

Exploring the Health and Environmental Implications of the Mineral Wealth Paradox in Africa

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ABSTRACT

The mineral wealth paradox represents a significant challenge for Africa, where abundant natural resources have not translated into widespread economic prosperity or improved well-being. This review synthesizes findings from recent studies, particularly focusing on the health and environmental implications of mineral extraction in African resource-rich areas. Through a detailed examination of both direct impacts and broader socio-environmental dynamics, the review highlights the adverse health outcomes and environmental degradation that often accompany mineral wealth. It calls for comprehensive strategies to mitigate these effects and suggests that overcoming the resource curse requires integrated efforts from policymakers and stakeholders.

Keywords: Mineral wealth; Environmental degradation; Carbon dioxide; Air quality

INTRODUCTION

There has been a longstanding belief that countries blessed with abundant natural resources can capitalize on these resources as an essential driver for achieving sustainable development. Nevertheless, current trends suggest that countries rich in natural resources, especially those in Africa, Latin America, and the Middle East, often experience sluggish economic growth and poor developmental outcomes Badeeb et al. [1].

The concept of the "resource curse" suggests that instead of propelling economies forward, abundant natural resources can lead to economic stagnation and broader socio-economic challenges. Historical evidence from the oil-rich nations in the Middle East and parts of Latin America, where large-scale resource extraction has coincided with conflict, corruption, and economic instability, mirrors the patterns seen in Africa. Recent studies continue to reinforce this pattern globally. For instance, a 2021 analysis by the International Monetary Fund indicated that countries with substantial natural resources tend to have lower economic growth rates than those with fewer natural resources, even when taking into account variables like governance and investment in human capital. Thus, over the last few decades a substantial body of literature has been produced refuting the widely belief held that natural resources are advantage for development. Several causal pathways by which a resource curse might operate, and different outcome variables related to growth and development has been subject to intense investigation. One of such pathways is the health cost associated with the funding and extraction of these resources.

Africa is funding with a blend of mineral resources, from precious metals to complex minerals vital for the global transition to a low-carbon future. However, the region epitomizes the resource curse notion. The continent, funding with a significant portion of the world's precious metals and minerals, stands at a crossroads where its geological fortune has, paradoxically, not translated into widespread economic prosperity or well-being for its inhabitants. This review aims to provide insights on this paradox, with a focus on the findings of the paper "Mineral wealth paradox: Health challenges and environmental risks in African resource-rich areas" by Adu Sarfo et al. [2].

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Summary of main review

The paper by Adu Sarfo and Tweneboah navigates through the intricate complexity of health disparities and environmental degradation tied to Africa's abundant mineral resources, a phenomenon often overshadowed by the glitter of wealth they promise. This study sets itself apart by delving into not just the direct impacts of mining activities but also the broader socioenvironmental dynamics at play.

The researchers employ a cross-sectional design, leveraging spatially detailed data on environmental health risk factors such as contaminated water reliance, sanitation practices, and air quality metrics, including Carbon Dioxide (CO_2) and Particulate Matter 2.5 (PM2.5) concentrations. The empirical strategy is designed to dissect the layers of influence that mineral wealth exerts on public health and environmental integrity across the African continent.

Key findings illuminate a stark narrative: The presence of mineral wealth in a region often predicates a series of adverse health outcomes, rooted in environmental degradation and infrastructural strain. This relationship is further complicated by factors like in-migration, extractive activities, and regional conflicts, each adding layers of complexity to the environmental health risks faced by communities in resource-rich areas.

The study's insights are a clarion call to policymakers and stakeholders, emphasizing the need for comprehensive strategies that address the multifaceted challenges of mineral wealth. The implications of this research stretch beyond academia, offering a foundation for interventions aimed at mitigating the environmental and health repercussions of mineral extraction.

LITERATURE REVIEW

Economic impact of mineral extraction

Economic development and living standards: Recent studies have delved into the economic and health implications of mining in developing economies. Mamo et al. found that mining districts enjoy higher living standards compared to nonmining districts in Africa, confirming the enclave nature of African Mines [3]. Authors documented that this is through job opportunities (particularly in non-agriculture sectors) and investments in community infrastructural development. The enclave nature of mines in developing regions implies that these mines operate in high productivity and capital intensity, but exhibits little demand and supply spillover necessary for large scale industrialization [4].

The resource curse: The "resource curse" theory suggests that countries rich in natural resources often experience slower economic growth and poorer development outcomes. In the context of developing economies, this paradox is evident in the negative health outcomes linked to mineral wealth. Theoretically, the overall effects of mineral mining are unclear. Pollution from extraction-related environmental risks may have a negative impact on health, but increased income may allow households to spend more on healthcare, offsetting the negative health effects. This question has been explored by Von der Goltz et al. using 800 mines across 44 developing economies [5]. They documented that 0.3 standard deviation of wealth gain from mineral mining coexisted with higher incidence of health conditions linked to heavy metal toxicity (anemia and stunting).

Environmental health risks associated with mineral wealth

Environmental degradation: The environmental impact of mineral extractions cannot be overemphasized. Studies such as Girard et al. and Yang et al. documented several environmental impacts of mineral mining [6,7]. For instance, Girard et al. found that the historical increase in the gold price accounts for 20% of the total deforestation in the gold-prone tropical regions in Africa. Aside from this, several other related studies have provided evidence of shown that mining is highly associated with atmospheric pollution that are detrimental to one's health [8]. Evidence from Noronha suggest that the extraction of iron ore in India negatively impacted health outcomes as a result of fugitive dust emissions and the ensuing poor air quality [9].

DISCUSSION

The comparison of Africa's rich mineral funding against its economic and health challenges illustrates not merely a missed opportunity but a profound socio-economic paradox. This review delves deeper into how socio-economic isolation, driven by the enclave nature of mining, undercuts broader economic gains that could be achieved through national integration and sustainable practices. The findings underscore that, while mining operations provide localized economic boosts through job creation and infrastructure, they often fail to catalyze broader economic development or improve social welfare sustainably.

Moreover, environmental degradation and health disparities present pressing concerns that demand urgent attention. The relationship between mineral wealth and community health is complex and adversely affected by mining. This review highlights that environmental health risks are exacerbated by inadequate regulatory frameworks and limited enforcement, which allow pollution to continue unchecked. Policy interventions thus need to be strategically oriented towards not only regulating mining activities but also promoting environmental restoration and health monitoring programs.

A complex analysis of existing policy frameworks reveals significant gaps in addressing these negative outcomes. The review suggests that overcoming these challenges necessitates a holistic approach encompassing sustainable mining practices, effective community engagement, and robust environmental control. Such an approach should integrate local communities into the economic benefits of mining, ensuring that the wealth generated contributes to regional and national prosperity.

CONCLUSION

The mineral wealth paradox presents a significant lens through which the challenges of resource management in Africa can be examined. This review advocates for a standard change from the traditional extractive economic models to more sustainable and inclusive practices that align mineral wealth with broader developmental goals. While the continent's geological fortune offers substantial economic potential, realizing this potential requires innovative strategies that transcend mere extraction.

Effective management of mineral resources must be coupled with strong political will and international cooperation to ensure that mining contributes positively to sustainable development. Policymakers are urged to implement comprehensive policies that address the multifaceted challenges posed by mining. These policies should focus on ensuring environmental sustainability, improving health outcomes, and enhancing the quality of life for all stakeholders, particularly those in mining communities.

To truly transform mineral wealth into a fundamental for development, concerted efforts must focus on long-term investments in human capital, infrastructure, and technology transfers. Such efforts would ensure that the benefits of mining are widely distributed and that resource-rich countries do not just export minerals but also develop capacities that contribute to the broader economic fabric.

CONFLICT OF INTEREST

The author(s) declare(s) that there is no conflict of interest regarding the publication of this paper.

REFERENCES

- Badeeb RA, Lean HH, Clark J. The evolution of the natural resource curse thesis: A critical literature survey. Resour Policy. 2017;51:123-134.
- Adu Sarfo E, Tweneboah R. Mineral wealth paradox: Health challenges and environmental risks in African resource-rich areas. BMC Public Health. 2024;24(1):724.
- Mamo N, Bhattacharyya S, Moradi A. Intensive and extensive margins of mining and development: Evidence from Sub-Saharan Africa. J Dev Econ. 2019;139:28-49.
- 4. McMillan MS, Rodrik D. Globalization, structural change and productivity growth. National Bureau of Economic Research. 2011.
- Von der Goltz J, Barnwal P. Mines: The local wealth and health effects of mineral mining in developing countries. J Dev Econ. 2019;139:1-16.
- 6. Girard V, Molina-Millán T, Vic G. Artisanal mining in Africa. In Working Paper Series. No. 2201. 2022.
- Yang B, Bai Z, Zhang J. Environmental impact of mining-associated carbon emissions and analysis of cleaner production strategies in China. Environ Sci Pollut Res Int. 2021;28:13649-13659.
- Sun Y, Li Y, Yu T, Zhang X, Liu L, Zhang P. Resource extraction, environmental pollution and economic development: Evidence from prefecture-level cities in China. Resour Policy. 2021;74:102330.
- 9. Noronha L. Designing tools to track health and well-being in mining regions of India. In: Natural resources forum. Wiley Online Library. 2001;25(1):53-65.