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POLICY BRIEF

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Health Impacts of Large Natural Resource Extraction Projects in Tanzania

Integrating the Mineral Sector into the Holistic View of Sustainable Development

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Tanzania is rich in natural resources and saw a rapid growth of the extractive industries sector in recent years. While the extraction of natural resources can promote economic growth, strong evidence of negative effects on the health of affected communities through a series of environmental, social and economic changes has become available. In this policy brief, we present findings of the Health Impact Assessment for Sustainable Development (HIA4SD) (1) project, which has been implemented in four African countries, namely Tanzania, Mozambique, Ghana and Burkina Faso.

Introduction

In Tanzania, natural resources range from gold, diamond, tanzanite, coal, copper, nickel, ruby to natural gas. The Tanzanian extractive industry accounts to about 4.8% of the national GDP with future prospects to reach 10% by 2025 (2). While these aspirations are great for economic development, resource extraction can also affect health of local communities and beyond. The HIA4SD project aimed to increase the understanding of the diverse pathways health is affected by industrial mining projects. The findings will facilitate a policy dialogue to strengthening the application of Health Impact Assessment (HIA) as a regulatory mechanism to: (i) avoid negative effects of industrial mines on public health; and (ii) actively engage mining companies – and other developments partners – in the 2030 Agenda for Sustainable Development.

In Tanzania, the project conducted focus group discussions (FGD) and local level Key Informant Interviews (KII) in communities around three major mining projects in Shinyanga (2) and Geita (1). In addition, the project assessed causes of death among miners and non-miners in mining communities and also assessed the national wide council-level association between presence or absence of mining activities and reporting of disease at health facilities. Beyond Tanzania, the project conducted regional and global-level analysis using Demographic and Health Surveillance (DHS) data and the World Bank Development Indicators (WDI) database. Here in, we present the results from Tanzania and the three other HIA4SD project countries.

Key Messages

- Natural resource extraction projects can contribute to a wide range of impacts on environmental and social determinants of health.
- Observed positive impacts include employment and business opportunities as well as economic and community development in mining communities and beyond.
- Our research also found a range of negative impacts on diseases due to air, water and soil pollution, road traffic accidents and changing lifestyles.
- There is a major risk that natural resource extraction projects increase health inequities among affected population groups since positive impacts are not equally distributed
- Health impact assessment, or more rigorous inclusion of health in impact assessment, could help to actively promote health and well-being in communities affected by resource extraction projects along with contributing to sustainable development.

Evidence of Health Impacts from large scale NREP

A water well donated to a local village by a mining company in Geita, Tanzania. All Photos | @Isaac Lyatuu

Mining activities can be linked to a number of positive and negative health outcomes. Evidence from the HIA4SD study and elsewhere shows that mining projects have impacts beyond income generation. Mining can provide housing, health care services and pension to workers, contribute to the availability of clean and safe water, infrastructural development (such as construction of schools and health care points) as well as participate to boost local economy through engaging the local businesses. Collectively, such contributions can improve community health and well-being. However, such gains are also associated with health risk which includes injuries and illness to workers of the surrounding community.

Evidence of social development

Through corporate social responsibility activities, extractive industries in Tanzania, as in other parts of sub-Saharan Africa (SSA), have contributed to different levels of community and social development. The HIA4SD data shows communities in SSA benefited from improved housing infrastructure, access to safe and clean water, access to financial services, improved sanitation and availability of better cooking fuels (3, 4). More specific examples include construction of schools, roads or health facilities. Such benefits are shared to all community members and bring about the overall improvements to community well-being (5).

Beyond physical aspects, mining projects can contribute to changing social dynamics and cultural health aspects. Evidence from this study shows that an increase in foreign population and demand for quick income may have contributed to sex exchange behavior between locals and mine workers, which can be linked to increased sexual transmitted diseases and teenage pregnancies (6).

A dispensary donated to a local village by a mining company.

> *Beyond mine closure, ex-miners can suffer lung and other diseases that may take time to be detected and can lead to terminal illnesses*

Economic development

One major contribution of mining industry is through economic development. At the national level, the Tanzanian mining industry contributes 4.8% to the country's income (2). The Government of Tanzania intent is to boost this contribution to 10% by the year 2025 (7). The increase in the national revenue can further allow the government to invest on health and education and ultimately contribute to improvement of the overall well-being of the people.

Mining attracts new settlement for work and enterprise, also contribute to providing employment. The Tanzania Mainland Formal Sector Employment and Earnings Survey 2017 (EES 2017) estimates 46,000 jobs across the nation comes from mining and quarrying (8). This can be translated as source of income to families, which can further contribute to improve living standards and access to better healthcare.

Furthermore, recent modification in the Minerals Act 2017 mandates an increase in mining royalties from 4 to 6%, together with an introduction of 1% clearing fees on the value of all minerals exported (9). Such modifications are likely to increase the contribution of the mining industry and boost the local economy.

Whilst the growth, such expansion can lead to shrinking of other sectors (i.e., fishing, farming, livestock keeping), causing what is known as the Dutch disease[1]. Evidence from this study shows that farmers around Geita and Shinyanga region lost land and crops to mining and pollution from mining activities. Furthermore, water and pond pollution affected several fishing businesses.

Environmental pollution

Despite broad implementation of Environmental Impact Assessment (EIA) in the four participating countries, and across the SSA countries in general, some elements of environmental pollution, including air, land and water pollution still persist. For example, an increase in population numbers, traffic volumes and movement of heavy machinery can lead to elevated levels of motor vehicle accidents and mortality due to accidents. The use of hazardous materials in mining can lead to air, water or land pollution, posing risks of contamination and adverse health effects.

Beyond mine closure, ex-miners can suffer lung and other diseases that may take time to be detected and can lead to terminal illnesses. Mine dumps can pollute land and water years after mines closure if they are not properly managed. Community KIIs and FGDs, and quantitative data analyses from the HIA4SD study both revealed evidence of air pollution and concerns over respiratory diseases. Evidence from KII and FDG reported increased amount of dust due to movement of heavy traffic closer to community settlement areas. Blasting activities were associated to household damages reported at community level.

[1] Dutch disease is a phenomenon where an apparent increase in economic development in one sector causes a decline of other sectors in the same economy

Indoor tobacco smoking was found to be significantly high in mining areas compared to non-mining areas. Communities around major gold mines in Shinyanga and Geita regions reported issues on water quality, quantity and reliability and across the sub-Saharan Africa, evidence of increased diarrhea diseases was found in Mali, Mozambique and Angola.

Health equity aspects

Indeed, mining projects creates opportunities, create jobs, infrastructures, and contribute to social development. However, the HIA4SD study reveals such benefits are not equality distributed across different socioeconomic strata in the community (6). For example, there is unequal distribution of employment opportunities in the mining sector. As a result, more income goes to men compared women. Women are likely to be disproportionally affected by mining activities given their "triple role"[1] bearer position in community. Poorer and marginalized communities are less likely to benefit from improved infrastructure compared to richer communities.

Analysis of the FGDs suggest that due to changes in the environment, social and economic system, inequities in relation to individual characteristics such as place of residence, gender and age persist. In addition, inequities could be linked to intermediate factors acting on community levels such as in-migration status, land-use conflicts and public infrastructure as well as structural conditions such as the role of the government or national regulations.

Due to environmental pollution and loss of land, participants were particularly concerned about unsecured livelihoods. Hence, extractive industries bear considerable risks to widen existing health gaps by affecting the health and well-being of local communities.

1 Triple role refers to a woman taking three roles in community: care for the family and participate in income generation and 3) participate in community activities

Health outcomes

As seen in previous chapters, resource extraction projects act differently on different determinants of health potentially yielding different health outcomes. The HIA4SD study shows the presence of both positive and negative health outcomes. Data from Tanzania health facilities show that the extraction of construction materials such as cement, construction aggregates and hard rocks is strongly associated with high reporting of chronic diseases, which includes hypertension, cancer, diabetes and bronchitis asthma, on the other hand, extraction of minerals is strongly associated with less reporting of chronic diseases, diarrhea, undernutrition, parasitic diseases and mental health (10).

4

Number of countries in Africa where the HIA4SD study was conducted

This suggests that ongoing measures around metal extraction industry in Tanzania possibly contributes to the protective effect resulting in less reporting of the selected disease indicators. Improvement in socio-economic status may have led to improvements in housing conditions and contributed to less disease infections. Similarly, evidence using DHS data shows a significant reduction in diarrheal diseases and neonatal and under-five mortality in communities around mining areas, which can be explained by the improved access to care and better health services (3).

Contrary to the protective association, a closer look to miners shows that miners in mining communities have higher risk of dying compared to non-miners, with specific mortality driven by injuries related to both, road traffic and non-road traffic injuries (11). In additional, The DHIS data shows that HIV prevalence is elevated around mining sites (4).

Where are the policy gaps?

Adequate policy frameworks can help minimize negative health impacts of resource extraction projects while maximizing potentials for local development. In Tanzania, an assessment of these impacts through EIA is needed for all large-scale extraction projects under the Environment Management Act 2004. However, research within the frame of the HIA4SD project has shown that health and social issues often only marginally addressed in EIA with limited public participation (12). Under the current approach, the health impacts considered in EIA are predominantly interconnected with the environment (e.g., air pollution) while the scope of other health considerations (e.g., social impacts and impacts on specific health outcomes) remained narrow.

A Q-methodology study explores the views and policy preferences of different stakeholders on the inclusion of health dimensions as a mandatory impact assessment requirement on resource extraction projects. The objective of the study is identifying concrete policy options with broad acceptability among different stakeholders. Findings from this study will be made available in a separate policy brief.

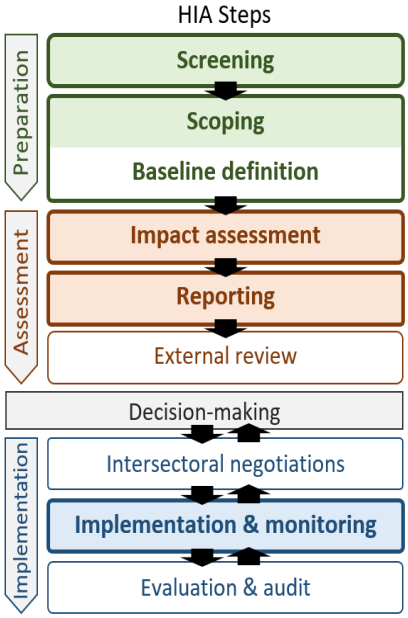
The current EIA approach does not have a legal text nor a resource handbook that provide methodological guidance on how health needs to be included in EIA. Alternatively, stand-alone or integrated HIA could be conducted (13).

Today, HIA practice in sub-Saharan Africa is mostly driven by international stakeholders, such as financing institutions (e.g., IFC) or extractive industries associations (e.g., IPIECA, ICMM). Our previous policy brief (14) has highlighted important gaps in the implementation of HIA under the current EIA guidelines.

The four countries represented in this HIA4SD study have no legal framework for health impact assessment on large infrastructural development projects. This is similar to other African countries.

Adequate policy frameworks can help minimize negative health impacts of resource extraction projects while maximizing potentials for local development

What is Health Impact Assessment?



Impact assessment is an established approach to minimize adverse environmental, social and health impacts of projects, policies and programs, while fostering opportunities for equitable and sustainable development. In the context of resource extraction projects, impact assessments are conducted before their implementation, as part of licensing.

HIA has recently been defined as a "process which systematically judges the potential, and sometimes unintended, effects of a project, program, plan, policy, or strategy on the health of a population and the distribution of those effects within the population. HIA generates evidence population.

HIA generates evidence for appropriate actions to avoid or mitigate health risks and promote health opportunities. HIA guides the establishment of a framework for monitoring and evaluating changes in health as part of performance management and sustainable development." (13)

Health impacts can either be assessed in a stand-alone HIA, through integrated approaches, such as Environmental, Social and Health Impact Assessments (ESHIA) or considered as part of widely established EIA.

Disclaimer

This policy brief has been written within the frame of the HIA4SD project. A country-specific policy brief has been developed for each project partner country, including both – a synthesis of the transnational results as well as findings from the respective country. The views expressed in this policy brief belong to the author(s) concerned and do not necessarily reflect those of the partner institutes or any associated institutions/individuals.

Further Information

www.hia4sd.net

Digital storytelling video clip about the HIA4SD project set up: here

Digital storytelling video clip with insights into field work from Tanzania: here

Video publication: Water and health in mining regions in sub-Saharan Africa: a mixed methods geospatial visualization: here

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NADEL ETH zürich
Swiss TPH Swiss Tropical and Public Health Institute
FNSNF Fonds national suisse de la recherche scientifique

References

1. Winkler MS, Adongo PB, Binka F, Brugger F, Diagbouga S, Macete E, et al. Health impact assessment for promoting sustainable development: the HIA4SD project. Impact Assessment and Project Appraisal. 2020;38(3):225-32.
2. Tanzania Ministry of Finance and Planning. The Economic Survey 2017. Report. Dar-es-Salaam: Government of Tanzania - Ministry of Finance and Planning; 2017 July 2018.
3. Dietler D, Loss G, Farnham A, de Hoogh K, Fink G, Utzinger J, et al. Housing conditions and respiratory health in children in mining communities: An analysis of data from 27 countries in sub-Saharan Africa. Environmental Impact Assessment Review. 2021;89:106591.
4. Dietler D, Farnham A, Loss G, Fink G, Winkler MS. Impact of mining projects on water and sanitation infrastructures and associated child health outcomes: a multi-country analysis of Demographic and Health Surveys (DHS) in sub-Saharan Africa. Globalization and Health. 2021;17(1):70.
5. Leuenberger A, Winkler MS, Cambaco O, Cossa H, Kihwele F, Lyatuu I, et al. Health impacts of industrial mining on surrounding communities: Local perspectives from three sub-Saharan African countries. PLOS ONE. 2021;16(6):e0252433.
6. Leuenberger A, Kihwele F, Lyatuu I, Kengia JT, Farnham A, Winkler MS, et al. Gendered health impacts of industrial gold mining in northwestern Tanzania: perceptions of local communities. Impact Assessment and Project Appraisal. 2021;39(3):183-95.
7. Tanzania Ministry of Finance and Planning. Tanzania Development Vision 2025. United Republic of Tanzania; 2009.
8. Tanzania National Bureau of Statistics. Formal Sector Employment and Earnings Survey 2017 - Tanzania Mainland. Dar-es-Salaam: National Bureau of Statistics (NBS),; 2017.
9. Amendment of the Mining Act, 4 (2017).
10. Lyatuu I, Loss G, Farnham A, Lyatuu GW, Fink G, Winkler MS. Associations between Natural Resource Extraction and Incidence of Acute and Chronic Health Conditions: Evidence from Tanzania. 2021;18(11):6052.
11. Isaac Lyatuu MW, Georg Loss, Andrea Farnham, Guenther Fink. Estimating the mortality burden of large scale mining projects – Evidence from a prospective mortality surveillance study in Tanzania (under review). PLOS Global Public Health. 2021.
12. Dietler D, Lewinski R, Azevedo S, Engebretsen R, Brugger F, Utzinger J, et al. Inclusion of Health in Impact Assessment: A Review of Current Practice in Sub-Saharan Africa. 2020;17(11):4155.
13. Winkler MS, Viliani, F., Knoblauch, A.M., Cave, B., Divall, M., Ramesh, G., Harris-Roxas, B. and Furu, P. . Health Impact Assessment International Best Practice Principles. Special Publication Series No.5. In: Assessment IAfI, editor.: Fargo USA; 2021.
14. Mihayo K. Environmental Impact Assessments of Tanzania's Mineral Sector: Strengthening the Inclusion of Health. In: Lyatuu I, editor.: Ifakara Health Institute; 2020.