

Влияние интеграции логистической и горнодобывающей инфраструктуры Омана на устойчивый экономический рост

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Благодаря своему стратегическому положению и обилию природных ресурсов, Оман занимает важное место в региональной торговле и промышленном развитии. Осознав неиспользованный потенциал логистического и горнодобывающего секторов, страна запустила национальные стратегии, такие как «Видение Омана 2040», Логистическая стратегия Омана (SOLS 2040) и другие отраслевые инициативы, направленные на диверсификацию экономики и снижение зависимости от нефтяных доходов. Цель данного исследования — оценить интеграцию логистического и горнодобывающего секторов Омана как путь к устойчивому экономическому росту и повышению глобальной конкурентоспособности. В работе используется качественный анализ политических документов, государственных отчетов и недавних инвестиционных соглашений для оценки эффективности секторов, усилий по модернизации и соответствия национальным целям развития. С целью увеличить вклад логистического сектора в ВВП до 14 % и создать более 300 000 рабочих мест, в стране реализуются крупные инфраструктурные проекты, такие как проект железной дороги Оман–Этихад. Параллельно проводятся инициативы по модернизации и международному сотрудничеству, направленные на восстановление горнодобывающей отрасли, которая стремится внести 0,4 % в ВВП к 2040 году. Авторы приходят к выводу, что интеграция логистической и горнодобывающей инфраструктуры сыграет ключевую роль в стимулировании экономического роста и ускорении диверсификации, тем самым поддерживая долгосрочные цели Омана, изложенные в «Видении 2040», по созданию устойчивой, конкурентоспособной и прочной экономики.

***Ключевые слова:** логистика Омана, Видение Омана 2040, экономическая диверсификация, инфраструктура, горнодобывающая промышленность Омана.*

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The Impact of Integrating Oman's Logistics and Mining Infrastructure for Sustainable Economic Growth

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Oman's strategic location and abundant natural resources have positioned the country to become a key player in regional trade and industrial development. Recognizing the untapped potential of its

logistics and mining sectors, Oman has launched national strategies such as Vision 2040, the Oman Logistics Strategy (SOLS 2040), and other sector-specific initiatives to diversify its economy and reduce dependence on oil revenues. This study aims to assess the integration of Oman's logistics and mining sectors as a pathway to sustainable economic growth and enhanced global competitiveness. The research employs qualitative analysis of policy documents, government reports, and recent investment agreements to evaluate sectoral performance, modernization efforts, and alignment with national development goals. With the aim of raising its GDP contribution to 14 % and creating over 300,000 employment, logistics sector in Oman is rapidly changing due to critical infrastructure projects like the Oman Rail–Etihad Rail partnership. Concurrently, modernization initiatives and global collaborations are reviving the mining industry, which aims to contribute 0,4 % of GDP by 2040. The study concludes that the integration of logistics and mining infrastructure will be pivotal in driving economic growth and accelerating diversification, thus supporting Oman's long-term goals under Vision 2040 to build a resilient, competitive, and sustainable economy.

Keywords: *Oman logistics, Oman Vision 2040, economic diversification, infrastructure, Oman mining.*

Introduction

Oman's strategic vision for economic growth, outlined in its Vision 2040, centers on diversifying the economy and positioning the country as a regional logistics powerhouse. The logistics sector plays a critical role in this transformation, significantly contributing to Oman's GDP and creating thousands of jobs. With the expansion of seaports, airports, and industrial cities, Oman is well-positioned to leverage its strategic location to enhance its role in regional trade and logistics. The government's ongoing efforts to develop infrastructure, including the construction of a railway network, further solidify Oman's potential as a key logistics hub in the Middle East. This vision is deeply rooted in Oman's long-standing heritage in logistics, with a seafaring tradition dating back over 4,000 years. The ancient town of Salalah, home to the ruins of the fortified port city of Sumharam, was once a central hub for the maritime trade of frankincense between 100 BC and 400 AD. From the old silk routes to camel trains transporting goods across the region, logistics has long been in the blood of the Omani people [8]. This rich history of trade and transportation continues to shape Oman's modern logistical capabilities, providing a strong foundation for the country's infrastructure development and regional connectivity.

At the same time, Oman's mining sector, one of the country's oldest industries, offers substantial opportunities for growth and diversification. The mining activities in Oman began as early as the third millennium BC, during which the country was a key regional source of copper. Its strategic location as a central trading hub in the region earned Oman the historical name "Majan", meaning the land of copper [2]. This sector has a rich history, deeply rooted in Oman's ancient past, with a wealth of minerals located in its mountains. According to Claudio Giardino in his book, *Magan – The Land of Copper. Prehistoric Metallurgy of Oman*, mentioned that “Let the land of Magan [bring for you], hard and resistant copper, diorite stones... These poetic words were written in Mesopotamia, in the ancient city of Ur, more than four thousand years ago, when the last king of Larsa was still ruling. They tell us about a country far away from Sumer, Magan, that was fabulously rich in copper: Magan, the land that the last century researchers have identified with modern Oman” [5]. Despite its rich history, the mining sector has yet to reach its full potential. However, with ongoing modernization efforts, technological advancements, and government initiatives, Oman is positioned to revitalize this sector, which could complement its logistics advancements and drive economic growth.

Materials and Methods

This study is based on a qualitative analysis of secondary data sources to examine the relationship between Oman's logistics and mining sectors and their combined impact on sustainable economic growth. Key materials include official reports and policy documents from the Ministry of Energy and Minerals, the Central Bank of Oman, and the U.S. International Trade Administration, alongside recent news releases and strategic plans related to Oman Vision 2040.

The methodological approach involved a thematic content analysis of these sources to identify policy initiatives, infrastructure developments, investment trends, and regulatory frameworks. Emphasis was placed on understanding how logistics infrastructure supports the extraction, transport, and export of minerals and how the

integration of both sectors contributes to broader national economic objectives. This non-empirical method allows for a comprehensive interpretation of current developments, challenges, and strategic opportunities within Oman's economic landscape.

Results

The study exposes that the integration of Oman's logistics and mining infrastructure significantly contributes to the country's pursuit of sustainable economic growth. The coordinated development of logistics assets – such as ports, rail networks, and industrial free zones – with the modernization of mining operations enhances the overall efficiency of national supply chains. This integration has led to increased foreign direct investment (FDI), improved trade connectivity, and reduced logistical costs. Furthermore, the adoption of advanced technologies in the mining sector is creating added value, supporting job creation, and strengthening Oman's global competitiveness. These findings underscore the critical role of sectoral synergy in advancing economic diversification and achieving the objectives outlined in Oman Vision 2040.

Logistics

The logistics sector has proven to be a valuable contributor to Oman's economy, generating significant revenue and creating jobs. While there's still room for improvement in efficiency, the sector has apparently increased its impact on GDP. In 2021, transportation and storage contributed 3,5 %, or \$3,1 billion, to Oman's GDP. This figure rose to 5,2 % and \$6 billion in 2022, indicating Oman is on track to achieve its Vision 2040 goals [4]. Reflecting this growth, according to the Ministry of Labour's annual report in 2021, there were 19,598 Omanis working in the transportation and storage sector, which equal to 8.2% of all Omanis employed in the private sector [12].

Several key factors are fueling this logistics boom. First, a surge in exports, along with increasing commercial activity, is driving demand for efficient transportation and storage solutions. Second, various seaports, industrial cities, and airports are experiencing

continuous growth in activity, creating a strong foundation for the logistics network. Furthermore, existing economic and free zones are significantly expanding their storage facilities, while economic zones and industrial cities are attracting a growing number of new projects. These developments, together with ongoing announcements of new projects, particularly the expansion of economic and free zones, paint a bright picture for future growth in the logistics sector and other diversification efforts.

Oman Vision 2040 outlines ambitious goals to transform Oman's transportation and logistics sector. The strategy aims to significantly boost the sector's contribution to the national GDP by improving efficiency, attracting investment, and developing infrastructure across all logistics domains. This includes road connections, airports, ports, and the establishment of a railway network.

Oman's success in establishing a strong transport and logistics network hinges on key ports like Duqm, Salalah, and Sohar. These ports have also attracted significant investment from global partners, recognizing their strategic value. Salalah Port, for example, offers one of the fastest transit times from the region to connect businesses to the Asia-Europe trade lane, highlighting the competitive advantage these ports bring [3]. "All three deep-water ports operate under concessions through international joint ventures between the government and foreign private companies and connect to 86 ports in 40 countries" [7]. Recognizing the potential for improved efficiency, the Omani government has proposed the construction of a railway line to facilitate the transport of mineral resources from extraction areas directly to ports. This ambitious plan is currently undergoing a feasibility study to assess its viability. Last year, Oman took a significant step forward in its railway development. Through a joint venture between Oman Rail, the national developer and operator of railway networks, and Etihad Rail, the Abu Dhabi government-owned railway company, construction began on a major project: a 303-kilometer rail line connecting Sohar, Oman, to Abu Dhabi, UAE. This ambitious project is poised to be a win-win for both Oman and the UAE, offering both passenger and freight services and significantly reducing travel times. Oman Rail announced that passengers

traveling between Sohar and Abu Dhabi can expect to reach their destination in just 1 hour and 40 minutes, compared to the previous 3 hours and 30 minutes. High-speed passenger trains will reach speeds of up to 200 kilometers per hour, while freight trains will travel at speeds of up to 120 kilometers per hour. Beyond faster travel times, the project will streamline supply chains by connecting commercial ports directly to the railway network, making cross-border trade easier and enhancing market competitiveness while ultimately lowering overall supply chain costs [14].

A successful implementation of the logistics strategy, outlined in the "SOLS Oman Logistics Strategy Summary 2040", is expected to attract new companies to Oman. This influx of businesses will fuel economic growth by boosting overall activity and creating significant new job opportunities, particularly in the logistics sector. The SOLS plan itself predicts a major expansion of logistics, aiming to increase its contribution to GDP to 14%, or approximately \$36.4 billion by 2040. Furthermore, the plan anticipates the creation of over 300,000 new jobs in logistics [13].

Oman also aspires to become a regional trade and logistics hub, increasing its market share of goods flowing through the area. This will involve streamlining customs methods and enhancing connectivity across sea, air, and land routes. The SOLS Oman Logistics Strategy capitalizes on Oman's strategic location to position the country as a major player in regional cargo movement and air freight. Improved connections with regional markets, the expansion of efficient logistics activities within Oman, and the advantageous location of its ports and airports are all identified as key drivers of this growth [13].

These developments are expected to contribute to a significant rise in Oman's market share in regional cargo volumes. In its strategy to increase Oman's share of cargo volumes, Oman will focus on growing both transit and transshipment traffic through its strategically located ports and airports. To achieve this, Oman plans to receive cargo and then transport it overland using either a projected railway network connecting its ports to other countries or by reliable trucking services. This approach will save money for

customers and shorten overall shipping times compared to relying only on sea freight. Additional to that, air cargo volumes in Oman remain low, primarily due to three factors: limited global connections, constraints on airport cargo handling capacity, and the national carrier's prevailing strategies. While the national carrier can significantly boost cargo volumes by expanding its handling capacity, a more prominent driver for growth lies in improving airport infrastructure. Upgrading facilities to efficiently handle cargo and speed up trade methods is crucial to achieving Oman's air cargo ambitions [15].

Finally, Oman aims to climb the ranks of global logistics indices by implementing best practices and leveraging modern technologies, emphasizes the importance of improving Oman's performance on key international benchmarks. The plan sets ambitious goals of achieving a top 10 ranking in both the World Bank's Logistics Performance Index (LPI) and the World Economic Forum's Global Competitiveness Index (GCI), and it aims to position Oman among the top 5 countries in the World Economic Forum's Global Enabling Trade Report [6].

Oman's existing and developing infrastructure, paired with its stable political environment, provides a strong foundation for significant growth in the logistics sector. These factors are important for Oman to establish itself as a key logistics services hub. By leveraging its strategic location, modern infrastructure, and political stability, Oman can attract businesses and become a main center for regional and international trade.

Mining

In recent times, the government has chosen to focus on other sectors rather than mining. So, the mining sector remains largely underutilized today despite its potential. According to the 2022 annual report by Oman's Ministry of Energy and Minerals, the country's total mineral production declined by 8 % in 2022 compared to the previous year. Production reached approximately 63,7 million tons, with a significant decrease concentrated in gypsum and building materials. The output of these two minerals fell by

6 million tons in 2022, those two minerals are accounting for 79 % of total production [10].

The mining sector plays a significant role in employment, but a large portion of these jobs are concentrated in the oil and gas mining, not in quarries like gypsum mines. Even with this, Oman remains a major player in the global gypsum market, being one of the world's largest exporters [17]. According to the Ministry of Labour's 2021 annual report, 26,656 Omanis were employed in the mining sector, including oil and gas. This figure represents 11,1 % of all Omanis employed in the private sector, highlighting the sector's contribution to the national workforce [12].

Oman's goal for the mining sector in Vision 2040 still falls short of its full potential. While the current target aims for the sector to contribute 0,4 % to Oman's GDP, the potential is significantly higher. Oman's mining sector offers substantial opportunities to support the country's international cooperation objectives. With a rich variety of minerals, Oman presents a multitude of opportunities for investors looking to tap into untapped resources and capitalize on unexplored opportunities. The favorable geographical conditions of Oman have given rise to a diverse selection of minerals, including copper, marble, limestone, gypsum, chromium, and building material. These resources, if employed effectively, can significantly drive economic growth and create employment opportunities by increasing investment inflows into this sector, thereby achieving economic diversification. Oman's government has been actively promoting the development of the mining sector as part of its economic diversification efforts to reach Oman vision 2040.

Oman's mining sector is undergoing significant transformation as part of its broader economic diversification strategy. The country is increasingly investing in the exploration and development of non-petroleum minerals such as copper, gold, and other industrial resources. At the same time, the government is emphasizing sustainable mining practices by enforcing stricter environmental regulations, adopting clean energy solutions, and promoting a circular economy. For instance, the Ministry of Energy and Minerals signed

a mining concession agreement with Al Tamman Indsil FerroChrome Company, joint venture based in Oman, formed through a 50:50 partnership between Muscat Overseas Group of Oman and Indsil Group of India, for exploration and mining in concession area No. 22-D in North A'Sharqiyah Governorate. This zone, covering 790 square kilometres, contains ophiolite rock formations that indicate the presence of valuable ores like copper and chromium [16]. To support such initiatives, Oman has also formed international partnerships with leading global mining companies, which are vital for technology transfer, innovation, and the development of local expertise [17]. Together, these efforts aim to position mining as a key pillar of sustainable economic growth with an emphasis on improved partnerships, investment in cutting-edge technology, and sustainable manufacturing in order to meet national goals in the sector [1]. The adoption of advanced technologies such as geospatial mapping, remote sensing, and data analytics is increasingly vital to maximizing the efficiency and environmental sustainability of Oman's mining operations [11]. These tools allow for more accurate mineral exploration, reduced operational costs, and improved safety conditions for workers. In addition to increasing the sector's productivity, Oman can attract foreign partners and investors by investing in mining innovation and digitization. As Oman transitions to a knowledge-based economy in line with Vision 2040, integration with Fourth Industrial Revolution (4IR) technologies is especially crucial.

Environmental responsibility is increasingly central to the future of Oman's mining sector. Recognizing the need for sustainable development, the government has implemented stricter regulations through the Ministry of Energy and Minerals to ensure mining operations align with international environmental and safety standards. The integration of efficient logistics with environmentally conscious mining practices – such as reduced emissions in transport, waste management, and land rehabilitation – is vital for minimizing the sector's ecological footprint.

A cornerstone of this regulatory environment is the Law of Mineral Wealth of 2019, which governs key aspects of the mining lifecycle, from exploration to expropriation. The

legislation outlines the types of permits and concession agreements available to investors, and notably sets a minimum mining license duration of five years to provide greater project stability. Additionally, it offers flexible royalty structures, which serve as incentives for both domestic and foreign companies to invest while maintaining environmental accountability [18]. These measures, along with the promotion of green logistics and circular economy principles, position Oman to become a regional leader in sustainable mining and resource governance.

Oman's mining industry is experiencing a surge of opportunity, driven by strategic reforms and new investment openings. In March 2023, the government opened bidding for seven new mining concessions across the country, targeting commercially viable resources such as gypsum, dolomite, limestone, phosphates, clay, copper, gold, silver, and chrome. This move underscores Oman's commitment to unlocking the sector's untapped potential. Additionally, the Ministry of Energy and Minerals signed its first mining agreement with a foreign investor, UK-based Knights Bay, to extract nickel and its derivatives - marking a milestone in foreign participation in the sector [17]. While foreign companies can obtain mining permits, they often face bureaucratic and environmental hurdles, typically entering the market as service contractors or joint venture partners with local firms. Moreover, Oman's longstanding plan to establish a national rail network connecting mining sites in the southern interior to the Port of Duqm represents a transformative step. This rail project aims to streamline the transportation of raw materials for processing and export, further reinforcing the integration between logistics and mining and enhancing the sector's attractiveness to both domestic and international investors [9].

Discussion

The integration of Oman's logistics and mining sectors offers a promising pathway to achieving the country's sustainable economic development goals as envisioned in Oman Vision 2040. The mining sector has demonstrated growing strategic importance through its contributions to employment, foreign investment, and diversification of

revenue sources. Simultaneously, the logistics sector is rapidly emerging as a regional hub due to Oman's geographic positioning, free trade zones, and expanding port infrastructure.

One of the key observations is the mutual reinforcement between logistics and mining. Efficient logistics infrastructure – such as ports, roads, and future railway lines – lowers the cost of transporting raw materials and processed minerals, increases access to export markets, and improves supply chain reliability. This integration enhances Oman's appeal to foreign investors, particularly those interested in mineral extraction and downstream processing. The planned rail network connecting mineral-rich regions to Port of Duqm illustrates a strategic approach to combining both sectors to boost export capacity and domestic value-added industries.

Furthermore, the government's commitment to liberalizing and internationalizing the industry is demonstrated by its decision to negotiate its first mining agreement with Knights Bay, a company located in the UK, and to open seven new mining concessions in 2023. While these programs offer FDI a perfect starting place, they also necessitate strong logistical skills to sustain future operations. To overcome local laws and market conditions, international businesses frequently need to form alliances with Omani businesses due to bureaucratic and environmental obstacles.

In addition, sustainable mining practices are increasingly prioritized, as reflected in the Law of Mineral Wealth (2019), which encourages long-term investment through flexible royalties and multi-year permits while mandating environmental safeguards. Logistics providers are expected to play a role in promoting sustainability by adopting green supply chain practices, which is critical for minimizing the environmental impact of mining activities.

All things considered, the combination of mining and logistical infrastructure has the potential to create jobs, lessen Oman's reliance on oil earnings, and speed up economic diversification. Oman must, however, keep streamlining regulatory procedures, making investments in worker training, and fortifying public-private partnerships that promote

both environmentally conscious growth and infrastructural expansion if this integration is to be effective.

Conclusion

Through the construction of vital infrastructure, including ports, airports, roads, and railways, as well as the addition of additional domestic flight routes to the current network, such as Oman Air, Oman is well-positioned to achieve the objectives of economic diversification as outlined in Vision 2040. These changes will increase the nation's ability to support global trade while making the most of its special geographic location. Furthermore, Oman hopes to utilize its varied landscape to maximize the potential of its mining industry, drawing in foreign capital and developing global alliances with top players in the field. Oman hopes to boost the mining industry's growth through these initiatives, which will guarantee long-term economic viability and make a substantial contribution to the GDP of the country.

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