By Alexandra Pugachevsky

Introduction. Yemen’s dependence on the oil sector as a source of economic growth is no longer sustainable given the rate at which oil reserves are being depleted. This study\(^1\) was conducted to assess the potential contribution of the mineral sector to sustainable growth and poverty alleviation in Yemen and to define the constraints that will need to be overcome if this potential is to be realized. In so doing it helps to define those areas of government action and donor support that will need to be sustained over the medium to long term.

Promising Mineral Potential. The geology of Yemen is promising for metallic and industrial minerals and there are ample deposits of natural stones in the country. However, with the exception of artisanal exploitation of natural stones, the country does not have a mining tradition and any development of the sector will require significant and sustained efforts. In terms of prospective minerals, there is ample evidence of gold mineralizations and some estimates indicate that the country could host some world-class deposits. A zinc deposit at Jabal Salab is under development and should start production shortly and Cantex of Canada, which has been exploring in Yemen for many years recently announced that Vale, a large international mining company, has agreed to fund a portion of work to further explore the promising Suwar Nickel-Copper-Cobalt massive sulphide deposit north west of Sana’a. Other potential minerals receiving attention include titan magnetite and rare earth elements. Table 1 below (see annex) presents a potential mining sector growth scenario in the short to medium term.

Yemen also has a range of industrial minerals that could be exploited, principally by small and medium- to large-sized companies. Lhoist Co. (Belgium), is currently conducting explorations for limestones and dolomite in Yemen. However, many of these minerals require further work to understand better the market opportunities and to provide assurance of the commercial feasibility of any development. Several raw materials related to cement production are already being exploited, as is rock salt.

The natural stone industry is already substantial in Yemen and could be made significantly more efficient and economic through a programme of raising market awareness, improving quality and installing modern technology. This sector is considered ripe for relatively rapid development, and with international assistance, existing cooperation programs have created an initial platform for this. The strengths, weaknesses, opportunities and threats associated with the three groups into which minerals have been divided in this study are shown below.

Constraints Hurdles to the sustainable development of the mineral sector in Yemen include the need for: (i) improved

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\(^{1}\) This note is based on the main sector report dated June 2009. The main report was prepared by a team led by Alexandra Pugachevsky, Operations Officer, (COCPO). The report team comprised Bryan Land, Senior Mining and Petroleum Specialist (COCPO) and three international consultants, John Cole-Baker (Metals Mining Consultant), Marco Cosi (Industrial Mining Consultant) and Henry Thompson (Mining and Oil Social and Environmental Issues Consultant). The task team was ably supported by three local consultants: Safwan Al-Sanabani, Dr. Khaled Mohammed Thabet Al-Selwi and Ibrahim Mahmood Al-Saghiry. Maria Handal, Nagwan Sharhan and Ali Ali Hassan Salamah, all from the World Bank Sana’a office, provided invaluable support to the team while in Sana’a. Dr. Gaber Ali Mohamed Al-Sanabani, Associate Operations Officer, PEP-MENA, based in Sana’a, contributed extensively to this report and deserves a separate mention.

The team also benefited greatly from cooperating with the PEP-MENA team and Frank Sader, Principal Strategist, in particular. Somin Mukherji, Senior Financial Analyst (MNSSD) consulted the team on Yemen’s power sector and Jean-Charles Crochet, Senior Transport Economist (MNSSD) provided feedback on transport issues. Amanda Green, Consultant, World Bank, edited the document.
The development of a mining industry and of downstream mineral processing, in particular, will depend on adequate infrastructure. Development of the road system is underway, but the topography of western Yemen dictates that road building will be expensive. An ambitious plan for the construction of a railway from Sana’a to the south coast ports (Belhaf, Shabwa province) has been proposed in order to provide transport to external markets. Such a project would undoubtedly assist in the development of other industries in the east and south of the country. However, detailed economic and technical studies will be required before the feasibility of the proposal can be evaluated fully. Other limiting factors include the availability of power and of water. Nevertheless, activities that would in any case be necessary to develop the mining sector could usefully be initiated whether or not the railway proposal is approved. These are explored in Chapter 10 of the main report.

Social aspects that require attention include the instability in some parts of northern Yemen and the traditional, tribal nature of life outside the main urban centers. Access to mineral resources is complicated by the existence of tribal land claims. These need to be recognized and managed carefully by authorities at central and district levels. In addition, and most importantly, mining companies must build up good relations with the local population. These social development issues are described in more detail in the report, and possible approaches are reviewed, drawing on experience in the oil sector. Some of these approaches rely on recognition by mining companies and host tribes that mining development can provide opportunities for job generation and community development.

The strengthening of government institutions engaged in promoting and managing the mining sector is a prerequisite for sustainable mineral sector growth in Yemen. This implies a higher profile and better resourcing for the main regulatory agencies. Although core competencies exist, these agencies have not yet gained experience in supervising large-scale mineral operations, especially in the mine development and production phases. Even in the exploration phase, a limiting factor for the promotion of exploration opportunities has been the limited experience among GSMRB geologists and other agency staff with mineral economics and markets. In addition to any physical investments, therefore, considerable investment will be required to strengthen sector know-how and skills development.

Finally, it will be important for the Government of Yemen to signal its intent and commitment to give to the mineral sector the type of support that will be required over the medium to long term in order to successfully harness the country’s mineral potential and bring about wider economic benefits. The draft National Mining Policy, which has been prepared by the government with support from the World Bank Group, provides such a signal. Furthermore, the Government recently developed a mineral strategy and is currently fine tuning it to make it as part of the country’s development strategy. A new mining law was recently approved. These are important steps, which will need to be consolidated through specific regulatory and institutional measures to ensure effective implementation.

Support for Mineral Sector Development

Realistically, any program to assist Yemen in developing its mineral sector must take a long term view of up to ten years, although benefits can be achieved in certain areas well before this timeframe. The objectives of future support to the sector, which arise from this study, can be listed as follows:

- Build on the work already underway to improve activities in the natural stone sector through improved efficiency, higher quality products and better understanding of stone product markets
- Build capacity in the government administration to provide support services to local enterprises and to improve regulation of the sector, including, where
necessary, sensitization in social and environmental management

- Encourage local enterprises to involve local populations in mineral activities and develop a mining culture for mineral commodities amenable to exploitation and marketing by local enterprises
- Identify and promote mineral occurrences that require specialized mineral exploration approaches from international mining companies

A detailed list of activities that can help attain these objectives is included in Chapter 10 of the main report. These activities are intended to reach all sectors of the economy and social ranks, focusing on capacity building at all levels and the involvement of local communities. Proposals are summarized below:

- Strong feedback from stakeholders has identified the need to further strengthen the regulatory framework and to build capacity of the institutions involved in regulating the Yemeni mining sector. Measures to achieve this are set out in Section 10.1 of the main report.
- Minerals development will require attraction of investment, both foreign and local, but for this to happen on a sustained basis support is needed to further develop knowledge in GSMRB about mineral occurrences in Yemen and the commercial potential of their exploitation as a platform for effective promotion to the mining industry. Measures to achieve this are set out in Section 10.2 of the main report.
- As yet little small-scale mining occurs in Yemen other than quarrying of building stone and other construction materials but there is potential, if supported with suitable programs, to create a basis for engagement by Yemeni’s in this sub-sector of the mining industry. Measures to achieve this are set out in Section 10.3 of the main report.
- Skills development in the regulatory institutions through training and other forms of instruction is a key requirement that cuts across all areas of sector management and needs concerted effort. Measures to achieve this are set out in Section 10.4 of the main report.
- Stone quarrying and processing is the most active part of the mining industry in Yemen at the present time but faces many challenges to operate on a commercially viable and competitive basis. As such, specific measures are seen as being necessary and, accordingly, these are addressed separately in Section 10.5 of the main report.
- A significant constraining factor on the potential growth of the mining industry in Yemen is the remote location of mineralized areas in relation to available infrastructure. Stakeholders have identified the need for strategic investments to alleviate this constraint. Measures to assess the scope for infrastructure investment to address this challenge are set out in Section 10.6 of the main report.

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