sites with more than 100 workers) from inputs such as boat sales, boat and motor rental, tools sales. Services to workers also induce new jobs in housing, moto-taxi, catering and entertainment. Jobs are also created from transportation and sales of sand, processing into bricks and concrete items and the overall construction sector where sand remains the principal raw material.

The *clay* focused on in this study is common clay with construction and arts and crafts as the main markets. This contrasts with kaolin or smectite, which are clays with pharmaceutical and/or industrial applications. Three types of sites were identified: traditional artisanal sites linked to an ancient pottery tradition, semi-industrial sites, and sites covering both an ancient pottery tradition with some semi-industrial features (e.g. Bamessing/Prescraft). Activities include digging, modelling, pattern printing/decoration, drying and firing. The uniqueness of the clay value chain is that extraction and processing can often be done by the same player.

Intensive artisanal *pozzolan* mining activities are relatively recent and are expected to increase gradually as the local construction sector discovers the property of the mineral. Activities include scouring (removing vegetation and layers of soil until the clay layer is reached), excavation using a shovel, loading the pozzolan onto trucks, transport to construction sites or 'depots' using a truck, and processing into concrete blocks, concrete beams and other derived products.

⁶³ The Office of Geological and Mining Research (BRGM) and Institute of Geological and Mining Information (IRGM).

⁶⁴ ACP-EU Development Minerals Programme. 2017. Census Report of Artisanal and Small-Scale Miners and Quarries Involved in the Development Minerals Sector in Cameroon. UNDP.

Sapphire extraction is undertaken at the village and family level, and artisans usually live in the nearest villages. The extraction is done in the alluvium in flat river bottoms or on banks or even in the eluvions, and is carried out by circular or rectangular wells of small sections: 2 m maximum diameter for circular wells and 3 m x 3 m for rectangular wells. Digging of the wells is generally done by the men, while the women carry up the buckets of debris. A well can be dug in two days by up to four people, and most often is dug by two people working together. The extraction is mainly carried out during the dry season and thus can last more than eight months of the year. Other activities include washing the extracted gravel which is transported in a bag to a water point and loosened by repeated dipping of the bag into the water, spreading the gravel onto a clean surface (often a rocky outcropping) and picking the sapphires by hand before the gravel is dried. The gravel application areas are frequently re-inspected by children or even elderly women looking for forgotten sapphires (gleaning). There is no sapphire cutting in Cameroon: the value chain ends with resellers that will need to export the gemstones and resell it to a cutting centre.

Two types of *gravel and dimension stones* sites were analysed: gravel sites, such as those around Maroua (Missingléo) or Nkometou; and mixed gravel and dimension stone sites such as Sa'a and Pouma. A typical gravel site will include the following activities: extraction (removing blocks of varying size from the bedrock), transporting rubble from extraction sites to processing sites (depending on the size of the rubble, this is carried out by men, women and sometimes children), crushing blocks into gravel, and transport/resale, largely carried out by small economic operators who rent their trucks.

Key Findings

The Development Minerals sector generally is dominated by artisans (employees and artisanal miners), who comprise nine in ten small operators and artisanal miners⁶⁵. The sector is also largely informal. Legally, a formal site is one for which an artisanal mining permit has been issued by MINMIDT. Such a site is *de facto* private because the exploitation license gives its holder exclusive rights during the life of the authorisation. Only one in six are private⁶⁶, which can mean that either they have an operating license or the land on which the exploitation took place belongs to an individual or to a village community.

The majority of artisanal workers are not part of a professional association. The results of the survey showed that less than one in five workers mining clay, sand and granite were organised, none for sapphire and about two in five for pozzolan. These numbers are lower than the figures obtained in the ACP-EU Development Minerals Programme census (2017) (30% of workers organised across Cameroon) and are higher for operators/owners/supervisors compared to self-employed artisan workers. Of those that are part of an association, the benefits reported were for the most part mutual support/help (86%) and to a less extent protecting rights (17%), and sharing experience (20%). No mention was made of benefits related to purchasing cheaper equipment.

Artisanal mining of Development Minerals in Cameroon is commonly complemented by other livelihood and income generation activities, particularly where there is a lack of alternative job opportunities in the area. Eight in ten workers have a supplementary income to mining. There is a gendered division of roles: many women sell food to workers on site and are involved in the crushing gravel, lighter transport as well as the production of clay products. About one in four operators and owners reported employing women in their company. There is no evidence

⁶⁵ ACP-EU Development Minerals Programme. 2017. Census Report of Artisanal and Small-Scale Miners and Quarries Involved in the Development Minerals Sector in Cameroon. UNDP.

⁶⁶ *Id.*

to suggest that the employment of children below the age of 18 is widespread, prevents children from completing compulsory education, or involves them in tasks that are detrimental to their health. However, children below 18 were reported to be employed during the school holidays or after school. As confirmed in the quantitative survey, children were reported to be involved in transport, crushing gravel, collecting firewood, and loading/offloading minerals. Survey responses from operators and owners of companies showed child labour, less than 10% reported employing children below the age of 14, mostly mining gravel and sand; and less than 15% employed children between 14 and 18, almost all in gravel and sand.

The most frequent illness reported is malaria, with an average of 93% of respondents reporting it as the most frequent health problem in the community. The types of work-related injuries and pains from artisanal mining are mainly injuries sustained to hands/feet, and back pain. Fewer injuries related to clay, although this mineral was associated with the highest rate of injuries from burns (just under 20%), consistent with the practice of firing/baking clay products. In order to protect themselves, only just over a third of workers reported wearing some form of PPE. This is particularly pronounced for sapphire, where more than 70% reported not wearing PPE. Reasons given for not wearing PPE were mainly the lack of financing to enable equipment purchases (about 60% of those not wearing PPE), followed by the discomfort related to wearing PPE (about 25%).

The main reasons given for accidents were the misuse or poor manipulation of equipment or tools, and slips or falls. Equipment failure was also cited for pozzolan, bad weather for sapphire and a landslide for granite. The average time travelled by respondents for treatment for health problems and injuries from accidents was less than half an hour for eight in ten respondents. Sapphire miners were the exception: a majority reported more than one hour's travel time.

Based on fieldwork observation, it was clear that cumulative environmental impacts in an area become significant when the scale of the activities increase, and there was no evidence of rehabilitation of abandoned sites.

The study recognises that Cameroon has most of the elements of an appropriate law and policy framework for the artisanal mining sector in place. In particular, the 2016 Mining Code provides a comprehensive framework that includes an innovative approach to classifying non-industrial mining. As provided in Article 1 of Decree No. 2012/432 of 01 October 2012, MINMIDT is responsible for the formulation and implementation of policy. MINMIDT works through CAPAM, the Artisanal and Small-Scale Mining Department, BNCAM, and with other ministries such as MINEPDED to oversee regulation of artisanal mining and quarrying. In particular, CAPAM oversees artisanal mining, BNCAM aids with monitoring and compliance, and MINEPDED is responsible for conducting and evaluating environmental and social impact assessments, as well as issuing environmental and social compliance certificates.

The challenges in the legal and policy sphere are less the lack of legislation than they are confusion in some cases regarding the roles of implementing agencies, and the limitations on capacity both in government and among miners themselves for robust implementation. Many miners are unclear regarding what the law requires and what is expected of them. Government efforts to build capacity are numerous and commendable, but have yet to reach all of the target audiences.

The study also identified that a detailed mapping of exploitation sites in Cameroon has been hindered by the low priority given to the sector by public authorities, unregulated opening of sites, remoteness of certain sites, and lack of logistical, technical and human resources for monitoring sites within administrative authorities in general and MINMIDT in particular.

MINMIDT is not currently in a position to confront the challenges it faces, unless the necessary reforms are undertaken. There is extensive overlap in functions that exists with other entities

such as CAPAM. In its current configuration, CAPAM appears to be the most appropriate body for Development Minerals in Cameroon. However the capacity of CAPAM to continue the work done so far seems to be compromised since the introduction of the 2016 Mining Code relating to the structure for management and promotion of artisanal mining. The overlap in roles among different State structures (and associated conflicts) is holding back the development of the artisanal sector.

Recommendations

Listed below are recommendations for consideration and the responsible institution in accordance with their current mandate. Any recommendations that are directed to CAPAM should be considered as interim until the decree has been finalised establishing the "structure for management and promotion of artisanal mining" as set out in the 2016 Cameroon Mining Code.

Recommendations for PRECASEM to support the establishment of clear governance arrangements in the Development Minerals sector

1. Finalise the decree establishing the "structure for management and promotion of artisanal mining" as set out in the 2016 Cameroon Mining Code. This decree will ensure clarity of roles and reduce duplication of efforts.
2. Develop procedures for involving local authorities (CTD) in the identification and demarcation of artisanal mining areas, as set out in the text of application of the 2016 Mining Code.
3. Boost current efforts to promote coordination and collaboration among government organs involved in the permitting process, and in monitoring and in inspection. There is overlap and competition of monitoring responsibilities between the Directorate of Mines and BNCAM, possibly resolved by delegating monitoring roles from the Directorate of Mines to BNCAM.
4. In collaboration with the Artisanal and Small-Scale Mining Department of MINMIDT, develop a procedure for allocation of mining permits that involves the local community, including the establishment of effective grievance mechanisms through which community members can express their concerns and have complaints addressed.

Recommendations for CAPAM, Artisanal and Small-Scale Mining Department, PRECASEM and UNDP to coordinate multiple efforts to formalise the sector

5. Map out and eliminate duplication/overlap of formalisation activities between CAPAM and the Artisanal and Small-Scale Mining Department
6. Develop a procedure to ensure formalisation efforts take into account local community concerns that formalisation jeopardises their existing mining activities. As the land on which the mining sites are located is for the most part owned by the local community or state, formalisation has potential to lead to conflict related to land tenure. The procedure would ensure any campaigns concentrate on avoiding speculation over land ownership while finding a fair approach to ensure the host community still benefits from mining proceeds.
7. Improve existing campaign efforts of CAPAM, based on a review involving the views of workers and artisans, stakeholders (e.g. MIPROMALO, SCPK, CSOs, religious authorities, associations of mayors, RECTRAD, REPAR, ETIE) to identify what truly incentivises formalised mining (within, and in addition to, greater access to loans, financial services and affordable health insurance, equipment, training and financing); what are the risks of undermining the fragile revenue of artisanal miners; how to avoid land tenure conflict; and which are the most effect tools for sensitisation and mechanisms for registration. In selecting campaign channels of communication, consider that while most miners have a mobile phone, many sapphire miners do not (about 60%).

Recommendations to strengthen the technical capacity of public institutions involved in the Development Minerals sector, in collaboration with PRECASEM

8. Undertake a gap analysis of the programs delivered by schools and academic institutions against the needs of MINMIDT. Such an initiative would involve the Institut des Beaux Art de Foumban (IBAF) (under the University of Dschang), School of Geology and Mining Engineering (EGEM) (founded at the University of Ngaoundéré) under the Ministry of Higher Education (MINESUP); all the Departments of Earth Sciences of all universities in Cameroon; MIPROMALO Professional Training Center (CFP), which is authorised by the Ministry of Employment and Vocational Training; and private initiatives such as the Institute of Commodities (IMP)
9. Develop a multi-year training plan for e.g. MINMIDT, CAPAM, MIPROMALO, SNPK and IRGM based on a needs analysis, in line with the strategic objectives set out in the Government Performance Project. The plan could be implemented through a partnership agreement between MINMIDT and the School of Geology and Mining of Ngaoundéré for the training of future managers of the geological and mining sector, continuing training of administrative staff, upgrading of existing staff and accelerated training of young recruits. The training plan would consider the needs below expressed by CAPAM management:
 - a. Prospecting, exploitation and processing of artisanal mining products
 - b. Mineral Resource Estimation
 - c. Better management of the mining environment
 - d. Safety and hygiene in mining sites: Audit and risk assessment; Health and Safety Plan; and Waste management
 - e. Alternative income generating activities
 - f. Optimal revenue management and promotion of associations
 - g. The training plan would also support targeted upskilling of geological services capabilities of MINMIDT and IRGM, specifically in terms of assessing geophysical or geochemical mineral reserves.
10. Extend the existing PRECASEM programme that trains local authorities in environmental, social and health performance in the gold sector to Development Minerals.

Recommendations for the General Secretariat of MINMIDT to improve the mining inspection system

11. Ensure adequate resources in terms of personnel, equipment and vehicles
12. Provide specialised hands-on training, with field visits, to help strengthen the capacity of staff to take on the responsibility for inspection.
13. Clarify roles and improve coordination with regard to inspections among the different inspection services, e.g. National Mine Brigade, Division of Geological Services, CAPAM and its regional offices.

Recommendations for MINEPDED to address the cumulative and legacy impacts of mine sites, in collaboration with the Mining Directorate of MINMIDT, and with the support of multi-lateral and bilateral donors and PRECASEM

14. Develop a strategy to address the cumulative impacts of mining activities in close proximity on land as well as in rivers.
15. Develop a strategy to rehabilitate abandoned mining sites on land, especially in the case of sapphire. Lack of rehabilitation causes land degradation and can be a nuisance for the local community, particularly when the site cannot be utilised for alternative purposes after mining, and where potential hazards are left behind, e.g. deep excavation holes remaining from sapphire mining, which can lead to serious accidents.

Recommendations for Sub-directorate Mining Cadastre to improve access to geological and mining data, with support from multilateral and bilateral donors and PRECASEM

16. Complete the PRECASEM initiative that aims to establish a mechanism for the centralisation of geological data within the cadastral subdirectory. This would help address the problems of overlap between various bodies simultaneously assigned responsibilities for the production of geological and mining information, e.g. within MINMIDT, this responsibility is entrusted simultaneously to the Directorate of Mines through the Sub-directorate of the Mining Cadastre and the Sub-directorate of Geological Prospecting as well as the IRGM (which belongs to the Ministry of Scientific Research and Innovation).
17. Establish a mechanism to improve cross-sectoral coordination of multiple initiatives underway to improve geological and mining information, e.g. MINTP, MINMIDT, CAPAM, MIPROMALO.
18. Integrate artisanal mining authorisations into the new publicly available online mining cadastre (which does not currently contain the titles of artisanal mines) in order to bring more visibility to the sector and avoid problems of overlapping. The artisanal component of the mining cadastre should be supported by a modern and digitised GIS.

Recommendations for CAPAM to strengthen the environmental, social and health performance of the Development Minerals sector

19. Support the widespread implementation of the 2016 Mining Code requirement providing for benefit-sharing arrangements that require a proportion of the taxes collected to be administered by the local community. This allows local community leaders to decide how a proportion of taxes collected in connection with mining activities can be used for projects that benefit the local community e.g. building a health centre, school, or community centre.
20. Encourage integration of artisanal mining into local level development plans that have the input of local communities and the various decentralised services involved in the management of mineral resources. This would help address the problem of municipal authorities being only informed of the existence of a quarry permit after the area has been declared conducive to quarry activity and the operating authorisations have been issued by the Regional Mining Delegate.
21. Promote improvement of access roads to sites in local development planning. Much would be gained in time, efficiency and cost by improving the access roads to sites, and this presents a potential local employment opportunity.
22. Explore synergies and opportunities with health authorities/campaigns, e.g. malaria prevention efforts or vaccination campaigns targeting mining sites.

Recommendations for CAPAM to develop the skills of artisanal miners

23. Focus efforts on increasing the quality of raw minerals and processed output which would benefit the entire value chain, more than on increasing production. Addressing this area would not only require training but also access to more sophisticated tools and equipment, where access to finance facilities would be needed.
24. Provide education regarding occupational health and safety, financial accounting and management of savings. Addressing non-use of PPE, which is not unique to artisanal mining, will require commitment of mining site owners/operators/heads of site and sustained external interventions, including technical assistance, practical training, and possibly subsidising good quality PPE, all on a continuous basis, not just a once-off exercise.
25. Review current public campaign efforts to promote benefits of artisanal mining associations based on more in-depth research on the reasons that would incentivise miners to participate in associations (e.g. gaining influence and purchasing/negotiation capacity, assistance in opening bank accounts (including savings accounts), improving access to loans, affordable health insurance, quality PPE, capacity building and improved health and safety).

Mineral-specific recommendations to develop market access

The responsible institutions for implementing each recommendation are indicated below. All suggested initiatives could potentially be supported by UNDP in collaboration with PRECASEM.

Sand

26. Expand the pilot project to regulate the sand market that was started in April 2016 by MINMIDT and the Cooperative for the Provision of Services in Cameroon (CESOF), which included adoption of metrological standards for sand trading. Standards for sand would increase the value added to production and to construction.	MINMIDT
27. Increase the quality of concrete products by training on new material/techniques. Such training would only benefit the sector as long as it guarantees an increased income for the player. A pilot phase could serve to evaluate the benefits.	CAPAM
28. Formalise dock tenants to monitor speculative activities. Customary rights to land tenure have an impact on price due to speculation. Adequate monitoring would benefit the downstream value chain.	CAPAM

Clay

29. Establish a dry port in Bamenda/Bamessing, with a group agreement with an international transporter to facilitate exports.	CAPAM
30. Improve ease of access to glazing materials, including facilitating import in bulk, passage through customs, training in their use to manage environmental impacts	MIPROMALO
31. Support Prescraft in improving its effectiveness in promoting Cameroon crafts at the international level while having local livelihood impacts.	MINPMESA
32. Improve pottery techniques of Marom and Boula Ibbi potters, by researching know-how (which in Marom appears to be concentrated in an a very small group of elderly potters) and developing an access to market strategy.	MIPROMALO, IBAF
33. Link Foumban students with Prescraft to foster original design and research and development.	IBAF, Prescraft
34. Support MIPROMALO in their efforts to strengthen the technical capacity of craftsmen and promoting the utilisation of clay products.	UNDP

Pozzolan

35. Develop new markets for pozzolan through education and marketing amongst construction professionals.	CAPAM, MIPROMALO, MINH DU
36. Standardise grain size production to increase the quality of mineral and outputs as with sand.	CAPAM

Sapphire

37. Develop a fair-trade production model, which is potentially a large-scale program as it would cover the whole value chain from the organisation of	CAPAM

producers' organisation to international marketing support. This would also entail marketing efforts for positioning Cameroon sapphire as fair trade.

38. Support the current Kimberley Process Certification Scheme (SCPK), which enables the identification of various actors involved in the sapphire chain, as well as the minerals admitted to the SCPK Cameroon framework with a view to its certification.	UNDP, PRECASEM
39. Support CAPAM in its current efforts to find investors for a sapphire cutting centre and a viable network to export sapphire.	UNDP

Gravel and dimension stones

40. Develop the stone pavement and cobblestone market. A more precise study would be needed on the techniques and a pilot phase to test the market potential.	CAPAM
41. Assess the potential of granite processing in-country at a semi-industrial level. SOMARC, currently importing granite, could be an interesting resource partner to assess and develop the sector.	CAPAM

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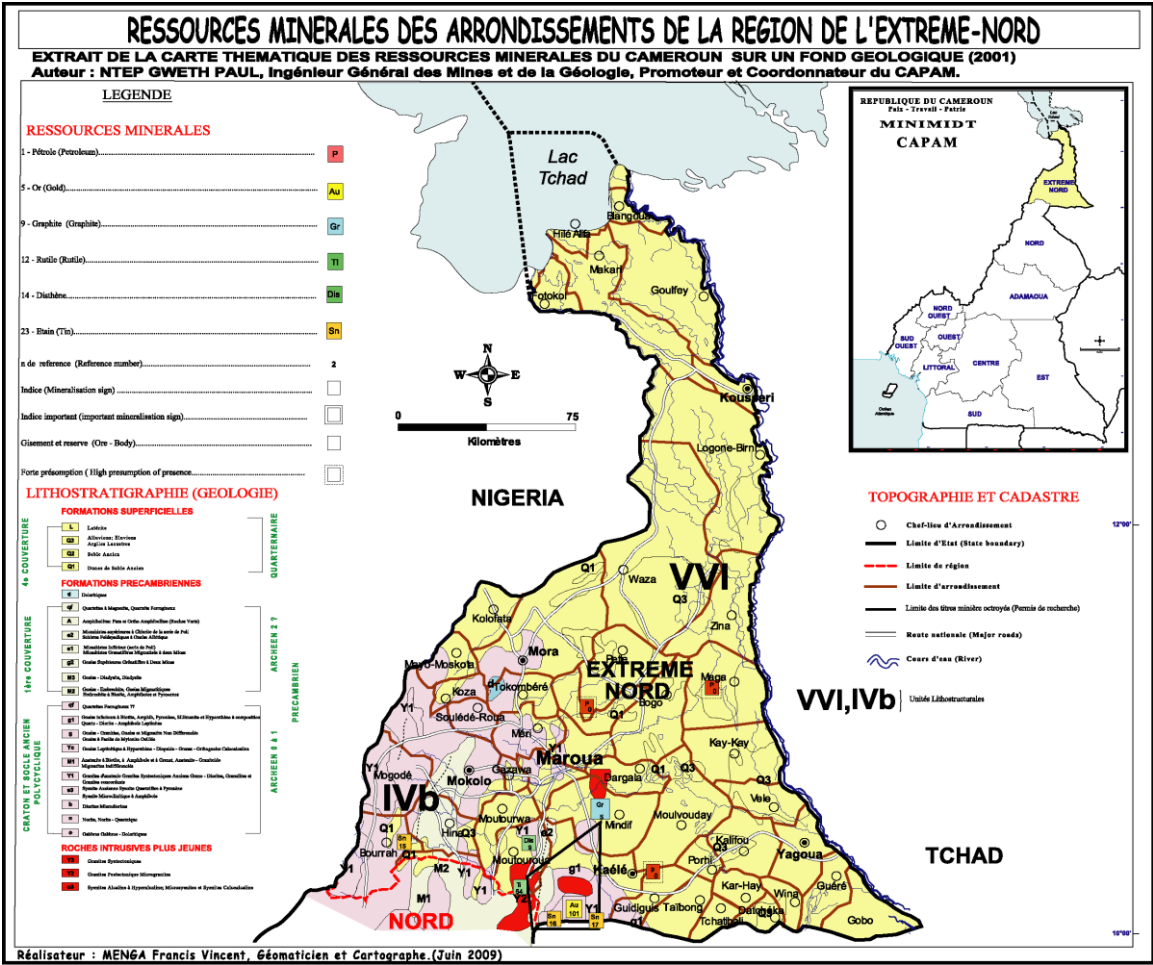
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ANNEX 1: GEOLOGICAL AND MINING POTENTIAL OF CAMEROON CURRENTLY KNOWN BY CAPAM (UPDATED 2009)

EXTREME NORTH REGION



REGIONS	DEPART- MENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIV- ITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELE- COMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
FAR NORTH Capital MAROUA	LOGONE ET CHARI Capital KOUSSERI 405 035	BLANGOUA	51 596	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		DARAK	47 431	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		FOTOKOL	44 857	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		GOULFEY	45 528	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		HILE-ALIFA	45 571	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		KOUSSERI	65 430	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		LOGONE-BIRNI	52 541	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MAKARY	43 649	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		WAZA	46 534	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		ZINA	42 598	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		DATCHEKA	47 982	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned

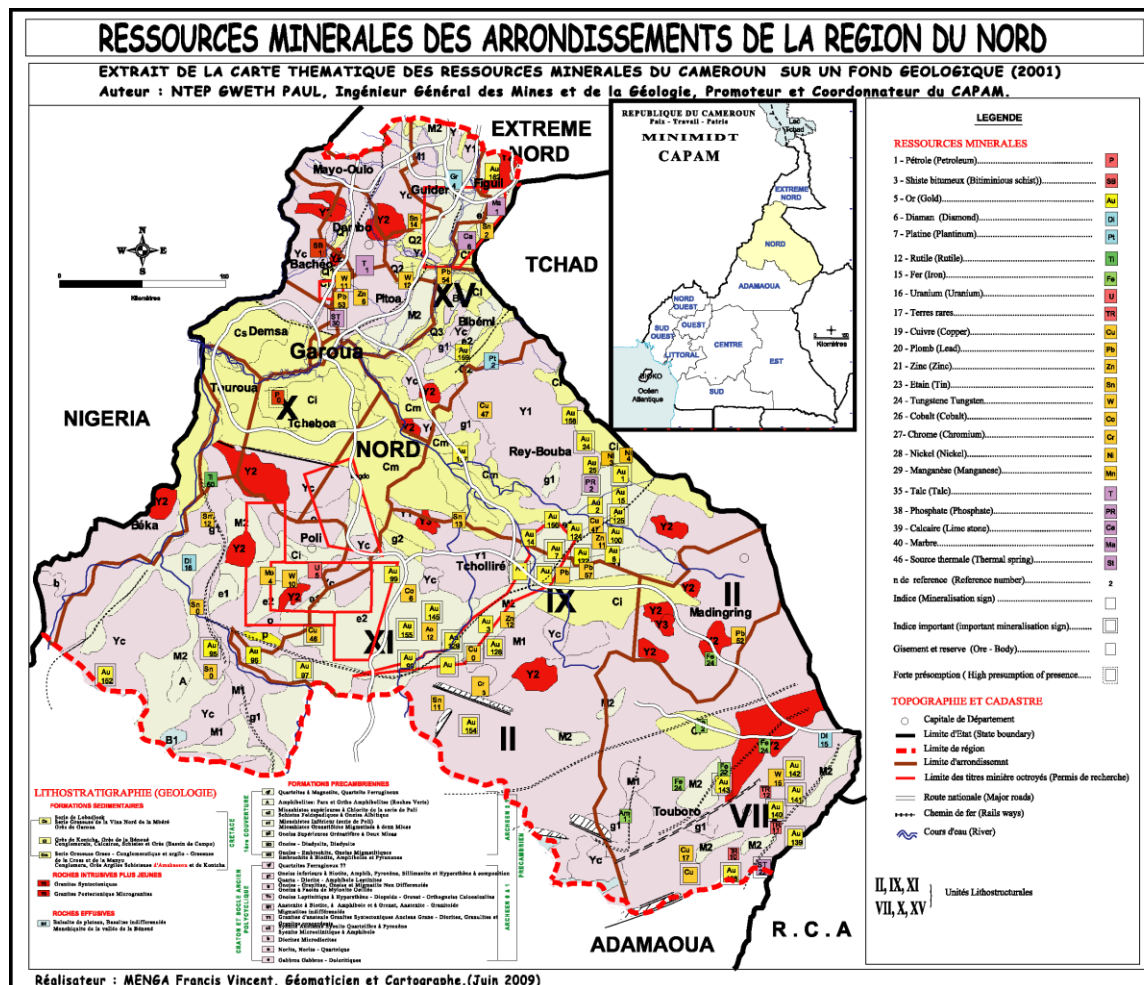
REGIONS	DEPART- MENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIV- ITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELE- COMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
MAYO DANAI Capital YAGOUA 522 782	MAYO DANAI Capital YAGOUA 522 782	GOBO	41 118	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		GUERE (GUIBI)	49 694	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		KAI-KAI	46 881	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		KALFOU	51 651	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		KAR-HAY	46 977	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MAGA	48 551	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Oil	1;2,3,4,5;6	1;2,3,4,5;6	1;2,3,4,5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		TCHATIBALI	32 108	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		VELE (NGUEME)	45 760	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		WINA	53 197	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		YAGOUA	54 745	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
	MAYO SAVA	KOLOFATA	87 252	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPART- MENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIV- ITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELE- COMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
	Capital MGOLDA 313 413	MGOLDA	125 084	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		TOKOMBERE	103 067	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
	MAYO TSANAGA Capital MOKOLO 574 864	BOURRHA	75 648	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		HINA	76 422	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Tin ;	1;2,3,4,5,6	1;2,3,4,5,6	1;2,3,4,5,6	R;E;S;L;EP;SA ; Sa, TC	Planned
		KOZA	74 560	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MAYO MOSKOTA	42 642	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MOGODE	73 981	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MOKOLO	81543	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MOZOGO	75432	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		SOULEDE ROUA	74 636	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
EXTREME NGOLDD	MAYO KANI	GUIDIGUIS	56 491	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Oil ;	1;2,3,4,5,6	1;2,3,4,5,6	1;2,3,4,5,6	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPART- MENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIV- ITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELE- COMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
Capital MAROUA 2 721 463 HA	Capital KAELE 338 448	KAELE	60 408	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ; 7/ Tin ;	1;2,3,4,5,6,7	1;2,3,4,5,6,7	1;2,3,4,5,6,7	R;E;S;L;EP;SA ; Sa, TC	Planned
		MINDIF	57 431	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5,6	1;2,3,4,5,6	1;2,3,4,5,6	R;E;S;L;EP;SA ; Sa, TC	Planned
		MOULVOUDAYE	47 681	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Oil ;	1;2,3,4,5,6	1;2,3,4,5,6	1;2,3,4,5,6	R;E;S;L;EP;SA ; Sa, TC	Planned
		MOUTOUWA	57 499	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Kyanite 7/ Rutile	1;2,3,4,5,6,7,	1;2,3,4,5,6,7,	1;2,3,4,5,6,7,	R;E;S;L;EP;SA ; Sa, TC	Planned
		PGOLDHI	58 938	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
	DIAMARE Capital MAROUA 566 921	BOGO	59 999	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		GAZAWA	62 997	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MAROUA 1	64 661	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MAROUA2	61 649	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MAROUA 3	63 711	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MERI	63 994	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPART- MENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIV- ITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELE- COMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
		PETTE	63 148	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5;6	1;2,3,4,5;6	1;2,3,4,5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		NDOUKOULA	63 758	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		DARGALA GAWEL	63 004	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned

NORTH REGION

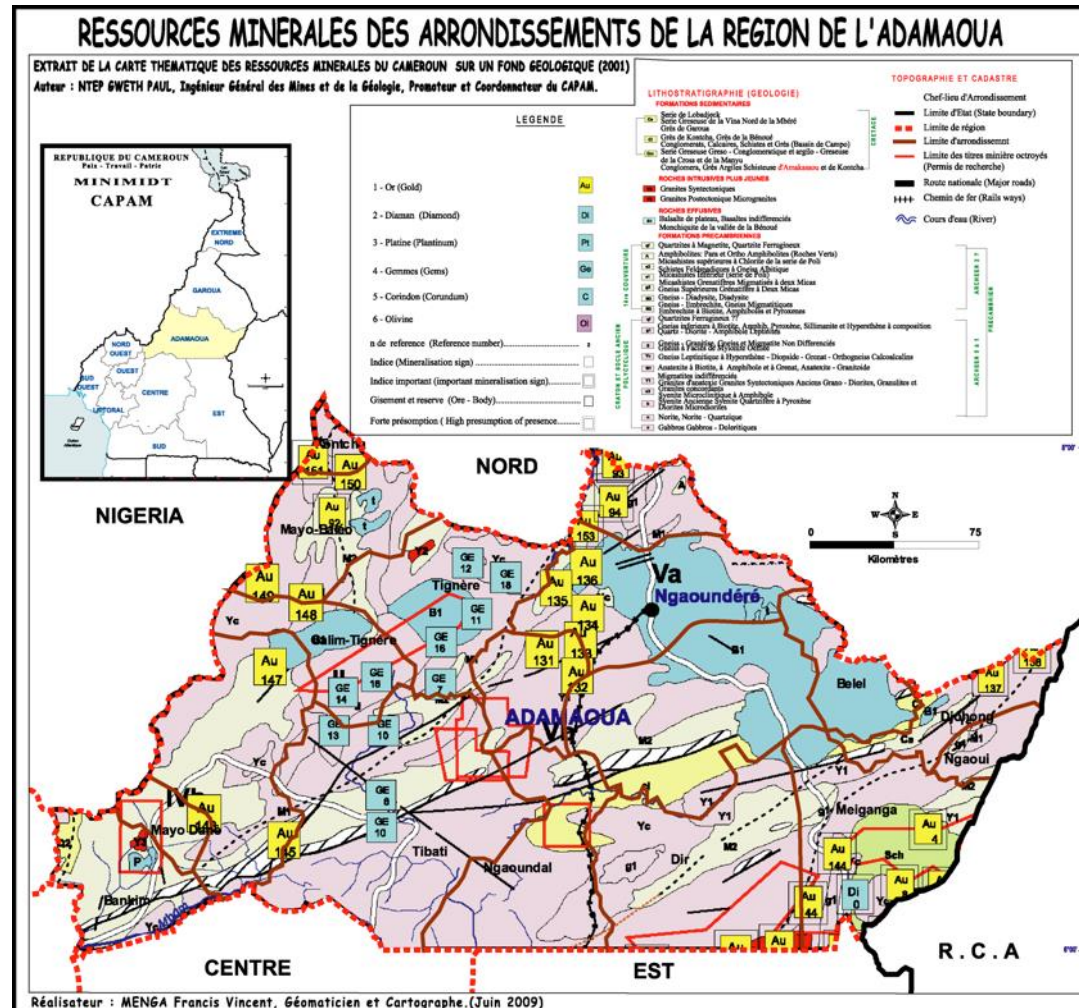


REGIONS	DEPART- MENTS	DISTRICTS	POPU- LA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND IN- VENTORY FILE IN THE BOOK OF MIN- ERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001) MIN- ERAL RESOURCES OF CAMEROON , NTEP GWETH ET AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MINING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WA- TER; SA=ARMED SECUR- ITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MU- TUAL KOCAM
NORTH Capital BENOUE 1 227 018 HA	BENOUE Capital GAROUA 568 793	BIBEMI	46 658	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Gold; 8/Lead;	1;2,3,4,5,6,7,8	1;2,3,4,5,6,7,8	1;2,3,4,5,6,7,8	R;E;S;L;EP;SA ; Sa, TC	Planned
		DEMBO	43 647	/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Rutile ;	1;2,3,4,5,6	1;2,3,4,5,6	1;2,3,4,5,6	R;E;S;L;EP;SA ; Sa, TC	Planned
		GAROUA 1	59 547	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		GAROUA 2	55 741	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		GAROUA 3	57 640	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		LAGDO	47 541	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MAYO- HOURNA	44 894	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		PITOA	41 768	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Tungsten; 7/zinc ; 8/Lead;	1;2,3,4,5,6,7,8,9	1;2,3,4,5,6,7,8,9	1;2,3,4,5,6,7,8,9	R;E;S;L;EP;SA ; Sa, TC	Planned
		TCHEBOA	49 761	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPART- MENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND IN- VENTORY FILE IN THE BOOK OF MIN- ERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001) MIN- ERAL RESOURCES OF CAMEROON , NTEP GWETH ET AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHAN- IZATION	INDUSTRIAL MINING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WA- TER; SA=ARMED SECUR- ITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MU- TUAL KOCAM
		BASHEO	44 991	11/Ornamental stone ; 2/Stone for build- ing materials; 3/Clay; 4/Sand ; 5/Gravel ; 7/Tungsten ;	1;2,3,4,5,6,7	1;2,3,4,5,6,7	1;2,3,4,5,6,7	R;E;S;L;EP;SA ; Sa, TC	Planned
NORTH Capital BENOUE 1 227 018 HA	FARO (POLI) 81 472	BEKA	33 631	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		POLI	47 841	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
	MAYO REY Capital TCHOLLIRE 242 441	REYBOUBA	765 897	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel 6/Tin ; 7/Au; 8/Copper ; 9/nickel ;10/zinc 11/Lead ;	1;2,3,4,5,6,7,8,9,10;11	1;2,3,4,5,6,7,8,9,10;11	1;2,3,4,5,6,7,8,9,10;11	R;E;S;L;EP;SA ; Sa, TC	Planned
		TCHOLIRE	537 739	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel 6/Tin;7/Gold; 8/Cobalt ; 9/ zinc;9/Chro- mium ; 10/Lead ;	1;2,3,4,5,6,7,8,9,10	1;2,3,4,5,6,7,8,9,10	1;2,3,4,5,6,7,8,9,10	R;E;S;L;EP;SA ; Sa, TC	Planned
		TOUBGOLDO	62 885	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel 6/Iron; 7/Asbestos; 8/Gold; 8/Copper; 9/Rare earth;10/Tungsten ;11/Diamond ;12/Thermal source;	1;2,3,4,5,6,7,8,9,10;11;12	1;2,3,4,5,6,7,8,9,10;11;12	1;2,3,4,5,6,7,8,9,10;11;12	R;E;S;L;EP;SA ; Sa, TC	Planned
		MAD- INGRING	45 920	1/P.O; 2/P.M; 3/ Ar; 4/SB; 5/GR;6/Fe(24);7/Pb(52)	1;2,3,4,5,6,7	1;2,3,4,5,6,7	1;2,3,4,5,6,7	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPART- MENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND IN- VENTORY FILE IN THE BOOK OF MIN- ERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001) MIN- ERAL RESOURCES OF CAMEROON , NTEP GWETH ET AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHAN- IZATION	INDUSTRIAL MINING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WA- TER; SA=ARMED SECUR- ITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MU- TUAL KOCAM
NORTH Capital BENOUE	MAYO LOUTI Capital GUIDER 333 312	FIGUIL	128 934	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold;7/ Tin; 8/ Diamond ; 9/Copper; 10/ Molybdenum ; 11/ Tungsten ; 12/ ura- nium ;	1;2,3,4,5,6,7,8,9,10;11;12	1;2,3,4,5,6,7,8,9,10;11;12	1;2,3,4,5,6,7,8,9,10;11;12	R;E;S;L;EP;SA ; Sa, TC	Planned
		GUIDER	118 974	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Graphite;	1;2,3,4,5,6	1;2,3,4,5,6	1;2,3,4,5,6	R;E;S;L;EP;SA ; Sa, TC	Planned
		MAYO OULO	85 404	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned

REGION OF ADAMAOUA

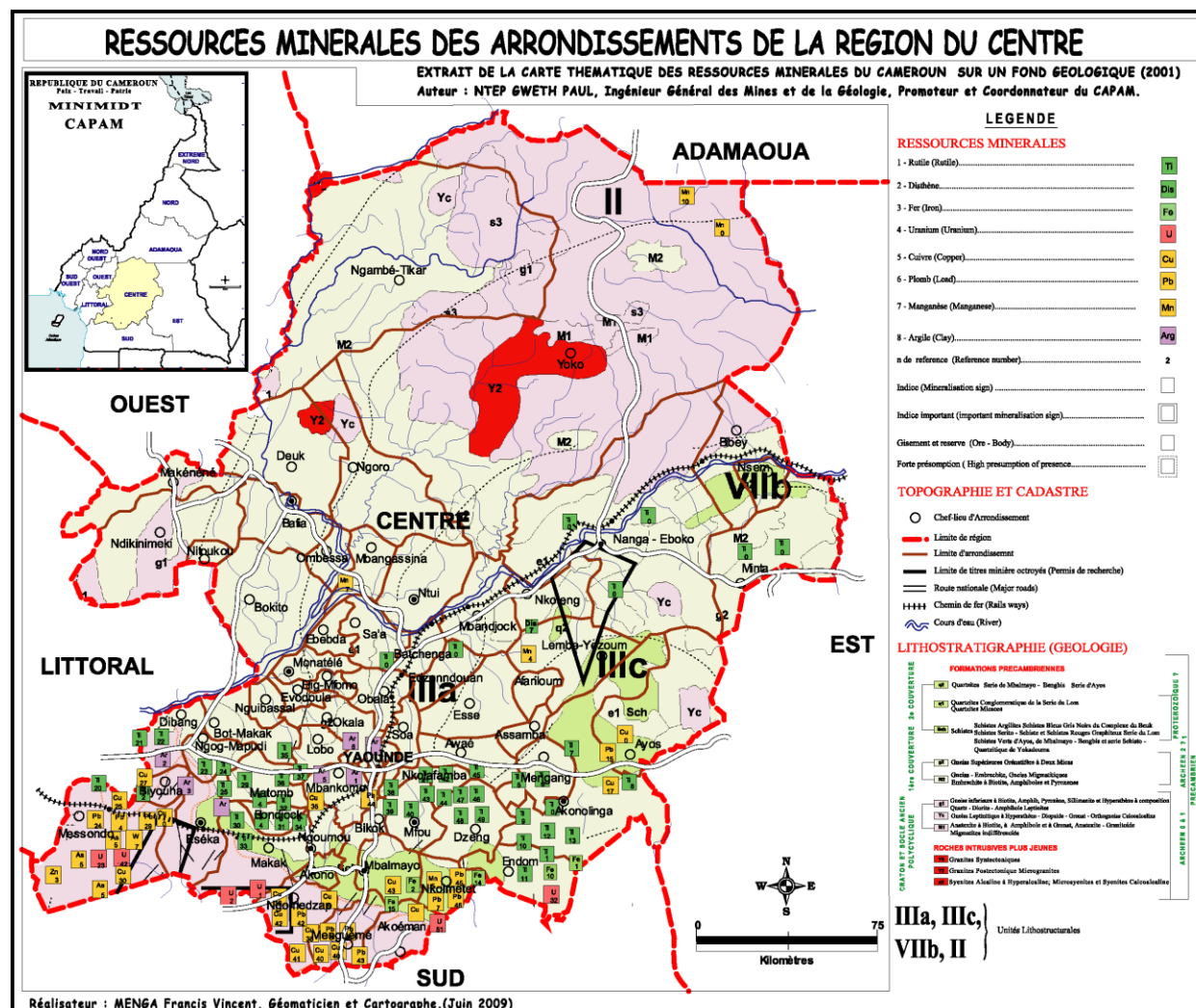


REGIONS	DEPART- MENTS	DISTRICTS	POPU- LA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RE- SOURCES OF CAMEROON (P.NTEP GWETH AND AL., 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZA- TION	INDUSTRIAL MINING ACTI- TIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SE- CURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MU- TUAL KOCAM
ADAMAOUA Capital NGAOUNDERE 723 626 HA	DJEREM Capital TI- BATI 89 382	NGAOUNDAL	38 691	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Tin ; 7/Bauxite; 8/Manganese ;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned
		TIBATI	50 691	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Bauxite;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
	FARO ET DEO Capital TIGNERE 66 442	GALIM- TIGNERE	15 461	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Thermal source; 7/Manganese ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		MAYO-BALEO	17 636	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold; 7/ Thermal source ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		TIGNERE	19 532	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Thermal source ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		KONCHA	13 816	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
	MAYO BANYO Capital BANYO 134 902	BANKIM	33 694	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Colombo; 7/ Tin;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		BANYO	86 621	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold; 7/ Thermal source ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		MAYO-DARLE	14 587	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold; 7/ Tin;8/ Thermal source ;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPART- MENTS	DISTRICTS	POPULA- LA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RE- SOURCES OF CAMEROON (P.NTEP GWETH AND AL., 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZA- TION	INDUSTRIAL MINING ACTI- TIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SE- CURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MU- TUAL KOCAM
	MBERE Capital MEI- GANGA 185 473	DIR	42 852	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 8/ Thermal source ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		DJOHONG	46 369	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold; 7/ Thermal source ;8/ Rare earth;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned
		MEIGANGA	67 589	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold; 7/Lead;8/Diamond ;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned
		NGAOUI	28 663	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
N.B. ADAMAOUA Capital NGAOUNDERE 723 626 HA	VINA Capital NGAOUN- DERE 247 427	BELEL	25 076	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Thermal source; 7/Rutile ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		MARTAP	18 556	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay;4/Sand ; 5/Gravel ; 6/Gold; 7/Bauxite ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		MBE	27 112	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Thermal source; 7/Rutile ;8/Cobalt ;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned
		NGANHA	18 436	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 8/ Thermal source ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPART- MENTS	DISTRICTS	POPU- LA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RE- SOURCES OF CAMEROON (P.NTEP GWETH AND AL., 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZA- TION	INDUSTRIAL MINING ACTIVI- TIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SE- CURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MU- TUAL KOCAM
		NGAOUN- DERE1 (MBIDENG)	33 675	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 8/ Thermal source ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		NGAOUNDERE 2 (MABANGA)	30 930	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		NGAOUNDERE 3 (DANG)	57 441	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold;7/Vivianite ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		NYAMBAKA	38225	1/Ornamental stone ; 2/Stone for building ma- terials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Thermal source; 7/Chromium ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned

CENTRE REGION



REGIONS	DEPARTMENTS	DISTRICTS	POPULATION	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL., 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
CENTER Capital YAOUNDE 2 501 229 HA	HAUTE-SANAGA Capital NANGA-EBOKO 115 305	MBANDJOCK	24 879	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
		MINTA	4 0525	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5,	1;2,3,4,5,	1;2,3,4,5,	R;E;S;L;EP;SA ;Sa, TC	Planned
		NKOTENG	31786	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Kyanite ;	1;2,3,4,5,6;7	1;2,3,4,5,6;7	1;2,3,4,5,6;7	R;E;S;L;EP;SA ;Sa, TC	Planned
		NANGA-EBOKO	23 057	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Rutile ;	1;2,3,4,5;6	1;2,3,4,5;6	1;2,3,4,5;6	R;E;S;L;EP;SA ;Sa, TC	Planned
		BIBEYLEMBE-YEZOUN (LEMBE)	15 443	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Kyanite ; 6/Manganese ; 7/ Kyanite ;	1;2,3,4,5,6;7	1;2,3,4,5,6;7	1;2,3,4,5,6;7	R;E;S;L;EP;SA ;Sa, TC	Planned
		NSEM	13 615	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
	LEKIE Capital	EBEBDA	24 543	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned

REGIONS	DEPARTMENTS	DISTRICTS	POPULATION	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL., 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
	MONATELE 354 864	ELIG-MFOUMO	33 142	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
		EVODOULA	37 611	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
		MONATELE	47 522	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
		OBALA	57 551	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
		OKOLA	49 433	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5;6	1;2,3,4,5;6	1;2,3,4,5;6	R;E;S;L;EP;SA ;Sa, TC	Planned
		SA'A	58 879	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ;	1;2,3,4,5;6	1;2,3,4,5;6	1;2,3,4,5;6	R;E;S;L;EP;SA ;Sa, TC	Planned
		BATCHENGA	24 551	/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
		LOBO	21 632	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ;	1;2,3,4,5;6;7	1;2,3,4,5;6;7	1;2,3,4,5;6;7	R;E;S;L;EP;SA ;Sa, TC	Planned

REGIONS	DEPARTMENTS	DISTRICTS	POPULATION	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL., 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
		BAFIA	36 569	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
	MBAM ET INOUBOU Capital BAFIA 153 020	BOKITO	19453	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;HP;SA;TC	Planned
		NDIKINIMEKI	17 820	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;HP;SA;TC	Planned
		DEUK	15 284	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;HP;SA;TC	Planned
		KIIKI	14 380	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;HP;SA;TC	Planned
		KON YAMBETA	12 225	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
		MAKENENE	11 350	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
		OMBESSA	15 151	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5;6;	1;2,3,4,5;6;	1;2,3,4,5;6;	R;E;S;L;EP;SA ;Sa, TC	Planned

REGIONS	DEPARTMENTS	DISTRICTS	POPULATION	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL., 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
		NITOUKOU	10 798	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
CENTER (suite) Capital YAOUNDE 2 501 229 HA	MBAM ET KIM Capital NTUI 64 540	MBANGASSINA	12 451	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Manganese;	1;2,3,4,5,6	1;2,3,4,5,6	1;2,3,4,5,6	R;E;S;L;EP;SA ;Sa, TC	Planned
		NGAMBE TIKAR	10 465	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
		NGGOLDO	12025	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
		NTUI	18 345	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
		YOKO	11 254	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Manganese;	1;2,3,4,5,6	1;2,3,4,5,6	1;2,3,4,5,6	R;E;S;L;EP;SA ;Sa, TC	Planned
		AFANLOUM	8 823	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned

REGIONS	DEPARTMENTS	DISTRICTS	POPULATION	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL., 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
	MEFOU ET AFAMBA Capital MFOU 89 805	ASSAMBA	8 457	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
		AWAE	9 455	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1,2,3,4,5;6	1,2,3,4,5;6	1,2,3,4,5;6	R;E;S;L;EP;SA ;Sa, TC	Planned
		EDZENDOUAN	10 311	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ;	1,2,3,4,5;6	1,2,3,4,5;6	1,2,3,4,5;6	R;E;S;L;EP;SA ;Sa, TC	Planned
		ESSE	12 134	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
		MFOU	15 672	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ;	1,2,3,4,5;6	1,2,3,4,5;6	1,2,3,4,5;6	R;E;S;L;EP;SA ;Sa, TC	Planned
		NKOLAFAMBA	10 432	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ;	1,2,3,4,5;6	1,2,3,4,5;6	1,2,3,4,5;6	R;E;S;L;EP;SA ;Sa, TC	Planned
		SOA	14 521	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ;	1,2,3,4,5;6	1,2,3,4,5;6	1,2,3,4,5;6	R;E;S;L;EP;SA ;Sa, TC	Planned
	MEFOU ET AKONO	AKONO	12 083	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned

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					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
	Capital NGOUMOU 57 051	BIKOK	11 501	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/Lead ;	1;2,3,4,5;6,7	1;2,3,4,5;6,7	1;2,3,4,5;6,7	R;E;S;L;EP;SA ;Sa, TC	Planned
		MBANKOMO	18 534	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/Lead ; 8/Copper ;	1;2,3,4,5;6,7;8	1;2,3,4,5;6,7;8	1;2,3,4,5;6,7;8	R;E;S;L;EP;SA ;Sa, TC	Planned
		NGOUMOU	14 933	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Copper;	1;2,3,4,5;6	1;2,3,4,5;6	1;2,3,4,5;6	R;E;S;L;HP;SA;TC	Planned
	MFOUNDI Capital YAOUNDE 1 248 235 HA	YAOUNDE 1	321 549	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;HP;SA;TC	Planned
		YAOUNDE 2	217 455	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;HP;SA;TC	Planned
		YAOUNDE 3	216 710	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;HP;SA;TC	Planned
		YAOUNDE 4	155 312	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned

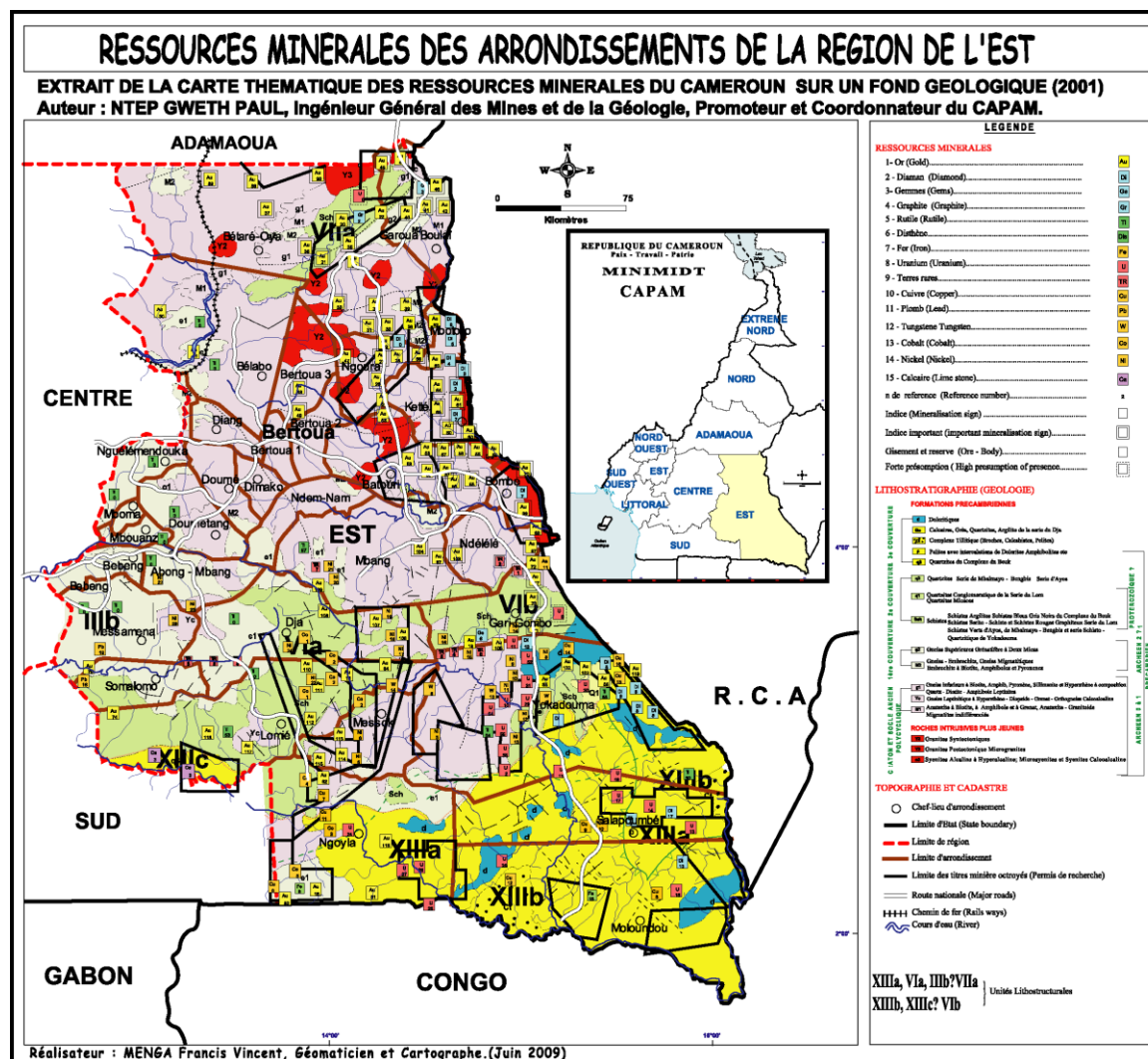
REGIONS	DEPARTMENTS	DISTRICTS	POPULATION	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL., 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
		YAOUNDE 5	113006	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
		YAOUNDE 6	114510	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	In progress
		YAOUNDE 7	109 693	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ;Sa, TC	Planned
CENTER (suite) Capital YAOUNDE 2 501 229 HA	NYONG ET KELLE Capital ESEKA 145 181 HA	BOT-MAKAK	21 133	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/ Kyanite	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	In progress
		DIBANG	9 795	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/Copper; 8/ Kyanite	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	In progress
		ESEKA	26 870	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Arsenic; 7/ Rutile ; 8/ Copper; 9/ Kyanite	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	In progress
		MAKAK	24 571	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ;	1;2;3;4;5;6;7;8;9	1;2;3;4;5;6;7;8;9	1;2;3;4;5;6;7;8;9	R;E;S;L;EP;SA ; Sa, TC	In progress

REGIONS	DEPARTMENTS	DISTRICTS	POPULATION	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL., 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
				7/Copper;8/uranium; 9/ Arsenic; 10/ Kyanite					
		MATOMB	12 642	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/ Kyanite	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		MESSONDO	16 487	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/ Lead; 8/Copper; 9/Arsenic; 10/Zinc; 11/Uranium; 12/Tungsten; 13/ Kyanite	1;2,3,4,5,6,7,8,9,10;11;12	1;2,3,4,5,6,7,8,9,10;11;12	1;2,3,4,5,6,7,8,9,10;11;12	R;E;S;L;EP;SA ; Sa, TC	Planned
		NGOG-MAPUBI	13 602	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/ Kyanite	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		NGUIBASSAL	6 694	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Kyanite	1;2;3;4;5;	1;2;3;4;5;	1;2;3;4;5;	R;E;S;L;EP;SA ; Sa, TC	Planned
		NBONDJOCK	5 411	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	In progress
		BIYOUHA	7 977	1/Ornamental stone ; 2/Stone for building materials; 3/Clay;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPARTMENTS	DISTRICTS	POPULATION	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL., 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
				4/Sand ; 5/Gravel ; 6/ Rutile ; 7/ Copper; 8/ arsenic ;					
	NYONG ET MFOUMOU Capital AKONOLINGA 130 321 HA	AKONOLINGA	28 065	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/Iron; 8/ Copper; 9/Lead ;	1;2;3;4;5;6;7;8,9	1;2;3;4;5;6;7;8,9	1;2;3;4;5;6;7;8,9	R;E;S;L;EP;SA ; Sa, TC	Planned
		AYOS	27 943	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/ Iron; 8/ Copper; 9/ Lead ;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned
		ENDOM	23 649	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/Iron;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		MENGANG	26 618	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/ Kyanite	1;2;3;4;5;6;	1;2;3;4;5;6;	1;2;3;4;5;6;	R;E;S;L;EP;SA ; Sa, TC	Planned
		NYAKOKOMBO (KOBDOMBO)	24 046	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	NYONG ET SO'O	MBALMAYO	28 975	1/Ornamental stone ; 2/Stone for building materials; 3/Clay;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPARTMENTS	DISTRICTS	POPULATION	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL., 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
	Capital MBALMAYO 142 907 HA			4/Sand ; 5/Gravel ; 6/ Copper; 7/Iron;					
		DZENG	21 958	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ;	1;2;3;4;5;6;	1;2;3;4;5;6;	1;2;3;4;5;6;	R;E;S;L;EP;SA ; Sa, TC	Planned
		NGOMEDZAP	21 718	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Copper; 7/Lead ;8/Uranium;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned
		AKOEMAN	23 759	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Iron; 7/ Copper; 8/Lead ; 9/Uranium;	1;2;3;4;5;6;7;8,9	1;2;3;4;5;6;7;8,9	1;2;3;4;5;6;7;8,9	R;E;S;L;EP;SA ; Sa, TC	Planned
		MENGUEME	19 643	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Iron; 7/ Copper; 8/Lead ;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned
		NKOLMETET	24 861	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Iron; 7/ Copper; 8/Manganese ;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned

EAST REGION



REGIONS	DEPARTMENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MINING AC- TIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
EAST Capital : BERTOUA 755 088 HA	BOUMBA ET NGOKO Capital YOKADOUMA 116 702 HA	GARI GOMBO	32 659	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ; 7/Arsenic; 8/Ura- nium; 9/Nickel; 10/Gem ; 11/Rare earth ; 12/ Monazite	1;2,3,4,5,6,7,8,9,10,1 1	1;2,3,4,5,6,7,8,9,10,11	1;2,3,4,5,6,7,8,9,10,11	R;E;S;L;EP;SA ; Sa, TC	Planned
		MOLOUN- DOU	27 492	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Kyanite ; 7/ Uranium; 8/Copper; 9/ Iron; 10/ Gold (Kika)	1;2,3,4,5,6;7,8,9	1;2,3,4,5,6;7,8,9	1;2,3,4,5,6;7,8,9	R;E;S;L;EP;SA ; Sa, TC	Planned
		YOKA- DOUMA	35 176	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Kyanite ; 7/Gold ; 9/Copper; 11/Nickel; 12/Tungsten ; 13/ rare earth ; 14/ Diamond (Mobi- long)	1;2,3,4,5,6,7,8,9,10,1 1,12,13	1;2,3,4,5,6,7,8,9,10,11,12,1 3	1;2,3,4,5,6,7,8,9,10,11,12,1 3	R;E;S;L;EP;SA ; Sa, TC	Active
		SALA- POUMBE	26 375	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Kyanite ; 7/Uranium; 8/Copper;	1;2,3,4,5,6,7,8	1;2,3,4,5,6,7,8	1;2,3,4,5,6,7,8	R;E;S;L;EP;SA ; Sa, TC	Planned
	HAUT NYONG Capital	ABONG- MBANG	32 966	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/ Nickel;	1;2,3,4,5,6,7	1;2,3,4,5,6,7	1;2,3,4,5,6,7	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPARTMENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MINING AC- TIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
	ABONG MBANG 216 768 HA	DIMAKO	29 810	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		DOUME	32 973	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		LOMIE	30 443	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/Gold; 8/Co- balt ; 9 Nickel;10/Limestone; 11/Tung- sten ;	1;2,3,4,5,6,7,8,9,10,1 1	1;2,3,4,5,6,7,8,9,10,11	1;2,3,4,5,6,7,8,9,10,11	R;E;S;L;EP;SA ; Sa, TC	Planned
		MES- SAMENA	27 590	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/Gold; 8/ Lead ; 9/ Nickel;	1;2,3,4,5,6,7,8,9	1;2,3,4,5,6,7,8,9	1;2,3,4,5,6,7,8,9	R;E;S;L;EP;SA ; Sa, TC	Planned
		NGOYLA	28 439	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Gold; 7/ Copper; 8/ Co- balt ; 9/ Uranium; 10/Iron;	1;2,3,4,5,6,7,8,9,10	1;2,3,4,5,6,7,8,9,10	1;2,3,4,5,6,7,8,9,10	R;E;S;L;EP;SA ; Sa, TC	Planned
		NGUELEM ENDOUKA	29 547	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Kyanite ;	1;2,3,4,5,6	1;2,3,4,5,6	1;2,3,4,5,6	R;E;S;L;EP;SA ; Sa, TC	Planned

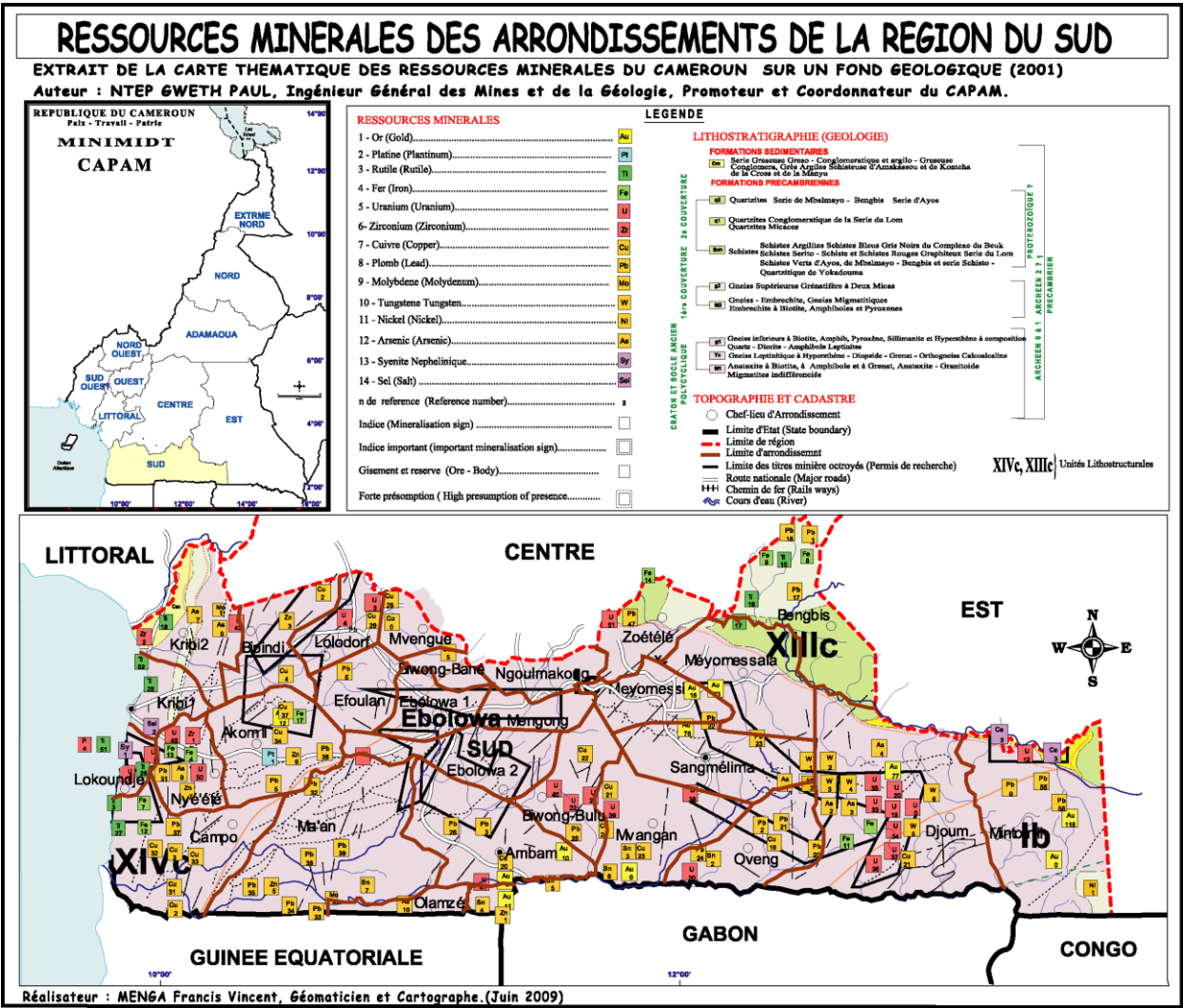
REGIONS	DEPARTMENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MINING AC- TIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
	HAUT NYONG Capital ABONG MBANG 122 132	BEBENG (ATOK)	15 323	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		DJA(Min- dourou)	21654	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Kyanite; 7/ Gold; 8/ Cobalt ; 9/ Nickel;10/ rare earth ;	1;2,3,4,5,6,7,8,9,10	1;2,3,4,5,6,7,8,9,10	1;2,3,4,5,6,7,8,9,10	R;E;S;L;EP;SA ; Sa, TC	Planned
		MBOUANZ(Angoss	16432	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Kyanite ;	1;2,3,4,5,6	1;2,3,4,5,6	1;2,3,4,5,6	R;E;S;L;EP;SA ; Sa, TC	Planned
		DOUMAN- TANG	21133	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Kyanite ;	1;2,3,4,5,6	1;2,3,4,5,6	1;2,3,4,5,6	R;E;S;L;EP;SA ; Sa, TC	Planned
		MESSOK	12543	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ; 7/ Nickel; 8/ Co- balt ; 9/Tungsten ;	1;2,3,4,5,6,7,8,9	1;2,3,4,5,6,7,8,9	1;2,3,4,5,6,7,8,9	R;E;S;L;EP;SA ; Sa, TC	Planned
		SO- MALOMO	21432	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ;7/ Lead; 8/ rare earth ;	1;2,3,4,5,6,7,8,	1;2,3,4,5,6,7,8,	1;2,3,4,5,6,7,8,	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPARTMENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MINING AC- TIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
		MBOMA	21322	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
EAST Capital : BERTOUA 755 088 HA	KADEI Capital BATOURI 192 927	BATOURI	30 451	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ; 7/ Rare earth ; 8/ Uranium	1;2,3,4,5;6	1;2,3,4,5;6	1;2,3,4,5;6	R;E;S;L;EP;SA ; Sa, TC	Active
		KETTE	28 549	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ; 7/ Kyanite ; 8/ Di- amond	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Active
		MBANG	26 945	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ; 8/ Nickel; 9/ rare earth ;	1;2,3,4,5,6,7,8,9	1;2,3,4,5,6,7,8,9	1;2,3,4,5,6,7,8,9	R;E;S;L;EP;SA ; Sa, TC	Planned
		MDELELE	25 007	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ; 8/ Nickel; 9/ rare earth ; 10/ Diamond	1;2,3,4,5,6;7	1;2,3,4,5,6;7	1;2,3,4,5,6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		NDEM NAM	23 753	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Gold	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPARTMENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL., 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MINING AC- TIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
		MBOT- GOLDO (Ouli)	28 761	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ; 7/ Kyanite ; 8/ Di- amond	1;2,3,4,5;6,7	1;2,3,4,5;6,7	1;2,3,4,5;6,7	R;E;S;L;EP;SA ; Sa, TC	Planned
		BOMBE	29 451	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ; 7/ Kyanite ; 8/ Di- amond	1;2,3,4,5;6,7	1;2,3,4,5;6,7	1;2,3,4,5;6,7	R;E;S;L;EP;SA ; Sa, TC	Planned
EAST Capital BERTOUA 755 088 HA	LOM ET DJEREM Capital	BELABO	31 586	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/Gold;	1;2,3,4,5,6,7	1;2,3,4,5,6,7	1;2,3,4,5,6,7	R;E;S;L;EP;SA ; Sa, TC	Planned
	BERTOUA 228 691	BERTOUA I	30 741	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		BERTOUA II	29 549	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ;	1;2,3,4,5,6	1;2,3,4,5,6	1;2,3,4,5,6	R;E;S;L;EP;SA ; Sa, TC	Planned
		BETARE OYA	29 419	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ; 7/Graphite; 8/Uranium; 9/ Diamond	1;2,3,4,5,6,7,8	1;2,3,4,5,6,7,8	1;2,3,4,5,6,7,8	R;E;S;L;EP;SA ; Sa, TC	Active

REGIONS	DEPARTMENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MINING AC- TIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEISURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICATION AND TECHNICAL TV)	MUTUAL KOCAM
		DIANG	23 859	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5,	1;2,3,4,5,	1;2,3,4,5,	R;E;S;L;EP;SA ; Sa, TC	Planned
		GAROUA BOULAI	27 564	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ; 7/Graphite; 8/ Di- amond	1;2,3,4,5,6,7	1;2,3,4,5,6,7	1;2,3,4,5,6,7	R;E;S;L;EP;SA ; Sa, TC	Active
		MANDJOU	28 124	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2,3,4,5	1;2,3,4,5	1;2,3,4,5	R;E;S;L;EP;SA ; Sa, TC	Planned
		NGOURA	27 849	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ; 7/ Kyanite ; 8/ Di- amond	1;2,3,4,5,6,7	1;2,3,4,5,6,7	1;2,3,4,5,6,7	R;E;S;L;EP;SA ; Sa, TC	Active

SOUTH REGION



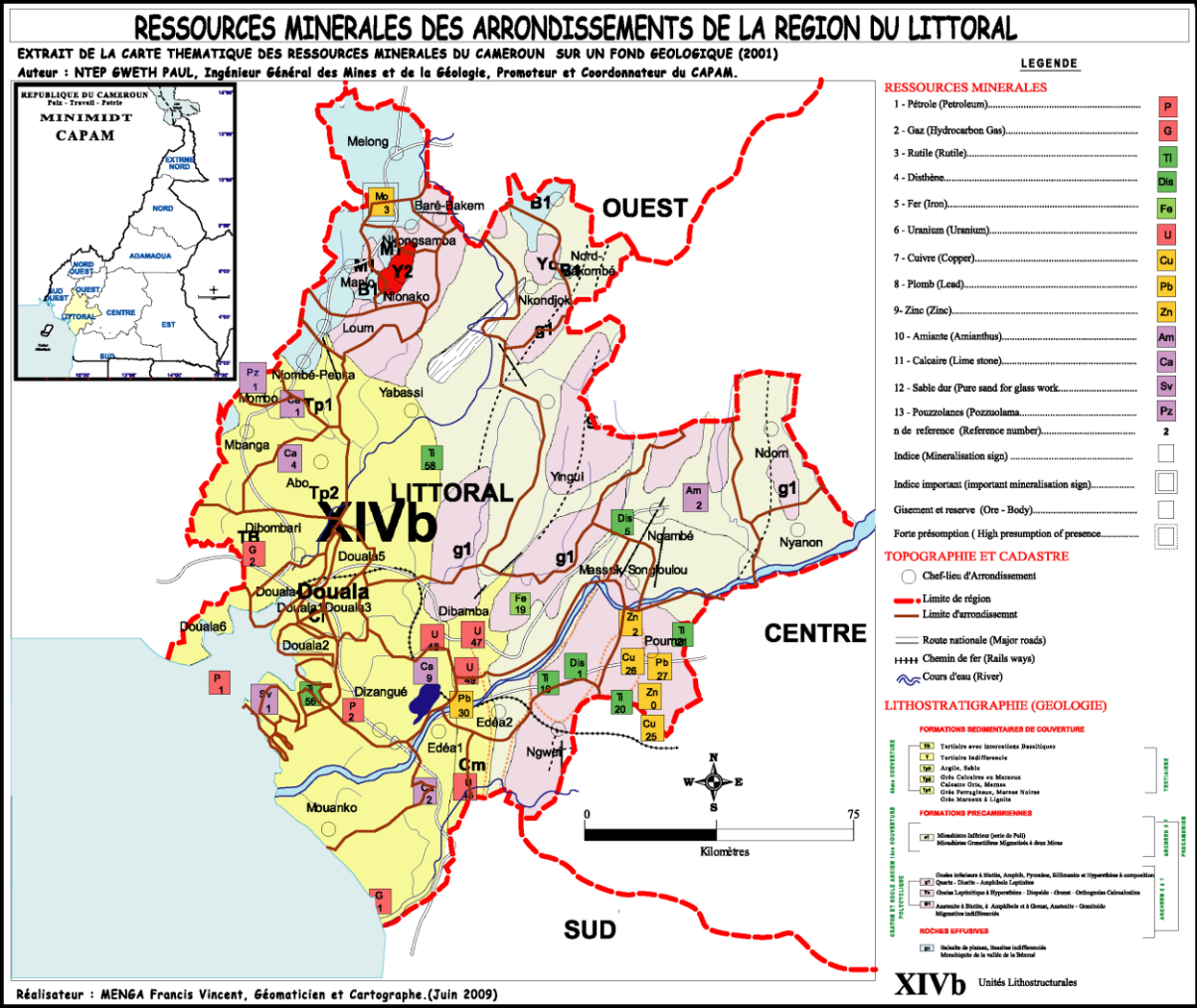
REGIONS	DEPARTMENTS	DISTRICTS	POPULATIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND IN-VENTORY FILE IN THE BOOK OF MIN-ERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTI- TIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICA- TION AND TECHNICAL TV)	MUTUAL KOCAM
SOUTH EBOLOWA Capital 534 854 HA	OCEAN Capital KRIBI 133 062	AKOM II	11 749	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Copper; 7/Iron;8/ Lead ; 10/zinc ;11/ Gold ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		BIPINDI	12 976	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Copper; 7/zinc ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		CAMPO	13 084	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/Iron; 8/Lead; 9/Copper;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		KRIBI I	17 412	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 8/Salt;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		KRIBI II	18 437	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/ zinc ; 8/Arsenic; 9/Molyb- denum ;	1;2;3;4;5;6,7,8,9	1;2;3;4;5;6,7,8,9	1;2;3;4;5;6,7,8,9	R;E;S;L;EP;SA ; Sa, TC	Planned
		LOKOUNDJE	14 518	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/ Uranium; 8/Oil ; 9/Syenite néphélinique;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		LOLODGOLDF	15 937	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Uranium; 7/Copper; 8/ Syenite	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPARTMENTS	DISTRICTS	POPULATIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND IN-VENTORY FILE IN THE BOOK OF MIN-ERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTI- TIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICA- TION AND TECHNICAL TV)	MUTUAL KOCAM
		MVENGUE	12 437	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Copper; 7/ Gold	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		NIETE	16 512	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	DJA ET LOBO Capital SANGMELIMA 173 219	BENGBIS	21 368	11/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/ Lead;8/Iron;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		DJOUM	25 651	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Iron; 7/Arsénite; 8/Copper; 9/ Tungsten ;10/Gold; 11/Uranium;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MEYOMESSALA	26 730	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MEYOMESSI	18 678	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ; 7/ Lead;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		MINTOM	25 019	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gold ; 7/Nickel ; 8/Lead ;9/Lime-stone;10/Uranium ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		OVENG	18 453	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Uranium; 7/ Tin; 8/Copper; 9/Lead;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPARTMENTS	DISTRICTS	POPULATIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND IN-VENTORY FILE IN THE BOOK OF MIN-ERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTI- TIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICA- TION AND TECHNICAL TV)	MUTUAL KOCAM
SOUTH Capital EBOLOWA- 534 854 HA		SANGMELIMA	34 369	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Arsenic;7/Lead; 8/ Tungsten ; 9/Gold; 10/U Uranium ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		ZOETELE	22 841	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Iron; 7/Uranium; 8/Lead; 9/ Gold	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	Mvila Capital EBOLOWA 163 826	BIWONG-BANE	16 541	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned
		BIWONG BULU	17 521	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Copper; 7/ Lead; 8/Uranium;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned
		EBOLOWA I	23 451	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		EBOLOWA II	24 657	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		EFOULAN	18 549	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Lead;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MENGONG	21654	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		MVANGAN	21503	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Uranium;7/ Copper; 8/Sn(3,6);9/Au(0)	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPARTMENTS	DISTRICTS	POPULATIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND IN-VENTORY FILE IN THE BOOK OF MIN-ERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANIZATION	INDUSTRIAL MINING ACTIVI- TIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WATER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELECOMMUNICA- TION AND TECHNICAL TV)	MUTUAL KOCAM
		NGOULE- MAKONG	19 850	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	VALLE DU NTEM Capital AMBAM 64 547	AMBAM	20 411	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Syenite ; 7/Copper; 8/Lead; 9/Gold;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MA'AN	10570	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Uranium; 7/Tin ; 8/Zinc; 9/ Molyb- denum ;10/Lead;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		OLAMZE	15 322	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Arsenic;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		KIE-OSSI	18 244	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;				R;E;S;L;EP;SA ; Sa, TC	Planned

LITTORAL REGION



REGIONS	DEPARTMENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MIN- ING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELE- COMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
LITTGOLDAL Capital DOUALA 2 202 340 HA	MUNGO Capital N KONG SAMBA 452 722	BARE BAKEM	32 875	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		DIBOMBARI	29 899	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Gaz	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		LOUM	43 971	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MONJO	32 990	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MBANGA	37 592	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Limestone	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		MELONG	33 769	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Molybdenum	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		NJOMBE – PENJA	33 651	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Limestone;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		NKONGSAMBA I	37 825	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned

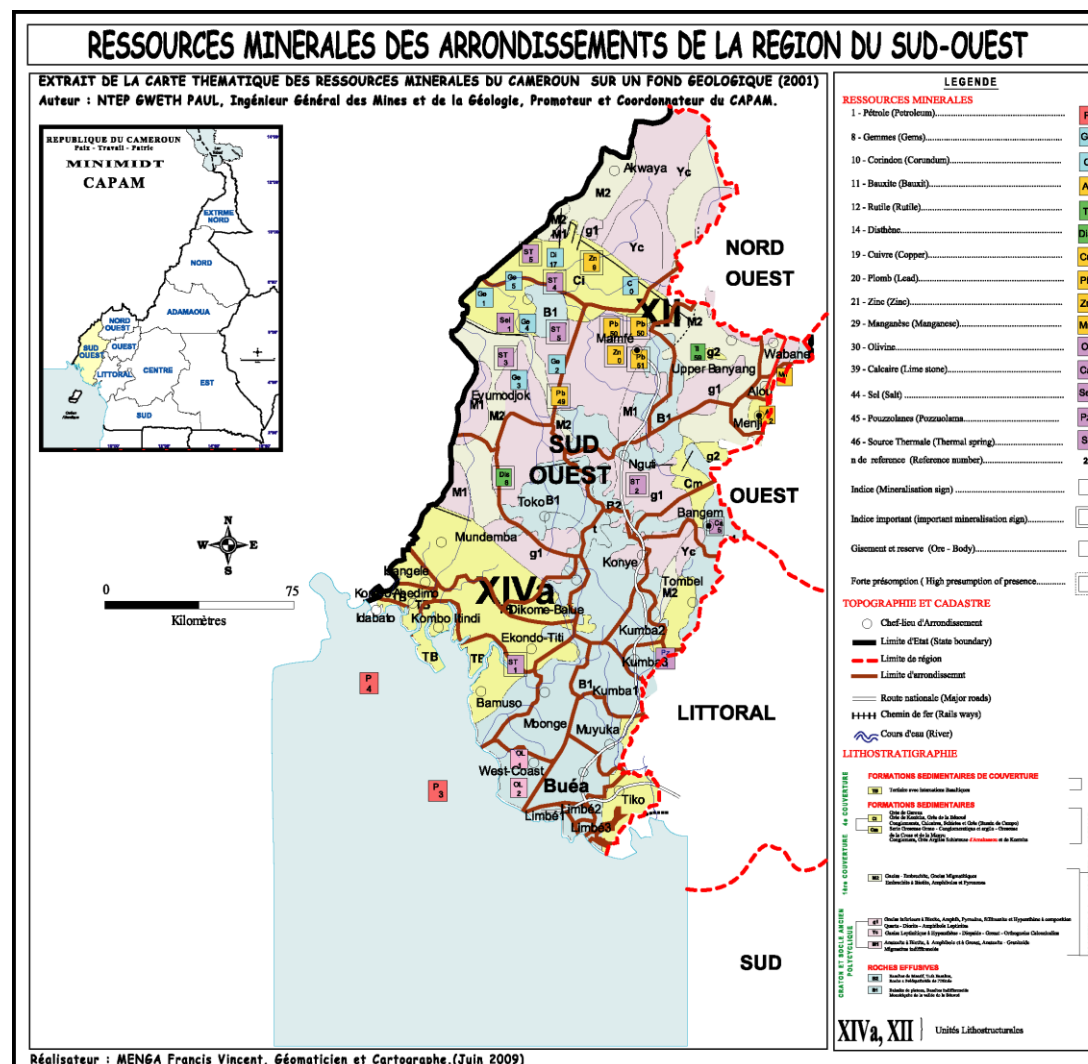
REGIONS	DEPARTMENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MIN- ING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELE- COMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
		NKONGSAMBA II	35 891	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		NKONGSAMBA III	29 179	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Molybdenum ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		NLONAKO	38 652	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		FIKO	34 659	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MOMBO	31 769	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Limestone; 7/Pozzo- lans;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
	NKAM Capital YABASSI 66 979	NKONDJOCK	15 341	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		YABASSI	18 657	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Rutile ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPARTMENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MIN- ING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELE- COMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
LITTORAL Capital DOUALA 2 202 340 HA		YINGUI	16 793	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MGOLDD-MA- KOMBE	16 188	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	WOURI Capital DOUALA 1 514 978	DOUALA 1	236 177	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		DOUALA 2	264 761	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		DOUALA 3	259 541	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		DOUALA 4	256 293	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		DOUALA 5	248 659	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		DOUALA 6	249 547	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPARTMENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MIN- ING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELE- COMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
	SANAGA MARI- TIME Capital EDEA 167 661	EDEA 1	19 241	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Calcium; 7/ Uranium;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		EDEA 2	20 673	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Rutile ; 7/Kyanite;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		NYANON	12 673	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MOUANKO	12 253	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Limestone;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		NGWEI	16 673	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		NDOM	11 254	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MASSOCK- SONGLOULOU	13 551	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		DIBAMBA	13 485	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPARTMENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MIN- ING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELE- COMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
				5/Gravel ; 6/Uranium; 7/Iron; 8/ Ky- anite;					
		DIZANGUE	16 438	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Oil; 7/Lead; 8/Uranium;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned

SOUTH WEST REGION



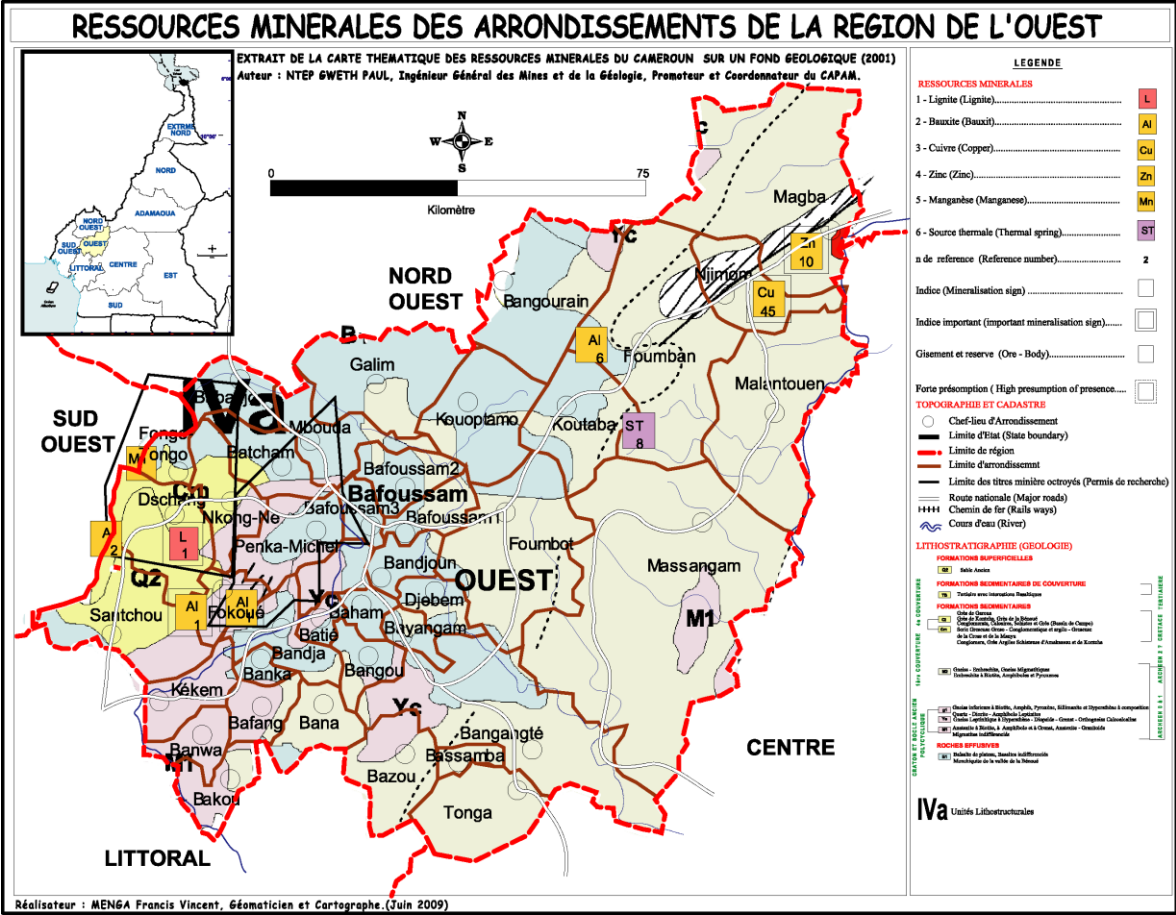
REGIONS	DEPART- MENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MINING AC- TIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TEL- ECOMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
SOUTH-WEST Capital BUEA 1 242 749 HA	MEME Capital KUMBA 300 318	KONYE	58 098	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		KUMBA I (Nui)	67 255	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		KUMBA II (Fian go)	70 001	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		KUMBA III (Mamba)	63 453	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Pozzolans;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MBONGE	51 511	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
	NDIAN Capital MUNDEMB A 129 659	BAMUSSO	11 891	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Thermal source;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		EKON-TITI	14 675	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		IDABATO	14 501	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Oil;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		ISANGUELE	13 438	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		KOMBO- ABEDIMO	15 327	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPART- MENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MINING AC- TIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TEL- ECOMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
		KOMBO-ITINDI	16 724	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MUNDEMBA	13 551	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		DIKOME-BALUE	15 002	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		TOKO	14 550	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Kyanite;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	LEBIALEM Capital MENJI 144 560	ALOU	55 781	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Manganese ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		MENJI	41 345	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Bauxite;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		WABANE	47 434	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	KUPE MANEN- GOUBA Capital BANGEM 123 011	BANGEM	35 698	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Limestone;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7; 8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned
		NGUTI	49 501	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Thermal source;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7; 8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned
		TOMBEL	37 812	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
SOUT H- WES		BUEA	80 327	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPART- MENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MINING AC- TIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TEL- ECOMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
	FAKO Capital LIMBE 367 818	LIMBE I	69 054	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		LIMBE II	75 297	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		LIMBE III	71 965	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MUYUKA	71 844	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
	MANYU Capital MAMFE 177 389	TIKO	33 223	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		WESTCOAST	22 850	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Olivine; 7/Oil;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		AKWAYA	31 678	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Gem;7/CGGoldindon; 8/Dia- mond;9/Zinc;10/Thermal source;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		EYUMODJOCK	17 023	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Thermal source; 7/ Gem; 8/Salt;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MAMFE	41 021	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Zinc;7/Lead;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		UPPER-BA- YANG	31 584	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Rutile ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPART- MENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MINING AC- TIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TEL- ECOMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
		TIKO	33 223	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		WESTCOAST	22 850	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		AKWAYA	31 678	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		TIKO	33 223	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned

WEST REGION



REGIONS	DEPART- MENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MIN- ERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MINING AC- TIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELE- COMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
WEST Capital BAFOUSSAM 1 982 106 HA	NDE Capital BANGANGT E 123 661	BAGANGTE	430 563	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		BAZOU	32 561	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		TONGA	29 537	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		BASSAMBA	23 001	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	NOUN Capital FOUMBAN 434 542	BAN- GOURAIN	46 988	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		FOUMBAN	59 548	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Bauxite;7/ Thermal source;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		FOUMBOT	49 621	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		KOUOP- TAMO	51 664	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		KOUTABA	39 982	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MAGBA	48 429	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Zinc;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		MALAN- TOUEN	47 765	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPART- MENTS	DISTRICTS	POPULA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MIN- ERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECHANI- ZATION	INDUSTRIAL MINING AC- TIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELE- COMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
		MASSAN- GAM	49 664	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		NJIMOM	39 995	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Copper;	1;2;3;4;5;6;7	1;2;3;4;5;6; 7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned

WEST Capital BAFOUSSAM 1 982 106 HA	BAMBOU- TOS Capital MBOUDA 318 848	BABADJOU	78 432	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		BATCHAM	77 916	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		GALIM	78 116	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MBOUDA	84 384	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	HAUT NKAM Capital BAFANG 203 551	BAFANG	34 719	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		BAKOU	29 988	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		BANA	31 673	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned

		BADJA	28 541	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		BANKA	29 045	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		KEKEM	31 978	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		BANWA	17 607	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		BAFANG	34 719	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		BAKOU	29 988	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		BANA	31 673	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	MENOUA Capital DSCHANG 372 244	DSCHANG	78 935	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Lignite;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		FOKOUÉ	55 416	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Bauxite;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		FONGO TONGO	59 521	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Manganese;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		NKONG-NI	58 793	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned
		PENKA MICHEL	58 942	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned
		SANTCHOU	60 637	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Bauxite;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
	MIFI BAFOUSSAM 290 753	BAFOUSSAM I	129 004	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		BAFOUSSAM II	75 016	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned

		BAFOUSSAM III	86 733	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
	KOUNG-KHI Capital BAN- JOUN 121 794	BAYANGAM	46 598	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		POUMOGNE	33 339	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		DJEMBEM	41 857	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	HAUT PLAT- EAUX Capital BAHAM 117 008	BAHAM	37 657	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		BAMENDJOU	23 502	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		BANGOU	24 978	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		BATIE	30 871	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned

NORTH WEST REGION



REGIONS	DEPART- MENTS	DISTRICTS	POPU- LA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECH- ANIZATION	INDUSTRIAL MIN- ING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELE- COMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
NORTH WEST Capital BAMENDA 1 840 527 HA	MENCHUM Capital WUM 157 173	FUNGOM ZHOA	41 984	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		FURU- AWA	39 987	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Rutile ; 7/Gold;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		MENCHUM VALLEY	42 657	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		WUM	32 545	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	MEZAM Capital BAMENDA 465 644	BAMENDA 1	73 841	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Kaolin;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		BAMENDA 2	70 432	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		BAMENDA 3	81 702	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Kaolin;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		SANTA	67 329	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		TUBAH	39 271	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	MOMO Capital MBENGWI	BATIBO	34 681	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		MBENGWI	36 321	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Lignite;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPART- MENTS	DISTRICTS	POPU- LA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECH- ANIZATION	INDUSTRIAL MIN- ING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELE- COMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
NOR TH WES T	213 402	NGIE (ANDEK)	24 460	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		NJIKWA	15 392	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Lignite;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		WIDIKUM	16 512	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	NGO'KETUNGA Capital NDOP 174 173	BABESSI	23 451	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Lignite; 6/ Thermal source;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		BALIKUMBAT	25 001	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Graphite;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		NDOP	37 584	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Graphite;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	BOYO Capital FUNDONG 169 7252	BELO	42 673	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Lignite; 7/ Thermal source;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		BOUM FONFUKA	41 983	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Manganese;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		FOUNDONG	44 431	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		NJINIKOM	40 638	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Lignite;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
	BUI	JAKIRI	50 646	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned

REGIONS	DEPART- MENTS	DISTRICTS	POPU- LA- TIONS	POTENTIAL MINING (SOURCE: MINING POTENTIAL MAPS BY DISTRICT AND REGION AND INVENTORY FILE IN THE BOOK OF MINERAL RESOURCES OF CAMEROON (P.NTEP GWETH AND AL, 2001))	POTENTIAL FOR MINING ACTIVITIES			SOCIO-ECONOMIC POTENTIAL	
					SMALL MINE IMMEDIATE	SMALL MINE MECH- ANIZATION	INDUSTRIAL MIN- ING ACTIVITIES	INFRASTRUCTURES (R=ROAD; E=SCHOOL; S=HEALTH; L=LEI- SURE TIME; EP=DRINKING WA- TER; SA=ARMED SECURITY; SA=FOOD SECURITY; TC=TELE- COMMUNICATION AND TECH- NICAL TV)	MUTUAL KOCAM
	Capital KUMBO 322 877	KUMBO	57 812	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MBVEN	53 765	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		NKUM TATUM	54 672	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		NONI	53 671	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6	1;2;3;4;5;6	1;2;3;4;5;6	R;E;S;L;EP;SA ; Sa, TC	Planned
		OKU (Elan)	52 311	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Thermal source;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
	DONGA MAN- TUNG Capital NKAMBE 337 533	AKO	68 781	11/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/Iron;	1;2;3;4;5	1;2;3;4;5	1;2;3;4;5	R;E;S;L;EP;SA ; Sa, TC	Planned
		MISAJE	69 093	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned
		NDU	64 870	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	1;2;3;4;5;6;7;8	R;E;S;L;EP;SA ; Sa, TC	Planned
		MKAMBE	65 783	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ; 6/ Lignite;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned
		NWA	79 006	1/Ornamental stone ; 2/Stone for building materials; 3/Clay; 4/Sand ; 5/Gravel ;	1;2;3;4;5;6;7	1;2;3;4;5;6;7	1;2;3;4;5;6;7	R;E;S;L;EP;SA ; Sa, TC	Planned

ANNEX 2: LIST OF RESEARCH PERMITS FOR DEVELOPMENT MINERALS (EITI, 2014)

NAME OF THE COMPANY	NAME OF PERMIT	ADDRESS	DATE OF APPLICATION	GRANT DATE	EXPIRATION DATE	AREA	REGION	ORDER	SUBSTANCES	N° / CATEGORIES
ENTREPRISE GENERALE BATIMENTS TRAVAUX PUBLICS (EGBTP)	MINTOM 2	15985 Ydé	21/10/2013	26/06/2014	25/06/2016	731,44	EAST, SOUTH	00610/MINMIDT/SG/DMG/SDAM	Limestone	210
MEVA'A MEBOUTOU MICHEL	KONDE YEBAE	2148 Ydé	25/08/2014	27/11/2014	26/11/2015	01ha 75a 79ca	SOUTH	008247/MINMIDT/SG/DM/SDCM	GRANITE	Titles of licenses and career authorisations
STARLINE GROUP LTD	LIKOKI	13255 Ydé	10/09/2014	27/11/2014	26/11/2015		SOUTH-WEST	008246/MINMIDT/SG/DM/SDCM	SAND	Titles of licenses and career authorisations
KENDELEY CONSTRUCTIONS	DIBANDA MUTEN-GENE	57 Bda	15/01/2014	04/11/2014	03/11/2019	05ha 35a 50ca	SOUTH-WEST	007393/MINMIDT/SG/DM/SDCM	BASALT	Titles of licenses and career authorisations
GROUPE LE GRAVIER	ELAT	31009 Ydé	26/07/2013	14/11/2014	13/11/2019	25ha	CENTER	007392/MINMIDT/SG/DM/SDCM	GNEISS	Titles of licenses and career authorisations
SOCIETE DES GRANDES CARRIERES DU CAME-ROUN	BONGAL A VILLAGE	627 Dia	22/07/2014	22/10/2014	21/10/2019	15ha	SOUTH-WEST	007083/MINMIDT/SG/DM/SDCM	BASALT	Titles of licenses and career authorisations
COOPERATION SINO CAME-ROUNNAISE	NKONG BELANDA	11740 Ydé	26/06/2014	02/10/2014	01/10/2019	24ha 94a 17ca	CENTER	006339/MINMIDT/SG/DM/SDCM	GNEISS	Titles of licenses and career authorisations
RAZEL CAME-ROUN	BONGA-HELE GRAND BATA-TANGA II	11306 Ydé	08/07/2014	01/10/2014	30/09/2016	32 ha	SOUTH	007090/MINMIDT/SG/DM/SDC	GRANITE	Titles of licenses and career authorisations

NAME OF THE COMPANY	NAME OF PERMIT	ADDRESS	DATE OF APPLICATION	GRANT DATE	EXPIRATION DATE	AREA	REGION	ORDER	SUBSTANCES	N° / CATEGORIES
CHINA INTERNATIONAL WATER AND ELECTRIC	MBI BAWARA	12469 Ydé	19/06/2014	29/08/2014	28/08/2016	08ha 27a 03ca	EAST	006441/MINMIDT/SG /DM/SDCM	GRANITE	Titles of licenses and career authorisations
CANA BOIS	BINGUEL A I	5525 Ydé	07/04/2014	28/08/2014	27/02/2016	20ha 96a 64ca	CENTER	006386/MINMIDT/SG /DM/SDCM	GNEISS	Titles of licenses and career authorisations
HARVEST BTP	TAM-BENG BUSH	12262 Ydé	11/04/2014	21/08/2014	20/08/2019	12ha	SOUTH-WEST	005651/MINMIDT/SG /DM/SDCM	BASALT	Titles of licenses and career authorisations
UNITED TRANSPORT AFRICA	DJOUNG O ROUTE	1912 Dla	28/04/2014	22/07/2014	21/07/2015	08ha 69a 28ca	LITTORAL	005986/MINMIDT/SG /DM/SDCM	POZZOLAN	Titles of licenses and career authorisations
CHINA FIRST HIGHWAY ENGINEERING CO LTD	EKEKAM III	6532 Dla	15/04/2014	22/07/2014	21/07/2016	18ha 16a 86ca	CENTER	005981/MINMIDT/SG /DM/SDCM	GNEISS	Titles of licenses and career authorisations
CAMEROON CHINA TENG DA COMPANY	BADJOB	864 Dla	14/03/2014	22/07/2014	21/07/2015	05ha 77a 92ca	CENTER	005641/MINMIDT/SG /DM/SDCM	GRANITE	Titles of licenses and career authorisations
UNITED TRANSPORT AFRICA	NJOMBE	1912 Dla	28/04/2014	23/07/2014	21/07/2015	20ha 34a 21ca	LITTORAL	005976/MINMIDT/SG /DM/SDCM	POZZOLAN	Titles of licenses and career authorisations
CHINA ROAD AND BRIDGE CORPORATION	DICHE I	15823 Dla	07/05/2014	24/07/2014	21/07/2016	01ha 78a 17ca	NORTH-WEST	005975/MINMIDT/SG /DM/SDC	BASALT	Titles of licenses and career authorisations
CORPERATION SINO CAMEROUNAISE	NKONG BELANDA	11740 Ydé	27/05/2014	26/07/2014	25/07/2015	24ha 94a 17ca	CENTER	005327/MINMIDT/SG /DM/SDCM	GNEISS	Titles of licenses and career authorisations

NAME OF THE COMPANY	NAME OF PERMIT	ADDRESS	DATE OF APPLICATION	GRANT DATE	EXPIRATION DATE	AREA	REGION	ORDER	SUBSTANCES	N° / CATEGORIES
RAZEL CAME-ROUN	BABITCH-OUA	11306 Ydé	10/02/2014	18/06/2014	17/06/2016	15ha 02a 63ca	CENTER	004915/MINMIDT/SG/DM/SDC		Titles of licenses and career authorisations
CHINA LIN-XIANG CAMEROUN	NKOME-TOU II	7761 Ydé	07/03/2013	16/05/2014	15/05/2015	09 ha	CENTER	003791/MINMIDT/SG/DM/SDCM	GNEISS	Titles of licenses and career authorisations
SINOHYDRO	WAZA-GAROU	35129 Ydé	03/12/2013	03/02/2014	02/02/2015	15ha 06a 03a	FAR-NORTH	000438/MINMIDT/SG/DM/SDCM	GRANITE	Titles of licenses and career authorisations
DANGOTE	BATOKE	4839 Dla	09/10/2013	29/01/2014	28/01/2019	17ha 73a19a	SOUTH-WEST	000700/MINMIDT/SG/DM/SDCM	POZZOLAN	Titles of licenses and career authorisations
DANGOTE	KOUPÉ MANEN-GOUBA	4839 Dla	09/10/2013	29/01/2014	28/01/2019	27ha 29a09a	SOUTH-WEST	000699/MINMIDT/SG/DM/SDCM	POZZOLAN	Titles of licenses and career authorisations
DANGOTE	DJOUNG O	4839 Dla	09/10/2013	29/01/2014	28/01/2019	18ha 20a	LITTORAL	000698/MINMIDT/SG/DM/SDCM	POZZOLAN	Titles of licenses and career authorisations
KENDELEY	NTAM-BENG-MANKON	57 Bda	12/09/2013	29/01/2014	28/01/2019	04ha 04a	NORTH-WEST	000686/MINMIDT/SG/DM/SDCM	BASALT	Titles of licenses and career authorisations
CONSTRUCTION ENGINEERING SARL	EFOK ASSI NKOZOA	25072 Ydé	08/01/2014	17/01/2014	16/01/2015	04ha 14a 25ca	CENTER	000311/MINMIDT/SG/DM/SDCM	GNEISS	Titles of licenses and career authorisations
SOCIETE DES GRANDES CARRIERES DU CAME-ROUN	BONGAL A VILLAGE	627 Dla	27/05/2013	16/01/2014	15/01/2015	15ha	SOUTH-WEST	000276/MINMIDT/SG/DM/SDCM	BASALT	Titles of licenses and career authorisations

NAME OF THE COMPANY	NAME OF PERMIT	ADDRESS	DATE OF APPLICATION	GRANT DATE	EXPIRATION DATE	AREA	REGION	ORDER	SUBSTANCES	N° / CATEGORIES
UNIVERSAL CONTRACTORS AND SUPPLIERS COMPANY	AKAK I	91 Bda	01/11/2012	19/02/2013	18/02/2018	63ha 43a 14a	CENTER	00854/MINMIDT/SG/DMG/SDAM/SSCCE	GNEISS	Titles of licenses and career authorisations
SOCIETE ANONYME DES CARRIERES DU SUD	BINYAM	282 Sangmeli-ma	02/12/2012	19/12/2012	18/12/2017	11ha 60a80ca	SOUTH	006212/MINMIDT/SG/DMG/SDAM/SSCCE	GNEISS	Titles of licenses and career authorisations
DREAMLAND CONNECT ROCK	NFUMJU MANKON	417 Bda		09/11/2012	08/11/2017	02ha 76a 70ca	NORTH-WEST	005543/MINMIDT/SG/DMG/SDAM/SSCCE	BASALT	Titles of licenses and career authorisations
SALTECT ROCK	NKOM NDAMBA	391 Obala		19/10/2012	18/10/2015	07ha 19a 14ca	CENTER	005144/MINMIDT/SG/DMG/SDAM	GNEISS	Titles of licenses and career authorisations
SOCARIC	PENJA	9014 Dla	02/07/2012	11/10/2012	10/10/2017	01a 80a 05ca	LITTORAL	004931/MINMIDT/SG/DMG/SDAM/SSCE	GNEISS	Titles of licenses and career authorisations
LA CARRIERE DE TIKO	LIKOMBA BUSH	3061 Tiko	29/08/2012	21/09/2012	20/09/2017	21ha 25ca 73a	SOUTH-WEST	004222/MINMIDT/SG/DMG/SDAM/SSCCE	GNEISS	Titles of licenses and career authorisations
CIMENCAM	ROMPO	1223 Dla	04/06/2012	03/09/2012	02/09/2016	02ha 88a 53ca	NORTH	003895/MINMIDT/SG/DMG/SDAM/SSCCE	GNEISS	Titles of licenses and career authorisations
CIMENCAM	KAREWA	1223 Dla	04/06/2012	03/09/2012	02/09/2016	02ha 88a 53ca	NORTH	003894/MINMIDT/SG/DMG/SDAM/SSCCE	GNEISS	Titles of licenses and career authorisations
KETCH	BALAFIE	6555 Ydé	13/02/2012	26/07/2012	25/07/2015	04ha 67a 18ca	WEST	003893/MINMIDT/SG/DMG/SDAM/SSCCE	GNEISS	Titles of licenses and career authorisations

NAME OF THE COMPANY	NAME OF PERMIT	ADDRESS	DATE OF APPLICATION	GRANT DATE	EXPIRATION DATE	AREA	REGION	ORDER	SUBSTANCES	N° / CATEGORIES
FOMA ENTREPRISE	TAMBEN	13176 Dla	05/07/2012	18/07/2012	17/07/2017	28ha 90a 80ca	SOUTH-WEST	G/DMG/SDAM/SSCC 0029644/MINMIDT/SE	GNEISS	Titles of licenses and career authorisations
LES CARRIERES DU CAMEROUN	NYAN-BONGO	7581 Ydé	07/04/2012	26/06/2012	25/06/2017	04ha 58a	EAST	002341/MINMIDT/SG/D MG/SDAM/SSCCE		Titles of licenses and career authorisations
SOGEA SATOM	WAINAM AH	5680 Ydé	01/12/2011	23/03/2012	22/03/2017	11ha 54a 80ca	NORTH-WEST	00920/MINMIDT/SG/DM G/SDAM/SSCCE	GNEISS	Titles of licenses and career authorisations
CAMRAIL		B.P. 766 DOUALA	17/06/2011	17/06/2011	16/06/2016	9ha 75a 52ca	EAST	N°00847/MINMIDT/SG/DMG/SDAM/SSCCE du 17 juin 2011	Pierre	Titles of licenses and career authorisations
KETCH	NOMAYOS	6555 Ydé		28/12/2012	27/12/2015	07ha 29a 06ca	CENTER	006212/MINMIDT/SG/DMG/SDAM/SSCCE		Titles of licenses and career authorisations
KETCH	BIENKOK	6555 Ydé		28/12/2012	27/12/2015	20ha	LITTORAL	006212/MINMIDT/SG/D MG/SDAM/SSCE		Titles of licenses and career authorisations
DTP TERRASSEMENT	KONG-KONG	12880 Ydé	22/04/2013	20/08/2013	19/08/2016	14ha 82a 28ca	NORTH	001831/MINMIDT/SG/DM/SDCM		Titles of licenses and career authorisations
ESER CONTRACTING	FENGU	35411 Ydé		13/08/2013	12/08/2015	05ha 68a	WEST	001782/MINMIDT/SG/DM/SDCM		Titles of licenses and career authorisations

Source : Cameroon EITI Report 2014

ANNEX 3: INDEX OF RELEVANT LAW & POLICY (COMPONENT 2)

Administrative & Public Law

- Loi n° 1968-LF-3 du 11 juin 1968, oirtant code de la nationalite camerounaise [Law No. 1968-LF-3 of the 11 June 1968, Cameroon Nationality Code].
- Loi n° 1990/043 du 19 décembre 1990, de Conditions d'entrée, de séjour et de sortie du territoire camerounais [Law No. 1990/043 of 19 December 1990, setting conditions of entry, residence and exit of Cameroonian territory].
- Loi n° 97/012 du 10 janvier 1997, relative aux conditions d'entrée, de séjour et de sortie des étrangers au Cameroun [Law No. 97/012 of 10 January 1997, setting the conditions for the entry, residence and departure of foreigners in Cameroon].
- Loi n° 2005/006 du 27 juillet 2005, portant statut des réfugiés au Cameroun [Law No. 2005/006 of 27 July 2005 reflecting the status of refugees in Cameroon].
- Loi n° 99/016 du 22 décembre 1999, portant statut général des établissements publics et des entreprises du secteur public et parapublic [Law No. 99/016 of 22 December 1999, giving the general status of public institutions and enterprises in the public and parapublic sector].
- Loi n° 74-23 du 5 Décembre 1974, portant Organisation Communale [Law No. 74-23 of 5 December 1974, relating to the municipal organisation].
- Loi n° 87/015 du 15 juillet 1987, portant création des communautés urbaines [Law No. 87/015 of 15 July 1987, on the creation of Urban Communities].

Artisanal & Small-Scale Mining

- Law on mining crafts in Cameroon
- Décret n° 2002/648/PM du 26 mars 2002, fixant les modalités d'application de la loi n° 001 du 16 avril 2001, portant Code Minier [Decree No. 2002/648/PM of 26 March 2002, setting procedures for the application of Law No. 001 of 16 April 2001 on the Mining Code].
- L'Arrête conjoint n° 003950 MINFI/MINMIDT du 01 juin 2015 [Joint Decree No. 003950 MINFI/MINMIDT of 01 June 2015, enabling the collection of the ad valorem tax on mineral substances and the monthly instalment of corporation tax payable by companies engaged in low-mechanised artisanal mining on behalf of the General Directorate of and specifying the methods of carrying out its task]
- Decret n° 2014/2349/PM du 01 Août 2014, modifiant et complétant certaines dispositions du decret n° 2014/1882/PM du 04 Juillet 2014, modifiant et complétant certaines dispositions du décret n° 2002/648/PM du 26 Mars 2002, fixant les modalités d'application de la loi n° 001 du 16 Avril 2001, modifiée et complétée par la loi n° 2010/011 du 29 Juillet 2010 portant Code Minier [Decree No. 2014/2349/PM of 01 August 2014, modifying and supplementing certain provisions of Decree No. 2014/1882/PM of 04 July 2014 and others].
- Decret n° 2014/1882/PM du 04 Juillet 2014, modifiant et complétant certaines dispositions du decret n° 2002/648/PM du 26 Mars 2002 [Decree No. 2014/1882/PM of 04 July 2014, amending and supplementing certain provisions of Decree No. 2002/648/PM of 26 March 2002].
- La Décision n° 001843/MINMIDT/CAB/SG/DAJ du 29 Avril 2015 [Decision No. 001843/MINMIDT/CAB/SG/DAJ of 29 April 2015, regulating the control, collection and monitoring of the production of companies engaged in small-scale artisanal mining].
- La Décision n° 001490/L/MINMIDT/CAB/nba du 10 Mai 2015 [Decision No. 001490/L/MINMIDT/CAB/nba of 10 May 2017].

Banking Law & Finance

- Loi n° 2008/003 du 14 Avril 2008, regissant les depots et consignations [Law No. 2008/003 of 14 April 2008, governing deposits and guarantees]
- Finance Law 2010
- Décret n° 2014/2381/PM du 27 Aout 2014, fixant les conditions d'émission et de gestion de titres de créances négociables [Decree No. 2014/2381 / PM of 27 August 2014, setting the conditions for issuing and managing negotiable debt securities].

Commercial Law

- Loi n° 2006/012 du 29 Decembre 2006, portant regime general des contracts de partenariat [Law No. 2006/012 of 29 December 2006, fixing the general scheme of contracts partnership].
- Decret n° 2014/2938/PM du 12 Septembre, portant organisation et fonctionnement du Secrétariat Technique et du Secrétariat Permanent de Compétitivité [Decree No. 2014/2938/PM of 12 September 2014, on the organisation and functioning of the Technical Secretariat and the Permanent Secretariat of Competitiveness].
- Decret n° 93/720/PM du 22 Novembre 1993, fixant les modalités d'application de la loi n° 90/031 du 10 Août 1990 [Decree No. 93/720/PM of 22 November 1993, fixing the modalities for the application of the law governing business activity].
- Loi n° 90/031 du 10 Août 1990 régissant l'activité commerciale au Cameroun [Law No. 90/031 of 10 August 1990, governing business activity and specifying the conditions of the exercise of commercial activity in Cameroon].
- Loi n° 98/022 du 24 Décembre 1998 régissant le secteur de l'
- électricité [Law No. 98/022 of 24 December 1998 on the Concessions of Public Services].
- Uniform Act on the Organisation and Harmonization of the Accounts of Undertakings in the State Parties to the Treaty Relating to the Harmonization of Business Law in Africa, 24 March 2000, official english translation at, <https://www.droit-afrique.com/uploads/OHADA-Uniform-Act-2000-harmonization-accounts-of-enterprises1.pdf>.

Constitutional Law

- La Constitution de la Republique Du Cameroun of 2 Juin 1972 (revisee par la loi n. 96/06 du 18 Janvier 1996) [Const. of the Rep. of Cameroon of 2 June 1972 (amended by law No. 96/06 of 18 January 1992)].

Cooperatives

- Loi n° 92/006 du 14 Août 1992, relative aux sociétés coopératives et aux groupes d'initiative commune [Law No. 92/006 of 14 August 1992, on Cooperative Societies and Joint Initiative Groups].

Corruption

- Décret n° 2006/088 du 11 Mars 2006, portant création, organisation et fonctionnement de la Commission Nationale Anti-corruption [Decree No. 2006/088 of 11 March 2006 on the creation, organisation and functions of the National Anti-Corruption Commission].
- Loi n° 2006/003 du 25 Avril 2006, relative à la déclaration des biens et avoirs [Law No. 2006/003 of 25 April 2006, declaration of holdings and assets by officials and government employees].
- Law of 29 Dec 2011, broad anti-corruption law
- United Nations Convention against Corruption, Doc. A/58/422, adopted 31 October 2003, entry into force 14 December 2005, ratified by Cameroon 6 February 2006.

Criminal Law (Domestic)

- Loi n° 2005/007 du 27 Juillet 2005, portant Code de procédure pénal [Law No. 2005/007 of 27 July 2005, Criminal Procedure Code].
- Décret n° 92-052 du 27 Mars 1992, portant régime pénitentiaire [Decree No. 92/052 of 27 March 1992, on the penitentiary system].
- Loi n° 2003/008 du 10 Juillet 2003, relative à la répression des infractions contenues dans certains actes uniformes OHADA [Law No. 2003/008 of 10 July 2003 implementing penalties and sanctions, both civil and criminal, for various offences provided in, or required by, certain Organisation for the Harmonization of Corporate Law in Africa uniform laws].
- Loi n° 2011/024 du 14 Décembre 2011, relative à la lutte contre le trafic et la traite des personnes [Law No. 2011/024 of 14 December 2011, combatting the trafficking of persons and slavery]

Criminal Law (International)

- African Union Convention on the Prevention and Combating of Terrorism, adopted 1 July 1999, entry into force 06 December 2002, ratified by Cameroon 06 April 2015.
- United Nations Convention against Transnational Organised Crime and the Protocols Thereto, GA. Res. 55/25, Doc. A/55/383, adopted 15 November 2000, entry into force 29 September 2003, ratified by Cameroon 6 February 2006.
- United Nations Convention Against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment, GA. Res. 39/46, Doc. A/39/51, adopted 10 December 1984, entry into force 26 June 1987, ratified by Cameroon 19 December 1986.

Cultural Property (International)

- United Nations Educational, Scientific, and Cultural Organisation (UNESCO) Convention on the Protection and Promotion of the Diversity of Cultural Expression, Adopted 20 October 2005, entry into force 18 March 2007, accession by Cameroon 22 November 2006.
- Convention for the Protection of Cultural Property in the Event of Armed Conflict, Adopted 14 May 1954, 7 August 1956, accession by Cameroon 12 October 1961 UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage, adopted 16 November 1972, 17 December 1975, ratified by Cameroon 07 December 1982.

Disabled Workers

- Loi n° 83/013 du 21 Juillet 1983, relative à la protection des personnes handicapées [Law No. 83/013 of 21 July 1983, on the protection of persons with disabilities].

Education, Vocational Guidance and Training

- Décret n° 2014/2949/PM du 18 Septembre 2014, portant organisation et fonctionnement du Centre National d'Education Populaire et civique [Decree No. 2014/2949/PM of 18 September 2014, on the organisation and functioning of the National Center for Popular and Civic Education]
- Loi n° 98/004 du 14 Avril 1998 d'orientation de l'éducation au Cameroun [Law No. 98/004 of 14 April 1998 on the orientation of education in Cameroon].
- Loi n° 2004/022 du 22 Juillet 2004, fixant les règles relatives à l'organisation et au fonctionnement de l'enseignement privé [Law No. 2004/022 of 22 July 2004, setting rules governing the organisation and functioning of private education].

Electricity

- Loi n° 2011/022 du 14 Décembre 2011, régissant le secteur de l'électricité au Cameroun- [Law No. 2011/022 of 14 December 2011, Law Regulating the Electricity Sector in Cameroon].

Emergency Management

- Décret n° 2014/2216/PM du 21 Juillet 2014, portant création, organisation et fonctionnement du comité technique bilatéral de mise en œuvre et de suivi du plan d'urgence gouvernemental [Decree No. 2014/2216/PM of 21 July 2014 establishing, organizing and operating the Bilateral Technical Committee for the Implementation and Monitoring of the Government Emergency Plan].

Environmental Law (Domestic)

- Act Respecting Hazardous Classified Institutions (1998)
- Décret n° 2001/161/PM du 08 Mai 2001, fixant les attributions, l'organisation et le fonctionnement du Comité National de l'Eau [Decree No. 2001/161/PM of 8 May 2001 setting the terms of reference, organisation, and functioning of the National Water Committee].
- Décret N° 2001/162/PM du 08 Mai 2001, Fixant les modalités de désignation des agents assermentés pour la surveillance et le contrôle de la qualité des eaux [Decree No. 2001/162/PM of 08 May 2001, setting the procedures for appointing sworn agents for the monitoring and control of water quality].
- Décret n° 2001/163/PM du 08 Mai 2001, réglementant les périmètres de protection autour des points de captage, de traitement et de stockage des eaux potabilisables. Decree No. 2001/163/PM of 08 May 2001, regulating the protection perimeters around the points of capture, treatment, and storage of potable waters].
- Décret n° 2001/164/PM du 08 Mai 2001, précisant les modalités et conditions de prélèvement des eaux de surface ou des eaux souterraines à des fins industrielles ou commerciales [Decree No. 2001/164/PM of 08 May 2001, specifying the conditions and conditions for the abstraction of surface water or groundwater for industrial or commercial purposes].
- Décret n° 2001/165/PM du 08 Mai 2001, précisant les modalités de protection des eaux de surface et des eaux souterraines contre la pollution [Decree No. 2001/165/PM of 08 May 2001, specifying the methods of protection of surface water and groundwater against pollution]
- Décret n° 2001/718/PM du 03 Septembre 2001, portant organisation et fonctionnement du Comité interministériel de l'environnement [Decree No. 2001/718/PM of 3 September 2001, on the organisation and functioning of the Interministerial Committee on the Environment].
- Décret n° 2006/1577/PM du 11 Septembre 2006, modifiant et complétant certaines dispositions du décret n° 2001/718/PM du 3 septembre 2001 portant organisation et fonctionnement du Comité interministériel de l'environnement [Decree No. 2006/1577/PM of 11 September 2006, modifying Decree No. 2001/718 / PM of 3 September 2001].
- Décret n° 2011/2581 du 23 Aout 2011, le Premier Ministre porte réglementation des substances chimiques nocives et/ou dangereuses [Decree No. 2011/2581 of 23 August 2011, on the regulation of harmful and / or dangerous chemical substances].
- Décret n° 2011/2582 du 23 Août 2011, fixant les modalités de protection de l'atmosphère [Decree No. 2011/2582 of 23 August 2011, setting detailed rules for the protection of the atmosphere].
- Decret n° 2011/2584/PM du 23 Aout 2011, fixant le regime de protection des sols et du sous-sol [Decree No. 2011/2584 of 23 August 2011, setting the procedures for the protection of soil and subsoil].
- Decret n° 2011/2585/PM du 23 Aout 2011, fixant la liste des substances nocives ou dangereuses et le regime de leur rejet dans les eaux continentales [Decree No. 2011/2585 of

23 August 2011, establishing the list of harmful and noxious substances and their discharge to inland waters].

- Décret n° 2012/2809/PM du 26 Septembre 2012, fixant les conditions de tri, de collecte, de stockage, de transport, de récupération, de recyclage, de traitement et d'élimination finale des déchets [Decree No. 2012/2809/PM of 26 September 2012, setting the conditions for the sorting, collection, storage, transport, recovery, recycling, treatment, and final disposal of waste].
- Décret n° 99/818/PM du 09 Novembre 1999, fixant les modalités d'implantation et d'exploitation des établissements classés dangereux, insalubres ou incommodes [Decree No. 99/818/PM of 9 November 1999, setting the procedures for setting up and operating establishments classified as dangerous, unhealthy or inconvenient].
- Décret n° 2013/0171/PM du 14 Février 2013, fixant les modalités de réalisation des études d'impact environnemental et social [Decree No. 2013/0171/PM of 14 February 2013 laying down the procedures for carrying out environmental and social impact Assessments].
- Loi n° 94/01 du 20 Janvier 1994, portant regime des forets, de la faune et de la peche [Law No. 94/01 of 20 January 1994, on the Forest, Wildlife and Fisheries Regime]
- Decret n° 95 /466/PM du 20 Julliet 1995, fixant les modalités d'application du régime de la faune [Decree No. 95/466/PM of 20 July 1995, setting the procedures for the application of the wildlife regime]
- Décret n° 95/531/PM du 23 Aout 1995, fixant les modalités d'application du régime des forêts [Decree No. 95/531/PM of 23 August 1995, setting detailed procedures for the application of the forest system].
- Eligibility criteria for associations operating in the field of the environment
- Loi n° 96/12 du 05 Août 1996, portant loi-cadre relative à la gestion de l'environnement [Law No. 96/12 of 05 August 1996, on the Framework Law on the Environmental Management (Environmental Management Framework Act)].
- Ordonnance. n° 73/18 du 22 Mai 1973, fixant le régime fores- tier national [Order No. 73/18 of 22 May 1973, Forestry Code]
- Law No. 98/005 of 14 April 1998, the Water Regime
- Loi n° 78/23 du 29 Décembre 1978, relative à la protection des parcs national [Law No. 78/23 of 29 December 1978, for the protection of national parks].
- Loi n° 89/27 du 29 Décembre 1989, portant sur les déchets toxiques et dangereux [Law No. 89/27 of 29 December 1989, regarding toxic and hazardous waste].
- Loi n° 98/015 du 14 Juillet 1998, relative aux établissements classés dangereux, insalubres ou incommodes [Law No. 98/015 of 14 July 1998, relating to dangerous, unhealthy, or inconvenient classes].
- Order No. 2005/69 of 08 March 2005, Environmental Impact Study fixing the different categories of operations subject to environmental impact assessment

Environmental Law (International)

- Convention on Biological Diversity, 1760 UNTS 79; 31 ILM 818, adopted 5 June 1992, entry into force 29 December 1993, ratified by Cameroon 19 October 1994.
- Cartagena Protocol on Biosafety to the Convention on Biological Diversity, 2226 U.N.T.S. 208; 39 ILM 1027; UN Doc. UNEP/CBD/ExCOP/1/3, adopted 29 January 2000, entry into force 11 September 2003, ratified by Cameroon 20 February 2003.

Equality of Opportunity and Treatment

- Arrete n° 16 of 27 Mai 1969, relative au travaux des femmes [Order No. 16 of 27 May 1969, concerning the work of women].

- Convention on the Elimination of All Forms of Discrimination Against Women, 1249 U.N.T.S. 13, adopted 18 December 1979, entry into force 3 September 1981, ratified by Cameroon 23 August 1994 (CEDAW).
- Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa, entry into force 25 November, 2005, ratified by Cameroon 13 September 2012.

Expropriation

- Décret n° 87/1872 du 18 Décembre 1987, portant application de la loi 85-9 du 4 juillet 1985 relative à l'expropriation pour cause d'utilité publique et aux modalités d'indemnisation [Decree No. 87/1872 of 18 December 1987, implementing Act No. 85/09 of 4 July 1985 on expropriation for reasons of public convenience and the methods of compensation].
- Loi n° 11-2004 du 26 Mars 2004, portant procédure d'expropriation pour cause d'utilité publique [Law No. 11-2004 of 26 March 2004 on the procedure of expropriation for reasons of public utility].
- Loi n° 85/09 du 4 Juillet 1985, relative a l'expropriation pour cause d'itilite publique et aux modalités d'indemnisation [Law No. 85/09 of 4 July 1985 setting the procedures governing expropriation for public utility and the conditions for compensation].

Human Rights Law

- Loi n° 90/52 du 19 Décembre 1990, relative à la liberté de communication sociale [Law No. 90/52 of 19 December 1990, on freedom of social communication].
- Loi n° 90/53 du 19 Décembre 1990, portant sur la liberté d'association [Law No. 90/53 of 19 December 1990, on freedom of association].
- Loi n° 90/56 du 19 Décembre 1990, relatice aux partis politiques [Law No. 90/56 of 19 December 1990, on political parties].
- Loi n° 2004/016 du 22 Julliet 2004, portant création, organisation et fonctionnement de la commission Nationale des Droits de l'Homme et des Libertés [Law No. 2004/16 of 22 July 2004 on the establishment, organisation, and functioning of the National Commission on Human Rights and Freedoms].
- African Charter on Human and People's Rights, adopted 27 June 1981, entry into force 21 October 1986, ratified by Cameroon 20 June 1989.

Inspection

- Decret n° 2014/2379/PM du 20 Aout 2014, fixant les modalités de coordination des inspections des établissements classés dangereux, insalubres ou incommodes [Decree No. 2014/2379/PM of 20 August 2014 laying down the arrangements for the coordination of inspections of establishments classified as dangerous, unhealthy, or inconvenient].

Intellectual Property Law

- Loi n° 2000/011 du 19 Décembre 2000, relative au droit d'auteur et aux droits voisins [Law No. 2000/011 of 19 December 2000, on copyright and neighbouring rights].

Labor

- Loi no° 67-LF-7 du 12 juin 1967, instituant un Code des Prestations Familiales [Law No. 67/LF/7 of 12 June 1967, establishing a code of family benefits].
- Loi n° 77/11 du 27 Juillet 1977, portant réparation et prévention des accidents du travail et des maladies professionnelles [Law No. 77/11 of 27 July 1977 on the compensation and prevention of accidents at work and occupational diseases].

- Loi n° 90/53 du 19 Décembre 1990, portant sur la liberté d'association [Act No. 90/053 of 19 December 1990, regulating associations].
- Décret n° 93/570 du 15 Juillet 1993, fixant les modalités de placement des travailleurs [Decree No. 93/570 of 15 July 1993, laying down the arrangements for the placement of workers].
- Décret n° 93/572/PM du 15 Juillet 1993, ce décret à préciser les conditions d'ouverture d'une entreprise de travail temporaire [Decree No. 93/572 of 15 July 1993, on temporary work agencies].
- Décret n° 2014/0611/PM du 24 Mars 2014, fixant les conditions de recours et d'application des approches à haute intensité de main d'oeuvre [Decree No. 2014/0611/PM of 24 March 2014, laying down the conditions for the recourse and application of labor-intensive approaches].
- Décret n° 2014/2217/PM du 24 Juillet 2014, portant revalorisation du Salaire Minimum Interprofessionnel Garanti (SMIG) [Decree No. 2014/2217/PM of 24 July 2014, revalorizing the Guaranteed Interprofessional Minimum Wage].
- Loi n° 92/007 du 14 Août 1992, portant Code du Travail [Law No. 92/007 of 14 August 1992, the Labor Code].
- Loi n° 2011/024 du 14 Décembre 2011, relative à la lutte contre le trafic et la traite des personnes [Law No. 2011/024 of 14 December 2011, on combating trafficking and trafficking in persons].
- Arrêté n°17 du 27 Mai 1969, relatif au travail des enfants [Order No. 69/17 of 27 May 1969 concerning child labour].
- Arrêté n° 067/CAB/PM du 14 Juillet 2014, portant création, organisation et fonctionnement du Comité de concertation et de suivi du dialogue social [Order No. 067/CAB/PM of 14 July 2014, establishing, organizing, and functioning of the social dialogue and monitoring committee].
- Arrêté n° 082/PM du 27 Août 2014, portant création, organisation et fonctionnement du Comité national de lutte contre le travail des enfants [Order No. 082/PM of 27 August 2014, establishing, organizing, and operating the National Committee against Child Labor].
- Protocol on the Country Program for Decent Work for the period 2014–2017 (2014)
- Arrêté n° 0115/MINEFOP/SG/DFOP/SDGSF/SACD du 11 Août 2010 [Order No. 0115/MINEFOP/SG/DFOP/SDGSF/SACD of the Ministry of Employment and Vocational Training of 11 August 2010, authorizing the MIPROMALO Professional Training Center (CFP)].

Land Use and Construction, Property

- Act to Amend and Address Certain Provisions of the Order Laying Down the 1980 Property Scheme
- Décret n° 76/165 du 27 Avril 1976, fixant les conditions d'obtention du titre foncier, modifié et complété par le [Decree No. 76/165 of 27 April 1976, laying down the conditions for obtaining land titles].
- Décret n° 76/166 du 27 avril 1976, fixant les modalités de gestion du Domaine National [Decree No. 76/166 of 27 April 1976, to establish the terms and conditions of management of national lands].
- Décret n° 90/1482 du 09 Novembre 1990, modifié et complété par le décret n° 76/165 du 27 Avril 1976 Fixant les conditions d'obtention du titre foncier [Decree No. 90/1482 of 9 November 1990 amending and supplementing certain provisions of Decree No. 76/165 of 27 April 1976 laying down the conditions for obtaining title to land].
- Décret n° 2005/481 du 16 Décembre 2005, modifiant et complétant certaines dispositions du décret n° 76/165 du 27 Avril 1976 fixant les conditions d'obtention du titre foncier

[Decree No. 2005/481 of 16 December 2005, amending and supplementing certain provisions of Decree No. 76/165 of 27 April 1976 laying down the conditions for obtaining land titles].

- Décret n° 2012/390 du 18 Septembre 2012, portant organisation du Ministère des Domaines, du Cadastre et des Affaires Foncières [Decree No. 2012/390 of 18 September 2012, on the organisation of the Ministry of Domains, Cadastre and Land Affairs (MINDCAF)].
- Décret n° 2014/1881/PM du 04 Juillet 2014, fixant les modalités d'évaluation administrative des immeubles en matière fiscale [Decree No. 2014/1881/PM of 04 July 2014 laying down the procedures for the administrative assessment of immovable property in respect of taxation].
- Décret n° 2014/1882/PM du 04 Juillet 2014, modifiant et complétant certaines dispositions du décret n° 2002/648/PM du 26 Mars 2002 [Decree No. 2014/1882/PM of 04 July 2014, modifying and completing certain provisions of Decree No. 2002/648/PM of 26 March 2002].
- Décret n° 2014/1005/PM du 21 Mai 2014, modifiant et complétant certaines dispositions du Décret N° 2008/0739/PM du 23 Avril 2008 fixant les règles d'utilisation du sol et de la construction [Decree No. 2014/1005/PM of 21 May 2014 modifying and supplementing certain provisions of Decree No. 2008/0739/PM of 23 April 2008 laying down the rules for land use and construction].
- Loi n° 19 du 26 Novembre 1983, modifiant les dispositions de l'article 5 de l'ordonnance n° 74/1 du 6 Juillet 1974 fixant le régime foncier [Law No. 19 of 26 November 1983, amending the provisions of Article 5 of Ordinance No. 74/01 of 6 July 1974 fixing land tenure].
- Loi n° 80/21 du 14 Juillet 1980, modifiant et complétant certaines dispositions de l'ordonnance n° 74/1 du 6 juillet 1974 fixant le régime foncier [Law No. 80/21 of 14 July 1980, modifying and supplementing certain provisions of the Order No. 74/1 of 06 July 1974].
- Ordonnance n° 74/1 du 6 Juillet 1974, fixant le régime foncier [Ordinance No. 74/1 of 06 July 1974, establishing the Land Regime].
- Ordonnance n° 74/2 du 6 Juillet 1974, fixant le regime domanial [Ordinance No. 74/2 of 06 July 1974, establishing the national domain].
- Property Act (1980)

Leases and Payment of Royalties

- Décret n° 2014/3210/PM du 29 septembre 2014 fixant les conditions d'octroi des baux et les modalités de paiement de la redevance domaniale dans les zones économiques. Decree No. 2014/3210 / PM of 29 September 2014 laying down the conditions for the granting of leases and the modalities of payment of the State royalty in economic zones

Migrant Workers

- Loi n° 97/012 du 10 Janvier 1997, relative aux conditions d'entrée, de séjour et de sortie des étrangers au Cameroun [Law No. 97/012 of 10 January 1997, on the conditions of entry, residence, and departure of aliens]

Mining and Quarrying

- Loi n° 2016/017 du 14 Décembre 2016, portant Code minier [Law No. 2016/017 of 14 December 2016, 2016 Mining Code]
- Order No. 2013/212 of 11 January 2013 Appointing the Coordinator of the Framework for Support and Promotion of the Mining Crafts (CAPAM)
- Order Relating to the Reiteration of the Mining Sector and Relaunch of CAPAM Activities (2013)
- Decret n° 2012/432 DU 01 Octobre 2012, portant organisation du Ministère des Mines, de l'Industrie et du Développement Technologique [Decree No. 2012/432 of 01 October 2012, on the organisation of the Ministry of Mines (MINMIDT)].
- Decision No. 2002/238 / MINMEE / CAB of 1 April 2003 of the Minister of Mines, Water and Energy
- Arrêté n° 064/PM du 25 Juillet 2003, portant création, organisation et fonctionnement du Cadre d'appui et de Promotion de l'Artisanat Minier [Order No. 064/PM of 25 July 2003 of the Prime Minister, establishing CAPAM].
- Décret n° 79/495 du 04 Décembre 1979, l'Institut de Recherches Géologiques et Minières (IRGM) est un établissement public à caractère scientifique placé sous la tutelle du Ministère de Recherche Scientifique et de l'Innovation (MINRESI) [Decree No. 79/495 of 04 December 1979, establishing the Institute of Geological and Mining Research]
- Décret n° 90/1353 du 18 Septembre 1990, portant création de la mission de promotion des matériaux locaux [Decree No. 90/1353 of 18 September 1990, establishing the Mission of Promotion of Local Materials].
- Décret n° 96/227 du 1 Octobre 1996, portant organisation du ministère des Mines, de l'Eau et [Decree 96/227 of 1 October 1996, on the organisation of the Ministry of Mines, Water and Energy].
- Decree No. 2002/1648 of 26 March 2002, which lays down detailed rules for the application of Law No 2001 of 16 April 2001 on the Mining Code.
- Technical assistance agreement No. 294 / CAT / MINTP / SG / CJ of 13 July 2010 between MINTP / Labogénie.

Occupational Safety and Health

- Loi n° 77/11 du 27 Juillet 1977, portant réparation et prévention des accidents du travail et des maladies professionnelles [Act No. 77/11 of 27 July 1977, on the Compensation and Prevention of Accidents at Work and Occupational Diseases].
- Law Concerning Health (1996)
- Arrêté n° 39/MTPS/IMT du 26 Novembre 1984, fixant les mesures générales d'hygiène et de sécurité sur les lieux de travail [Order No. 39/MTPS/IMT of 26 November 1984, laying down general hygiene and safety measures in the workplace].

Old Age, Invalidity, and Survivors Benefit

- Loi n° 69/LF/18 du 10 Novembre 1969, instituant un régime d'assurance de pensions de vieillesse, d'invalidité et de décès [Loi No. 69/LF/18 of 10 November 1969, establishing a pension insurance scheme for old age, invalidity, and death].

Social Security (General Standards)

- Ordonnance n° 73/17 du 22 Mai 1973, portant organisation de la Prévoyance Sociale, modifiée par la loi n° 84/006 du 04 Juillet 1984 [Ordinance No. 73/17 of 22 May 1973 on the organisation of social welfare].

Tax Law (Domestic)

- Loi n° 2009/019 du 15 Décembre 2009, portant fiscalité locale [Act No. 2009/019 of 15 December 2009, Local Tax Withholding].
- Décret n° 2002/1722/PM du 08 Octobre 2002, instituant le Programme de Sécurisation des Recettes des Mines de l'Eau et de l'Energie [Decree No. 2002/1722/PM of 8 October 2002, establishing the Program of Securitization of the Revenues of the Mines of the Water and the Energy].
- Décret n° 2002/1721/PM du 8 Octobre 2002, précisant les règles d'assiette, de contrôle et de recouvrement dans le cadre du Programme de sécurisation des recettes des mines, de l'eau et de l'énergie [Decree No. 2002/1721/PM of 8 October 2002, specifying the Rules of Assessment and Collection in the Framework of the Program of Securitization of the Revenues of the Mines of the Water and the Energy].
- Décret n° 2004/073 du 5 Avril 2004, portant application du système comptable OHADA et de la déclaration statistique et fiscale [Decree No 2004/073 of 5 April 2004, Applying the Ohada 2004 Accounting System].
- Cematic Customs Tariff (1994)
- General Import Tax
- General Tax Code (2015)
- Code Général des Impôts n° 2002/003 du 19 Avril 2002 [Law No. 2002/003 of 19 April 2002, tax code or general tax code].

Trade

- Loi n° 01/075 du 18 Juillet 2001, portant Code des Douanes [Law No. 01/075 of 28 July 2001, Customs Code].
- Décret n° 2014/2946/PM du 12 Septembre 2014, portant création, organisation et fonctionnement des centres de négoce dans les zones frontalières [Decree No. 2014/2946/PM of 12 September 2014, establishing, organizing and operating trade centers in border areas].

Transparency

- Décret n° 2005/2176/PM du 16 Juin 2005, portant création, organisation et fonctionnement du comité de suivi de la mise en œuvre des principes de l'initiative de transparence des industries [Decree No. 2005/2176/PM of 16 June 2005, on the Establishment, Organisation and Functioning of the Follow-Up Committee on the Implementation of the EITI Principles].

Tripartite Consultations

- Arrêté n° 067/CAB/PM du 14 Juillet 2014, portant création, organisation et fonctionnement du Comité de concertation et de suivi du dialogue social [Order No. 067 / CAB / PM of 14 July 2014, establishing, organizing, and functioning of the Social dialogue and monitoring committee].
- Ordonnance n° 72/9 du 26 Août 1972, fixant la composition, les attributions et l'organisation du Conseil économique et social de la République Unie du Cameroun en application de l'article 35 de la Constitution du 2 Juin 1972 [Ordinance No. 72/9 of 26 August 1972,

on the composition, powers, and organisation of the Economic and Social Council of the United Republic of Cameroon pursuant to Article 35 of the 1972 Constitution].

- Arrêté n° 159/CAB/PM du 11 Octobre 2010 portant création, organisation et fonctionnement de l'Observatoire national du Travail (ONT) [Order No. 159 / CAB / PM of 11 October 2010, on the creation, organisation, and functioning of the National Labor Observatory].

ANNEX 4: THE INTERGOVERNMENTAL FORUM ON MINING, MINERALS, METALS, AND SUSTAINABLE DEVELOPMENT MINING POLICY FRAMEWORK GUIDANCE ON ARTISANAL AND SMALL-SCALE MINING

Ways of integrating informal ASM activities into the legal system by:

- Creating clear legal frameworks and regulatory mechanisms to facilitate the organisation of ASM, access to property rights and ensuing obligations for ASM;
- Providing technical support to build the capacity of government or other bodies tasked with regulating and supporting the sector; and
- Developing and replicating formalization strategies on the basis of lessons learned.

Ways of integrating informal ASM activities into the formal economic system by:

- Improving savings in the artisanal mining community, establishing more acceptable forms of financing and encouraging responsible investment;
- Strengthening the appropriateness, viability and transparency of policies and systems for collection, management and reinvestment of ASM revenue;
- Encouraging initiatives for standards and certification of ASM “fair trade” conflict-free minerals to harmonise and grow in scale; and
- Encouraging, through the permitting process or at other times, entities to explore ways to collaborate with ASM when it is present or can reasonably be anticipated to follow the development of a mine.

Reducing the social and environmental impacts of ASM by:

- Providing technical training to improve productivity and safeguard the environment, and developing, disseminating and enforcing regulations with a particular emphasis on safeguarding water sources, reducing deforestation, ending or reducing the use of mercury, and improving the management of mercury and other toxic substances when it is not possible to eliminate them, including safe working conditions, access to health care, etc;
- Having national programs that provide minimal standards of health and education to ASM workers and their families;
- Making a significant and verifiable reduction in the number of children employed in artisanal mining and improvements in the nature and scheduling of their work so as to accommodate educational needs
- Strengthening, monitoring and enforcing laws on child labour in artisanal and small-scale mining areas;
- Strengthening the role and security of women in ASM; and
- Promoting the inclusion of ASM in rural development and job creation policies such that, where desired and realistic, alternative livelihoods are promoted.

ANNEX 5: INSTITUTIONAL AND TECHNICAL OPERATING CONTEXT (COMPONENT 3) INTERVIEWEES

NAME	STRUCTURE	POSITION
M. Minbang Victor Aristide	MINMIDT	Coordonnateur CAPAM/Sous-Directeur des activités minières
Mme Kareem Ojong Agbor	MINMIDT	Sous-directeur de la prospection géologique
Mme Nkonghoataw Dorcas Nkongho	MINMIDT	Sous-direction de la cartographie géologique et des risques naturels
Mme. Folifack Jeanne Pascale Epse Dongmo	MINMIDT	Directeur de la Géologie & Chef de la Brigade National de contrôle des activités minières
M. Moudjourou Aziz	MINMIDT	Délégué départemental région de l'ouest & Point focal ACP-UE région de l'ouest
M. Komguep Ranild	Institut National de Cartographie	Cadre technique
M. Onding Eteme François	PRECASEM	Expert environnemental et social
M. Eloung Nna Daniel Mackaire	CAPAM	Secrétaire Permanent du processus Kimberley
M. Mebenga Etoundi Joseph	CAPAM	Chef de l'Unité de Suivi, de Synthèse, d'Evaluation et de Développement
Dr. Mache Jacques Richard	MIPROMALO	Chef de Département d'Appui Technique
Dr Njoya Andre	Insitut des Beaux Arts de Foumban	Directeur Adjoint
Mme Rouly Mbila	MINPMEESA	Chef division de la coopération et du partenariat
Mme Ntou'ou Agnès	MINPMEESA	Intérimaire de Mme le Directeur de de l'Artisanat et des Migrations du Secteur Informel (DAMSI)
M. Onana Emile	Ministère de l'Environnement de la Protection de la Nature et du Développement Durable (MINEPDED)	Chef service des études d'impact environnemental

ANNEX 6: QUANTITATIVE SURVEY QUESTIONNAIRE

Development Minerals Baseline Questionnaire

Demographics

Please read the instructions before starting the survey

Using a pen or a black marker, please completely fill in the circles matching the response.

For example:

Identification Number: _____ Date: _____

Name of the interviewee: _____

Phone number: _____

Name of the site:

- 0. Missingléo (Maroua)
- 1. Pitoa
- 2. Mayo Banyo
- 3. Longtimbi
- 4. Ebebda
- 5. Sa'a
- 6. Nkometou
- 7. Yato
- 8. Djoungo
- 9. Song Nlend (Pouma)

- a. Bamessing (PRESCRAFT)
- b. Institute of Fine Art (Institut des Beaux-arts) (Foumban)
- c. Pouoloum
- d. Former CIAC
- e. Marom
- f. Mother Quarry (Mungo)

Mineral:

G. Granite (gravel and dimension stone)

Q. Quartzite

S. Sand

P. Pozzolan

S. Saphir

A. Clay

g. Gneiss

O. Other, specify:

GPS Data of the site: _____

Name of the interviewer: _____

D1. Age

18-24 years old []

25-34 years old []

35-44 years old []

45 years or older []

D2. Gender

Male []

Female []

D3. Country:

C. Cameroon

A. Other, specify:

Hometown: _____ District: _____

Region: _____

1. Adamaoua
2. Center
3. East
4. Far north
5. Coastline
6. North
7. Northwest
8. West
9. South
10. Southwest

D4. Place of residence (at the time of the interview): _____

D5. How many persons live with you (not including yourself)?* _____

D6. How many persons (at home or not) depend on the wages generated by your work?*

D7. Level of education:

Primary school []

Secondary school []

Technical School/Vocational Training []

University []

No formal education []

D8 Are you:

1. A Board Member of a group, an association or a quarry workers union? **Complete Questionnaire 5**
2. A supervisor of the quarrying activities? (Head of the site, steward of the site, group leader, etc.)
Complete Questionnaire 5
3. An operator of a mine with at least one employee?
Complete Questionnaire 4
4. I do not work in a quarry or I do not have a mandate or supervising responsibility in a quarry (Workers, self-employed producer, driver, company director etc.) **Proceed to Question D9**

D9 Are you:

1. A self-employed artisan worker from the informal sector without any employees selling his own production to clients? (Ex: small scaled miner, small-scaled gravel producer, potter, driver with his own truck, cook selling food and juices, blacksmith etc.) **Complete Questionnaire 1**
2. A worker paid by assignment or per day by a mine operator or a company from the formal or informal sector? (Ex: digger, shipper, diver, brickmaker etc...) **Complete Questionnaire 2**
3. An employee or an executive/manager paid per week or month by an operator or a business from the formal or informal sector? (Ex: driver, administrative or financial manager, vendor, server, supervisor or director of a company etc.)
Complete questionnaire 3
4. A director of a company with at least one full-time employee in the mining industry, transport industry or supply of goods and services? **Complete questionnaire 4**
5. A director of a company with at least one full-time employee in the mineral processing, purchase and resale or construction sectors?
Complete questionnaire 6

XXXXXX

Q1. What is your job? *Multiple answers possible*

Extraction of minerals	Processing of minerals or its semi-finished products	Transportation of minerals or its semi-finished products	Purchase/Resale of minerals or its products	Supply of goods and services to mineral value chain stakeholders	End-use of minerals or its products	
☐ Diver	☐ Potter	☐ Driver	☐ Authorised reseller by a quarry	☐ Waiter	☐ Mason	
☐ Digger	☐ Small producer of gravel	☐ Driver with own truck	☐ Reseller of minerals	☐ Street cook (food and juice)	☐ Construction company	
☐ Rock breaker	☐ Manager or owner of a brickyard	☐ Manager or owner of a transportation company	☐ Reseller of dimension stones, tiles, roof tiles and other finished stone products	☐ Bar and restaurant manager or owner	☐ Artist	
☐ Stone remover	☐ Worker in a brickyard	☐ Administrative or commercial staff of a transport company	☐ Reseller of artisanal products (pottery, stone items)	☐ Manager or owner of a hotel	☐ Student or researcher	
☐ Tiler	☐ Stone sizer	☐ Other, specify: _____	☐ Sales agent of a mining company or quarry	☐ Pirogue renter	☐ Other, specify: _____	
☐ Sizer	☐ Manager or owner of a company that cuts and sizes stone		☐ Collector	☐ Motor-bikes renter		
☐ Shipper	☐ Other, specify: _____		☐ Prospecteur	☐ Pirogue maker		
☐ Small self-employed producer (break or dig and resale of production directly to clients)			☐ Other, specify: _____	☐ Blacksmith		
☐ Administrative staff of an operator				☐ Staff of a hardware store		
☐ Supervisor or Director of an operator				☐ Owner or manager of a hardware store		
☐ Mine operator				☐ Other, specify: _____		
☐ Other, specify: _____						

Q2. For how long have you been working at this site or at this company?

1. Less than one year
2. Between one and five years
3. Between five and ten years
4. More than 10 years

Q3. Why have you chosen this job?

1. It is the job I wanted to do
2. It was my parents' job
3. To provide for my family
4. To earn money
5. After a school failure
6. Other reasons: _____

Q4. How many days do you work per week?

1. 1 to 2 days per week
2. 3 to 5 days
3. Every day but not Sunday
4. Every day

Q5. At what time do you start and at what time do you finish?

Q5a. Start	1. 6-8	2. 9-11	3. 12-14	4. 15-17	5. 18-20	6. 21-24	7. 00-5
Q5b. Finish	1. 6-8	2. 9-11	3. 12-14	4. 15-17	5. 18-20	6. 21-24	7. 00-5

Q6. How many weeks do you work per month? (without considering weeks off)

1. Less than a week per month
2. 1 week per month
3. 2 to 3 weeks per month
4. Every week

Q7. Do you work every month of the year?*

1. Yes
2. No

If not, specify months without activities:

1. Jan	2. Feb	3. Mar	4. Apr	5. May	6. Jun	7. Jul	8. Aug	9. Sep	10. Oct	11. Nov	12. Dec

Q8. Who are your clients? *Multiple answers possible*

1. Private stakeholders
2. Brickmakers
3. Construction companies
4. Potters
5. Carriers
6. Agents/direct sellers/collectors/large buyers who resale afterwards
7. Other processing companies, specify: _____
8. Artists
9. Researchers
10. Artisan miners/ workers and employees from the mining sector
11. A governmental body (ex: CAPAM)
12. Other, specify: _____

Q9. Where do they mainly come from? (*Specify cities / villages / countries where they come from*)

Q10. If you are working in a quarry, what is the mineral used for? *Multiple answers possible*

1. Construction materials

- a) Backfill
- b) Bricks
- c) Mortar and other concrete constructions
- d) Road paving
- e) Others: _____

2. Indoor and Outdoor facilities

- f) Paving or tiling for walls and floors
- g) Kitchen or bathroom worktops
- h) Decorative gravel
- i) Others: _____

3. Decorative items

- j) Pottery
- k) Works of art
- l) Bronze

Q11. What are the sale unit and the unit sale price of the minerals or products from your site/company?

If the interviewee is a transporter (trucker etc.), indicate in the table below the prices for a delivery to the city of _____ (where the interviewee's main clients are). If the interviewee is not a transporter, proceed directly to Q11a

Q11a. Circle the units used on your site and indicate its sales price

Circle the corresponding number	Unit	Capacity	Unit sales price during dry season	Unit sales price during rainy season if different
1	Bag	30 kg		
		50 kg		
2	Truck	7T		
		12T		
		20T		
		10 M ³		
		16 M ³		
	Wheelbarrow	-		
3	Meter	M		
		M ²		
		M ³		
4	Pirogue	7m ³		
		10m ³		
		12m ³		
5	Item (Indicate the five main products)	Product 1		
		Product 2		
		Product 3		
		Product 4		
		Product 5		
6	Other (Specify):			

Q12. Has this price always been the same in the time you have worked there?

1. Yes – Proceed to Q14
2. No, the price has dropped
3. No, the price has increased

Q13. What was the former price?

Circle the corresponding number	Unit	Capacity	Unit sales price during dry season	Unit sales price

				during rainy season if different
1	Bag	30 kg		
		50 kg		
2	Truck	7T		
		12T		
		20T		
		10 M ³		
		16 M ³		
	Wheelbarrow	-		
3	Meter	M		
		M ²		
		M ³		
4	Pirogue	7m ³		
		10m ³		
		12m ³		
5	Item (<i>Indicate the five main products</i>)	Product 1		
		Product 2		
		Product 3		
		Product 4		
		Product 5		
6	Other (<i>Specify</i>):			

Q13a. When has the price changed?

1. Less than 6 months ago
2. Between 6 months and 2 years ago
3. Between 2 and 5 years ago
4. Between 5 and 10 years ago
5. More than 10 years ago

Q13b. Why has it changed? *Multiple answers possible*

1. Development of semi-mechanised or mechanised mining activities near by
2. Increase in economic activities (more construction, more tourists, etc.)
3. Less economic activity (less construction, less tourists etc.)
4. More competition
5. Less competition
6. Discovery of new mineral uses and/or of its products
7. Increase in costs (diesel, taxes etc.)

8. Other _____

Q14. Who determines the price?

1. The operator or owner of the company
2. Supply or demand
3. A professional association or union
4. A governmental body (ex: CAPAM)
5. Myself
6. Other: _____

Q15. What is important for the client?* *Multiple answers possible*

1. Quality
2. Size
3. Colour
4. Choice
5. Price
6. Delivery time
7. Other _____

Q16. Which months are the best for sales? *Multiple answers possible*

1. Jan	2. Feb	3. Mar	4. Ap	5. May	6. Jun	7. Jul	8. Aug	9. Sep	10. Oct	11. Nov	12. Dec

Q17. What do you need in order to undertake your activity? *List the main equipment, tools, minerals and/or inputs that you use for your activity and fill in the necessary information*

Equipment/Inputs/minerals	Unit price	Quantity/volume (Specify per day/month/year for inputs)	Supplier (District or country if international)	Lifetime of equipment and tools

Q17b. If you use chemical products, specify which ones:

—

Q17c. If you use explosives, specify which types:

—

Q18. How do you transport the minerals you buy?

1. I do not buy minerals or I am a carrier *Proceed to Q19*
2. By foot/with a wheelbarrow

3. I rent a truck
4. I have my own truck
5. Other: _____

Q18a. What is the price of transportation?

1. The price of transport is included in the price given in Q11a
2. I do the transportation myself
3. _____ FCFA for _____
(specify the quantity: truck, bag etc.)

Q19. Do you rent equipment?

1. Yes – Continue with Q19a and b
2. No – Proceed to Q20

Q19a. What equipment(s) do you rent? *Multiple answers possible*

1. Pirogue
2. Engine
3. Power generator
4. Other equipment, specify: _____

Q19b. And at what price? *Fill in for each type of rental equipment*

Type of equipment _____: _____ FCFA for
_____ (day, week or month)

Type of equipment _____: _____ FCFA for
_____ (day, week or month)

Type of equipment _____: _____ FCFA for
_____ (day, week or month)

xxxxxx

Q20. Where do you sell your production? *Multiple answers possible*

1. Not applicable (transporter, reseller, mason etc.) Proceed to Q21
2. On the site (quarry, company) Proceed to Q21
3. A sales outlet
4. Other: _____

Q20a. What is the character of the sales outlet?

1. Sale on the side of the road
2. Market spot
3. Store not belonging to me
4. Store belonging to me
5. Other: _____

Q20b. How do you carry the production to the sales outlet?

1. On the head
2. In a wheelbarrow
3. With a motorbike
4. With a car
5. With a truck

Q20c. How far away is the sales outlet?

1. 0 to 1 km
2. 1 to 5 km
3. 5 to 10 km
4. More than 10 km

Q21. Which year has been the best in terms of sales?

1. 2017	6. 2012	10. 2007	15. 2002
2. 2016	7. 2011	11. 2006	16. 2001
3. 2015	8. 2010	12. 2005	17. 2000
4. 2014	9. 2009	13. 2004	18. 1999
5. 2013	10. 2008	14. 2003	19. 1998

21a. Why? *Multiple answers possible*

1. Increase of economic activities in general (more construction, more tourists etc.)
2. Less competition
3. Increase in production
4. Others: _____

Q22. Which year has been the worst?

1. 2017	6. 2012	10. 2007	15. 2002
2. 2016	7. 2011	11. 2006	16. 2001
3. 2015	8. 2010	12. 2005	17. 2000
4. 2014	9. 2009	13. 2004	18. 1999
5. 2013	10. 2008	14. 2003	19. 1998

Q23. Why? *Multiple answers possible*

1. Opening of a semi-mechanised or mechanised mining near by
2. Opening of new small-scale /artisanal quarries near by
3. Decrease in economic activity in general (less construction, tourists etc.)
4. Financial problems

5. Others: _____

Q24. Have you ever taken out a loan to finance your activity (except tontine)?

1. No

- a. I did not need it yet
- b. I am afraid to not be able to make the repayments
- c. Other: _____

2. Yes

Can you give the following information on your most recent loan(s)?

Lending Institution	Amount	Rate	Time period	Reason for the loan	Repaid (yes/no/in progress)

Q25. Do you keep a record of your income and expenses?

- 1. Yes
- 2. No

If yes, which type?

- a. A book
- b. An Excel file
- c. A software program

xxxxxx

Q26. How are you paid?

- 1. Per day
- 2. Per bag
- 3. Per filled truck
- 4. Per wheelbarrow
- 5. Per m²
- 6. Per m³
- 7. Per pirogue
- 8. Per item (pottery, brick etc.), Specify: _____
- 9. Other : _____

Q27. How much do you earn per unit (bag, wheelbarrow, truck, products etc.)? *Multiple answers possible*

_____ CFA per _____ (specify the volume ex: per pirogue of 7T, per truck of 20T, per bag of 50kg etc.)

_____ CFA per _____ (specify the
volume ex: per pirogue of 7T, per truck of 20T, per bag of 50kg etc.)

_____ CFA per _____ (specify the
volume ex: per pirogue of 7T, per truck of 20T, per bag of 50kg etc.)

Q28. Has this rate always been the same in the time you have worked there?

1. Yes – Proceed to Q30
2. No, the price has dropped
3. No, the price has increased

Q29. What was the former rate?

_____ CFA per _____ (specify the
volume ex: per pirogue of 7T, per truck of 20T, per bag of 50kg etc.)

_____ CFA per _____ (specify the
volume ex: per pirogue of 7T, per truck of 20T, per bag of 50kg etc.)

_____ CFA per _____ (specify the
volume ex: per pirogue of 7T, per truck of 20T, per bag of 50kg etc.)

Q29a. When has it changed?

1. Less than 6 months ago
2. Between 6 months and 2 years ago
3. Between 2 and 5 years ago
4. Between 5 and 10 years ago
5. More than 10 years ago

Q29b. Why has it changed? *Several possible answers*

1. More workers on the mining site
2. Less workers on the mining site
3. Arrival of migrants
4. Increase in mineral prices
5. Drop in mineral prices
6. Increase in production costs (diesel, taxes)
7. Drop in production costs (fuel, taxes)
8. Shifting of operator
9. Other _____

Q30. Who decides the rate?

1. The operator or company director
2. Professional association or union
3. It is a negotiation between the worker and the operator or company director
4. A governmental body (ex: CAPAM)
5. Other: _____

xxxxxx

Q31. How many units do you produce per day when it is a good day? (Number of bags, wheelbarrows, trucks, items etc.)

Q32. How many units per day do you produce when it is a bad day?

Q33. Do you have a bank account?

1. Yes
2. No

Q34. How do you get to your place of work? (Type of transportation)

1. By foot
2. By bike
3. With a motorcycle taxi
4. With public transport
5. With a taxi
6. In a taxi or a car together with a friend, colleague or family member
7. With my motorbike
8. With my car

Q35. How long is the trip?

1. Less than thirty minutes
2. Between thirty minutes and one hour
3. Between one and two hours
4. More than two hours

Q36. If you use a taxi/public transport, how much does the trip cost, return trip?

CFA _____

Q37. Do you have to pay a royalty fee/ a fee to someone in order to conduct your activities (besides legal taxes)?

1. No, *proceed to Q38*
2. Yes

Q37a. If yes, specify to whom this royalty has to be paid

1. To the operator
2. To the craftsmen association or professional union
3. To the chief of the village
4. A governmental body (ex: CAPAM)
5. To the municipality
6. Other, specify: _____

Q37b. And how much is it ?

1. A percentage of the amount of production sold, specify: _____ %
2. A rent or contribution, *specify*: _____ FCFA per _____ (week, month, year)

3. An entry fee: _____ FCFA

Q38. Do you pay fees other than the one specified above?

1. Yes
2. No

If yes, specify which ones: _____

xxxxxx

Q39. Who is your employer?

1. An operator which is a formal company or any other formal company
2. An operator who is a natural person or any other company from the informal sector *Proceed to Q42*
3. Other, Specify: _____ and proceed to Q42

Q40. How long has the company existed for?

1. Less than a year
2. Between 1 and 5 years
3. Between 5 and 10 years
4. More than 10 years

Q41. What is the legal status of the company?

1. Sole proprietorship
2. GIE/GIC
3. SUARL
4. SARL
5. SA

Q42. How many full-time employees does the company or operator have?

1. Between 1 and 5
2. Between 6 and 20
3. More than 20

Q43. Are the activities of the company subject to authorisation?

1. Yes
2. No

Q44. Can you tell us how much do you get paid? (*Specify by day, week or month*)

CFA _____ per day week month

Q45. Do you benefit from other advantages? *Multiple answers possible*

1. Transportation
2. Meal
3. Medical coverage/insurance
4. Provision of protective equipment
5. Written employment contract
6. Other _____

xxxxxxx

Q46. Is there any stock?

1. Yes
2. No
3. If yes, how many units are in stock? _____

Q47. If it is a good day, how many units are sold? _____

Q48. If it is a bad day, how many units are sold? _____

Q49. What are the most common injuries/accidents/problems in your job? *Multiple answers possible*

1. Aches	2. Injury	3. Other
a) Kidney pain	a) Hand	a) Alcohol or drug abuse
b) Back pain	b) Feet	b) Road traffic accident
c) Chest pain	c) Leg	c) Disease
d) Other <i>specify</i> _____	d) Loss of a finger/ toe/ other part	d) Other <i>specify</i> _____
	e) Burns	
	f) Other	

Q50. What do you wear at work and what individual protective equipment do you use? *Multiple answers possible*

1. Gloves	6. Helmet	11. High visibility vest
2. Dust mask	7. Earplugs	12. Thermal protection
3. Safety glasses	8. Hat/cap	13. Other <i>specify</i> _____
4. Safety shoes	9. Overalls	14. Nothing mentioned here
5. Rubber boots	10. Shoulder harness, harness, string	

Q51. If you do not use it, or not always, why?

1. Lack of financial means
2. Equipment bothers me (too hot, uncomfortable, heavy)
3. High quality equipment not available (low quality equipment)
4. Other _____

Q52. When did you last experience an accident during your work shift?

1. Never, *proceed to Q53*
2. During the last week
3. During the last month
4. During the last year
5. More than a year ago

Q52a. What was the reason of your accident?

1. Landslide/collapse

2. Misuse of equipment or a tool
3. Tool or equipment failure
4. Fall/Misstep
5. Struck by a truck
6. Poor lighting (for ex. During sunset or night shift)
7. Poor weather conditions
8. Other: _____

Q52b. How long did this accident keep you from working?

1. It did not keep me from working
2. One day
3. 2-3 days
4. One week
5. More than a week

Q53. Are you taking any pills to be able to work?

1. No, proceed to Q54
2. Yes

Q53a. Which ones? _____

Q53b. How often do you take them?

1. Several times a day
2. Once a day
3. Several times a week
4. Once a week
5. From time to time

Q54. Do you drink alcohol?

1. Every day
2. Several times a week
3. Less often
4. Never

Q55. Do you smoke marijuana?

1. Every day
2. Several times a week
3. Less often
4. Never

Q56. Are you a member of an association/professional union?

1. Yes
2. No, proceed to Q57

Q56a. Which one? _____

Q56b. Which benefits do you get from it?

1. Protection of my rights
2. Support
3. Purchase of cheaper equipment
4. Experience sharing/training
5. Other, *specify*: _____

Q57. Have you ever disagreed with someone at your workplace?

1. Yes
2. No
3. *If no, proceed to Q61*

Q58. With whom?

1. The operator or the company director
2. A supervisor
3. Colleagues
4. Subordinates
5. Operators from semi-mechanised or mechanised sites
6. An officer
7. A governmental body (ex. CAPAM, Merchant navy, MINMIDT)
8. Defence and security forces

Q59. Why?

1. Problems linked to the payroll or the amount of pay
2. Personal argument/Lack of respect
3. Disagreement over the way to carry out the activities
4. Disagreement about taxes to be levied
5. Disagreement about legal aspects of the mining activities
6. Restriction of access to areas for operations
7. Other: _____

Q60. Today, is the argument solved?

1. Yes
2. No

Q61. Who is in charge of solving a disagreement or a conflict at your workplace?

1. The operator or company director
2. A manager or supervisor
3. An official from a professional association
4. A governmental body
5. Others: _____

Q62. Do you have an official document authorizing you to carry out your activity?

1. Yes
2. No

Q62a. If no, what is the reason?

1. Shifting to the formal sector is too expensive
2. I do not know the legislation and the steps to be taken
3. It is not necessary for my activity

4. Others: _____
xxxxxxx

Q63. How long has the quarry existed?

1. Less than one year
2. Between 1 and 5 years
3. Between 5 and 10 years
4. More than 10 years

Q64. Who discovered the site?

1. It has been known about for a long time
2. A member of the village
3. Other, Specify: _____

Q65. Who does it belong to?

1. To an operator with an operations permit
2. To an individual/a family
3. To a village
4. Other

Q66. Where does the owner live?

1. In the village where the quarry is located
2. In the surrounding area
3. In the region
4. In another region
5. Overseas

Q67. Does the land belong to someone/to a community?

1. To a village
2. To several villages
3. One or several natural persons
4. To the municipality
5. To an operator
6. To the state

Q68. Do the land owners receive something for the operation of the quarry?

1. Yes
2. No, *Proceed to Q69*

Q68a. If yes, what is it and how much?

1. A percentage of the amount of the production sold, specify: _____%
2. A rent, specify: _____ FCFA per _____ (week, months, year)
3. A fixed amount per truck, specify: _____ FCFA per _____ truck
of
_____ T or M3

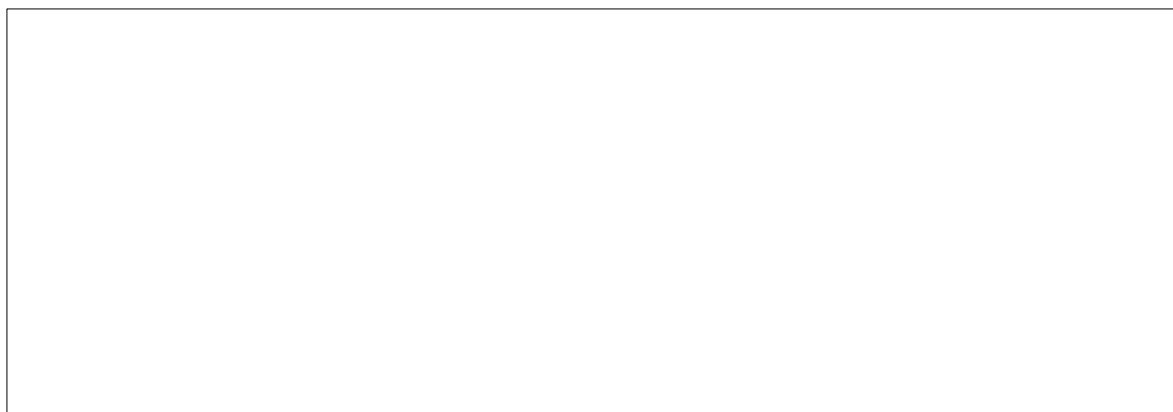
Q69. What is the quality of the road used to access the quarry?

1. Only accessible by foot
2. Only accessible by motorbike
3. Road only accessible by car
4. Paved road

Q70. Would you say that the majority of the quarry workers originate from the local area?

1. Yes
2. No
3. If not, where are they coming from? _____

Q71. Who are the different stakeholders and tasks performed by each stakeholder on the site, from extraction to purchase? (*You can draw a diagram*)



Q72. Are there specific tasks performed by women, young people (14-18 years old) and children aged younger than 14 years and migrants? *

1. Yes
2. No, *proceed to Q73*

Q72a. If yes, which ones?

1. Women do _____
2. Children younger than 14 years of age do _____
3. The young people (14-18 years old) do _____
4. The migrants do _____

Q73. Is there any specific belief surrounding the minerals?

1. Yes
2. No

Q74. What is your role on the site? *Multiple answers possible*

1. I supervise workers/ a group of workers
2. I manage the overall activities of the site
3. I am the representative of the mine operation
4. Others: _____

Q75. Do you play a role in disagreement and conflict resolution on the site?

1. Yes, *proceed to Q76*
2. No

Q76. What types of disagreements do you meet? *Multiple answers possible*

1. Conflicts between artisan miners
2. Conflicts between artisan miners and operators
3. Conflicts between operators
4. Conflicts between operators and the community
5. Conflicts between operators and the municipality
6. Conflicts between operators and the State

Q76a. What are the disagreements about? *Multiple answers possible*

1. Problems linked to payroll or the amount of pay
2. Personal dispute/rivalry/jealousy
3. Disagreement over the way to carry out activities
4. Discontent regarding taxes
5. Activities that impact on the environment
6. Activities that impact on the peace of the villages
7. The limitations of the quarry
8. Other: _____

Q77. How often?

1. Several times a day
2. Every day
3. Once a week
4. Several times a month
5. Less

Q78. Do you keep record of your production?

1. Yes
2. No

Q79. What is the daily production sold on the site (Number of trucks, m2 etc.) when it is a good day?

Q80. And when it is a bad day?

Q81. Is the whole production sold?

1. Yes
2. No

Q82. What is the size of stock at the site in terms of units (number of trucks, m2 etc.) ?

Q83. What are the characteristics of the minerals on your site? *Multiple answers possible*

Q83a. Colour:

1. Black
2. Yellow
3. Pink
4. Brown

5. Red
6. Mix of colours
7. Blue
8. Others: _____

Q83b. Quality:

1. Excellent
2. Good
3. Fine
4. Poor

Q83c. Grain size:

1. Very Fine
2. Fine
3. Average
4. Coarse
5. Not applicable

Other specifications:

Q84. Do prices change depending on these characteristics?

1. Yes, the colour is the most important
2. Yes, the quality is the most important
3. Yes, the grain size is the most important
4. No, the price remains the same for all products

Q85. Do you have a specific technique to determine where to dig?

1. Yes
2. No

Q86. How do you know this/these technique(s)?

1. I received training
2. I learned by doing
3. I learned from my parents/family
4. Other: _____

Q87. Who are the competitors to this quarry?

1. Other small-scale quarries
2. Semi-mechanised or mechanised quarrying
3. Mineral substitutes
4. Imports
5. Others _____

Q88. What taxes is the quarry subject to? *Fill out the taxes actually paid*

Tax	Collecting body	Amount	Frequency (<i>it can also be by units</i>)
Fixed duties (registration, renewal and			

transfer) on mining titles			
Subsurface royalties			
Share for the state in the production			
Tax ad valorem on precious and semi-precious substances			
Monthly deposit on corporate income tax			
Tax on production regarding quarried products			
Platform ticket			
Other:			

Q89. Do you have difficulties with the tax administrators?

1. Yes
2. No, *proceed to Q90*

Q89a. If Yes

1. Too many taxes
2. Problems with the licence/authorisation
3. Other, specify _____

Q90. Do you think this quarry follows the law?

1. Yes
2. No

Q91. Do the miners and operators working on the site have an artisan identification card?

1. Most of them
2. Few of them
3. None

Q92. Why?

1. Too expensive
2. Process is too complex
3. I have never heard of the artisan identification card
4. Other reasons _____

Q93. How many years do you think the quarry can still be operated?

1. 0 - 2 years
2. 3 - 5 years
3. 6 - 8 years
4. 9 - 12 years
5. 12 years and more

Q94. How could the site increase its production? *Multiple answers possible*

1. By recruiting more workers
2. By investing in new equipment/machinery
3. By extending the scope
4. The quarry is at its full production capacity
5. Other : _____

Q95. If the site would produce more, could you easily find buyers?

1. Yes
2. No

Q96. Are the site residents complaining about the quarry?

1. Yes, because of the dust
2. Yes, because of the effects of the extraction on water quality and quantity
3. Yes, because of the number of trucks that drive to the site
4. Yes, other _____
5. No

Q97. Do you think that torrential rains restrict your work more or less compared to 5 or 10 years ago?

1. More
2. Less
3. Similar
4. I don't know

xxxxxx

Q98. What are the characteristics you are looking for when purchasing minerals or mineral by-products? *Multiple answers possible*

1. Quality
2. Size
3. Colour
4. Price
5. Other

Q99. Can you substitute these minerals with other products?

1. Yes
2. No

Q99a. If yes, by which ones?

1. Sand
2. Pozzolan
3. Clay
4. Plastic
5. Basalt
6. Granit
7. Gneiss
8. Marble
9. Other : _____

Q99b. Is there any difference?

1. No
2. Yes, the price and quality of the substitute is lower

3. Yes, the price and quality of the substitute is higher
4. Other difference: _____

XXXXXX

Q100. Which year was the company founded? _____

Q101. Is it a formal company?

1. Yes
2. No

Q101a. If yes, what is the legal status of the company?

1. Sole proprietorship /Ets
2. GIE/GIC
3. SUARL
4. SARL
5. SA
6. Association/foundation
7. Governmental body

Q102. How many full-time employees does the company have? *

1. 1 - 5
2. 6 - 10
3. 11 - 20
4. 21-50
7. 51 or more

Q102a. Among these employees, what is the number of:

1. Children younger than 14 years old: _____
2. Young people between 14 and 18 years old : _____
3. Women : _____

Q103. Does the company make use of temporary or seasonal workers? *

1. Yes
2. No, *proceed to Q104*

Q103a. If yes, what is the maximum amount of employees you have had at any one time?

1. 1 - 10
2. 11-30
3. 31-50
4. 51-100
5. 101– or more

Q104. What are the company's activities? *Circle the answer*

Extraction of minerals	Processing of minerals or its semi-finished products	Transport of minerals or its semi-finished products	Purchase/Re-sale of minerals or its semi-finished products	Supply of goods and services to mineral value	End-use of mineral or its products

				chain stake-holders	
Mining operation	Pottery workshop/company	Transport company	Construction equipment trading company	Restaurant	University
Other: _____ —	Brick factory, concrete blocks	Other: _____ —	Handicraft shop/company	Hotel	Construction company
	Marble masonry/cutting and sizing stone company		Other: _____ —	Tool production company	Other: _____ —
	Bronze company/workshop			Input suppliers	
	Other: _____ —			Other: _____ —	

Q105. Is the company activity subject to authorisation?

1. Yes
2. No

Q106. Is the sale seasonal?

1. Yes
2. No, *proceed to Q107*

Q106a. If yes, which months are the best? *Multiple answers possible – circle the answers*

1. Jan	2. Feb	3. Mar	4. Apr	5. May	6. Jun	7. Jul	8. Aug	9. Sep	10. Oct	11. Nov	12. Dec

Q107. Which year has been the best in terms of sales? *

1. 2017	6. 2012	11. 2007	16. 2002
2. 2016	7. 2011	12. 2006	17. 2001
3. 2015	8. 2010	13. 2005	18. 2000
4. 2014	9. 2009	14. 2004	19. 1999
5. 2013	10. 2008	15. 2003	20. 1998

Q108. Why?

1. Increase in economic activities (more construction, more tourists, etc.)
2. Less competition
3. Increase in production
4. Less taxation
5. Others: _____

Q109. Which year has been the worst in terms of sales?

1. 2017	6. 2012	11. 2007	16. 2002
2. 2016	7. 2011	12. 2006	17. 2001
3. 2015	8. 2010	13. 2005	18. 2000
4. 2014	9. 2009	14. 2004	19. 1999
5. 2013	10. 2008	15. 2003	20. 1998

Q110. Why?

1. New arrival of a competitor near by
2. Lower economic activity in general (less construction, tourists, etc.)
3. Financial problems
4. Conflicts/security problems
5. Increase in taxation
6. Other: _____

Q111. Who are your main competitors?

1. Semi-mechanised or mechanised quarries owned by nationals active in the same sector
2. Semi-mechanised or mechanised quarries owned by foreigners active in the same sector
3. Other small-scale quarries
4. Imports
5. Other suppliers of goods and services (including transportation) based in the municipality
6. Other suppliers of goods and services (including transportation) based in the regional capital

Q112. What is the company strategy for finding new clients?

1. Nothing in particular
2. Prospecting/solicitation
3. Commercials (radio, newspapers, TV)
4. Other : _____

Q113. Does the bank facilitate cash/credit lines?

1. Yes
2. No
3. I don't have one or the company does not have a bank account.

Q113a. If yes, what is the maximum amount? CFA _____

Q114. Have you ever taken out a loan in order to finance your activity (except tontine)?

1. No
 - a. No need for now
 - b. Lack of visibility on the sales revenue and the firm's capacity to repay
 - c. Other : _____

2. Yes

Can you give us the following information regarding your most recent loan(s)?

Lending Institution	Amount	Rate	Time period	Reason for the loan	Repaid

					(yes/no/in progress)

Q115. Do you keep an accounting record?

1. Yes
2. No

Q115a. *If yes, which type?*

- a. A book
- b. An Excel document
- c. Software

Q116. What are the taxes paid by the company?

1. None
2. *State the taxes paid in the table*

Tax	Collecting body	Amount	Frequency (it can also be by units)

Q117. What are the main challenges preventing the company from growing? *

1. Difficult access to credit
2. Too much competition
3. Margins too low to reinvest
4. Difficult to find skilled labour force
5. Lack of demand
6. Too many taxes
7. Too much administrative paperwork (police, customs, work inspectorate, taxes etc.)
8. Others: _____

Q118. What are the main health and security problems of your workers? * *Multiple answers possible*

1. Aches	2. Injury	3. Disease	4. Other
a) Kidney pain b) Back pain c) Chest pain d) Other	a) Hand b) Feet c) Leg d) Loss of a finger/toe/ other part e) Burns f) Other	1. Malaria 2. Yellow Fever 3. Typhoid Fever 4. Lung infections 5. Stomach disease 6. Sinusitis	a) Alcohol or drug abuse b) Road traffic accident c) Don't know d) Other _____

Q119. Are your workers using protective equipment suitable to their tasks?

1. Yes (proceed to question 119b)
2. I don't know (proceed to question 119b)
3. No or not always (proceed to 119a)

Q119a. If not or not always, why?

1. Lack of financial means
2. The equipment is bothersome (too hot, uncomfortable, heavy)
3. High quality equipment not available (low quality equipment)
4. Other _____

Q119b. Have you ever provided protective equipment to your workers?

1. Yes

If yes, which ones? *Multiple answers possible*

1. Gloves	6. Helmet	11. High visibility vest
2. Dust mask	7. Earplugs	12. Thermal protection
3. Safety glasses	8. Hat/cap	13. Other
4. Safety shoes	9. Overalls	
5. Rubber boots	10. Shoulder harness, harness, string	

2. No. If not, why not?

1. Lack of financial means
2. Equipment is bothersome (too hot, uncomfortable, heavy)
3. High quality equipment not available (low quality equipment)
4. It is not my responsibility
5. Other _____

Q120. Has there been any accidents in your company?

1. Yes
2. No

Q120a. If yes, which type of accident(s)? *Multiple answers possible*

1. Aches	2. Injury	3. Others
a) Kidney pain	a) Hand	
b) Back pain	b) Feet	

c) Chest pain	c) Leg	
d) Other	d) Loss of a finger/ toe/ other part	
	e) Burns	
	f) Other	

Q120b. What was the reason for the accident?

1. Landslide/collapse
2. Misuse of equipment or tool
3. Tool or equipment failure
4. Fall/Misstep
5. Struck by a truck
6. Poor lighting (for ex. During sunset or night shift)
7. Poor weather conditions
8. Traffic accident
9. Fight
10. Other: _____

Q120c. How many accidents happened last year?

1. 1-5
2. 6-10
3. 11-25
4. More than 25

Q120d. How long time do accidents on average prevent labourers from working?

1. None
2. One day
3. 2-3 days
4. One week
5. More than a week

Q121. Would you say a high number of your employees drink alcohol?

1. Yes
2. No

Q121a. If yes, to what extent?

1. Every day
2. Several times a week
3. Less
4. Never

Q122. Would you say a high number of your employees smoke marijuana?

1. Yes
2. No

Q122a. If yes, to what extent?

1. Every day
2. Several times a week
3. Less
4. Never

Q123. Are you a member of an association/professional union?*

1. Yes
2. No

Q123a. If yes, which one? _____

Q123b. And which benefits do you get from it?

1. Protection of my rights
2. Support
3. Purchase of cheaper equipment
4. Experience sharing/training
5. Other, specify: _____

Q124. Have you ever disagreed with someone at your workplace?

1. Yes
2. No (*proceed to Q127*)

Q125. What types of conflicts have you encountered? *Multiple answers possible*

1. Problems linked to the payroll or the amount of pay
2. Personal argument/lack of respect
3. Disagreement over the way to carry out activities
4. Disagreement about taxes to be levied
5. Disagreement about legal aspects of the mining activities
6. Restriction of access to areas for operations
7. Other: _____

Q126. Today, is the argument solved?

1. Yes
2. No

Q127. Who is in charge of solving a disagreement or a conflict at your workplace?

1. Myself
2. The company director
3. A manager or supervisor
4. An official from a professional association
5. A governmental body
6. Others: _____

xxxxxx

Q128. Do you want to continue to perform this activity?

1. Yes (*Proceed to Q131*)
2. No

Q129. Why?

1. Too low salary
2. Health problems
3. Health and security risks
4. Too heavy work
5. Increase in competition
6. Too high charges and costs
7. Security or conflict issues

Q130. What other activities do you see yourself doing instead?

1. Agriculture

2. Open a shop
3. Start a small company (not in the mining sector)
4. Transport: taximoto, taxi or truck driver
5. Rent out rooms, apartments
6. Housekeeper
7. Undertake recruitment exams to public office positions
8. Go back to school
9. Other: _____

Q131. How could you increase or improve your current activity?

1. More clients
2. Through access to finance
3. With new equipment
4. With training
5. Other: _____

Q132. Have you ever received support from the government, an NGO or another organisation for your activity?

1. Yes
2. No (*proceed to Q134*)

Q132a. If yes, from whom?

1. Government
2. NGO
3. Other organisation

Q132b. In what form?

1. Grant
2. Loan
3. Training
4. Supply of equipment
5. Other

Q133. What did you think about this support?

1. Very positive
2. Positive
3. Neither positive nor negative
4. Negative
5. Very negative

Q134. Is your activity your main source of income (*the one about which you are questioning the interviewee*)?

1. Yes
2. No

Q135. What are the other activities?

1. Agriculture (farmer) (*Proceed to Q135a*)
2. Livestock farming
3. Small shop
4. Mototaxi
5. Other (Specify) : _____

Q135a. Do you own the land you cultivate?

1. Yes *PROCEED TO Q136*
2. No *CONTINUE TO Q135b*

Q135b. If not, who owns it?

1. My husband *CONTINUE TO Q135c*
2. My family
3. My in-laws
4. A villager
5. Other

Q135c. If your husband passed away, would you own the land?

1. Yes
2. No

Q136. Are you originally from the municipality (district) of your workplace?

1. Yes *PROCEED TO Q140*
2. No *CONTINUE*

Q137. Did you settle in this municipality because of your job?

1. Yes
2. No

Q138. For how long have you been living in this municipality?

1. Less than a year
2. 1-2 years
3. 3-5 years
4. 6-10 years
5. More than 10 years

Q139. Are you together with your family?

1. Yes
2. No

Q140. What is the most frequent disease here?

1. Malaria
2. Yellow Fever
3. Typhoid Fever
4. Lung infections
5. Stomach disease
6. Sinusitis
7. I don't know, I am not from here

Q141. How long does it take to get to the closest health centre from your workplace?

Q141a.

1. By foot
2. By bike
3. By car
4. By motorbike

Q141b. How long does the trip take?

1. Less than half an hour

2. Between half an hour and an hour
3. More than one hour

Q142. How long does it take to get from your house to the closest health centre?

Q142a.

1. By foot
2. By bike
3. By car
4. By motorbike

Q142b. How long does the trip take?

1. Less than half an hour
2. Between half an hour and an hour
3. More than one hour

Q143. How long does it take to get from the site to the closest water source?

Q143a.

1. By foot
2. By bike
3. By car
4. By motorbike

Q143b. How long does the trip take?

1. Less than half an hour
2. Between half an hour and an hour
3. More than one hour

Q144. Are there any toilets at your workplace?

1. Yes
2. No

Q144a. If yes, how far is it by foot?

1. Less than 5 minutes
2. 5 - 15 minutes
3. 15 - 30 minutes
4. More than 30 minutes

Q145. Where do women go to the toilets?

1. In the nature
2. Same toilets as men
3. Female toilets

Q146. Are local residents complaining about nuisance caused by the quarry or your activity or your employer's activity?

1. Yes *CONTINUE TO Q146a*
2. No *PROCEED TO Q148*

Q146a. If yes, what are they complaining about?

1. Noise
2. Dust
3. Vibrations
4. Smell
5. Water contamination
6. Traffic accidents
7. Other: _____

Q147. Do the complaints seem legitimate to you?

1. Yes
2. No

Q148. Do you have access to electricity at home?

1. Yes
2. No

Q148a. If not, how do you charge your cell phone?

1. In a shop/store
2. At a friend's/my family's house
3. With a power generator
4. With solar energy
5. No cell phone

Q149. Which energy source is used to cook at your home?

1. Charcoal
2. Wood-fuel
3. Gas
4. Other _____

Q150. How far away is the energy provision source?

1. 0 to 1 km
2. 1 to 5km
3. 5 to 10 km
4. More than 10km

Q150a. The energy source costs _____ CFA ?

Q151. Is it more difficult to secure energy today than it was 2-3 years ago?

1. Yes
2. No
3. Don't know

Q151a. If yes, Why?

1. I need to go further to get it
2. It is more expensive
3. Other _____

Q152. How long does it take to get from your house to the land you cultivate?

Q152a.

1. By foot
2. By bike
3. By car
4. By motorbike

Q152b.

1. Less than half an hour
2. Between half an hour and an hour
3. More than one hour

Q153. How far away is the primary school from your home?

Q153a.

1. By foot
2. By bike
3. By car
4. By motorbike

Q153b.

1. Less than half an hour away
2. Between half an hour and an hour away

3. More than one hour away

Q154. And to the secondary school/high school?

Q154a.

1. By foot
2. By bike
3. By car
4. By motorbike

Q154b.

1. Less than half an hour
2. Between half an hour and an hour
3. More than one hour

Q155. And to the university?

Q155a.

1. By foot
2. By bike
3. By car
4. By motorbike

Q155b.

1. Less than half an hour
2. Between half an hour and an hour
3. More than one hour

Q156. Where do you stay? *Circle the answer and the frequency of the rent **

1. I live in the family compound (I am the head of the family Yes [] No [])
2. I have my own house or apartment
3. I rent a house for _____ FCFA/month or week
4. I rent a room for _____ FCFA/month or week

Q157. The house where you live is made of:

1. Mud bricks walls
2. Wooden walls
3. Clay brick walls
4. Concrete block walls

Q157a. The roof is made of:

Tin sheet []
Organic material []
Other: _____ []

Q158. What types of crime are the most frequent in your village? (*Make crosses*)

	Not frequent at all	Not that frequent	Frequent
1. Burglaries			
2. Robberies			
3. Fights			
4. Rapes			
5. Murders			
6. Material/Property damage			
7. Other			

Q159. Have the police or the military intervened in incidents in the village or at the extraction site in the last 12 months?

1. Yes
2. No

Q159a. If yes, for which reason?

1. Burglary
2. Robbery
3. Fight
4. Rapes
5. Murders
6. Material/Property damage
7. Other activity _____

Q160. Can the women go to the work place by themselves or are they disturbed or afraid for their safety?

1. Yes
2. No

Q161. Do you go to the Mosques or to the Church?

1. Yes
2. No

Q161a. If yes, how?

1. By foot
2. By bike
3. By car
4. By motorbike

Q161b. How far is it from your house?

1. Less than half an hour
2. Between half an hour and an hour
3. More than one hour

FIN

	Self-employed artisan worker	Self-employed artisan working for one or several operator (digger, diver etc.)	Employee of an operator or company (technical or administrative staff)	Supervisor or chief executive officer of an operator or company	Operator or owner of a company
Extraction (not including head of site)	Q1-Q25 Q31-38 Q46-62 Q128-161 84 Questions Questionnaire 1	Q1-19 Q26-38 Q46-62 Q128-161 93 Questions Questionnaire 2	Q1-19 Q39-62 Q128-161 77 Questions Questionnaire 3	Q1-19 Q39-62 Q128-161 77 Questions Questionnaire 3	Q1-20 Q100-133 Q136-Q139 Q146-148 61 Questions Questionnaire 4
Extraction (Head of site)	Q1-19 Q63-97 Q128-161 88 Questions	Q1-19 Q63-97 Q128-161 88 Questions	Q1-19 Q63-97 Q128-161 88 Questions	Q1-19 Q63-97 Q128-161 88 Questions	NA

	Questionnaire 5	Questionnaire 5	Questionnaire 5	Questionnaire 5	
Processing	Q1-Q25 Q31-38 Q46-62 Q128-161 84 Questions Questionnaire 1	Q1-19 Q26-38 Q46-62 Q128-161 93 Questions Questionnaire 2	Q1-19 Q39-62 Q128-161 77 Questions Questionnaire 3	Q1-19 Q39-62 Q128-161 77 Questions Questionnaire 3	Q1-20 Q98-133 Q136-139 Q146-148 63 Questions Questionnaire 6
Transport	Q1-Q25 Q31-38 Q46-62 Q128-161 84 Questions Questionnaire 1	Q1-19 Q26-38 Q46-62 Q128-161 93 Questions Questionnaire 2	Q1-19 Q39-62 Q128-161 77 Questions Questionnaire 3	Q1-19 Q39-62 Q128-161 77 Questions Questionnaire 3	Q1-20 Q100-133 Q136-Q139 Q146-148 61 Questions Questionnaire 4
Sale/resale	Q1-Q25 Q31-38 Q46-62 Q128-161 84 Questions Questionnaire 1	Q1-19 Q26-38 Q46-62 Q128-161 93 Questions Questionnaire 2	Q1-19 Q39-62 Q128-161 77 Questions Questionnaire 3	Q1-19 Q39-62 Q128-161 77 Questions Questionnaire 3	Q1-20 Q98-133 Q136-139 Q146-148 63 Questions Questionnaire 6
Supply of goods and services	Q1-Q25 Q31-38 Q46-62 Q128-161 84 Questions Questionnaire 1	Q1-19 Q26-38 Q46-62 Q128-161 93 Questions Questionnaire 2	Q1-19 Q39-62 Q128-161 77 Questions Questionnaire 3	Q1-19 Q39-62 Q128-161 77 Questions Questionnaire 3	Q1-20 Q100-133 Q136-Q139 Q146-148 61 Questions Questionnaire 4
End-use	Q1-Q25 Q31-38 Q46-62 Q128-161 84 Questions Questionnaire 1	Q1-19 Q26-38 Q46-62 Q128-161 93 Questions Questionnaire 2	Q1-19 Q39-62 Q128-161 77 Questions Questionnaire 3	Q1-19 Q39-62 Q128-161 77 Questions Questionnaire 3	Q1-20 Q98-133 Q136-139 Q146-148 63 Questions Questionnaire 6

ANNEX 7: BASELINE INDICATORS

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
1	Work status (%): Independ- ent artisan working on own account	Liveli- hoods	Q1	C5	All	51%	59%	63%	11%	44%	86%
1	Work status (%): Independ- ent artisan working for an operator in ex- traction (dig- ger, diver etc.)	Liveli- hoods	Q1	C5	All	14%	6%	10%	18%	27%	None
1	Work status (%): Employee of an opera- tor/business (technical or administrative staff)	Liveli- hoods	Q1	C5	All	25%	28%	19%	42%	20%	11%
1	Work status (%): Supervi- sor or senior manager of an operator/busi- ness	Liveli- hoods	Q1	C5	All	25%	28%	19%	42%	20%	11%

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
1	Site manager (yes/no)	Liveli- hoods	Q1	C5	All	8% identified as site man- ager	4% identified as site man- ager	3% identified as site man- ager	50% identi- fied as site manager	18% iden- tified as site man- ager	None
2	Length of time working at the site	Liveli- hoods	Q2	M & C4	All	Less than a year: 7% Between one & five years: 28% Between five & 10 years: 30% More than 10 years: 33% No response: 2%	Less than a year: 0% Between one & five years: 29% Between five & 10 years: 24% More than 10 years: 44% No response: 3%	Less than a year: 11% Between one & five years: 27% Between five & 10 years: 29% More than 10 years: 30% No response: 4%	Less than a year: 13% Between one & five years: 41% Between five & 10 years: 23% More than 10 years: 23% No response: 0%	Less than a year: 7% Between one & five years: 20% Between five & 10 years: 33% More than 10 years: 39% No re- sponse: 1%	Less than a year: 7% Between one & five years: 20% Between five & 10 years: 67% More than 10 years: 7% No response: 0%
3	Place of resi- dence (name of arrondisse- ment or town)	Liveli- hoods	D3 & D4	Methodol- ogy (M)	All	See De- mographics section for full list	Most cited: 23% Nkolbis- son 20% Quarteir Latin 15% Bamess- ing 17% Marom	Most cited: 26% Nkome- tou 26% Sa'a 14% Missingleo 12% Song Nlend 4% Domayo	Most cited: 26% Foumbot 19% Bafous- sam 16% Njinbot 7% Baigom	Most cited: 18% Longtimbi 15% Ebebda 8% Bona- beri 7%	Most cited: 54% Mardam 46% Banyo

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
										Douala 7% Muten- gene 6% Ber- toua	
4	Number of days per week worked	Liveli- hoods	Q4	C4		1 to 2 days / week: 5% 3 to 5 days: 27% Every day not Sunday: 42% Every day: 22% No response: 5%	1 to 2 days / week: 8% 3 to 5 days: 52% Every day not Sunday: 20% Every day: 16% No response: 4%	1 to 2 days / week: 3% 3 to 5 days: 14% Every day not Sunday: 55% Every day: 19% No response: 9%	1 to 2 days / week: 9% 3 to 5 days: 19% Every day not Sunday: 49% Every day: 21% No response: 3%	1 to 2 days / week: 1% 3 to 5 days: 25% Every day not Sun- day: 54% Every day: 17% No re- sponse: 3%	1 to 2 days / week: 17% 3 to 5 days: 0% Every day not Sunday: 10% Every day: 73% No response: 0%
5	Start time and finish time	Liveli- hoods	Q5	C4		84% start be- tween 6-8; 7% start between 9-11; and 4% 00-5 56% end be- tween 15-17; 34% 18-20	76% start be- tween 6-8; 14% start be- tween 9-11; and 3% 12-14 66% end be- tween 15-17; 19% 18-20	89% start be- tween 6-8; 5% start be- tween 9-11 62% end be- tween 15-17; 30% 18-20	94% start be- tween 6-8; 3% 00-5 43% end be- tween 15-17; 49% 18-20; 3% 6-8	81% start between 6-8; 11% 00-5; and 5% 9-11 44% end between 15-17; 45% 18-	76% start between 6-8; 14% start be- tween 9-11; and 3% 12-14 66% end between 15-17; 19% 18-20; 6% 21-24

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
										20; 6% 21-24	
7	Number of months worked per year, spec- ify months without activity	Liveli- hoods	Q7	C4		87% work every month; those not work- ing every month, work: 57% work be- tween one and three months; the remainder work between four and eight months	84% work every month; those not work- ing every month, work: 50% work be- tween one and three months; the remainder work between four and eight months	94% work every month those not working every month, work: 88% work be- tween one and three months; the remainder 12% work be- tween four and eight months	91% work every month those not working every month, work: all work be- tween one and three months	89% work every month those not working every month, work: 77% work between one and three months; the re- mainder work be- tween four and eight months	53% work every month those not working every month, work: 85% work between four and eight months, the re- mainder work less than three months a year

QUESTION	INDICATOR	AREA	SURVEY QUESTION NO.	COMPONENT	TYPE OF RESPONDENT	TOTAL RESPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
8	Customer profile, i.e. where do they come from	Livelihoods	Q8; Q9; Q10; Q15	C5	Independent artisan: own account or for an operator (e.g. digger, diver); employee of an operator/business (technical or administrative staff)	Origin of customers: 114 (stones) + 119 (clay) + 70 (Pozz) + 121 (sand) + 28 (sapphire) Multiple answers possible	28% from Yaoundé, 14% Marom, 13% Boula Ibbi, 13% Foumban, 9% from Bamessing, 9% from Douala, 8% from Bamenda, 5% Bafoussam, 3% from Guider, 3% Piyoa, 3% Garoua, 3% Extended North (North, Adamaoua, Extreme North), 4% Maroua, 2% from Figuil, 2% Nkolbisson, 2% All Cameroon, 2% Ndop, 2% Bibemi, less than 1% for Kumbo, Ebolowa, Koutaba, Foumbot, Koulaïdje,	41% from Yaoundé, 27% from Sa'a, 20% from Douala, 11% from Extreme North, 11% from Nkometou, 10% from Obala, 10% from the quarry (on site suppliers), 8% from Maroua, 4% Pouma, and less than 1% for Limbe, Bafoussam, Bamenda, Yde, Mondeté, Nkozoa and Mfomakop	51% Bafoussam, 41% Foumbot, 34% Foumban, 14% Douala, 6% Koutaba, 6% Yaoundé, 6% Njimbot, 3% Dschang, 3% Bamenda, 3% Baigom, 1% Nkoup-tamo, 1% Bangourain	31% Douala, 21% Yaoundé, 17% Bertoua, 16% Tiko, 15% Dimako, 12% Buea, 12% Mutengene, 6% Limbé, 5% Longtimbi, 4% Ebebdia, 2% Dome, less than 1% Souza, Yato, Bomono, Bonaberi, Obala, Ombessa, Aborbong, Mudeka, Mondoni, Idenau,	86% Banyo, 14% Mardam, 14% Sri Lanka, 7% All Cameroon

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
							Europe, USA, Overseas			Bafous- sam	
10	Use of ore	Liveli- hoods	Q10	C5	Site Man- ager in min- eral extrac- tion	N/A			39% mortar and other concrete work 23% ground and wall pavement, 17% pottery (pottery may have been understood as pot mak- ing, even in concrete), 13% backfill, 5% piece of art, 3% bricks, 2% road pave- ment, 1% kitchen coun- ter	Concrete construc- tion and decora- tive prod- ucts	Decorative items (not further speci- fied)

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
11	Work status (%): Opera- tor/owner of a business	Liveli- hoods	Q11	C5	All	11%	6%	9%	29%	10%	4%
11	Economic ac- tivity (%): Min- eral extraction	Liveli- hoods	Q11	C5	All	39%	47%	32%	26%	35%	80%
11	Economic ac- tivity (%): Transformation of mineral or its semi-finished products	Liveli- hoods	Q11	C5	All	21%	29%	31%	14%	15%	N/A

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
11	Economic ac- tivity (%): Transportation of mineral or finished and semi-finished products	Liveli- hoods	Q11 & Q13	C5	All	14%	13%	13%	20%	15%	N/A
11	Economic ac- tivity (%): Pur- chase / resale of the mineral or its finished and semi-fin- ished products	Liveli- hoods		C5	All	16%	13&	23%	15%	7%	33%

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
11	Economic ac- tivity (%): Pro- vision of goods and services to stakeholders in the mineral value chain	Liveli- hoods		C5	All	18%	20%	13%	10%	18%	30%
11	Economic ac- tivity (%): End use of mineral or its finished products	Liveli- hoods		C5	All	13%	11%	15%	15%	15%	N/A
11	Selling price (Per tonne, truck by unit)	Liveli- hoods	Q11	C5	Site Man- ager in min- eral extrac- tion						
11	Basis for set- ting the price	Liveli- hoods	Q11	C5	Site Man- ager in min- eral extrac- tion						
13	Seasonal changes in price	Liveli- hoods	Q13	C5	Site Man- ager in min- eral extrac- tion						

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
17	Equipment, tools and inputs used, price for these and distance from nearest supplier	Liveli- hoods	Q17	C5	Independent artisan: own account or for an operator (e.g. digger, diver); employee of an operator/business (technical or administrative staff)						
17	Unit purchase price of the mineral (Kg, per tonne depending on usage) or product	Liveli- hoods	Q17	C5	Supervisor or senior manager of an operator/business; or operator/owner of a business						
17	Supplies of the company (type, volume and unit price)	Liveli- hoods	Q17	C5	Supervisor or senior manager of an operator/business; or operator/owner of a business						
17	Equipment price,	Liveli- hoods	Q17	C5	Supervisor or senior						

QUESTION	INDICATOR	AREA	SURVEY QUESTION NO.	COMPONENT	TYPE OF RESPONDENT	TOTAL RESPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
	replacement rate, suppliers				manager of an operator/business; or operator/owner of a business						
17	Use of chemicals or explosives in production, specify which ones	Health & safety	Q17b. & 17c.	C4		Use of chemicals: 43% Diesel fuel 10% Tar 20% Paint, enamel 27% Other No response for use of explosives	Use of chemicals: 38% Diesel fuel 50% Paint, enamel 13% Other No response for use of explosives	Use of chemicals: 100% Other No response for use of explosives	Use of chemicals: 77% Diesel fuel 15% Paint, enamel 8% Other No response for use of explosives	Use of chemicals: 60% Tar 40% Other No response for use of explosives	No response for use of chemicals and explosives
18	Transport carrier (type of transport, costs)	Livelihoods	Q18	C5	Supervisor or senior manager of an operator/business; or operator/owner of a business						

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
19	Have rented equipment, from whom and type of equipment	Liveli- hoods	Q19	C5	Independent artisan: own account or for an opera- tor (e.g. dig- ger, diver); employee of an opera- tor/business (technical or administra- tive staff)						
20	Amount of de- posit held and in which locali- ties	Liveli- hoods	Q20	C5	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business						
24	Have used a loan to finance activity (ex- cluding tontine)	Liveli- hoods	Q24	C5	Independent artisan: own account	95% no 5% yes	94% no 6% yes	94% no 6% yes	86% no 14% yes	98% no 2% yes	100% no

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
24	Lending agency of most recent loan, amount, rate, duration, purpose of loan, repaid (yes / no / in progress)	Liveli- hoods	Q24	C5	Independent artisan: own account or for an operator (e.g. digger, diver); employee of an operator/business (technical or administrative staff)						
24	Reasons for never using a loan	Liveli- hoods	Q24	C5	Independent artisan: own account or for an operator (e.g. digger, diver); employee of an operator/business (technical or administrative staff)	Highest re- sponses for never using a loan were: 50% loan is not needed yet 36% afraid they will not be able to pay the loan back	Highest re- sponses for never using a loan were: 58% loan is not needed yet 38% afraid they will not be able to pay the loan back	Highest re- sponses for never using a loan were: 44% loan is not needed yet 33% afraid they will not be able to pay the loan back	Highest re- sponses for never using a loan were: 50% loan is not needed yet 50% afraid they will not be able to pay the loan back Note low number of re- spondents to- tal of 4	Highest re- sponses for never using a loan were: 48% loan is not needed yet 33% afraid they will not be able to pay the loan back	Highest responses for never using a loan were: 48% loan is not needed yet 35% afraid they will not be able to pay the loan back

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
26	Means of pay- ment (daily, monthly, to the bag, to the loaded truck, in the wheelbar- row, per m2, in m3, to the ca- noe, by piece (pottery, brick etc.), Other)	Liveli- hoods	Q26	C5	Independent artisan: own account or for an opera- tor (e.g. dig- ger, diver); employee of an opera- tor/business (technical or administra- tive staff)				91% are paid at the truck loaded 9% at the end of the month		
27	Amount re- ceived per unit sold per unit (bag, wheel- barrow, truck, products etc.)	Liveli- hoods	Q27	C5	Independent artisan: own account or for an opera- tor (e.g. dig- ger, diver); employee of an opera- tor/business (technical or administra- tive staff)				50% are paid 1200F per truck loaded and 50% are paid 400F per 12T truck and 600F per 20T truck loaded		No response
31	Average num- ber of produc- tion in units per day (bag, wheelbarrow,	Liveli- hoods	Q31; Q32; Q79	C5	Independent artisan: own account or for an opera- tor (e.g. dig- ger, diver); employee of				45% say be- tween 5 and 10 trucks, 36% say be- tween 3 and 5, 18% says more than 20		

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
	truck, products etc.)				an opera- tor/business (technical or administra- tive staff)				During a bad day 56% says 2 trucks, 18% zero, 18% zero, 9% 3 trucks, 9% says between 5 and 10 trucks		
33	Possession of a bank account	Liveli- hoods	Q33	C5	Independent artisan: own account or for an opera- tor (e.g. dig- ger, diver); employee of an opera- tor/business (technical or administra- tive staff)	87% no 13% yes	95% no 5% yes	88% no 12% yes	89% no 11% yes	74% no 26% yes	100% no

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
34	Mode of transport between site and home (foot, moto- taxi, own motorbike, car, public transport)	People	Q34	C4	All	69% by foot 4% bike 14% taxi motorbike 3% public transport 2% taxi 3% personal motorbike 1% car 4% mixed (sometimes foot, taxi, motorbike)	75% by foot 4% bike 9% taxi motorbike 3% public transport 1% car 7% mixed (sometimes foot, taxi, motorcycle taxi)	87% by foot 8% taxi motorbike 1% taxi 1% personal motorbike 3% mixed (motorbike, public transport)	35% by foot 47% taxi motorbike 12% personal motorbike 6% mixed (foot and taxi motorbike)	47% by foot 10% bike 18% taxi motorbike 7% public transport 7% taxi 6% personal motorbike 3% car 1% mixed (foot and taxi motorbike)	81% by foot 19% taxi motorbike
35	Distance/time travelled to and from work site	Infra-structure	Q35	C4	All	77% Less than thirty minutes 17% Between thirty minutes and one hour 3% Between one and two hours 4% More than two hours	69% Less than thirty minutes 19% Between thirty minutes and one hour 6% Between one and two hours 6% More than two hours	77% Less than thirty minutes 23% Between thirty minutes and one hour	87.5% Less than thirty minutes 12.5% Between thirty minutes and one hour	87% Less than thirty minutes 10% Between thirty minutes and one hour 3% Between one and two hours	69% Less than thirty minutes 8% Between thirty minutes and one hour 4% Between one and two hours 19% More than two hours

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
36	Cost of trip if taxi / public transport	Infra- structure	Q36	C4	All	30 % 100-200 CFA 37% 200-500 CFA 17% 500-1000 CFA 3% 1000-2000 CFA 12% Over 2000 CFA	45% 100-200 CFA 27% 200-500 CFA 9% 500-1000 CFA 18% Over 2000 CFA	46% 100-200 CFA 38% 200-500 CFA 15% Over 2000 CFA	29% 200-500 CFA 71% 500- 1000 CFA	27% 100- 200 CFA 46% 200- 500 CFA 15% 500- 1000 CFA 12% 1000- 2000 CFA	All over 10000 CFA
37	Obligation to pay a fee to do business	Liveli- hoods	Q37; Q38	C5	Independent artisan: own account or for an opera- tor (e.g. dig- ger, diver); employee of an opera- tor/business (technical or administra- tive staff)	83,5% No 16,5% Yes	84% No 16% Yes	81% No 19% Yes	100% No	75% No 25% Yes	100% No

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
37	Basis for fee, i.e. amount of the production, number of bag / day etc.	Liveli- hoods	Q37	C5	Independent artisan: own account or for an opera- tor (e.g. dig- ger, diver); employee of an opera- tor/business (technical or administra- tive staff)				N/A		N/A
38	Other expendi- ture (in addi- tion to loans, rental and transport)	Liveli- hoods	Q38	C5	Independent artisan: own account or for an opera- tor (e.g. dig- ger, diver); employee of an opera- tor/business (technical or administra- tive staff)	94% no 6% yes	98% no 2% yes	97% no 3% yes	100% no	84% no 16% yes	100% no

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
39	Type of em- ployer	Liveli- hoods	Q39	C5	Site Man- ager in min- eral extrac- tion	46% working for an operator which is a for- mal company or any other formal com- pany 28% An opera- tor who is a natural person or any other company from the informal sector; 26% Other	87% working for an operator which is a for- mal company or any other formal com- pany 6% An operator who is a natu- ral person or any other com- pany from the informal sector; 9% Other	32% working for an opera- tor which is a formal com- pany or any other formal company 50% An opera- tor who is a natural per- son or any other com- pany from the informal sec- tor; 18% Other	19% are working for a physical per- son or an in- formal busi- ness, 56% for a formal busi- ness, 22% Other (one mentioned the govern- ment)	11% working for an op- erator which is a formal company or any other for- mal com- pany 31% An operator who is a natural person or any other company from the informal sector; 58% Other	67% working for an operator which is a formal com- pany or any other formal company 17% Other
39	Legal status of the company	Liveli- hoods	Q39+ Q101 Q41 + Q101a	C2 & C5	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business	From the pool of respondents owning or working for a company with one or more employees: interviewed,	From the pool of respondents owning or working for a company with one or more employees: interviewed,	From the pool of respond- ents owning or working for a company with one or more employ- ees:	From the pool of respond- ents owning or working for a company with one or more employ- ees:	From the pool of respond- ents own- ing or working for a com- pany with	From the pool of respondents own- ing or working for a company with one or more em- ployees: interviewed, 29% responded as

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
						23% are informal; 23% responded as other Out of the 54% legally registered: 72% Sole proprietorship 5% GIE/GIC 20% SARL 3% SA	5% are informal; 9% responded as other Out of the 86% legally registered: 50% Sole proprietorship 50% SARL	interviewed, 42% are informal; 15% responded as other Out of the 42% legally registered: 94 % Sole proprietorship 6% SARL	interviewed, 42% are informal; 19% responded as other Out of the 39% legally registered: 61% Sole proprietorship 11% GIE/GIC 22% SARL 6% SA	one or more employees: interviewed, 24% are informal; 47% responded as other Out of the 29% legally registered: 75% Sole proprietorship 6% GIE/GIC 13% SARL 6% SA	other Out of the 71% legally registered: 33% Sole proprietorship 67% SARL
42	Number of workers employed (full time vs part time), tasks performed by employees and	Livelihoods	Q42; Q102	C5	Supervisor or senior manager of an operator/business; or operator/owner of a business	Note only asked to owners of companies with more than one full time employees: 57% between	Note only asked to owners of companies with more than one full time employees: 19% between	Note only asked to owners of companies with more than one full time employees: 71% between	Note only asked to owners of companies with more than one full time employees: 56% between	Note only asked to owners of companies with more than one full time employees: time	Note only asked to owners of companies with more than one full time employees: All answered between 1-5

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
	payment (Day, truck, bag, etc.)					1-5 17% between 6-20 26% more than 20	1-5 14% between 6-20 67% more than 20	1-5 17% between 6-20 13% more than 20	1-5 28% between 6-20 16% more than 20	employ- ees: 80% be- tween 1-5 10% be- tween 6- 20 10% more than 20	
43	Business activ- ities are sub- ject to authori- zation	Liveli- hoods	Q43; Q105	C2	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business	65% yes 35% no	91% yes 9% no	72% yes 28% no	61% yes 39% no	36% yes 64% no	All answered yes

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
44	Perceived number of unpaid workers at site (male and female)	Liveli- hoods	Q44	C4		N/A					
45	Benefits re- ceived (trans- portation, meals, medical cover etc.) Written con- tract (yes/no)	Liveli- hoods	Q45	C4 & C5		14% Transpor- tation 26% Meals 27% Medical coverage/insur- ance 24% Provision of protective equipment 34% Written employment contract 15% no bene- fits	None Trans- portation 2% Meals 54% Medical coverage/insur- ance 46% Provision of protective equipment 33% Written employment contract 6% no benefits	18% Trans- portation 41% Meals 12% Medical coverage/in- surance 6% Provision of protective equipment 12% Written employment contract 47% no bene- fits	13% Trans- portation 40% Meals 7% Medical coverage/in- surance 13% Provi- sion of pro- tective equip- ment 20% Written employment contract 33% no bene- fits	32% Transpor- tation 36% Meals 7% Medi- cal cover- age/insur- ance & Provision of protec- tive equip- ment 4% Writ- ten em- ployment contract	All mentioned meals, and 33% also receive transport

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
										39% no benefits	
45	Have health in- surance	People	Q45	C4		When asked which benefits are received, 27% answered health insur- ance	When asked which benefits are received, 56% answered health insur- ance	When asked which bene- fits are re- ceived, 41% answered health insur- ance	When asked which bene- fits are re- ceived, 33% answered health insur- ance	When asked which benefits are re- ceived, 29% an- swered health in- surance	When asked which benefits are re- ceived, 55% an- swered health in- surance

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
46	Inventory held (number of units)	Liveli- hoods	Q46	C5	Independent artisan: own account or for an opera- tor (e.g. dig- ger, diver); employee of an opera- tor/business (technical or administra- tive staff)	51% yes 49% no	65% yes 35% no	49% yes 51% no	64% say there is no in- ventory, 36% say yes but no precision on volumes	49% yes 51% no	31% yes 69% no
47	Number of units sold on a very good day	Liveli- hoods	Q47; (Head of site Q80)	C5	Independent artisan: own account or for an opera- tor (e.g. dig- ger, diver); employee of an opera- tor/business (technical or administra- tive staff)	See individual miners, differs across	20% for each of the following: 10 <i>canaris</i> 5 <i>canaris</i> 2 bags 5 bags 10 bags All	16% 2 trucks 12% 50 m2 8% 20 t 8% 1 wheel- barrow or a stack of 6000F 8% 4 m3 8% 100 m2 4% Several trucks (12.000 F)	14% 5 trucks 14% for each: 4 trucks 8 trucks 9 trucks 25 trucks 30 trucks	21% 3 trucks 13% 2 wheelbar- row or a stack 8% 4 ca- noes 8% 4/5 m3 8% 1-2 trucks 8% 2 trucks	47% 2-3 grains 24% 3 grains 24% 2 Grains 6% 1-2 grains

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
								4% 5 wheelbarrows and 10 m2 4 wheelbarrows or a stack 4% 1 wheelbarrow or a stack of 5.000 F 4% 1 truck 4% 10 wheelbarrows 4% 10 M2 ET 8 wheelbarrows 4% 20- 50 m2 4% 3 m3		4% 1 wheelbarrow or a stack 4% 3 wheelbarrow or a stack 4% 1 truck 4% 2-3 trucks 4% 6 trucks 4% 10-20 trucks 10 m3 4% 5 canoes 4% 12t	
48	Number of units sold on a bad day	Livelihoods	Q48; Head of site Q81)	C5	Independent artisan: own account or for an operator (e.g. digger, diver); employee of an operator/business (technical or	61% responded none	50% responded none; 10% 5 bags, 20% 2 bags, 10% one bag & 10% ¼ bag	83% responded none; 3% for each: Small wheelbarrow or a stack 2.000 F 0-2 m2	43% 2 trucks 29% 0-5 trucks 29% None	46% responded none; 21% one truck; 8% 0-1 truck(s)	82% responded none and 18% 0-1 gains

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
					administra- tive staff)			10 m2 4 wheelbar- rows			
49	Types of inju- ries at work	Health & safety	Q49	C4		73% Backache 50% Back/lower back 18% Chest 56% Hand In- jury 38% Feet In- jury 9% Burn Injury 11% Leg Injury 12% Other: ill- ness and traffic accidents (lower re- sponses)	72% Backache 47% Back/lower back 12% Chest 36% Hand In- jury 31% Feet In- jury 18% Burn In- jury 16% Other: ill- ness	80% Back- ache 56% Back/lower back 18% Chest 71% Hand In- jury 57% Feet In- jury 10% Burn In- jury 14% Other: Ill- ness	63%% Back- ache 58% Back/lower back 18% Chest 58% Hand In- jury 29% Feet In- jury None for Burns 5% Other: Ill- ness	69% Backache 40% Back/lowe r back 23% Chest 58% Hand In- jury 39% Feet Injury 4% Burn Injury 8% Other: traffic ac- cidents cited and illness	72% Backache 59% Back/lower back 21% Chest 69% Hand Injury 21% Feet Injury 7% Burn Injury 14% Other: Illness
50	Use of per- sonal protec- tive equipment, and reasons for non-use	Health & safety	Q50 & Q51	C4		64% do not use any PPE Reasons for non-use: 59% cited lack of fi- nancial means; 26% answered due to	76% do not use any PPE Reasons for non-use: 44% cited lack of fi- nancial means; 25% answered due to discom- fort; 25% said	68% do not use any PPE Reasons for non-use: 65% cited lack of financial means; 25% answered due to	34% do not use any PPE Reasons for non-use: 54% cited lack of financial means; 38% answered due to	58% do not use any PPE Reasons for non- use: 64% cited lack of finan- cial	72% do not use any PPE Reasons for non- use: 91% cited lack of financial means and 9% an- swered that it was unnecessary

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
						discomfort; 12% said it was unnecessary	it was unneces- sary	discomfort ; 7% said it was uneces- sary	discomfort; 15% said it was uneces- sary	means and 33%an- swered due to discom- fort	
51	Perceived so- lutions for pre- vention of risks	Health & safety	Q51, 119	C4		64% do not use PPE; 12% of workers said PPE was un- necessary; 81% of opera- tors/owners said yes to providing PPE	25% of workers said PPE was unnecessary	7% of work- ers said PPE was unneces- sary	15% of work- ers said PPE was unneces- sary	33% of workers said PPE was un- necessary	9% of workers said PPE was unneces- sary
52	Accident fre- quency	Health & safety	Q52	C4		On average: 45% Never 4% Last week 11% Last month 17% Last year 24% More than a year	54% Never 2% Last week 5% Last month 17% Last year 23% More than a year	38% Never 6% Last week 13% Last month 18% Last year 24% More than a year	28% Never 9% Last week 16% Last month 13% Last year 34% More than a year	46% Never 2% Last week 13% Last month 19% Last year 20% More than a year	58% Never 8% Last month 12% Last year 23% More than a year

QUESTION	INDICATOR	AREA	SURVEY QUESTION NO.	COMPONENT	TYPE OF RESPONDENT	TOTAL RESPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
52	Accident cause	Health & safety	Q52a	C4		On average: 3% Landslide 22% Misuse of equipment/tool 5% Equipment failure 9% Slip/fall 2% Bad weather 3% Other	3% Landslide 17% Misuse of equipment/tool 3% Equipment failure 8% Slip/fall 1% Bad weather 2% Other	7% Landslide 27% Misuse of equipment/tool 6% Equipment failure 13% Slip/fall 1% Bad weather 4% Other	24% Misuse of equipment/tool 7% Equipment failure 3% Slip/fall	1% Landslide 21% Misuse of equipment/tool 4% Equipment failure 10% Slip/fall 2% Bad weather 3% Other	3% Landslide 20% Misuse of equipment/tool 3% Equipment failure 10% Bad weather 10% Other
52	Accident severity	Health & safety	Q52b	C4		Respondents answered that the accident did not allow them to work on average for the following length of time: 3% One day 19% 2-3 days 17% One week 29% More than one week	Respondents answered that the accident did not allow them to work for the following length of time: 5% One day 24% 2-3 days 11% One week 16% More than one week	Respondents answered that the accident did not allow them to work for the following length of time: 17% 2-3 days 27% One week 44% More than one week	Respondents answered that the accident did not allow them to work for the following length of time: 7% One day 19% 2-3 days 11% One week 26% More than one week	Respondents answered that the accident did not allow them to work for the following length of time: 2% One day 20% 2-3 days 18% One	Respondents answered that the accident did not allow them to work for the following length of time: 8% 2-3 days

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
										week 31% More than one week	
53	Use of pain medications, specify medi- cations, fre- quency of use	People	Q53	C4		12% use pain medications; Frequency 10% Several times a day 5% Once a day 23% Several times a week 15% Once a week 46% From time to time	5% use pain medications: 60% From time to time, 20% Sev- eral times a week and 20% Once a week High responses of Anti-inflam- matory medica- tion	21% use pain medications; Frequency: 11% Several times a day 5% Once a day 37% Several times a week 21% Once a week 26% From time to time	23% use pain medications; Frequency: 78% From time to time	8% use pain med- ications; Fre- quency: 17% Sev- eral times a day 17% Once a day 17% Sev- eral times a week 50% From time to time	100% do not use pain medications No data on fre- quency

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
54	Amount of alcohol consumed per week / day, problems related to alcohol,	People	Q54	C4		2% Every day 19% Several times a week 40% Less often 39% Never	None drink every day 9% Several times a week 38% Less often 53% Never	2% Every day 26% Several times a week 42% Less often 29% Never	None drink every day 11% Several times a week 27% Less often 61% Never	5% Every day 26% Several times a week 44% Less often 26% Never	None drink every day 21% Several times a week 48% Less often 31% Never
55	Amount of marijuana consumed per week / day, problems related to marijuana	People	Q55	C4		1% every day 2% Several times a week 1% Less often 96% Never smoke	100% Never	100% Never	2% Less often 98% Never	2% Every day 4% Several times a week 1% Less often 93% Never	14% Several times a week 7% Less often 79% Never
56	Received any other training, specify for which activity and benefits	People	Q56; Q123	C4		N/A					

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
56	Member of a professional association / group, specify which one and benefits	People	Q56	C3 & C4		83% no 17% yes Of yes re- sponses: 19% Protection of my rights 77% Support 15% Experience shar- ing/training	90% no 10% yes Of yes re- sponses: 100%Support 20% Experi- ence shar- ing/training	81% no 19% yes Of yes re- sponses: 20% Protec- tion of my rights 87% Support 13% Experi- ence shar- ing/training	59% no 41% yes Of yes re- sponses: 7% Protection of my rights 93% Support 7% Experi- ence shar- ing/training	85% no 15% yes Of yes re- sponses: 46% Protec- tion of my rights 92% Sup- port 33% Ex- perience shar- ing/train- ing	None are mem- bers
57	Causes of disagreements at work, parties involved, if solved or not	Communi- ty	Q57-60	C4	All	20% answered yes to having a disagreement Of them 69% dispute with a colleague, 21% operator, and 4% supervisor. Causes: 39% Personal argument/Lack of respect 25% Disagree- ment over the way to carry out the activi- ties	6% answered yes to having a disagreement. Almost all answered dispute with a col- league. Causes: disagreement over the way to carry out the activities One respond- ent viewed the issue as unre- solved	21% answered yes to having a disagreement. Of them 69% dispute with a colleague, 20% opera- tor, and 4% supervisor. Causes: 41% Personal argu- ment/Lack of respect 27% Disa- greement	21% answered yes to having a disagreement. Almost all answered dispute with a colleague. Causes in- clude: Per- sonal argu- ment/Lack of respect & Disagreement over the way to carry out the activities	37% answered yes to having a disagreement. Of them 63% dispute with a col- league, 23% op- erator. Causes Personal argu- ment/Lac	7% answered yes to having a disagreement All cited disagree- ments with col- leagues. All disputes have been resolved

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
						22% Problems linked to the payroll or the amount of pay 13% view the issue as unresolved		over the way to carry out the activities 14% Problems linked to the payroll or the amount of pay 29% view the issue as unresolved	13% view the issue as unresolved	k of respect & Problems linked to the payroll or the amount of pay 3% view the issue as unresolved	
61	Persons responsible for resolving disagreements on site	Community	Q61	C4	All	37% between ourselves 55% head of site, manager, producer 1% government entity	53% between ourselves 45% head of site, manager, producer 1% government entity	49% between ourselves 37% head of site, manager, producer 3% government entity	4% between ourselves 83% head of site, manager, producer None government entity	28% between ourselves 65% head of site, manager, producer None government entity	None between ourselves 100% head of site, manager, producer None government entity
62	Have an official document enabling respondent to do business	Livelihoods	Q101	C2 & C5	Supervisor or senior manager of an operator/business; or	Of the operators/owners: 50% no 50% yes	Of the operators/owners: 57% no 43% yes	Of the operators/owners: 56% no 44% yes	Of the operators/owners: 53% no 47% yes	Of the operators/owners: 44% no 56% yes	One respondent - yes

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
					opera- tor/owner of a business						
65	Owner of site is also an oper- ator with legal permit	Land	Q65	C2 & C4	All in: Min- eral extrac- tion; Trans- formation of mineral or its semi-fin- ished prod- ucts	35% Operator 26% an individ- ual/ family 6% village 32% other	Most owners are individuals/ families	78% an- swered other; small number answer oper- ator (11%) and family	60% an- swered the operator as the owner, 40% other	70% an- swered the opera- tor as the owner	No response
66	Site owner lives in local community	Communi- ty	Q66	C4		53% village 66% arroun- dissement 90% region	86% village 100% arroun- dissement	25% village 63% arroun- dissement 88% region	100% village	30% vil- lage 80% re- gion	No response
67	Land is pri- vately/publi- cally owned	Land	Q67	C4		30% individual 13% village 57% commune or state	100% individ- ual	22% individ- ual 88% com- mune or state	20% individ- ual 20% village 60% com- mune or state	30% vil- lage 70% state	No response
68	Compensation has been paid to landowner for exploitation of the quarry (yes/no)	Land	Q68	C2 & C4	All in: Min- eral extrac- tion; Trans- formation of mineral or its semi-	68% yes 32% no	All answered yes	22% yes 78% no	50% yes 50% no	All an- swered yes	No response

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
					finished products						
69	Quality of roads to ac- cess site, dis- tance/time	Infra- structure	Q69	C4	All	31% Only ac- cessible by foot 3% accessible by motorbike 50% Road ac- cessible by car 16% Paved road	71% Only ac- cessible by foot 14% Road ac- cessible by car 14% Paved road	44% Only ac- cessible by foot 11% Road accessible by car 44% Paved road	17% accessi- ble by motor- bike 83% Road accessible by car	10% only accessi- ble by foot 90% Road ac- cessible by car	No response
71	Different actors and tasks per- formed by each actor on the site	Liveli- hoods	Q71	C5	Site Man- ager in min- eral extrac- tion				Digger, loader, transporter, processor, end user or digger, loader, transporter, seller, end user		No response
72	Perceived number of peo- ple on site (men/women/c hildren under 14)	Liveli- hoods	Q72; Q102a	M & C4		53% say yes on tasks being performed by women/chil- dren under 14)	80% say yes on tasks being performed by women/chil- dren under 14)	67% say yes on tasks be- ing performed by women/chil- dren under 14)	50 % say yes on tasks be- ing performed by women/chil- dren under 14)	30% say yes on tasks be- ing per- formed by women/ch ildren un- der 14)	No response

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
73	Mystical signifi- cance or be- liefs/practices attached to mineral being exploited	Culture & reli- gion	Q73	C4	All	91% no 9% yes	86% no 14% yes	100% no	67% no 33% yes	100% no	No response
74	Role of the site manager	Liveli- hoods	Q74	C5	Site Man- ager in min- eral extrac- tion	% Of re- sponses: 57% supervise workers/ a group of work- ers 43% manage the overall ac- tivities of the site 14% repre- sentative of the mine operation 25% other	% Of re- sponses: 60% supervise workers/ a group of work- ers 40% manage the overall ac- tivities of the site	% Of re- sponses: 43% super- vise workers/ 71% other	% Of re- sponses: 17% super- vise workers/ a group of workers 50% manage the overall activities of the site 33% repre- sentative of the mine op- eration 25% other	% Of re- sponses: 90% su- pervise workers/ a group of workers 70% man- age the overall activities of the site 20% rep- resenta- tive of the mine op- eration	No response
77	Frequency of disagreements at work and causes	Communi- ty	Q75-77	C4	Site Man- ager in min- eral extrac- tion	8% weekly 35% monthly 58% rarely Causes: 20% Personal argument/Lack of respect 20%	100% rarely Causes: 100% Disa- greement over the way to carry out the activities	22% monthly 78% rarely Causes: 8% Personal argu- ment/Lack of respect 8%	20% monthly 80% rarely Causes: 40% Personal argu- ment/Lack of respect 60%	20% weekly 60% monthly 20% rarely Causes: 27%	No response

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
						Disagreement over the way to carry out the activities 47% Problems linked to the payroll or the amount of pay		Disagreement over the way to carry out the activities 58% Problems linked to the payroll or the amount of pay 25% other	Disagreement over the way to carry out the activities	Personal argument/Lack of respect 9% other 64% Problems linked to the payroll or the amount of pay	
78	Records kept of output from the site	Livelihoods	Q78	C5	Site Manager in mineral extraction	42% keep a record of production	33% keep a record of production	None keep a record of production	83% keep a record of production	60% keep a record of production	No response
79	Production sold	Livelihoods	Q79-82	C5	Site Manager in mineral extraction				Production average good day: 7-8 trucks. Bad days: 0-1 truck average		No response
81	Existence of unsold inventory	Livelihoods	Q81	C5	Site Manager in mineral extraction	45% no 55% yes	100% yes	100% no	33% no 67% yes No information on size of stock	30% no 70% yes	No response

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
83	Specificity of the ore on site (Quality, col- our, other specifications)	Liveli- hoods	Q83	C5	Site Man- ager in min- eral extrac- tion	Of responses: Color: 75% cited black; 53% mentioned a variety of col- ors Quality: excel- lent for 59%, good for 41% Grain size: 22% Very Fine 66% Fine 53% Average 41% Coarse 59% say grain size impacts price, 48% say quality, 31% colour, 17% says it is the same price for all production at site	Of responses: Color: 100% red; 86% cited black Quality: excel- lent for 43%, good for 57% Grain size: 71% Very Fine 86% Fine no clear results on which im- pacts price	Of responses: Color: 89% cited black; 44% brown and mixed colors Qual- ity: excellent for 78%, good for 22% Grain size: None - Very Fine 56% Fine 89% Average 78% Coarse 75% say grain size im- pacts price, 75% say quality, 63% colour	Of responses: Color: 100% cited black and 25% mixed colors Quality: ex- cellent for 50%, good for 50% Grain size: 83% says fine, 17% me- dium 75% re- sponded quality impact price, 75% also re- sponded it is the same price for all production at site	Of re- sponses: Color: 60% yel- low: 40% cited black Quality: excellent for 60%, good for 40% Grain size: 20% Very Fine 50% Fine 90% Av- erage 60% Coarse 90% re- sponded grain size impacts price, 60% say quality	No response

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
85	Prospecting / extraction tech- niques and means of learning tech- nique	Liveli- hoods	Q85-86	C5 & C3	Site Man- ager in min- eral extrac- tion	59% says they know how to prospect from which 85% learnt the tech- nique on the job and 10% from a training	56% says they know how to prospect from which 83% learnt the tech- nique on the job	80% says they know how to pro- spect from which 75% learnt the technique on the job and 25% from a training	80% says they know how to pro- spect from which 75% learnt the technique on the job and 25% from a training	80% says they know how to prospect from which 90% learnt the technique on the job and 10% from a training	No response
86	Competitors (Other arti- sanal careers, import etc.)	Liveli- hoods	Q87	C5	Site Man- ager in min- eral extrac- tion	71% other arti- sanal quarries 13% Semi- mechanised or mechanised quarrying; 16% other	38% other arti- sanal quarries 63% Semi- mechanised or mechanised quarrying	100% says other arti- sanal quar- ries	100% says other arti- sanal quar- ries	60% other artisanal quarries 40% Semi- mecha- nised or mecha- nised quarrying	No response
90	Perceptions on whether quarry is in order with	Liveli- hoods	Q90	C2	Site Man- ager in min- eral extrac- tion	81% yes 19% no	100% yes	44% yes	100% yes	90% yes	No response

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
	respect to the law										
93	Number of years estimated for the quarry to be exploited	Liveli- hoods	Q93	C5	Site Man- ager in min- eral extrac- tion	87% more than 12 years 7% between 3-5 years 7% 9-12 years	100% more than 12 years	100% more than 12 years	50% more than 12 years 33% between 3-5 years 17% 9-12 years	90% more than 12 years 10% 9-12 years	No response
95	Ease of access to buyers if the site produced more	Liveli- hoods	Q95	C5	Site Man- ager in min- eral extrac- tion	77% easy to find new buy- ers 23% not easy	100% easy to find new buy- ers	56% easy to find new buy- ers 44% not easy	60% easy to find new buy- ers 40% not easy	90% easy to find new buy- ers 10% not easy	No response

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
97	Perception of an in-crease/de-crease in the number of rain downpours preventing work	Environ-ment	Q97	C4	All in: Min-eral extrac-tion; Trans-formation of mineral or its semi-fin-ished prod-ucts	23% re-sponded more 23% less 26% similar 29% do not know	50% re-sponded more 50% similar	11% more 22% similar 67% do not know	50% more 50% do not know	70% less 30% simi-lar	No response
98	If unprocessed minerals, spec-ifications looked for (size, quality, color etc.), and units pur-chased (daily, monthly or yearly), suppli-ers (Whole-saler, Direct Career, etc.)	Liveli-hoods	Q98	C5	Supervisor or senior manager of an opera-tor/business; or opera-tor/owner of a business	Quality was mentioned by almost all of the respond-ents 96% 46% answered size was also important 35% price 19% color	Quality was only mentioned	In responses: 83% quality 50% size 50% price 17% color	All mentioned quality 46% size 31% price 23% color	All men-tioned quality 40% size 17% price 8% color	No response

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
103	Use of tempo- rary or sea- sonal employ- ees	Liveli- hoods	Q103	C5	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business	Question only asked to own- ers of compa- nies with more than one full time employ- ees: 73% use temporary workers	Question only asked to own- ers of compa- nies with more than one full time employ- ees: 57% use temporary workers	Question only asked to own- ers of compa- nies with more than one full time employees: 67% use tem- porary work- ers	Question only asked to own- ers of compa- nies with more than one full time employees: 90% use tem- porary work- ers	Question only asked to owners of compa- nies with more than one full time em- ployees: 69% use temporary workers	Question only asked to owners of companies with more than one full time employees: Do not use tempo- rary workers
103	At peak of ac- tivity, maxi- mum number of workers em- ployed by the company	Liveli- hoods	Q103	C5	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business	Taking into ac- count these temporary workers, the maximum num- ber of employ- ees the com- pany had at once is: 69% 1-10 11% 11-30 9% 31-50 6% 51-100 6% +101	Taking into ac- count these temporary workers, the maximum num- ber of employ- ees the com- pany had at once is: 67% 1-10 33% 11-30	Taking into account these temporary workers, the maximum number of employees the company had at once is: 25% 1-10 50% 31-50 25% 51-100	Taking into account these temporary workers, the maximum number of employees the company had at once is: 71% 1-10 18% 11-30 6% 31-50 6% 51-100 0% +101	Taking into ac- count these temporary workers, the maxi- mum number of employ- ees the company had at once is: 81% 1-10 18% +101	No response

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
104	Activities of the company: goods and ser- vices sold	Liveli- hoods	Q104	C5	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business				From the companies (other than in- dependent ar- tisan or worker) inter- viewed 11% are buyer/reseller 22% are quarries oper- ators (ex- ploitants) 5% are sup- pliers to the quarries/arti- sanal workers 39% are brick/concrete bricks makers (processors) 17% are civil work compa- nies (end us- ers) 5% are transport companies		

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
106	Seasonality of sales, the best months	Liveli- hoods	Q106	C5	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business	87% say no seasonality	83% say no seasonality	86% say no seasonality	87% say no seasonality	88% say no sea- sonality	All say no
107	Best year in terms of sales and reason	Liveli- hoods	Q107; Q108	C5	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business	2005 2% 2008 5% 2009 5% 2010 7% 2011 2% 2012 5% 2013 9% 2014 9% 2015 20% 2016 27% 2017 9% Reasons given, % of re- sponses: 54% Increase in economic activities (more construction, more tourists, etc.) 29% Less com- petition	2008 14% 2011 14% 2014 14% 2015 14% 2016 43% Reasons given, % of re- sponses: 33% Increase in economic activities (more construction, more tourists, etc.) 33% Less com- petition 33% Increase in production	2009 17% 2012 17% 2014 17% 2015 17% 2016 33% Reasons given, % of responses: 71% Increase in economic activities (more con- struction, more tourists, etc.) 14% Less competition 14% Increase in production	2008 6% 2013 6% 2014 12% 2015 31% 2016 31% 2017 6% Reasons: 50% general increase of economic ac- tivities, 44% less competi- tion 6% in- crease in pro- duction	2005 7% 2009 7% 2010 21% 2012 7% 2013 7% 2015 14% 2016 14% 2017 21% Reasons given, % of re- sponses: 56% In- crease in economic activities (more construc- tion, more tourists, etc.) 22% Less	2013 100% Reasons given, % of responses: 100% Increase in economic activities (more construc- tion, more tourists, etc.)

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
						12% Increase in production 6% Other				competi- tion 6% In- crease in produc- tion 17% Other	
109	Worst year in terms of sales and reason	Liveli- hoods	Q109; Q110	C5	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business	2008 2% 2010 2% 2011 2% 2013 4% 2014 2% 2015 4% 2016 20% 2017 63% Reasons given, % of re- sponses: 18% New arri- val of a com- petitor near by 34% Lower economic activ- ity in general (less construc- tion, tourists, etc.) 9% Financial problems	2016 14% 2017 86% Reasons given, % of re- sponses: 36% New arri- val of a com- petitor near by 18% Lower economic activ- ity in general (less construc- tion, tourists, etc.) 9% Con- flicts/security problems 36% other: po- litical instability mentioned	2008 14% 2013 14% 2016 71% Reasons given, % of responses: 40% Lower economic ac- tivity in gen- eral (less construction, tourists, etc.) 10% Finan- cial problems 10% Increase in taxation 40% other: political is- sues and starting up mentioned	2014 6% 2015 12% 2016 25% 2017 56% Reasons given, % of responses: 14% New ar- rival of a competitor near by 41% Lower economic ac- tivity in gen- eral (less construction, tourists, etc.) 9% Financial problems 5% Increase in taxation 32% other:	2010 7% 2013 7% 2016 27% 2017 60% Reasons given, % of re- sponses: 25% New arrival of a compet- itor near by 30% Lower economic activity in general (less con- struction, tourists, etc.)	2011 100% 2 Reasons given: Lower economic activity in general (less construction, tourists, etc.) & Financial prob- lems

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
						3% Con- flicts/security problems 3% Increase in taxation 32% other: clo- sures, starting businesses, politi- cal instability			closures, and starting up mentioned	10% Fi- nancial problems 5% Con- flicts/ se- curity 30% other: lack of equip- ment and closure men- tioned	
111	Main competi- tors	Liveli- hoods	Q111	C5	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business	Of the re- sponses: 16% Semi- mechanised or mechanised quarries owned by nationals active in the same sector 7% Semi- mechanised or mechanised quarries owned by foreigners active in the same sector 16% Other	Of the re- sponses: 50% Other small-scale quarries 33% Other suppliers of goods and ser- vices (including transportation) based in the municipality 17% Other suppliers of goods and ser- vices (including transportation)	Of the re- sponses: 17% Other small-scale quarries 83% Other suppliers of goods and services (in- cluding trans- portation) based in the municipality	Of the re- sponses: 7% Semi- mechanised or mecha- nised quar- ries owned by nationals ac- tive in the same sector 14% Other small-scale quarries 79% Other suppliers of goods and services	Of the re- sponses: 38% Semi- mecha- nised or mecha- nised quarries owned by nationals active in the same sector 19% Semi-	One respondent - Other suppliers of goods and ser- vices (including transportation) based in the mu- nicipality

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
						small-scale quarries 65% Other suppliers of goods and ser- vices (including transportation) based in the municipality 7% Other sup- pliers of goods and services (including transportation) based in the re- gional capital	based in the re- gional capital		(including transporta- tion) based in the municipal- ity 7% Other suppliers of goods and services (in- cluding trans- portation) based in the regional capi- tal	mecha- nised or mecha- nised quarries owned by foreigners active in the same sector 6% Other small- scale quarries 56% Other suppliers of goods and ser- vices (in- cluding transporta- tion) based in the mu- nicipality 6% Other suppliers of goods and ser- vices (in- cluding	

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
										transportation) based in the regional capital	
112	Actions being taken to increasing business	Livelihoods	Q112	C5	Supervisor or senior manager of an operator/business; or operator/owner of a business	69% None 19% Prospecting/ solicitation 2% Commercials (radio, newspapers, TV) 11% Other	57% none 29% Prospecting/ solicitation 14% Commercials (radio, newspapers, TV) 11% Other	78% none 22% Prospecting/ solicitation	89% None 11% Prospecting/ solicitation	50% none 22% Prospecting/ solicitation 28% Other	100% none

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
113	Have used a bank for cash / credit facilities, limit granted by bank	Liveli- hoods	Q113	C5	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business	88% no 4% yes 8% Respond- ent/company does not have bank account	67% no 0% yes 33% Respond- ent/company does not have bank account	100% No	95% no 5% yes	88% no 6% yes 6% Re- spond- ent/com- pany does not have bank ac- count	100% no
114	Have used a loan to finance the business	Liveli- hoods	Q114	C5	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business	76% no 24% yes	86% no	86% no	60% no 40% yes	88% no 13% yes	One response - no

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
115	Keep records of receipts and expenses	Liveli- hoods	Q115	C5	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business	54% no 46% yes	29% no 71% yes	56% no 44% yes	68% no	50% no 50% yes	100% no
115	Form of keep- ing records (notebook, ex- cel file, soft- ware)	Liveli- hoods	Q115	C5	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business	Out of 46% keeping rec- ords: 88% notebook 4% notebook & excel 8% excel	Out of 71% keeping rec- ords: 80% notebook 20% notebook & excel	Out of 44% keeping rec- ords: 100% note- book	Out of 32% keeping rec- ords: 83% on a note book 17% on excel	Out of 50% keeping records: 88% note- book 12% ex- cel	Out of 100% keep- ing records: 100% notebook

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
117	Perceived barriers to increasing business	Livelihoods	Q117	C5	Supervisor or senior manager of an operator/business; or operator/owner of a business	Highest responses: 52% Too much competition 28% Difficult access to credit	Highest responses: 71% Too many competitors 29% Access to finance issues (include lack of capital and lack of equipment) 43% Too much taxes 43% Too low demand	Highest responses: 33% Too many competitors 44% Access to finance issues (include lack of capital and lack of equipment) 56% Too low demand 29% Administration harassment	52% Too many competitors 18% Access to finance issues (include lack of capital and lack of equipment) 11% Too much taxes 4% Too low margins 4% Too low demand 4% Administration harassment 4% Lack of access road 4% Seasonality of sales	Highest responses: 47% Too many competitors 40% Access to finance issues (include lack of capital and lack of equipment) 33% Too low demand 13% Administration harassment	One response: Too many competitors

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
128	Intention to continue business activity vs preference for alternative activity	Liveli- hoods	Q128 & Q130	C4	Independent artisan: own account or for an operator (e.g. digger, diver); employee of an operator/business (technical or administrative staff)	18% want to change job to work in: agriculture 25%; open a shop 27%; transport 12%; further education 6%; other 29%	16% want to change job to work in: agriculture 24%; open a shop 24%; transport 14%; further education 7%; other 31%	18% want to change job to work in: agriculture 10%; open a shop 27%; transport 23%; further education 7%; other 33%	16% want to change job to work in: agriculture 9%; open a shop 45%; transport 18%; further education 9%; other 18%	15% want to change job to work in: agriculture 26%; open a shop 29%; transport 3%; further education 6%; other 35%	38% want to change job to work in: agriculture 77%; open a shop 15%; transport 0%; further education 0%; other 8%
128	Perceived difficulties at work	Liveli- hoods	Q128 & Q129	C4 & C5	People's Capacities, Abilities & Freedoms	18% want to change job due to: C4 health problems 10%; HS risks 5%; difficult work 37%; security 0%; C5 low revenues 41%; increased competition 6%; high charges/costs 1%	16% want to change job due to: C4 health problems 7%; HS risks 0%; difficult work 41%; C5 low revenues 48%; increased competition 3%; high charges/costs 0%	18% want to change job due to: C4 health problems 13%; HS risks 4%; difficult work 36%; C5 low revenues 36%; increased competition 11%; high charges/costs 0%	16% want to change job due to: C4 health problems 15%; HS risks 8%; difficult work 46%; C5 low revenues 31%; increased competition 0%; high charges/costs 0%	15% want to change job due to: C4 health problems 4%; HS risks 13%; difficult work 42%; C5 low revenues 33%; increased	38% want to change job due to: C4 health problems 8%; HS risks 0%; difficult work 15%; C5 low revenues 69%; increased competition 8%; high charges/costs 0%

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
										competi- tion 4%; high charges/c osts 4%	
131	Actions being taken to in- crease busi- ness	Liveli- hoods	Q131	C5	Independent artisan: own account or for an opera- tor (e.g. dig- ger, diver); owner of business	Of responses: 65% More cli- ents 61% Through access to fi- nance 44% With new equipment 25% With train- ing	Of responses: 78% More cli- ents 32% Through access to fi- nance 28% With new equipment 12% With train- ing	Of responses: 75% More cli- ents 60% Through access to fi- nance 49% With new equip- ment 5% With training	Of responses: 59% More cli- ents 50% Through access to fi- nance 24% With new equip- ment 4% With training	Of re- sponses: 49% More clients 38% Through access to finance 38% With new equip- ment 3% With training	Of responses: 60% More clients 13% Through ac- cess to finance 60% With new equipment
132	Have received support from government, NGOs or other organizations, specifying ac- tor, form of support and perceptions of support	Liveli- hoods	Q132	C3	All	96% no 4% yes, of those, respond- ents received support from: 20% Govern- ment 7% NGO 73% Other or- ganization	98% no 2% yes, of those, all re- spondents re- ceived support from: Other or- ganization	96% no 4% yes, of those, re- spondents re- ceived sup- port from: Government and other or- ganization	99% no 1% yes, of those, re- spondents re- ceived sup- port from: Government	98% no 2% yes, of those, respond- ents re- ceived support from: NGO	72% no 28% yes, of those, all respondents re- ceived support from: Other organization

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
134	Currently also work else- where	Liveli- hoods	Q134	C4	All	21% no 79% yes	26% no 74% yes	16% no 84% yes	26% no 74% yes	14% no 86% yes	46% no 54% yes
135	If the husband were to pass away, land would be given to his wife (yes/no)	Land	Q135b &c	C4	All in: Min- eral extrac- tion; Trans- formation of mineral or its semi-fin- ished prod- ucts	60% yes 40% no Note some men were asked this question.	Only women respodents: 55% yes; 45% no (11 re- spondents)	Only women respodents: 50% yes; 50% no (2 respondents)	Only women respodents: 50% yes; 50% no (2 respondents)	No (1 re- spondent)	No response from women

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
135	If also cultivate food – does respondent own the land used for cultivation	Land	Q135a	C4	All in: Mineral extraction; Transformation of mineral or its semi-finished products	153 answered agriculture as an additional source of income. Of them 73% own the land they cultivate and 27% do not	62 answered agriculture as an additional source of income. Of them 77% own the land they cultivate and 23% do not	30 answered agriculture as an additional source of income. Of them 80% own the land they cultivate and 20% do not	24 answered agriculture as an additional source of income. Of them 67% own the land they cultivate and 33% do not	27 answered agriculture as an additional source of income. Of them 48% own the land they cultivate and 52% do not	11 answered agriculture as an additional source of income. All of them own the land they cultivate
135	If also work elsewhere, specify what type of work (including mining) is main source of income	Livelihoods	Q135	C4	All	No other work 10% Agriculture 41% Livestock farming 11% Small shop 7% Mototaxi 6% Total other 26%	No other work 2% Agriculture 64% Livestock farming 5% Small shop 5% Mototaxi 2% Total other 22%	No other work 13% Agriculture 29% Livestock farming 13% Small shop 7% Mototaxi 7% Total other 31%	No other work 11% Agriculture 65% Livestock farming 3% Small shop 3% Mototaxi 5% Total other 14%	No other work 16% Agriculture 27% Livestock farming 4% Small shop 13% Mototaxi 8% Total other 31%	No other work 0% Agriculture 50% Livestock farming 47% Small shop 3% Mototaxi 0% Total other 0%

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
136	Reside in the same locality (commune) of place of work vs moved to area because of work	Communi- ty	Q136; Q137; Q138	M & C4	All	65% local; those non 46% moved for work	82% local; those non 21% moved for work	73% local; those non 44% moved for work	53% local; those non 48% moved for work	50% lo- cal; those non 60% moved for work	62% local; those non 63% moved for work
138	Number of years lived in current locality (commune)	Communi- ty	Q138	M & C4	All	Less than a year: 4% 1-2 years: 7% 3-5 years: 18% 6-10 years: 17% More than 10 years: 55%	Less than a year 2% 1-2 years 5% 3-5 years 16% 6-10 years 16% More than 10 years 62%	Less than a year 4% 1-2 years 4% 3-5 years 14% 6-10 years 14% More than 10 years 64%	Less than a year 11% 1-2 years 16% 3-5 years 16% 6-10 years 6% More than 10 years 52%	Less than a year 1% 1-2 years 5% 3-5 years 18% 6-10 years 20% More than 10 years 56%	3-5 years 36% 6-10 years 45% More than 10 years 18%
139	Accompanied by family	Communi- ty	Q139	C4	All	82% yes 18% no	96% yes 4% no	84% yes 16% no	82% yes 18% no	76% yes 24% no	55% yes 45% no
140	Most frequent health problems (e.g. lung infections, malaria, yellow fever, typhoid fever, aches/pains)	People	Q140	C4		93% Malaria 22% Yellow Fever 65% Typhoid Fever 11% Lung in- fections 28% Stomach disease 2%	97% Malaria 22% Yellow Fever 80% Typhoid Fever None Lung in- fections 34% Stomach disease None	91% Malaria 7% Yellow Fever 69% Typhoid Fever 28% Lung in- fections 30% Stomach disease 2%	88% Malaria None Yellow Fever 67% Typhoid Fever None Lung infections 6% Stomach disease	93% Ma- laria 38% Yel- low Fever 54% Ty- phoid Fe- ver 13% Lung infections	97% Malaria 62% Yellow Fever 24% Typhoid Fe- ver None Lung infec- tions 45% Stomach

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
						Sinusitis 9% Did not know/not from here	Sinusitis 1% Did not know/not from here	Sinusitis 19% Did not know/not from here	None Sinusi- tis	27% Stomach disease 8% Sinus- itis 13% Did not know/not from here	disease None Si- nusitis
141	Distance/time travelled from village to treat health prob- lems and inju- ries from acci- dents	Infra- structure	Q141	C4	All	78% Less than half an hour 16% Between half an hour and an hour 6% More than one hour 64% go by foot; 25% motobike	86% Less than half an hour 12% Between half an hour and an hour 2% More than one hour 86% go by foot; 8% motobike	85% Less than half an hour 15% Between half an hour and an hour None More than one hour 74% go by foot; 24% mo- tobike	All respond- ents less than half an hour 63% go by foot; 35% mo- tobike; 2% car	70% Less than half an hour 28% Be- tween half an hour and an hour 2% More than one hour 47% go by foot 23% mo- tobike; 23% car	14% Less than half an hour 24% Between half an hour and an hour 62% More than one hour 14% go by foot; 86% motobike

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
143	Distance/time travelled from site to sources of clean drinking water?	Infra-structure	Q143	C4	All	89% Less than half an hour 9% Between half an hour and an hour 2% More than one hour 91% go by foot	90% Less than half an hour 7% Between half an hour and an hour 3% More than one hour All go by foot	84% Less than half an hour 13% Between half an hour and an hour 3% More than one hour 88% go by foot; 10% mo-tobike	94% Less than half an hour 6% Between half an hour and an hour 96% go by foot; 2% mo-tobike; 2% car	89% Less than half an hour 10% Be-tween half an hour and an hour 1% More than one hour 85% go by foot; 13% mo-tobike; 4% bike; 2% car	96% Less than half an hour 4% Between half an hour and an hour All go by foot
144	Bathroom facilities are near somewhere where you can wash your hands with soap and water	Infra-structure	Q144; Q145	C4	All	60% no bath-room facilities 40% yes	20% no bath-room 80% yes	78% no bath-room 22% yes	72% no bath-room 28% yes	72% no bathroom 28% yes	86% no bathroom 14% yes

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
145	Distance/time from site to bathroom facilities	Infra-structure	Q145	C4	All	90% say it takes less than 5 minutes; Most women go to the bathroom in the nature 60%, 27% use the same toilets as men, and 14% use the women's toilet facilities	95% say it takes less than 5 minutes; Most women use the same toilets as men 47%; 37% use the women's toilet facilities; and 17% go in the nature	84% say it takes less than 5 minutes; 8% more than 30 minutes. Most women go to the bathroom in the nature 79%; 21% use the same toilets as men, no answer for women's toilet facilities	All say it takes less than 5 minutes; Most women go to the bathroom in the nature 72%, 27% use the same toilets as men, and 14% use the women's toilet facilities	84% say it takes less than 5 minutes; Most women go to the bathroom in the nature 71%, 19% use the same toilets as men, and 10% use the women's toilet facilities	Most say it takes more than 15 minutes 67%; 33% between 5-minutes (women answered only); all of the women use the women's toilet facilities
146	Perception that households are affected by dust from extraction and processing activities (air, crops)	Environment	Q96; Q146	C4	All in: Mineral extraction; Transformation of mineral or its semi-finished products	95% no to general complaints 5% yes, of them 15% mentioned dust	All of the respondents mentioned dust (3 respondents)	None mentioned dust	None mentioned dust	None mentioned dust	44% yes to complaints; most cited odor, impacts on the land - holes in the ground

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
146	Perception that the household's water supply or use is affected by extraction and processing activities	Environment	Q96; Q146a.	C4	All in: Mineral extraction; Transformation of mineral or its semi-finished products	95% answered no to general complaints 5% yes One responded yes to water contamination	None mentioned water contamination	None mentioned water contamination	None mentioned water contamination	Almost all responded no; water was cited once	None on water contamination
146	Frequency of traffic accidents, other type of accidents	Community	Q52; Q120; Q146	C4	All	No complaints by community related to accidents this includes traffic. When asking workers: 31% (104 respondents) have experienced an injury in the last year. When asking Operators/Owners amount of accident last year: 77% 1-5 8% 6-10 8% 11-25 8% More than 25	No complaints by community related to accidents this includes traffic. When asking workers: 24% have experienced an injury in the last year. When asking Operators/Owners amount of accident last year: Two answered 1-5 One answered 6-10	No complaints by community related to accidents this includes traffic. When asking workers: 37% have experienced an injury in the last year. When asking Operators/Owners amount of accident last year: Four answered 1-5 One 6-10	No complaints by community related to accidents this includes traffic. When asking workers: 38% have experienced an injury in the last year. When asking Operators/Owners amount of accident last year: All (5) answered 1-5	No complaints by community related to accidents this includes traffic. When asking workers: 34% have experienced an injury in the last year. When asking	No complaints by community related to accidents this includes traffic. When asking workers: 19% have experienced an injury in the last year. N/A for Operators/Owners:

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
										Opera- tors/Own- ers amount of accident last year: All (9) an- swered 1- 5	
148	Access to elec- tricity at home, if none, source of power to re- charge mobile phones	Infra- structure	Q148; Q148a	C4	All	80% have elec- tricity 20% no elec- tricity; most use solar energy or charge phone at a store -- 26% no cell phone	56% have elec- tricity 44% no elec- tricity; most use solar energy, power genera- tor or charge phone at a store -- 20% no cell phone	89% have electricity 11% no elec- tricity; most go to a friend's house or charge phone at a store -- All have a cell phone	80% have electricity 20% no elec- tricity; most use solar en- ergy or charge phone at a store -- All have a cell phone	93% have electricity 8% no electricity; most go to a friend's house -- 29% no cell phone	31% have electric- ity 69% no electricity; use solar energy or power generator -- 61% no cell phone
148	Have a mobile phone	People	Q149	C4	All	No data except for above indi- cator on elec- tricity					

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
149	Wood or char- coal or electric stoves used for cooking (women only)	Land, In- frastruc- ture	Q149	C4	All	4% Charcoal 53% Wood-fuel 20% Gas 6% Both Char- coal & Wood 12% Both Wood & Gas 1% All three	3% Charcoal 41% Wood-fuel 23% Gas 17% Both Charcoal & Wood 10% Both Wood & Gas 2% All three	5% Charcoal 67% Wood- fuel 10% Gas 14% Both Wood & Gas	9% Charcoal 62% Wood- fuel 17% Gas 11% Both Wood & Gas	1% Char- coal 38% Wood-fuel 34% Gas 2% Both Charcoal & Wood 17% Both Wood & Gas 6% All three	83% Wood-fuel; single responses for all others
150	Distance/time travelled from home to get wood / char- coal (women only)	Land	Q150	C4	All	71% 0 to 1 km 25% 1 to 5km 3% 5 to 10 km	79% 0 to 1 km 20% 1 to 5km 1% 5 to 10 km	70% 0 to 1 km 29% 1 to 5km 1% 5 to 10 km	98% 0 to 1 km 2% 1 to 5km	60% 0 to 1 km 31% 1 to 5km 9% 5 to 10 km	44% 0 to 1 km 52% 1 to 5km 4% 5 to 10 km
152	Distance/time from home to agricultural land cultivated	Housing	Q152	C4		43% Less than thirty minutes 43% Between thirty minutes and one hour 15% More than one hour 66% travel by foot	38% Less than thirty minutes 42% Between thirty minutes and one hour 20% More than one hour 57% travel by foot	55% Less than thirty minutes 34% Between thirty minutes and one hour 11% More than one hour 88% travel by foot	46% Less than thirty minutes 54% Between thirty minutes and one hour 65% travel by foot; 31% by motorbike	36% Less than thirty minutes 40% Be- tween thirty minutes and one hour 24% More than one hour	41% Less than thirty minutes 59% Between thirty minutes and one hour 65% travel by foot; 29% by motorbike

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
										59% travel by foot; 24% by motor- bike	
153	Distance/time travelled from home for chil- dren go to school (pri- mary, second- ary)	Infra- structure	Q153 & Q154	C4	All	Primary school: 81% walk, 16% by motorbike 82% say it takes less than half an hour 14% Between half an hour and an hour 4% More than one hour Secondary school: 60% walk 29% motorbike 68% say it takes less than half an hour 22% Between half an hour and an hour	Primary school: 96% walk 89% say it takes less than half an hour 8% Between half an hour and an hour 3% More than one hour Secondary school: 85% walk, 8% bike, 6% motorbike 79% say it takes less than half an hour 11% Between half an hour and an hour	Primary school: 77% walk, 21% by mo- torbike, 2% car 85% say it takes less than half an hour 15% Between half an hour and an hour Secondary school: 72% walk 26% motor- bike 81% say it takes less than half an hour	Primary school: 77% walk, 20% by mo- torbike 86% say it takes less than half an hour 14% Between half an hour and an hour Secondary school: 63% walk 37% motor- bike 61% say it takes less than half an hour 29% Between	Primary school: 77% walk, 17% by motor- bike, 7% bike 86% say it takes less than half an hour 14% Be- tween half an hour and an hour Second- ary school: 43% mo- torbike	Primary school: 55% walk, 41% by car: 3% bike 28% say it takes less than half an hour 34% Between half an hour and an hour 38% More than one hour Secondary school: 48% motorbike, 24% car 17% walk & 10% bike 14% say it takes less than half an hour 32% Between half an hour and an hour

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
						9% More than one hour	10% More than one hour	16% Between half an hour and an hour 2% More than one hour	half an hour and an hour 10% More than one hour	37% walk, 12% car 9% bike 64% say it takes less than half an hour 33% Be- tween half an hour and an hour 3% More than one hour	54% More than one hour
156	Place of resi- dence: Friends / Family; Rental house or apartment; Room rental	Housing	Q156	C4	All	37% live in the family com- pound (head of the family 38% own house or apart- ment 16% rent a house 9% rent a room	42% live in the family com- pound (head of the family 32% own house or apart- ment 17% rent a house 9% rent a room	46% live in the family compound (head of the family 41% own house or apartment 9% rent a house 3% rent a room	26% live in the family compound (head of the family 47% own house or apartment 19% rent a house 9% rent a room	29% live in the family com- pound (head of the family 32% own house or apartment 22% rent a house 17% rent a room	34% live in the family compound (head of the family 59% own house or apartment 3% rent a house 3% rent a room

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
156	Monthly rent amount	Housing	Q156	C4	All	10% Under 5,000 14% 5,000- 10,000 44% 10,000- 20,000 32% Over 20,000	4% 5,000- 10,000 54% 10,000- 20,000 11% Over 20,000	45% Under 5,000 27% 10,000- 20,000 27% Over 20,000	9% Under 5,000 9% 5,000- 10,000 55% 10,000- 20,000 27% Over 20,000	5% Under 5,000 24% 5,000- 10,000 41% 10,000- 20,000 29% Over 20,000	Two respondents, one pay 2,000, the other pays 7,000
157	Material that house is made of (mud walls, burned bricks, or cement blocks; organic or metal roof)	Housing	Q157	C4	All	48% mud bricks walls 4% wooden walls 3% clay brick walls 43% concrete block walls 1% both mud bricks walls and concrete block walls Roof: 7% organic material aluminum	69% mud bricks walls 30% Concrete block walls 1% concrete block walls both mud bricks walls Roof: 1% organic material aluminum	50% mud bricks walls 45% concrete block walls 3% clay brick walls 2% both mud bricks walls and oncrete block walls 1% wooden walls Roof: no organic material aluminum	51% mud bricks walls 45% concrete block walls 2% wooden walls 2% both mud bricks walls and concrete block walls Roof: no organic material aluminum	66% con- crete block walls 23% mud bricks walls 9% wooden walls c2% lay brick walls Roof: 8% or- ganic ma- terial aluminum	48% mud bricks walls 28% clay brick walls 21% wooden walls 3% concrete block walls Roof: 19% organic mate- rial aluminum

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
158	Most frequent crimes in the village and type (robberies, murders or rapes)	Communi- ty	Q158	C4	All	Those crimes cited the most were: burglaries 18%, property damage 16% and murder 15%	Those crimes cited the most were: burglaries 19%, property damage 21% and murder 17%	Those crimes cited the most were: burglaries 26%, murder 19%, robbery 18% and fights 13%	Fights 23% was cited the most, the others were under 9%	Those crimes cited the most were: property damage 40%, robbery 21%, fights 19% and burglaries 15%	Those crimes cited the most were: fights 4% (63% not that frequent) and all mentioned property damage
159	Recent cases of intervention by police and military in the area, over last 12 months and reason	Communi- ty	Q159	C4	All	38% responded yes to police and military intervention within last 12 months.	46% responded yes to police and military intervention within last 12 months.	28% responded yes to police and military intervention within last 12 months.	63% responded yes to police and military intervention within last 12 months.	35% responded yes to police and military intervention within last 12 months.	7% responded yes to police and military intervention within last 12 months.

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
160	Feel safe walk- ing alone around the area they live	Communi- ty	Q160	C4	All	No: 5% Yes: 95% (none of the women an- swered no)	No: 8% Yes: 92%	No: 1% Yes: 99%	No: 0 Yes: 100%	No: 7% Yes: 93%	No: 4% Yes: 96%

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
161	Attendance at church/mosque	Culture & religion	Q161	C4	All	Yes: 86% No:14%	Yes: 94% No: 6%	Yes: 84% No: 16%	Yes: 84% No: 16%	Yes: 83% No: 17%	Yes: 67% No: 27%
D	Minerals and mineral products that the company purchases	Liveli- hoods	D	C5	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business						

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
D	Quarries where minerals are purchased or where the minerals that were used to produce products came from	Liveli- hoods	D	C5	Supervisor or senior manager of an opera- tor/business; or opera- tor/owner of a business						
D1	Age	People's Capaci- ties, Abilities & Free- doms	D1	M	All	8% 18-24 31% 25-34 38% 35-44 23% years or older	6%18-24 25% 25-34 40% 35-44 29% 45 years or older	10% 18-24 34% 25-34 35% 35-44 22% 45 years or older	3% 18-24 36% 25-34 41% 35-44 20% 45 years or older	13% 18- 24 33% 25- 34 36 % 35- 44 17% 45 years or older	7% 18-24 21% 25-34 45% 35-44 28% 45 years or older
D2	Sex (male/fe- male)	People's Capaci- ties, Abilities & Free- doms	D2	M	All	Male 77% Female 23%	Male 59% Female 41%	Male 76% Female 24%	Male 90% Female 10%	Male 83% Female 17%	Male 93% Female 7%

QUES- TION	INDICATOR	AREA	SUR- VEY QUES- TION NO.	COMPO- NENT	TYPE OF RESPOND- ENT	TOTAL RE- SPONDENT	CLAY	GRANITE, BASALT, QUARTZITE, GNEISS	POZZOLAN	SAND	SAPPHIRE
D3	Nationality	People's Capaci- ties, Abilities & Free- doms	D3	M	All	Cameroon 99,6% Liban 0,2% Nigeria 0,2%	Cameroon 99% Nigeria 1%	Cameroon 100%	Cameroon 99% Liban 1%	Came- roon 100%	Cameroon 100%
D5	Site location (specify arron- dissement or town)	Liveli- hoods	D	M	All	Adamaoua East 13% Centre 26% Extreme North 13% Littoral 14% North-west 7% South-west 7% West 20%	Centre 25% Extreme North 24% North-west 25% West 25%	Centre 53% Extreme North 27% Littoral 20%	Littoral 14% West 86%	Ada- maoua East 25% Centre 25% Littoral 26% South- west 25%	Adamaoua East 100%

ANNEX 8: CASE STUDIES FOR SAND, CLAY AND POZZOLAN

Case Study for Sand

During the qualitative fieldwork, an artisanal site was visited along the Mungo River (Carrière Mère, or Mother Quarry), in the Littoral Region (arrondissement of Dibombari). The adjacent upstream artisanal site and a downstream semi-mechanised site (Carrière Africom) were also visited. Stakeholders were engaged at the sites (primarily from Carrière Mère) and in a neighbouring village (Bomono II). The following analysis is based on data collected during the qualitative fieldwork. The Social Framework (Smyth and Vanclay, 2017) was used as a framework for analysing the environmental, health and safety, social and socio-economic impacts related to sand mining.

Overview of the site and respondents

Figure A1 below depicts the profile of the 33 participants working with the sand mineral. Included in the profile are two participants respectively from Foubot and Soa, working with sand of Sanaga in the Douala area. Component 3 maps out the value chain observed at the Mungo River Mulaga site.

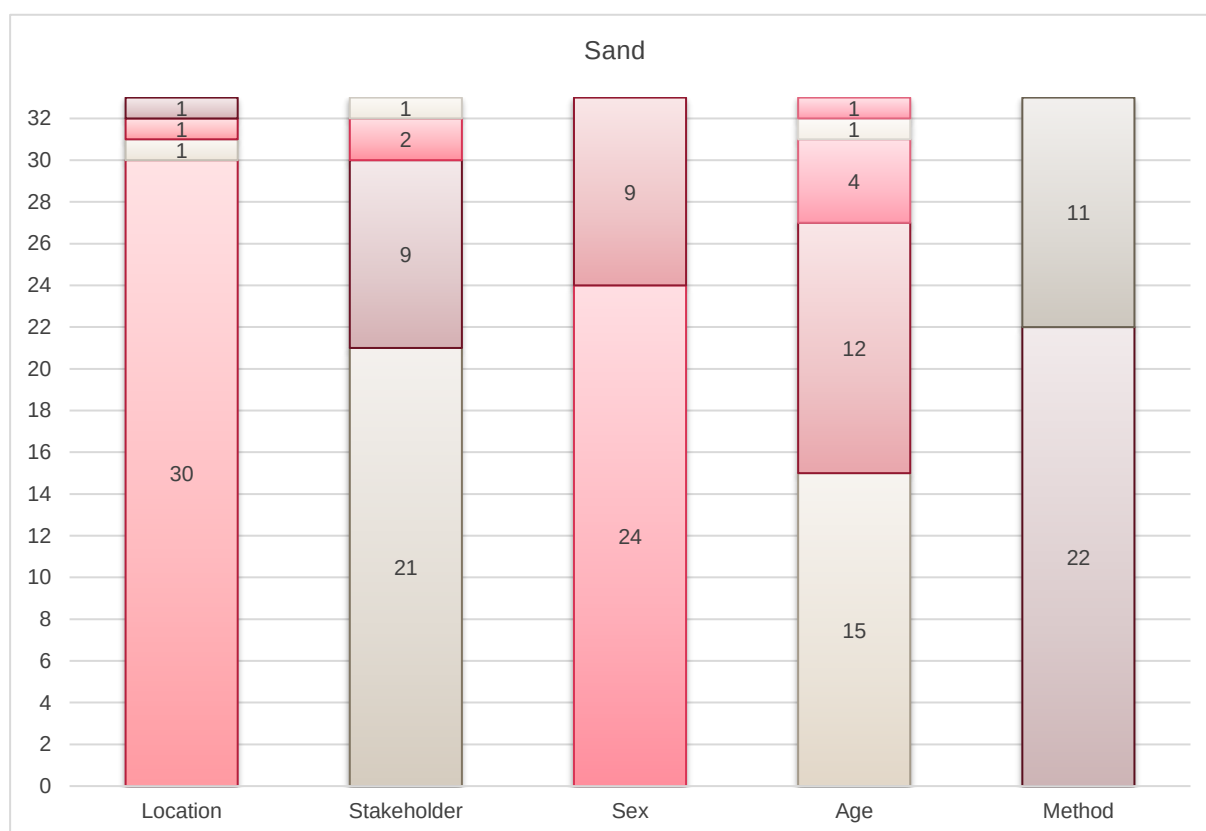


Figure A1: Participant profile (%): Sand

The map below shows the location of the artisanal sand site on the banks of the Mungo River (Carrière Mère). The preschool, health centre, market and chieftaincy (Bomono Ba Mben-gue) are also shown, as well as two plantations belonging to the privately owned company

Socapalm (note that the border between the Southwest and Littoral Regions shown as a dashed line is incorrect on Google Maps, and the correct border follows the Mungo River on this part of the map).

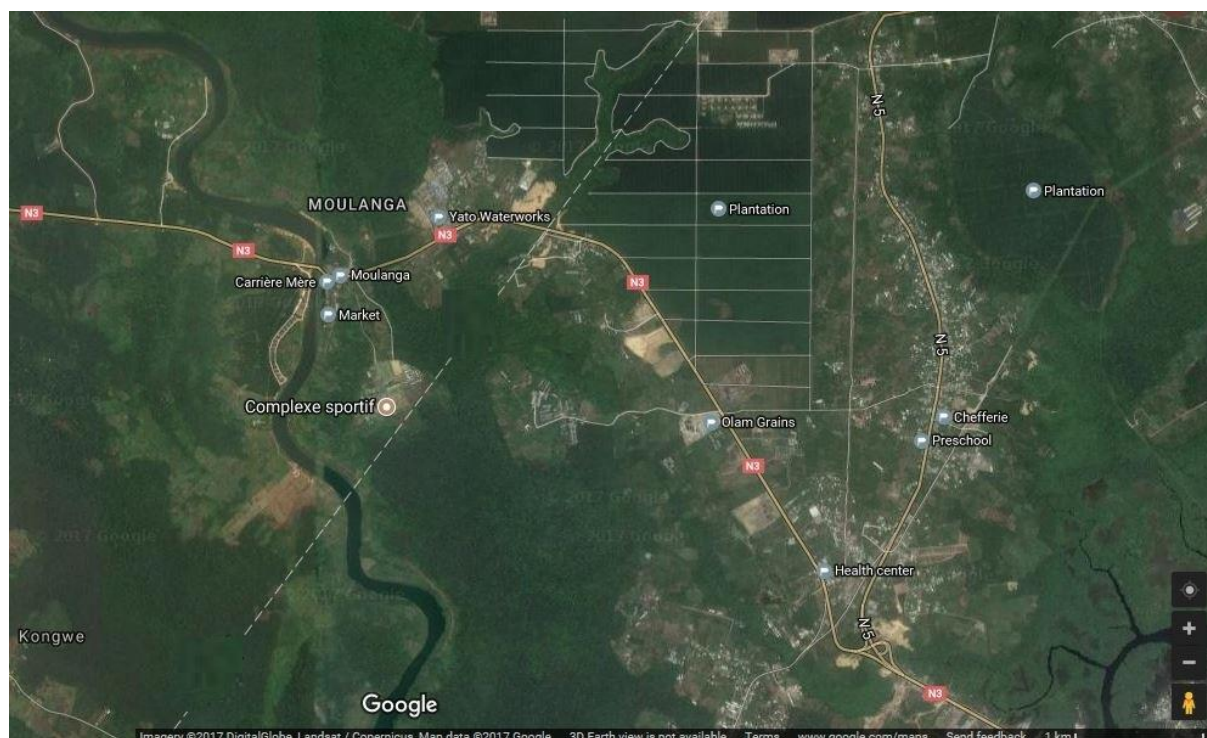


Figure A2 Location of the artisanal sand site visited during the qualitative fieldwork.

Environment and land

Environmental issues

The main environmental impacts related to mining sand in the Mungo River are impacts on water quality, fish and other aquatic life, and the geomorphology of the river. The disturbance of sediments on the riverbed when they are removed increases the turbidity (suspended sediments) in the water, which decreases water quality. The increased turbidity and disturbance of the sediments themselves can have an impact on the growth and reproduction/spawning of fish and other aquatic animals including benthic communities. A more severe impact occurs where disturbed river sediments are contaminated by historical activities and result in the release of e.g. trace metals. No information was available on the environmental impacts of sand mining. An indicator that sand mining may not have prevented fishing activities downstream was the presence of a cold store, built recently with support from MINEPAT and the Commune of Dibombari. The cold store is located 200 m downstream of the site at a market that operates every Wednesday.

The relatively recently established semi-mechanised site next to the artisanal site may have additional impacts as the two suction dredges used to mine the riverbed are more intrusive than artisanal mining, and water-laden sediment is led back into the river, with a risk of killing young fish and eggs. However, again the impact may be relatively limited.

Another less researched impact of sand mining is the change in geomorphology of the river. Removing sediment from the river modifies the shape of the river channel and affects hydraulic flow, as well as reducing the amount of sediment that is available to be transported

downstream. This can increase stream power and lead to e.g. the transport of coarser sediment downstream, affect riverbank stability and cause potential channel widening. One person engaged with reported that a fishing community downstream were no longer able to wade across the river to reach the other side but now had to use boats as a result of sand mining, which had deepened the river. This was not reported to be the case as a result of the particular site visited, and is no doubt a result of the cumulative impacts of all sand quarries on either sides of the Mungo River.

Land

The artisanal mining of sand from the river has a relatively small footprint on the shore, although part of the riverbank is needed to offload the sand from the boats onto the bank and then into trucks. The riverbanks belong to the villages closest to the river in the Commune and arrondissement of Dibombari. Five villages each own part of the riverbank and mining operators pay a fee for using the riverbank (about 1000 FCFA per truck).

Land was not mentioned as an issue in relation to sand mining, although it is a concern. Villagers engaged with all agreed that there was a lack of land available to grow crops and their fields were further away than they used to be, as numerous large companies requiring lots of land had been granted permission to operate in the area. The villagers mentioned the Socapalm plantations: the one to the east of the N5 road in Figure A2 is palm oil and the one to the west of the road is rubber, both of which cover an extensive area. Other companies that have a significant footprint according to villagers are the Yato waterworks and recently Olam Grains. Villagers also expressed concern about EurOil Ltd. who started onshore exploration for oil and gas in 2016 (on behalf of Bowleven Oil and Gas, who have been granted the Bomono Permit⁶⁷). Finally, the villagers are concerned that plans to widen the N5 road going through the village will not only further increase the noise levels from traffic but also require a row of houses to be relocated.

People and community

Religion and culture

The majority of people in the community are Christian with six different churches present e.g. Evangelical, Catholic, Adventist, Jehovah's Witnesses, Union of Baptist Churches of Cameroon. The neighbouring village also has a mosque and another mosque is under construction.

There appeared to be a certain cultural belief related to water regardless of religious belief. Reference was made to the Ngondo annual water festival held by the Sawa (coastal peoples) near Douala. This belief is particularly held among the divers engaged with, who stated they only swim in areas of the river that they know well and always prayed before diving.

Cohesion and benefit-sharing

As most of the workers at the sand mine are not from the village, the sand mining activity is not considered a major community activity by the villagers. The perceived benefits of the mining activities by the community as a whole are also relatively small, with villagers and miners unaware of what the fees paid for using the river bank are used for (approximately 50,000 FCFA per year plus 1,000 FCFA per truck). However, there are benefits for the approximate 30% of the community working at or benefitting from the mining activities.

⁶⁷ Bowleven, Bomono, <http://www.bowleven.com/operations/cameroon/bomono> (last visited 12 May 2018).

It was reported that the Moulanga settlement (where bars, shops and rooms are located) is not a fixed settlement. Its presence is tolerated despite no one paying rent any longer following an issue with the rent payments in the past, and conflicts about who was collecting the money.

Conflict

Disagreements and disputes between workers on site are commonplace but conflicts are rare. The Committee of the Quarry was established at the start of the mining operations on site and has settled disputes ever since. The Committee is composed of elected worker and producer representatives. Fighting is not sanctioned and any involved have to pay a fine of 20,000 FCFA as well as two crates of beer. As this amount is more than the average weekly wage, conflicts at the quarry are kept to a minimum.

Tension was also reported as a daily occurrence between operators and those collecting fees on behalf of the villages, the commune and the state. Operators and workers expressed frustration over the number of different fees/taxes paid and the high total amount. Adding to their other costs, producers feel they are being squeezed out, particularly since the neighbouring semi-mechanised site started operating, which is favoured by some as the costs are slightly lower and loading time is less (as this is done by front loader instead of by shovel). Fortunately, clients consider the quality of the sand to be higher at the artisanal site (more homogenous).

There was no evidence of conflict between workers and villagers. Most workers are migrants from outside the area who either commute daily or stay at Moulanga whilst they are working and therefore have relatively little contact with the neighbouring villages. Moulanga is a self-contained village that has arisen as a result of the activity at the quarry and is approximately 6-7 km from the chieftaincy of Bomono Ba Mbènguè (see Figure A2). A minority of workers and producers are from the neighbouring villages, with most living at home and only a small percentage choosing to stay in Moulanga when they are working at the quarry and coming home, for example on weekends.

Unrelated to the sand mining, land issues described by villagers engaged with are a potential source of conflict between the community and the state authorities. The latter have previously granted companies permission to establish themselves on the land and are expected to do so again in the future.

It should be noted that trucks going to and from the semi-mechanised site next to the market delayed the start of their activities until around midday on market day (Wednesday). This was done to avoid disturbing the weekly market and is probably the result of an arrangement between site management and the village/commune.

Security

The sand mining activity is by some villagers considered to be more of a disadvantage than a benefit, as incidents of brawls/fighting and theft have increased in recent years. The village leaders attributed this to an increased use of cannabis by young men, particularly those working in the sand mines. However, feelings of insecurity expressed by villagers were not directly perceived as related to the existence of the quarry. The women reported a few incidents of rape in the last two to five years, which means that women no longer feel safe going to the fields alone and now go in groups. There was disagreement among villagers engaged as to whether the men who were behind these crimes were local or from Douala. Insecurity was perceived to be more a result of the increase in number of people moving to the area due to growth in activities of other companies e.g. Socapalm, and the expansion of the Douala suburbs.

Health and safety

Worker health and safety

Mining sand from rivers involves manual labour and workers on site complained of back pain, shoulder pain, and shoulder dislocation from the use of shovels. Some also complained of stomach pains and divers additionally mentioned hurting sinuses, frequent colds, aching lungs, sore eyes, itching skin and frequent nose bleeds. Working in the sun was also mentioned as being difficult, sometimes inducing fever following sunstroke. The majority reported taking painkillers to alleviate the pain and allow them to continue working. As one worker put it, "nothing would make it easier [to work at the quarry]; the work is only hard labour". Consumption of alcohol is not allowed and was not observed on site but considerable quantities are consumed. More of an issue appeared to be the amount of cannabis consumed, which was mentioned particularly by producers (rather than workers). Nicknames for cannabis were *colombie* and *babylone*. It is unclear at what frequency painkillers and other stimulants are taken.

Illness mentioned by workers, unrelated to their work, were mainly malaria and typhoid. This was clearly an important concern, as it would prevent them from working and thus earning money. One producer asserted that whilst he had been ill and unable to work for eight months, he had lost all five of his boats and as he could not borrow money to buy any, was having to rent two, which was what he could afford.

Workers on site did not mention work-related injuries, although minor injuries were revealed at the health clinic. Most likely, these injuries to hands and feet resulted from the use of poor quality shovels (or not replacing them when required) and/or the lack of PPE. Workers were observed to be mostly barefoot or wearing flip-flops, and lightly clad (shorts, t-shirt or bare chest). Workers did not express the desire to be provided with PPE. Interestingly, a loader mentioned that the number of people loading trucks had been reduced from four to three, to reduce the risk of accidentally getting hit by a shovel.

Working along and on the river involves a risk of drowning, and this was mentioned by workers. Reportedly, two workers died over the past year in this way. Workers engaged with stated they were able to swim. The main risk of drowning occurs when boats capsize, which happens about once a month or once every other month.

Women selling food on site reported that the wheelbarrow used to transport prepared food to the site or to Moulanga was heavy to push and cumbersome to manoeuvre.

General health issues

The philanthropic health centre of Bakoko is located close to the N3 road, just north of the junction with the N5. This is reportedly the centre frequently used by miners and employs three people (one nurse and two interns). The nurse at the health centre reported that on average, six people were treated per day, of which two to three were miners. The most frequent treatments given were for simple wounds, malaria, syphilis, chlamydia and other sexually transmitted diseases. The most frequent treatment was for sexually transmitted diseases, accounting for a quarter of all treatments, easily prevented using condoms (a pack of 10 costs 100 FCFA). Miners were most likely to visit the centre to be treated for sexually transmitted diseases. Injured miners treated at the centre had simple wounds, mainly to the hands and feet.

In contrast, the women engaged with in Bomono Ba Mbènguè mentioned malaria, typhoid, diphtheria, amoebas, and cholera. They frequent the more recently established and better-equipped health centre run by the mayor's sister. The nearest hospital and radiology centre

is in Bonaberi (just before Douala) and there is no ambulance service. According to the women, mosquito nets have been widely distributed in the village, but few actually use them.

Infrastructure and housing

Roads and transport

The two main roads in the area are paved and of good quality: i) the N3 from Douala going west to Limbé; and ii) the N5 from Douala going north to Loum. The access road to the artisanal site (Carrière Mère) is a short 100 m graded dirt road of good quality. The road to the semi-mechanised site that also goes past the market is a dirt road of slightly less good quality. The roads within the neighbouring villages such as Bakoko are much worse. For example the road from the health centre to the N5 and the chieftaincy of Bomono Ba Mbènguè (see A2X) is impassable for cars unless they are four wheel drive, as the road is riddled with large potholes that quickly fill with water during a downpour.

The impact of the bridge over the River Mungo that collapsed in 2004 and was rebuilt in 2007 was not reported to have had an impact on the neighbouring villagers. However, there was a significant impact on the workers and suppliers, as more workers from the Southwest Region were able to work at the site and competition amongst suppliers increased.

The roads-related environmental impact (nuisance factor) mentioned was noise, which was referred to by those engaged with in the village of Bomono Ba Mbènguè (located less than 20 km from Douala along the N5).

The most common form of transport is by motorbike (taxi-bike) and cars (taxis) are used to travel longer distances e.g. to Douala or when larger loads are being carried e.g. when returning from market.

Housing

Moulanga village was established as a result of the sand mining activity and is not a permanent settlement. Moulanga includes restaurants, lodging and small commerce to cater for people working at the quarry (both Carrière Mère and another quarry 400 m upstream on the same side of the river). Most of the buildings are made of wood with corrugated metal roofs, some of which are patched up with organic material, reflecting the fact that they are prevented from building permanent shelters in this area.

Numerous houses along the N3 on the way to the health centre were observed to be made of similar materials to those in Moulanga. However, the houses are generally larger and better kept. Roofs are in better condition and there is less litter, with the front of houses swept and tidy.

Houses in the neighbouring villages tend to be made of cement blocks and covered in a layer of cement and painted, or less frequently, made of wood and painted.

Water

Community leaders in Bomono Ba Mbènguè reported a water pumping station (Scanwater) located about 7 km away, established more than 30 years ago, with about 650 subscribed households. However, the capacity of this station is insufficient and the high maintenance and operational costs (exacerbated by frequent power cuts) means that costs of supplying water are relatively high and supply unreliable, so households that have water taps also need access to a borehole in order to ensure a continuous water supply.

Those engaged reported poor quality water apart from one supplier who lived in Yato (close to the Yato waterworks, see Figure A2), who said the tap in the village supplies good water.

The Yato waterworks, inaugurated in 2010, is a joint Cameroonian-Chinese project that currently supplies the city of Douala with approximately 150,000 m³ of clean water per day⁶⁸.

Electricity

All those engaged reported having access to electricity in their home and power lines were also observed to be connected to houses both along the N3, in Bomono Ba Mbènguè and Moulanga. However, weekly power cuts were mentioned by community leaders as being a nuisance (and a more serious issue in relation to the water pumping station mentioned above).

For the most part, cooking is done using wood either collected or bought locally, or, in more wealthy households, using gas.

Market

Located 200 m south of the artisanal site, the closest market takes place every Wednesday. However, none of those engaged reported going to this market. Suppliers and workers on site living in Moulanga or the Southwest informed that they went to e.g. the market in Mutengene about 30 km west of Moulanga, whilst people living in the neighbouring villages went to the Bonaberi market in Douala (similar distance from site to the east).

Livelihoods

Job creation (direct)

Carrière Mère (named Yato, code 7041) was one of the additional sites visited by GIMERC (2017). At the time of their visit, 150 miners were recorded, including 6 women and 10 children. The number of miners on site during intense and low activity was reported to be 250 and 130 respectively.

As working at the sand quarry involves hard labour, men, particularly between the ages of 25 and 34, do the work. Different tasks are remunerated according to the difficulty involved. Divers, without whom there would be no sand extraction and who are considered as having the most difficult job, are paid the most. Others who discharge sand from the boats onto shore or into trucks are paid considerably less. One worker explained that a woman had previously worked as a producer but she had been prevented from continuing to do so by the men. As further explained by a producer, children between the ages of 14-18 years could be employed at the site, but only if they could manage the hard physical labour. This was not often the case and as a result rarely occurred, although some younger men/boys had been employed during the school holidays. No one below the age of 20 years was observed at the site, mining sand or otherwise employed, during the site visit.

The number of workers at the quarry was reported to fluctuate depending on the season. From the information provided by those engaged with on site, the number of workers was greatly reduced during the rainy season from mid/end-June to October, although activities did not seem to stop completely.

Working hours were reported to be every day apart from Sundays, between 6 am to 4-5 pm. There were some reports of work being carried out at night and throughout the night from 7 pm to 6 am.

⁶⁸ Camwater, *Nos Réalisations [Our Achievements]*, <https://www.camwater.cm/realisation>, (last visited 12 May 2018).

There was evidence to suggest that it had become more difficult to work at the quarry than previously, with those engaged with saying that the distances travelled to excavate sand had increased. For example, the use of motor engines was now more-or-less indispensable to operations and saved between 1 and 3 hours each way compared to paddling (and depending on whether the direction of travel was with or against the current).

Job creation (indirect)

Apart from creating direct jobs for men mining sand, indirect jobs included producing and repairing boats (pirogues) used to transport sand on the river, collecting taxes/fees, site management, producers, people renting out boats etc. that were all observed to be done by men.

Supplying goods and services to the workers was another source of income for people. This included selling of food and drink, selling phone credit, small commercial operations and providing accommodation. Food was observed to be sold by women either on site e.g. under a shelter close to the riverbank or at restaurants in Moulanga. A plate of food cost between 300-500 FCFA. Drinks were sold mainly at restaurants and small shops, together with other merchandise. Due to the hard physical nature of the work on site, many of the workers ate a few times a day, spending 1,000-1,500 FCFA per day on food and drinks.

Evidence to support fluctuating activity on site was provided by women selling food. One supplier on site said that she did not come on site during the rainy season and had to survive on what she had made during the dry season. Another (restaurant) supplier stated that her turnover decreased by more than 70% during the rainy season.

Providing accommodation (renting rooms) to workers was another source of income, with rooms costing 1,000 FCFA per night or 5,000 FCFA per week. The number of rooms available was estimated to be about 30-50 in Moulanga, with more rooms on the other side of the river. Prostitution is rife in Moulanga, with prices for sexual activity reported to be 1,000 FCFA. Seemingly, women often shared a room and took turns bringing in clients throughout the day/night. The majority of women working as prostitutes were reported to come from the Southwest Region.

Finally, taxibike is also part of the local value chain, with half the respondents from the area paying from 200-850 FCFA per day for transport by taxibike, to and from the site.

Mining compared to alternatives

Community leaders and villagers reported that the main activities in the village were:

- running or working for a small business, like selling food and drinks by the roadside, making decorations, sewing, making soap etc.
- agriculture, particularly growing cassava (and making *miondo*), and growing oil palms (to make palm oil and palm wine)
- working at the palm oil and rubber plantations owned by Socapalm
- taxi driver (motorbike or car)
- providing lodging and running a hostel.

Although the villagers did not recognise many of the workers in the numerous companies installed in the area, they did concede that there are benefits in subcontracting of local services by these companies.

There were discussions about young men and the occupations that they carried out. It was reported that young men worked at the plantations and the quarry as the main occupations, as well as working as taxi drivers. Community leaders mentioned their concerns about the amount of cannabis consumed by young men in Moulanga and in the village. The women

were inclined to express that young men were not interested in studying. Some (15%) of the workers engaged with at the quarry had a higher education. One, with a masters in accounting, was unable to find a job, whilst another had to stop studying when his father died and the family was no longer able to support him (rather he had to support his family). Regardless, both groups engaged mentioned projects funded by NGOs over the past 10 years that had involved training a dozen young men and providing them with the necessary equipment to: i) fish, and ii) raise pigs. Both projects ended when the newly trained young men sold the equipment they had received for cash, reflecting what was expressed as what many young men want above all – a daily cash wage.

Gender analysis

This section summarises information already presented in preceding sections and provides supplementary data collected during discussions with women suppliers on site and a focus group held with women at the village.

Women observed working at the artisanal site were suppliers selling food to (male) workers. Some women in Moulanga are suppliers and e.g. own and/or work in the restaurants. The women engaged with who sold food to workers had done so for more than 10 years and did so every day except Saturday (when they went to market to buy supplies for the week) and Sundays (when they attended church). Food served was rice, plantains, fufu (cassava) with vegetables, beans (300 FCFA per plate). Normally meat or fish was served as well, which cost the higher price of 500 FCFA per plate. A typical day started at 4 am preparing and cooking the food to be sold throughout the day. Food was transported from their home to the selling point pushing a wheelbarrow, which took 30 min-1 hour, and food was sold from 7.30 am until between 6-7 pm. After this time, once the woman was home, she would start getting things ready for the next day.

The case study indicated that women suppliers who sold food to workers at the quarry may have had less desirable jobs than other women in the village and be more financially vulnerable. The women suppliers expressed concern about not being able to provide sufficient/adequate food for themselves and their children on days when they did not sell enough food but particularly during the rainy season when work slows down significantly at the quarry i.e. seasonality of income makes them vulnerable. One supplier reported having used a credit facility from the bank (50,000 FCFA) in order to pay for food from the market, cooking oil etc. Further, she expressed her dream of opening a shop that sold women's clothes, bags and shoes. The women suppliers expressed their difficulties being able to pay local health centre bills whereas the women engaged with at the village were more concerned about the logistics of having to go to a hospital in Douala when e.g. an x-ray needed to be taken rather than paying the bills. The women suppliers engaged did not have access to agricultural land, which they considered to be an issue. Finally, there was a difference in education levels with women suppliers having primary or secondary education levels compared to the women from the village who had additional education mainly technical/vocation training.

In terms of violence against women and men, there was no mention of sexual abuse, prostitution violence and rape by either the women suppliers or male workers on site, although questions were prompted by interviewers. In general, people were reluctant to talk about prostitution. Only the women from the community reported a couple of incidents of rape in the last two to five years, which, as previously mentioned, could indicate that women from the local community no longer feel safe.

Two Case Studies for Clay

Overview of the site and respondents

The village of Marom was visited, situated approximately 10 kilometres from Fouban (arrondissement of Fouban). Marom is recognised as the principal village of the Noun potters. Extraction pits close to the village were also visited. Stakeholders engaged with, including both men and women, were met with in the village.

It was not possible to visit the production centre at Bamessing, due to a security situation and related ghost town conditions. However, a potter on the outskirts of Bamessing was visited as well as the Presbyterian Handicraft Center Cameroon (Prescraft) in Bamenda that owns the Prescraft production centre in Bamessing (Prespot).

A visit was also made to the Institute of Fine Arts of Fouban that promotes the use of local materials for the manufacture of art objects including clay pottery and baked bricks.

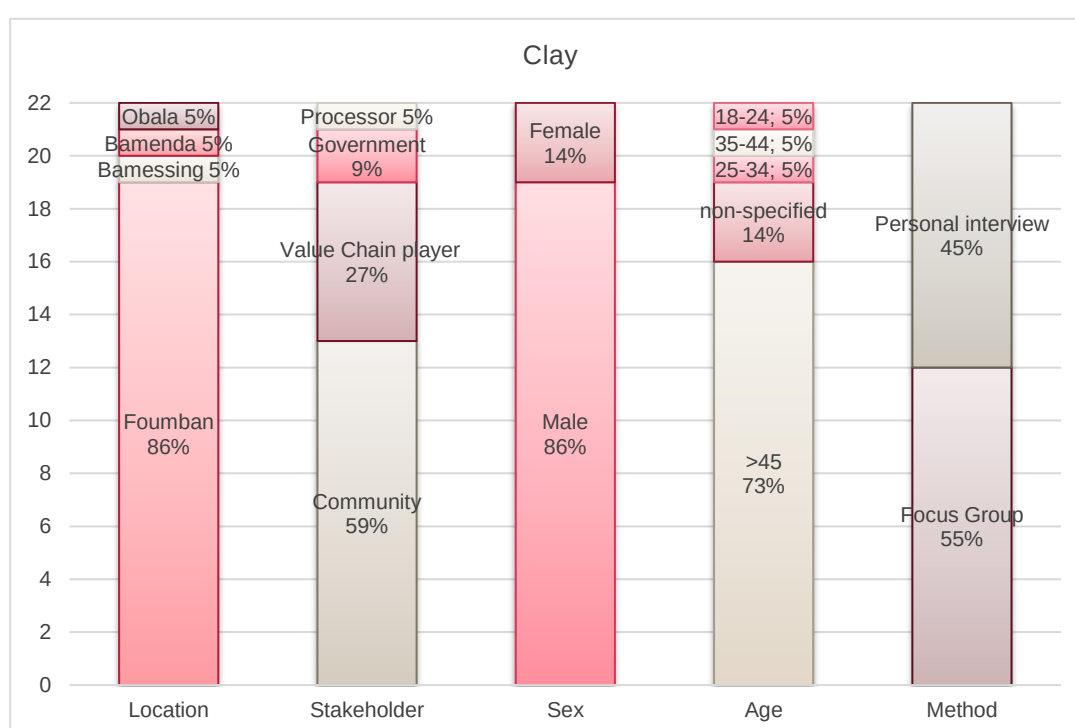


Figure A3: Participant profile: Clay

The following analysis is based on the data collected during the qualitative fieldwork. The Social Framework (Smyth and Vanclay, 2017) is used as a framework for analysing the environmental, health and safety, social and socio-economic impacts related to clay mining.



Figure A4: The village of Marom visited during the qualitative fieldwork. Location of the school, health center, chieftaincy, a brick-firing kiln and quarry are also shown.

Environment and land

Environmental issues

Excavation pits are typically at the ground surface and relatively shallow, up to 1.5 to 2 m. Depending on the quality of the clay and number of potters, excavation pits can grow into trenches or frontal quarries, like the one on the road from Fouban to Marom (see Figure A4). This pit appeared not to have been used for at least a few months, and most of the clay pits seen in Marom village were small. As vegetation is removed prior to excavating clay, larger excavation pits are associated with soil erosion impacts. The production center in Bamessing has its own clay extraction pit, which could unfortunately not be visited during the qualitative fieldwork.

Deforestation is an impact related to the baking or firing process, as wood is used as the fuel source. The scale and nature of the operations determines the magnitude of the impact. The production center in Bamessing typically operates two firing processes (bisque and glazing) for all products, whilst the potters in Marom perform just one (bisque). Bisque firing is normally carried out at a lower temperature than glazing, requiring less fuel. However, firing over an open fire is much less efficient than using a purpose-built kiln, insulated with locally produced refractory material like the ones in Bamessing. The more efficient the burning process, the less wood is consumed (lower energy consumption). Marom potters probably use less wood overall, as they only bake the clay products once and the quantities produced are probably lower than in Bamessing. However, the overall impact of deforestation resulting from the production center in Bamessing may well be less than in Marom, as the production center has been required by the (environmental) authorities to replant trees in order to be self-sufficient in terms of firewood.

Wastewater treatment is a potential issue, particularly where glazing of clay products takes place, as in Bamessing. Minimising the amount of glazing that is wasted using appropriate application techniques, and removing excess glazing with e.g. a metal tool reduces the amount of water needed to remove unwanted glazing prior to firing. This in turn will minimise

the amount of wastewater that needs to be treated. Good quality water is generally needed to prepare clays and washing/cleaning operations. Emissions to wastewater are mainly suspended clay materials (insoluble mineral components) and small quantities of additives used in the glazing process (discussed in more detail below under worker health & safety). The production centre in Bamessing has been required to establish soaking pit for wastewater.

Emissions to air arise from the firing process, mainly from the fuel consumed (wood) and consist primarily of particular matter, soot and other gaseous emissions including carbon monoxide, carbon dioxide, sulphur oxides, nitrogen oxide, and heavy metals.

The production centre in Bamessing may produce similar waste (but to a lesser extent) to larger plants manufacturing ceramic products. The waste mainly consists of sludge, broken products, used plaster/metal moulds, used sorption agents, solid residues (dust, ashes) and packaging waste.

Land

Community leaders in Marom reported that the community lacks the means to develop the land they have. Further, that there is no issue of lack of land or competing land uses. The quality of the soil allows agricultural activity but is reportedly often "tired", probably reflecting the need for soil amendments in this area for optimal agricultural productivity.

Excavation pits in Marom are generally small and used intermittently. Permission to excavate is required from the elder or dignitary to whom the land belongs, which, reportedly, is rarely refused.

In contrast to the more ad hoc excavation pits that were in use in Marom, the production centre in Bamessing has its own excavation pit. Ownership and extent of this pit are unknown. The production centre mines the estimated annual quantity needed (40 tonnes) just before the beginning of the dry season. The clay is then stored in drums in a storage facility and used throughout the year when needed.

People and community

Religion and culture

The large majority of people in Marom are Muslim, attending one of the three mosques in the village. There is also an evangelist church. The people in the village speak *bamum* (bamoun), a language with the same name as the people and the pre-colonial kingdom.

Cohesion and benefit-sharing

The production centre in Bamessing provides employment for about 90 villagers. This is likely to be one of the most important employers in Bamessing and, as a company certified by the World Fair Trade Organization (WFTO) certification scheme, operates to minimum guaranteed standards regarding working conditions, wages, child labour and the environment.

Conflict

Few conflicts were reported by village leaders in Marom and none have occurred over the past year. Any disagreements are arbitrated and resolved by the village chief and elders. No conflicts were apparent related to clay extraction.

The existence of conflicts in Bamessing is unknown. Although the production centre has reportedly had an issue with villagers removing trees from the centre's plantation, a traditional injunction was made to the community leaders and the issue was solved.

Security

None of the people engaged in Marom expressed any concerns relating to security, criminality or theft.

In Bamessing, there is insecurity and tension since civil unrest occurred in the Northwest and Southwest Regions in November 2016. The continued closure of educational establishments and "ghost town" situations once a week, during which commerce and trading is suspended and the majority of people remain indoors, contributes to this insecurity. Although the cause of the insecurity is not mining, clay extraction and valorisation activities are affected by the downturn in productivity. Less security means that on some days, pottery making and sales are not carried out, and there is an impact on sales due to less tourism.

Health and safety

Worker health and safety

Excavating clay is hard manual labour similar to tilling fields, which can lead to backaches and injuries to hands and feet. The production centre in Bamessing reportedly previously provided rubber boots to workers in the excavation pit owned by the centre, but workers preferred not to use them.

Health and safety issues related to making pottery mainly relate to the firing and glazing stages. In Marom, after the clay has been shaped, it is air-dried prior to being baked. The dust from unglazed pottery is referred to as bisque dust and abrasive if inhaled. In order to preserve the pottery, potters in Marom coat their products with a varnish-like substance made from locally obtained natural materials, which seals as well as makes the surface shine. However, the products are not considered safe for food or drink. The use of colours was observed to be limited to shades of brown and black. The main concerns of the potters were extremely dry hands from working with wet clay, and aching backs and arms from shaping the clay. Tools used were all locally obtained and manual i.e. no pottery wheels. Firing is done over an open wood fire, where there is a risk of getting burnt, although this was not reported as an issue.

In Bamessing, local potters and the production centre use purpose-built kilns made of locally produced refractory material to bake their products. Products go through a bisque firing process before glazing is added and the products are fired again at a higher temperature to fuse the glazing onto the clay surface. Cones, used to ensure the temperature in the kiln is appropriate, and additives used in glazing are imported from Europe and therefore costly and difficult to obtain. An example of a substance used in glazing is frit⁶⁹, which is a type of ceramic glass that can safely produce glazing that would otherwise be toxic. Various colours were observed in the finished products. Glazing enables the ceramics to be used for food and drink. PPE that should be used when glazing includes gloves (e.g. made of latex) to protect the

⁶⁹ See, for example, Ceradel's Fritte Calco. http://www.ceradel.fr/en/frittes/3177-fritte-c_1254.html (last visited 12 May 2018).

skin, clothing and shoes to cover bare skin and glasses to protect the eyes. Appropriate PPE should also be worn when using the kiln to avoid burns e.g. workers are provided with heat resistant gloves. The production centre reported that it had not experienced worker injuries in the production centre or extraction pit.

General health issues

Marom health centre is located in close proximity to the village chieftaincy and employs two nurses. During a typical week, between three and seven people visit the centre, particularly children, youth and the elderly. The most frequent cause of visits are illnesses including malaria, urinary infections and pulmonary infections. An estimated 15% of visits are due to accidents, mainly during road accidents, but also from working in the fields. Staff at the centre do not consider artisanal work with clay (extraction and valorisation) to result in a higher incidence of visits or different injuries compared to other villagers. One of the most important improvements to health would be gained by people using mosquito nets to avoid catching malaria. Women tend to marry young (15-17 years old), and there are few incidences of sexually transmitted diseases in the village.

Infrastructure and housing

Roads and transport

From the outskirts of Fouban, the road to Marom is a single track graded dirt road. The chieftaincy is about 5.5 km from Fouban. During the rainy season the road is often treacherous and young men add gravel in order to keep the road passable. Five households own motorbikes, and aside from walking, motorbikes are the most common form of transport (15 minutes and 500 FCFA one way from Marom to Fouban). A couple of cars (taxis) were observed during the visit. Potters reported that they often walked to market in Fouban (2 hours one way), to sell their products, which they carry on their heads. Transport of pottery products to market during the rainy season is difficult due to the road conditions.

The road (N11) from Bamenda to Bamessing is paved and generally good until the village of Sagba, after which point the quality of the road deteriorates to such an extent that average speeds drop to 20 km/h until the outskirts of Bamessing.

Housing

The majority of houses in Marom are made out of non-stabilised red bricks with corrugated metal roofs. Some of the houses have strengthened the walls by coating the outside with cement. Other houses are made of cement blocks. Houses do not have running water or sanitation.

Community leaders expressed the desire to have a village hall but do not currently have the means to build one.

Water

Community leaders prioritised a clean, reliable water supply as the most important thing that they would like to have in the village to improve people's well-being. A couple of wells were observed in the village but these reportedly no longer functions. The main source of drinking water is therefore the stream running through the village, together with other small springs.

Electricity

Not all houses have access to electricity in Marom and those that do use power generators. Alternatives to electricity are petrol lamps and mobile phones are charged in Fouban.

Cooking is done over an open fire in a one room building separate from the main building. Women and children collect firewood from the surrounding area. Community leaders identified electrification as being just as important as a clean, reliable water supply. Particularly for young people, electricity was "important in these modern times."

Market

Everyone in the village depends on Fouban, which is without a doubt the town the village is most connected to. The market in Fouban is where food and other products are purchased, pottery is sold, and where secondary schools and the hospital are located.

Livelihoods

Community leaders and potters reported that earning a living was difficult and sales of pottery were an important supplement to household incomes. However, in recent years sales were not what they had been and on average they received one order per month.

Job creation

Excavating clay is hard manual labour and often done by men. Older children predominantly carry bags of clay, which can weigh as much as 50 kg, from the pit and deliver these to the potters in the afternoons once they have finished school. Women predominantly work as potters in Marom, although in Bamessing men are also involved. In Marom, male potters were also common 20-30 years ago, but this is no longer the case. Working as a potter in Marom is a time-consuming process from kneading the clay, shaping, drying, baking and varnishing prior to transporting and selling it. Considering the time and money spent (on obtaining clay and transport), the amount earned at the market is low e.g. 2,000 FCFA on a good day.

Additional sites visited during this study included the site Marom, at which 43 miners were recorded including 41 women (no children). The number of miners on site during intense and low activity was reported to be 80 and 30 respectively.

A brick-firing kiln was visited in Marom, which had been built with money from an NGO several years ago. The kiln is no longer operational and has not been used for the past couple of years. Presumably, the attempt to make fired bricks failed as a result of the limited access to market and inability to sell the bricks produced at a viable price.

The production centre in Bamessing provides jobs for 30 full time employees and a network of 1500 artisans with whom they work. The production centre only uses its own ovens for firing products and not ovens at home-based potters, in order to ensure homogenous quality products. The majority (70%) of the pottery made at the production centre in Bamessing is exported, and the rest is mainly purchased by tourists and people from other towns. It is unclear to what extent, if any, the production centre competes with other home-based potters in Bamessing and how many people in the village depend on pottery to earn a living.

Mining compared to alternatives

The primary livelihood in Marom is agriculture for both men and women. Community leaders considered the village an important supplier of agricultural produce to Fouban, mainly food crops such as corn, beans, plantains, cassava and potatoes. Other villagers work in Fouban e.g. at the market. One of the most successful villagers (judging by the size of the house he was having constructed) was a young man working as a construction equipment operator in the Central African Republic, after having completed studies in Yaoundé. A few of the young men in the village who own motorbikes earn money transporting people (taxi-bike),

although according to community elders this is mainly due to a lack of alternative opportunities.

Gender analysis

This section summarises information already presented in preceding sections and provides some supplementary data collected during discussions held with potters at the village of Marom, who were all women.

Most village women are housewives who work in the fields most mornings, look after children, prepare meals, wash clothes and collect water and firewood to cook (with help of children once they have finished school). The market in Foumban is where agricultural produce is sold, but women reported that about half of what they consumed was bought at the market. A typical breakfast consists of porridge and doughnuts, lunch is rice and beans and the evening meal could include couscous (made from corn), vegetables, and, for the most part, chicken or fish.

It was apparent from discussions with the women potters in Marom that most are over 45 years of age. The younger generation are reportedly taught how to make pottery and involved in the process to a certain extent, but it seems that they also have additional interests and ambitions. For example, the 19-year-old daughter of the president of the association of women in the village is at a technical college training to become a social worker or a nurse (and has a 6-month-old daughter).

Two Case Studies for Pozzolan

Overview of the site and respondents

Two different sites were visited - Njimbot II (Ancien CIAC) and Pouoloum - both close to the town of Foubot. Stakeholders engaged with were encountered at the sites, in a neighbouring village (Njimbot II), and at the offices of the local administrative authorities.

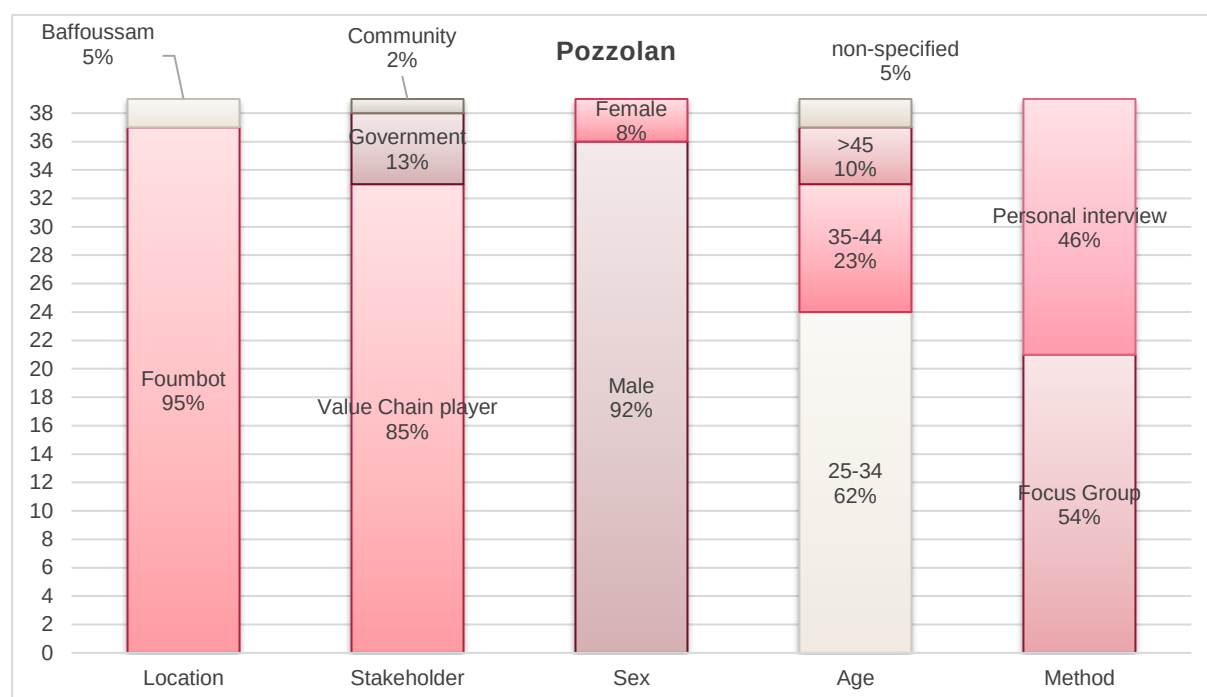


Figure A5: Participant profile: Pozzolan

The following analysis is based on the data collected during the qualitative fieldwork. The Social Framework (Smyth and Vanclay, 2017) was used as a framework for analysing the environmental, health and safety, social and socio-economic impacts related to pozzolan mining.



Figure A6: Location of two sites visited during the qualitative fieldwork (Njimbot II (Ancien CIAC) and Pouoloum). Location of schools, health center, market and chieftaincy for Ancien CIAC is also shown. Access roads to the sites are indicated in red.

It is important to note that the site Ancien CIAC is administered by the village closest to the site (chieftaincy of the third degree⁷⁰) and started operating five years ago. Pouoloum is a more established site, run by four official producers (with authorization), which sublet their quarries (with exception of Quarry A). Quarry B, for example, has five producers each rotating weekly production. Operators are not all from the local community, although appeared to be from the same department).

Environment and land

Environmental issues

Downpours, particularly during the rainy season, were mentioned as being a nuisance; i) by workers as rain makes excavation of pozzolan difficult; and ii) by women supplying workers on site with food, as the shelter which they use to protect the food from getting wet is inadequate. Rain is particularly problematic when the access road becomes impassable and trucks are not able to get to the site.

The impacts of climate change were not apparent. There was no indication that the number or intensity of the downpours had increased or that it had become more difficult to grow or purchase certain crops. No irrigation is used on the fields and none is considered necessary.

Dust, even during the dry season, is reportedly not an issue for the neighbouring village, and does not affect the use of the fields adjacent to the site.

⁷⁰ United Councils and Cities of Cameroon: National Office, *Foumbot*. <http://cvuc.cm/national/index.php/fr/a-propos-des-cvuc/-le-secretariat-executif?id=460>.

Although environmental issues were not mentioned by stakeholders, potential impacts are present, such as soil erosion. Both sites should have a restoration plan in place. The more recently established site should restore land that is not used at the same pace as new land is excavated in order to minimise the amount of land that is "idle" and not used for either excavation or agriculture. It is also unclear to what extent the restored land will be affected in terms of agricultural yield, either due to changed soil mineral composition/removal of topsoil or waterlogging as the restored land is significantly lower than the surrounding area. There is a potential risk that funds will not be available to adequately restore land for agricultural use.

Land

Land for agriculture generally belongs to the male head of the household, although it is cultivated by both sexes. The quality of the soil in the area is volcanic and reported to be good, as it is fertile and easy to till.

At the site administered by the village (Ancien CIAC), there is competition regarding land use between the quarry and land for agriculture. The chieftaincy decided that the quarry was to be established and subsequently also decided which fields to displace. No apparent conflict has resulted from these decisions. The land is customarily owned by the village and informally managed by the chieftaincy. The official site ownership is currently being considered by the authorities (see also below under conflicts). Groups of individuals have applied for an extraction permit.

There is a general lack of available land and, by way of example, the village has applied to the commune for land upon which to build a secondary school, although this process is reportedly likely to take a considerable amount of time.

People and community

Religion and culture

The vast majority of people in Njimbot II are Muslim, attending the village mosque (adjacent to the chieftaincy building) every Friday and as many of the five prayer times a day as possible.

Cohesion and benefit-sharing

The site Ancien CIAC is a good practice example of what can be done to promote acceptance of the quarrying activity by maximising benefits for the community. The majority (60%) of taxes collected from trucks leaving the quarry are placed into a Development Committee (DC) fund. The chieftaincy and village leaders are responsible for deciding how the DC funds should be used. The quarry has existed for five years and so far funds have been used to establish a new village health centre including equipment, improve the road to the village and dig three water wells. A new primary school building is being constructed (with two classrooms) and there are plans to improve the access road to the quarry. The proximity of the site in relation to the chieftaincy, schools and health centre are shown in Figure A6.

From the information collected at both sites, it appears that there are more disagreements between workers at Pouoloum that is not administered by the village. This older site involves workers originating from different villages. Trucks arriving on site are directed to a group from which to collect pozzolan and are generally not allowed to request pozzolan from a specific group. This causes tension particularly between transporters and site management as the quality of the pozzolan at different areas varies.

Conflict

There is some conflict between workers and young men from neighbouring villages, who would like to work at the site Ancien CIAC. However, the chieftaincy has decided that only men from the nearest village, Njimbot II, are allowed to work on site.

Conflicts have been avoided between young men of the village by devising a rotational scheme in which every worker is allocated two working days per week at the site. Four groups of about 20 men in each group have been established. It is not clear how workers have been chosen from the village population nor how the groups were formed, as not all men work at the site. The system seems to work to the satisfaction of those employed and community members encountered, including community leaders. However, those coming from outside the village expressed discontentment with being excluded.

The workers, and by extension the village, expressed a certain antagonism towards the communal administration and the departmental delegate from the Ministry of Mines, who have not yet officially approved/recognised the quarry as belonging to the village. Groups of individuals have applied for an extraction permit, which would effectively take the control of the production away from the community. The permit allocation is pending.

Security

At the village, women and community leaders, reported theft to be an issue, although the level of theft is described as lower compared to before the establishment of the site (Ancien CIAC).

Health and safety

Worker health and safety

Dust is a concern for the workers excavating pozzolan, particularly during the dry season but is not an issue where workers eat lunch under a shelter at the entrance to the site. During the dry season workers reportedly frequently wear dust masks.

Workers on site report that accidents occur occasionally and result from the use of poor quality shovels (or not replacing them when required). Limited PPE was observed to be used on site, with a few of those excavating wearing rubber boots at the community-run site, whilst others, notably at the more established site, were barefoot or wore sneakers. Workers expressed the desire to be provided with good quality PPE, such as gloves to avoid blisters, although these would need to be of high quality and last longer than a few days.

Workers on site all complained of aching ribs and back pain. The majority reported taking painkillers to alleviate the pain and "get them back on their feet". It is unclear at what frequency painkillers and other stimulants are taken.

It should be noted that the safety of workers at the more established site was more precarious than at the more recently established site. Due to the older site's placement on a hillside, the height of the quarry face of the excavation site is up to 10 m in certain places (compared to 3 m at the more recent site). This increases the risk of soil collapsing on top of workers and/or trucks being loaded and there was such an incident reported in 2015.

Women providing food at one site expressed concern about accidents that could occur trying to access sites. Motorbike access is the only option and the condition of the access road is such that bikes can fall over, spoiling the food they have prepared and potentially causing injury. This was also observed to be a risk at Terre Noire.

Health and safety is also an issue for the men making cement blocks from pozzolan. Making cement blocks is, just like working on site excavating pozzolan, physical and again few workers were observed wearing PPE whilst making cement blocks.

Although not mentioned by any of those engaged, providing shelter from sun would improve the working conditions.

General health issues

The new health centre of the village Njimbot II started operating in early 2017. The main health issues are malaria, typhoid and water-borne diseases. Injuries occur every week or every other week and are mostly simple wounds or those requiring stitches. Half of these injuries are workers injured on site, the majority of whom are treated for cuts on arms, hands or feet.

Reportedly, workers who show up on site under the influence of alcohol are denied access.

Infrastructure and housing

Roads and transport

The quality of the road from the tarmacked N6 to the village chieftaincy (Njimbot II) is a reasonably good, gritted dirt road passable by car. The road to the community-run quarry, on the other hand, is passable only by four wheel drive, truck or motorbike, and is about 1.6 km from the main road, with the last 1 km being particularly bad. During periods of heavy rain, the road is impassable and the quarry does not operate, particularly in July and August.

Similarly, the considerably longer access road for trucks to the other site is equally poor (4.6 km from the N6), with the last 0.5 km only accessible by motorbike or truck (no access for four wheel drive).

It is clear that improving the access road to the site, as is planned at the Ancien CIAC site, would improve the situation and allow the quarry to open more days per year.

Most households own a motorbike and this is the most common form of transport e.g. to market.

Housing

Houses made of traditional red bricks are considered less desirable compared to houses made of cement blocks. Roofs are made of metal as roofs made of organic material don't last more than two years. There is no running water or adequate sanitation in the houses.

Water

No significant sources of surface water exist in the areas surrounding the sites (apart from the lakes at the summit of Mount Mbapit to the north of the site Terre Noire, at considerably higher elevation). Water is therefore obtained from boreholes and is not treated prior to consumption. The village that has recently established three boreholes in the village has improved the quality of life of certain villagers, whilst others still have to walk about 1 km to fetch water.

Electricity

All households in the village are connected to the grid, although it seems not all households are able to afford to consume much. Cooking is done using wood in outdoor kitchens.

Market

The closest market sells mainly agricultural produce and is located on the main road to Foubot, close to the side road leading to the village. Other produce is available in Foubot e.g. at the central market, located 2.5 km from the agricultural market.

Livelihoods

Reportedly, approximately half of the people in the village have difficulty paying the fees to the newly established health centre. Young men working at the more recent site and women from the adjacent village, report that their financial situation had improved somewhat since the quarry was established.

Job creation

Due to the lack of job opportunities in the village and surrounding area, a rotational scheme has been devised in which workers are allocated six working days per month at the site. One estimate provided that about 15% of the young people in the village work at the site.

Work on site excavating pozzolan is predominantly done by young men below the age of 30 living relatively close to the quarry. The same can be said of people making cement blocks. Neither job requires more than primary education and most workers have been trained on-the-job by friends or relatives. Working downstream in the value chain making cement blocks seems to comprise mostly young men working to earn money when needed, compared to the more steady income job of working on site. However, this could also reflect the geographic location of the work, with work on site being more closely connected to a community than making cement blocks, which tends to be located along a paved main road close to a town or larger urban area.

Work at the quarry seems to be regarded in a similar way to working at a construction site i.e. a good source of income for unemployed young men. However, the jobs are not necessarily seen as the most desirable long term solution. For example, community leaders in Njimbot II expressed concern that although it had not happened, male children (12-15 years old) may be tempted to drop out of secondary school to earn money working at the quarry.

The additional sites visited during this study included the Pouoloum site (code 10092), at which 21 miners were recorded including 5 women (no children). The number of miners on site during intense and low activity was reported to be 60 and 15 respectively.

Mining compared to alternatives

The primary livelihood in the area is agriculture. Even men working at the site work in the fields when not on site, particularly just before the rainy season (tilling soil) and towards the end (harvesting). Mining is considered a supplement to agricultural activities.

Some young men who own motorbikes earn money transporting people (taxi-bike).

Most village women are housewives who work in the fields 2-3 days per week, look after their children, prepare meals, wash clothes and go to the local market to sell their agricultural produce such as vegetables, beans, potatoes, corn, cassava, peppers. They buy meat and fish at the market in Foubot and the most well off eat meat once a day. A staple food is cous-cous made from corn, which is ground in town (Foubot). Water is available in the village with newly constructed wells and fuel (wood) is bought at the main market in Foubot.

Gender analysis

This section summarises information already presented in preceding sections and provides supplementary data collected during two focus groups held with women (one on site and one at the village).

The only women who work on site are suppliers selling food to (male) workers. Groups of 2-3 women provide food to workers 3 days per week each, allowing them to do other things the other 4 days in the week. On the days when they provide food to workers, they go to the quarry in the morning from about 8-11 am to provide breakfast e.g. rice, spaghetti and beans, and again at midday at 1-2 pm to sell lunch e.g. couscous, vegetables and meat (mainly chicken and beef). When not at the quarry, they work in the fields from about 8-11:30 am growing e.g. vegetables, peppers, beans, courgettes and otherwise tending to household tasks including looking after their children. There is also evidence to suggest that the women may have much longer days than expressed, as shown in the survey findings reported under Component 4.

Some difficulties and vulnerabilities, beyond long working hours, were related to financial, food insecurity, land and housing, which may indicate that the women suppliers of food may be more vulnerable than the average woman in the same community. Most of the women on site have a primary school education and were widows who sold food on site as an important supplement to selling agricultural produce. It should be noted that the quantitative study, found that half of the women who replied said that if their husband passed away, they would not inherit his land, which impacts a women's access to and control over housing, land and property.

The habitability and location of their housing (they live in red brick houses) was also found to be of questionable adequacy. For instance, the distance the women need to go to fetch water is longer than for households close to the chieftaincy. As they do not own land, they need to cultivate land rented from a (male) villager. They use as much of their agricultural produce as possible to prepare food sold to workers and sell what they don't consume themselves at the local market. Supplementary food and other commodities are bought at the market. The women pay to get to the site with the food they have prepared by motorbike. Often forced to buy what they need at the market on credit (typically CFAF 20-25,000 per week), they find it most difficult to provide sufficient/adequate food for themselves and their children on days when they do not sell enough of the food they have prepared. This sometimes happens when sales are bad e.g. work at the quarry is interrupted by heavy rain and trucks not being able to access the site or when the motorbike transporting them falls over on the poor quality access road, spoiling the food prepared.

In terms of access and safety, access to the site by women selling food is not an issue at the community-run site. They go to the site unaccompanied and feel safe as they know the men working there, who are from the same village.