



منتدى الاستراتيجيات الأردني
JORDAN STRATEGY FORUM

The Mining Sector

Jordan's Economic Vision Roadmap



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The Jordan Strategy Forum (JSF) is a not-for-profit organization, which represents a group of Jordanian private sector companies that are active in corporate and social responsibility (CSR) and in promoting Jordan's economic growth. JSF's members are active private sector institutions, who demonstrate a genuine will to be part of a dialogue on economic and social issues that concern Jordanian citizens. The Jordan Strategy Forum promotes a strong Jordanian private sector that is profitable, employs Jordanians, pays taxes and supports comprehensive economic growth in Jordan.

The JSF also offers a rare opportunity and space for the private sector to have evidence-based debate with the public sector and decision-makers with the aim to increase awareness, strengthening the future of the Jordanian economy and applying best practices.

For more information about the Jordan Strategy Forum, please visit our website at www.jsf.org or contact us via email at info@jsf.org. Please visit our Facebook page at Facebook.com/JordanStrategyForumJSF or our Twitter account [@JSFJordan](https://twitter.com/JSFJordan) for continuous updates about Jordan Strategy Forum.

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This is an expert opinion report based on discussions and focus group meetings held by the Jordan Strategy Forum (JSF). The overall objective of this effort is to analyze different sectors (14) of the Jordanian economy and their respective challenges, and come-up with practical solutions and initiatives to enhance their competitiveness. Throughout this exercise, the JSF facilitated the focus group meetings, and supported the work-stream managers with any needed research and logistics.

Acknowledgment:

The JSF would like to extend its appreciation to the following work-stream members of the **Mining sector**, who contributed to the focus group meetings, and in editing the proposed initiatives and sectoral report:

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1. Introduction

The mining sector in Jordan is one of the cornerstones of the Jordanian economy. The sector plays a vital role in the growth of many other sectors in the economy, and contributes to Jordan's standard of living. The mining industry is dominated by the production of phosphate, potash, building and decoration stones, pure calcium carbonate, and some other non-metallic resources.

Recently, Jordan has been ranked as the sixth largest producer and second largest exporter of phosphate in the world. In addition, Jordan is the fourth largest producer and the second largest exporter of potash in the world. The country has the fifth largest oil-shale reserves in the world, and sustainable amounts of uranium equivalent to around 3% of the world's reserves.

In a paper published by the EMRC¹, Jordan's mining sector contributed to almost 7.7 per cent of the Kingdom's GNP in 2019 and accounted for 19 per cent of Jordan's total exports. The 2015-2025 Mineral Resources Strategy envisions the sector's shares to increase 11 per cent by 2025. The Arab Potash Company was Jordan's leading exporter in 2019, with a 1.6 per cent contribution to GDP. Jordan's phosphate production, on the other hand, contributed 1 per cent to the Kingdom's GDP in 2019. The Jordan Bromine Company's revenues added 0.9 percent value to Jordan's GDP.

The main objective of this report is to share the strategic thoughts developed by a panel of the industry experts on the status of the mining industry in Jordan, with the aim to charter the path for an even better and more economically productive sector.

There are many competitive elements of the mining industry in Jordan, which are identified with numerous viewpoints. These include abundance of natural resources, cost-competitive location for mineral extraction and manufacturing and proximity to markets, large and highly skilled labor, infrastructure, and political stability. In spite of these advantages, it can be noticed that there are serious threats to the future development of the mining sector. These threats are related to restrictions and requirements of laws and regulations of the mining sector, and to environmental issues and the unstable political situation in the region.

¹ <https://www.jordantimes.com/news/local/jordans-mining-sector-shares-increase-11-cent-2025---emrc>

To unlock the potential of the mining sector, this report lists a number of broad initiatives that are designed to fulfill a number of strategic goals that the experts have agreed to.

To give a glimpse of the diversity and coverage of the various potential mining projects, the below map shows the concentration of major minerals of significant quantities across the country.

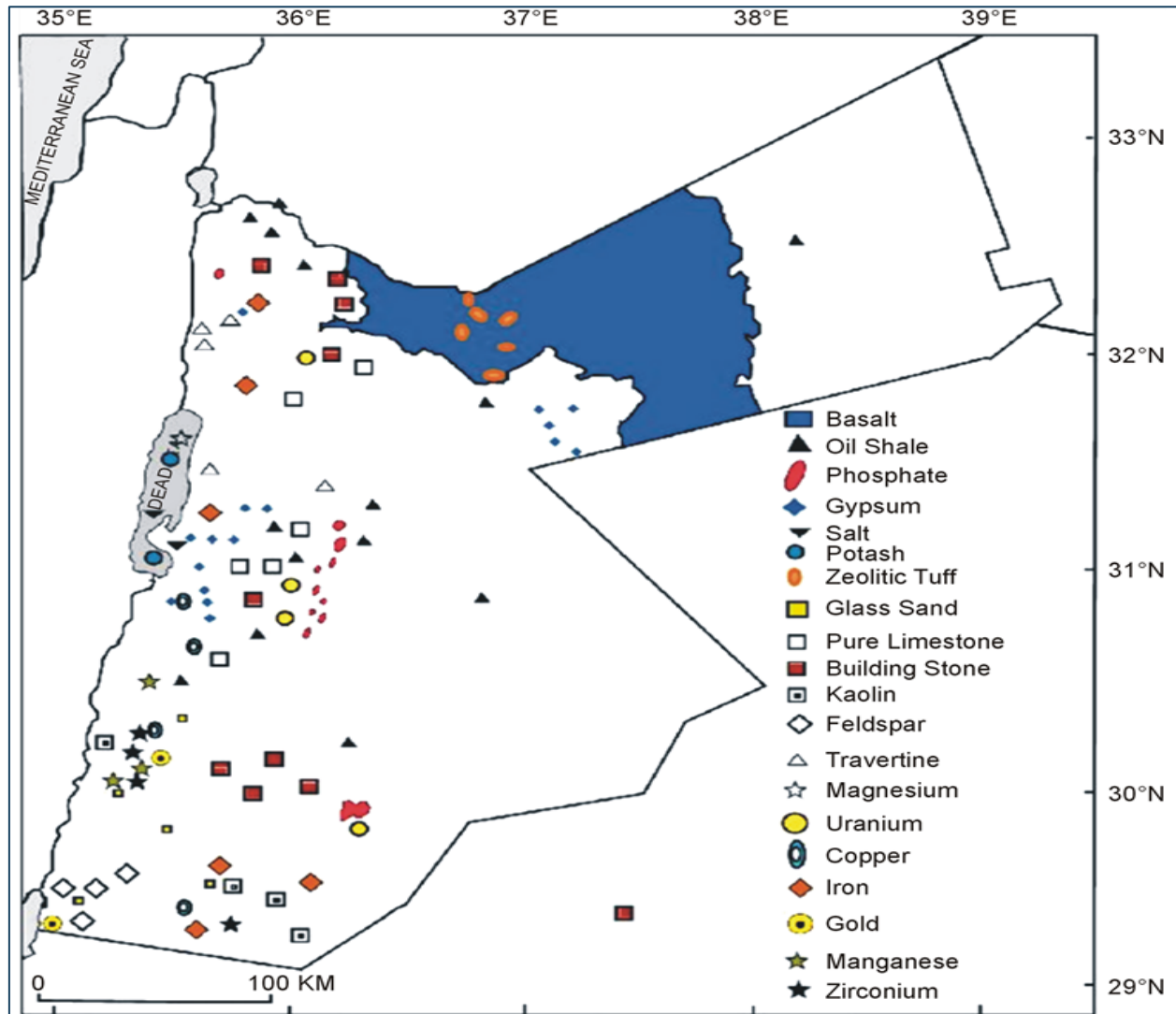


Figure 1 Jordan's Minerals Map - Natural Resources Authority (NRA)

2. Performance of the Mining Sector during the Past 5 years & the Impact of COVID-19

The mining sector in Jordan is considered one of the main pillars of the Jordanian Economy. The sector plays an important role in strengthening the national economy as well as other economic sectors.

The mining sector effectively covers the local market's needs of raw materials, and intermediate and final products related to the sector. Through its exporting activity, the sector brings-in foreign exchange and supplies the treasury with mining taxes and fees.

Real GDP of the mining sector between 2016 and 2020 was slightly unchanged, increasing by only 4.9% over the period, from JD 514 million to JD 620 million. This represents 2.1% of GDP.

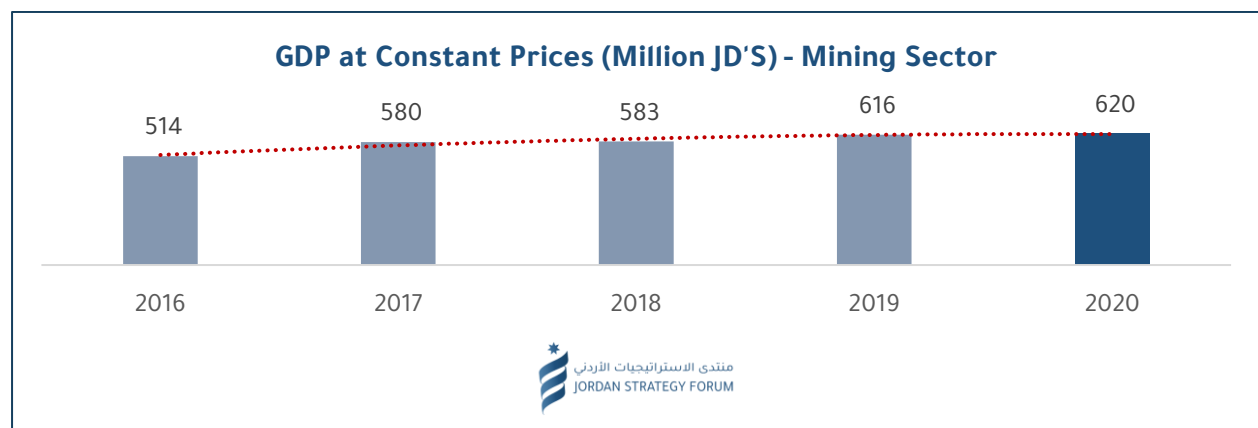


Figure 2: Department of statistics

Direct Employment² in the mining & quarrying totaled 8,586 Jordanians in 2020, and this number represents 0.6% of the total local workforce.

² http://jorinfo.dos.gov.jo/Databank/pxweb/en/DOS_Database/START_12/EMPALL/table/tableViewLayout2/

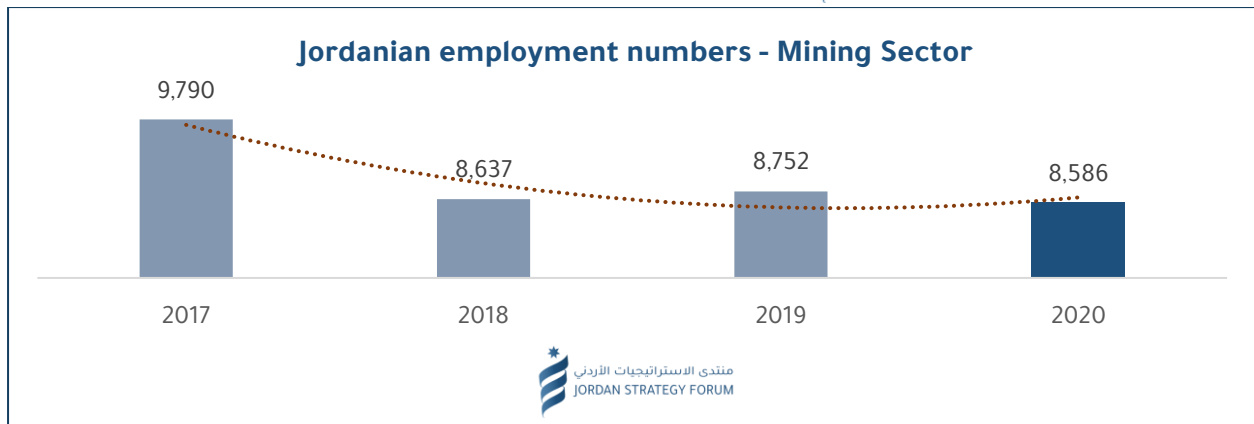


Figure 3: Department of statistics

Mining Exports³ valued at JD 1,098 million JDs in 2018, and this amount accounted for 19% of Jordan's total domestic market.

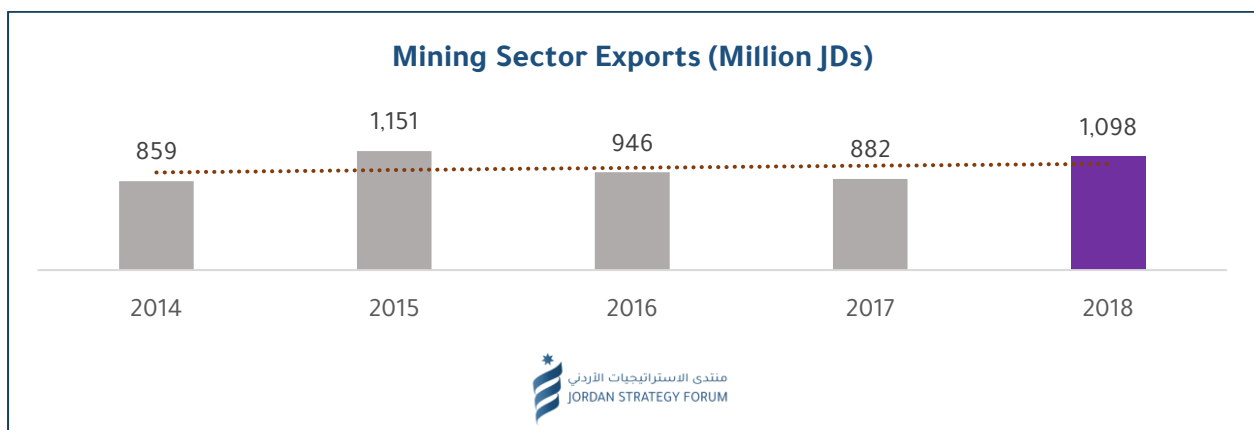


Figure 4: MEMR, Performance of Jordanian Mining Sector during 2014-2018 report

The COVID-19 pandemic has affected many economies worldwide. The effects of the pandemic created both supply and demand shocks, resulting in an overall decrease in most mineral prices (with the exception of precious metals such as gold).

In addition to the reduced direct, indirect and induced employment in the mining sector, the pandemic shock resulted in a decline in the overall revenues of mining due to falling commodity prices and mining output worldwide. This situation persisted in 2020, with most prices mostly recovering in 2021. Also, it is worth mentioning that the pandemic still evolves, and hence, the analysis is limited to 2022.

³ https://www.memr.gov.jo/ebv4.0/root_storage/en/eb_list_page/propetrolume.pdf

3. Stakeholders' Mapping of the Sector: Linkages & Overlaps

The mining sector is interlinked with many other sectors. This interlinkage can take the form of constructive linkages or interdependency, or it may take the form of overlaps with need for reconciliation and giving priorities.

The focus here will be on the relationship with the other 13 sectors covered by the overall project.

1. Linkages

Sector	Relationship
1. Energy	Mining is an energy incentive sector that needs to be considered in any energy related policies and strategies to ensure that mining has access to clean and economical energy sources that enhances the competitiveness of the sector
2. Education	Education system, especially in universities and vocational training, will need to accommodate the needs of the mining sector for trained and skilled labor. Needs include: geologists, engineers, operators, etc.
3. Manufacturing and Industry	The trend is towards further processing and value-added activities for the sectors. There are tremendous opportunities for mining transformative industries such as fertilizers, specialty chemicals, acids, paints, cement, building material, glass, ceramics, electronics, etc.
4. Transportation and Logistics	Most likely mining projects are in remote areas that will need access to roads. There is also the need for railways and ports to secure the transportation and exports of material.
5. Financial Services	Access to finance is an important aspect of mining projects that are mostly capital intensive.

2. Overlaps or Conflicts

Sector	Relationship
1. Agriculture	There can be occasions in which there needs to be decisions on the usage of land, whether for mining or agriculture. Along that decision angle there will be the need to distribute or allocate scarce water resources
2. Water and Environment	Scarce water resources will necessitate the use of water efficient technologies and encourage the re-uses of water and waste water treatment. Mining sector is under scrutiny for environmental impact and there is the need to abide by international treaties and directives to ensure that the sector is looked upon positively and can benefit from FDI and international financing in line with recent ESG focus.
3. Tourism	It is possible that mining activities may overlap with touristic locations, archaeological sites or natural reserves. Strategies and policies will need to address any conflicting areas between mining and potential tourism.

4. SWOT Analysis

The panel of experts have gone through an organized exercise to assess various strengths, weaknesses, opportunities, and threats. In summary, the below Table provides the results of the SWOT analysis:

Strengths	Weaknesses
<ol style="list-style-type: none"> 1. Availability of some high-quality reserves of several natural resources that are in high demand and/or potential value. 2. Political stability and open economy that is very welcoming of investors and has numerous trade agreements. 3. Currency stability and relative ease of moving money within normal regulations. 4. Presence of many exploration companies and test labs. 5. A specialized railroad that currently transports phosphate, but can be expanded. 	<ol style="list-style-type: none"> 1. Existing data is not digitized or properly archived electronically. 2. Not enough spending on R&D and no financial incentives to support private spending on R&D. 3. The mining sector does not have a long-term strategy that is adopted by all stakeholders. 4. High energy and fuel prices which leads to high operational costs. 5. Lack of a clear public policy (fiscal, monetary, trade and investment) that guides national priorities for the mining sector.
Opportunities	Threats
<ol style="list-style-type: none"> 1. The importance of food security. 2. The transformation towards electric cars and renewable energy (There will be a push to explore Jordan's REL and other metals.) 3. There can be a focus on further investments in Jordan in existing companies or new ones. 4. The sector can be more competitive and efficient in terms of asset allocation and overall financial performance. 5. ESG (This can be an opportunity for Jordan to receive more funds directed at sustainability goals). 	<ol style="list-style-type: none"> 1. Energy and water pressures (High operational costs and decreased competitiveness). 2. Increased competition and potential loss of market share, especially with India and China. 3. Commodities volatilities and increased competition. 4. Any serious disruptions to the operations of automated mining equipment resulting from a cyber-attack will take the mining operation offline causing financial loss and possible equipment damage. 5. Carbon taxes and climate related pressures.

5. Strategic Objectives

Based on the SWOT analysis and various deliberations, the panel of expert has agreed to a number of strategic objectives:

Strategic Objectives	
1.	To reform the legislative, legal, financial and institutional structures.
2.	To improve geological surveying and data.
3.	To enhance the competitiveness of the sector by providing better infrastructure, lower energy costs, and access to water.
4.	To support R&D, innovation, technology adaptation, and human capital development to support the mining sector.
5.	To encourage new investments in added-value industries and new opportunities.

6. Initiatives (projects)

The group of experts along with the work-stream manager have held several sessions and interactions, both in person and online to agree on the recommended initiatives that will fulfill the set of Strategic Objectives.

These initiatives are broad and long-term. The summaries are provided in the following cards:

Initiative Name: Initiative 1 - Legal / Institutional Reforms
SO 1 - To reform the legislative, legal, financial and institutional structures
<p><i>Short Description:</i></p> <p>The mining sector in Jordan is governed by two entities and these are the Ministry of Energy and Mineral Resources (MEMR), and the Energy and Mining Regulations Commission (EMRC). These two organizations are governed by a number of laws that set the roles and responsibilities of each, as well as the key activities impacting the sector, such as issuing licenses and signing agreements with developers. In addition, and since mining is a highly regulated and policy-driven sector, the key steps of activating the sector will need to be through legal reforms. These legal reforms will need to address the following areas:</p> <ul style="list-style-type: none"> • Reform the Natural Resources Law to better suit the sector. As it stands today, the Law does not offer the proper legal instruments that properly caters to different classes of minerals. As a matter of fact, the idea of classifying minerals will need to be included within the Law. • The law will also need to further clarify the roles of MEMR and EMRC without overlaps. In some instances, such as “strategic minerals” the two entities have overlapping roles that are not clarified. • As part of the legal reforms, there will be the need to improve the fiscal system to attract investors and offer balanced returns. Today, there are a number of applicable fees, taxes, royalties, land leases, etc. When put all together, they can be excessive and not encouraging to attract investments. • Introduce the idea of a Jordanian Geological Survey to lead explorations work and own all data <p>The scope of the required legal reforms is wide and may not happen in a short period of time. We envisage a prioritization exercise over a time period that can take a number of months or years. But, it has to start the soonest.</p> <p><i>Expected Outcome:</i></p> <p>A range of legal reforms will positively reflect on the sector by clearer accountabilities and roles for involved organizations. That in turn shall reflect in better engagement with qualified investors who will witness more effectiveness and streamlined operations that ideally will enhance the success of development projects.</p> <p><i>Other related fields (if desired):</i></p>

Initiative Name: Initiative 2 - Strategy and Policy Works
<p>SO 3 - To enhance the competitiveness of the sector by providing better infrastructure, lower energy costs, and access to water.</p> <p>SO 4 - To support R&D, innovation, technology adaptation, and human capital development to support the mining sector</p>
<p>Short Description:</p> <p>Along with the need for legal and institutional reforms, there is a need for a clear strategy, supported with a committed policy, to drive the sector and clarify its vision and direction. It can be argued that strategy / policy precedes legal reforms.</p> <p>The need for a strategy for the mining sector is required to provide guidance on:</p> <ul style="list-style-type: none"> • An inventory of the available minerals and their potential. • Prioritization of opportunities to develop these assets. • Needs for additional explorations. • Treatment of available data from various sources and providing well-archived and digitized data sets for interested developers. • Additional opportunities for existing minerals with further value added, especially for phosphate and potash. • Objectives and goals to be achieved. • Details on specific initiatives (above and beyond what is mentioned in this briefing.) • Kind of support and infrastructure required. • Possible socio-economic impact of the sector. <p>The needed policy will need to be at a higher level and committed to by the government. This policy will cover aspects related to:</p> <ul style="list-style-type: none"> • Importance of the sector to the economy and linkages with other sectors. • Possible incentives to be given to developers and investors such that it attracts. Investments while balance returns to government. Incentives can be tax breaks, reduced land lease rates, reduction or removal of customs over machine imports, etc. • Water usage and push towards water saving techniques, and use of recycled water. • Energy usage and possibility of resorting to renewables or other energy saving approaches. • Incorporation with other research and development policies to drive innovation in the mining sector. • Incorporation with other human capital strategies to support the sector with qualified labor. Vocational training is one particular area of interest.
<p>Expected Outcome:</p> <p>With a clear strategy and policy, the sector will have foundations to guide decisions and developments moving forward. There will be better interaction with other strategies and policies related to other sectors so there is a platform for cooperation. This is especially true for R&D, human capital, and water/energy usage.</p>
<p>Other related fields (if desired):</p>

Initiative Name: Initiative 3 - Geo Data Store / Centralized Capabilities Reference
SO 2 - To improve geological surveying and data
<p>Short Description:</p> <p>A fundamental aspect of mining development is the availability and quality of data. With no data there will be no interest and vice versa. Only reliable and qualified data will be able to attract attention of developers who in turn will need to perform their own detailed geological surveys and other tests.</p> <p>Digitized and Centralize Existing Data</p> <p>There is data available from the NRA days until now. It has to be centralized, digitized where needed and promoted.</p> <p>Centralize Information to Available Testing Capabilities</p> <p>Geological surveys will produce samples (cores) that will require variety of tests: physical, chemical, spectrometer, trace elements, etc. Some of these tests are specialized and required special equipment. Testing facilities in the country are distributed in various organizations: MEMR, EMRC, universities or private labs. There is a need to have a one place to guide interested parties to available testing capabilities.</p>
<p>Expected Outcome:</p> <p>With good and reliable data available, there will be means to attract interest of developers and increase activities in the sector.</p>
<p>Other related fields (if desired):</p>

Initiative Name: Initiative 4 - Accelerated Exploration / New Products and Projects Identification
SO 2 - To improve geological surveying and data SO 5 - To encourage new investments in added-value industries and new opportunities
<p>Short Description:</p> <p>Run More Geological Expeditions</p> <p>In line with existing data and guidance by a mining strategy, there is a need to continue geological surveys across the country. These surveys need to be focused and on those assets that are identified of higher importance. These can be rare earth elements (REL), or metallic such as copper and gold.</p> <p>New Products</p> <p>Along with the surveys, there is the need to identify new development projects or products that goes beyond extracting raw material. The strategy work is useful to guide the developments here.</p>
<p>Expected Outcome:</p> <p>Further clarity that will help attract the interest of developers and investors.</p>
<p>Other related fields (if desired):</p>

Initiative Name: Initiative 5 - Investment Promotion and Support
SO 5 - To encourage new investments in added-value industries and new opportunities
<p>Short Description:</p> <p>Along with enhanced and improved data, new projects, and new surveys, there needs to be collaborated efforts to promote these opportunities to the right partners to gauge their interest and attract them to consider projects in Jordan.</p> <p>Such efforts will require:</p> <ul style="list-style-type: none"> • Identification of potential developer and investors: countries, size of investment, area of interest, etc. • Outreach initiatives to engage potential parties. • Provision of data and potential projects. • Building solid communications channel to respond to all inquiries and provide support. • Continue the support through the final project closure phases. • Continuous learning and collaboration across various involved parties for continuous improvement.
<p>Expected Outcome:</p> <p>Improved flow of investments into the country and better success rates. This will reflect on government revenue, employment opportunities, and overall economic outputs.</p>
<p>Other related fields (if desired):</p>

7. General Recommendations

The mining sector has a great potential to grow once the structural issues related to the legal and institutional reforms are addressed. These reforms need to be based on a broad strategy and committed public policy that sets the direction for the sector and demonstrates the government's commitment to the sector. This is an essential sign to be given to the existing and potential developers on the role and direction that the mining sector will play in the economy.

Elements of the strategy and policy works need to address a number of important issues. One of these issues is to continue to promote further conversion from traditional extraction of raw material practices to the derivatives industry. This transition will create higher income jobs, more and better jobs, as well as more revenue to the government. Some specific focus issues can be to work with Arab Potash Company and Phosphate Company to encourage downstream industries to maximize returns and identify synergies. This is important, especially with the current focus globally on food security and reliance on fertilizers.

Another important area to address is to define national priorities with attention to scarce water resources and revision of the energy bill. Mining operations are both water and energy intensive. Encouraging efficient practices, water re-use and alternative energy resources are essential to preserve these scarce resources as well to further enhance the competitiveness of the industries. Additionally, there is a need to encourage compliance with environmental, social and governance principles (ESG). This compliance is essential in attracting new investments and global businesses.

As far as the geological surveys are concerned, there is a need for more focused exploration activities in compliance with international standards (NI and JORC). All data (past and present) need to be centrally allocated and archived in the best manner that meets potential developers' need for them.

A final note is for the MEMR to move ahead with its launched public tender for a Mining Strategy as soon as possible, especially that the budget has already been allocated and a potential consultant has been qualified.



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