



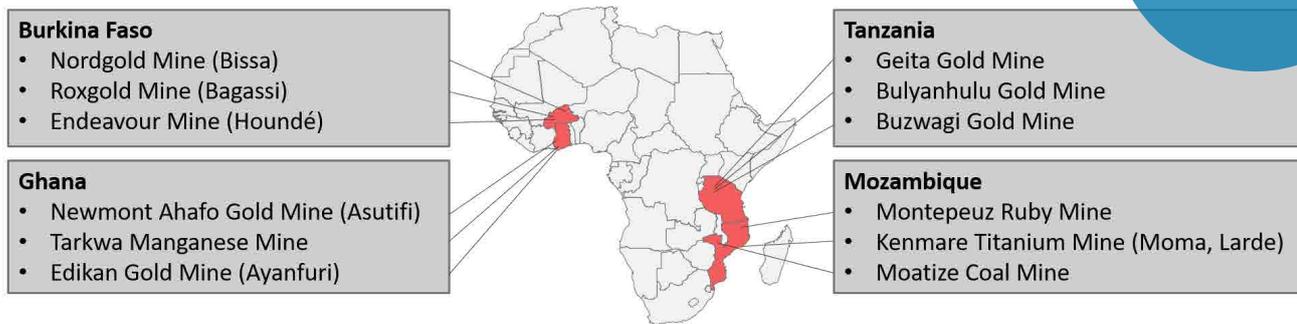
How do resource extraction projects affect community health? – Evidence from Mozambique and other African countries

The resource extraction sector in Mozambique has proliferated in the last decade. While the development of resource extraction projects can promote economic growth, there are also potential negative impacts on the health and well-being of local communities. The findings of the Health Impact Assessment for Sustainable Development (HIA4SD) project offer new insights into the complex environmental, social, and economic changes that affect health in communities surrounding natural resource extraction projects.

Photo: The expansion area of an Industrial mining site in Moatize, Mozambique. © Herminio Cossa

KEY MESSAGES

- Resource extraction projects contribute to socio-economic development, such as better education, water, and sanitation infrastructures.
 - However, they also contribute to environmental pollution, resulting in negative impacts on human health, including respiratory diseases, HIV infections, and road-traffic accidents.
 - Further, they can exacerbate existing economic and health inequities, disproportionately affecting women and poorer households.
 - By strengthening health impact assessment (HIA) in the licensing and monitoring process of resource extraction projects, the government could capitalize on the potential for mining projects to promote health and sustainable development.
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The Health Impact Assessment for Sustainable Development (HIA4SD) project (www.hia4sd.net) has generated a robust evidence base on the diverse pathways through which extractive industry projects affect public health. Four African countries, namely Mozambique, Tanzania, Ghana, and Burkina Faso (see Figure 2), are implementing the HIA4SD project. The findings of the HIA4SD project serve the purpose of facilitating a policy dialogue to strengthen the application of health impact assessment (HIA) as a regulatory mechanism to avoid potential adverse effects of extractive industry projects on public health while maximizing positive results. The project aims to actively engage resource extraction projects and other development partners in the 2030 Agenda for Sustainable Development.

In Mozambique, the HIA4SD project collected qualitative data through focus group discussions and key informant interviews in rural communities near industrial mining projects in the districts of Montepuez, Moatize, Moma, and Larde, gathering information on the local perceptions of the health impacts of mining projects. In addition, quantitative data from readily available secondary databases such as the District Health Information System 2 (DHIS2), the Demographic and Health Surveys (DHS) data, and the World Bank Development Indicators (WDI) were analyzed.

IMPACTS OF INDUSTRIAL MINING PROJECTS ON HEALTH DETERMINANTS

Impact on social and economic development

The study found that resource extraction projects, directly and indirectly, contribute to community development. In Africa, the development of mining projects is associated with improved living conditions and increased access to essential services such as clean water and improved sanitation. Some mines invest in community infrastructures, such as schools, roads and health facilities. Beyond community and social development, mines also contribute to local economic growth by employing local people.

Despite these regional socio-economic improvements, mining projects also negatively affect local communities' social, cultural, and economic dynamics. For example, sexual transactions with employees of the mining companies were sometimes reported, causing family disruption and teenage pregnancies. Additionally, community members in some mining sites lost their houses, land for agriculture, crops, water sources, and other belongings with no resettlement and inadequate compensation. Some farmers and fishers lost their livelihoods due to restricted access to and pollution of their land or fishing grounds.

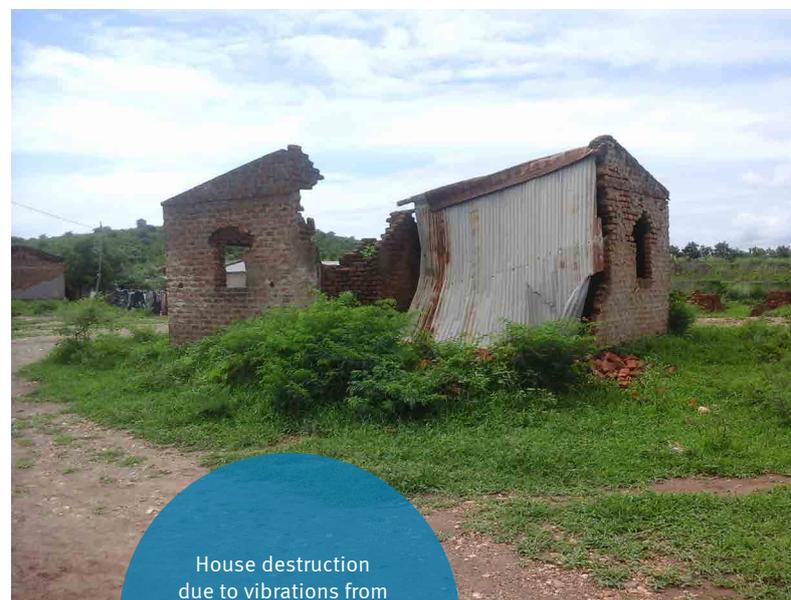
“... the farms we had are roads nowadays ... the access roads for other farms are now blocked with “mountains” [meaning “mineral coal mining waste” from the company], and their fencing.”

– focus group participant, Moatize

Impact on the environment

Industrial resource extraction projects increase the share of households using clean cooking fuels, and housing infrastructures are built with higher quality construction materials. At the same time, cracks in housing structures caused by mining-related blasting were reported as a particular problem (Figure 3). Furthermore, mines trigger an increase in indoor tobacco smoking and increase the risk for respiratory diseases. Local communities expressed concerns over the air, water, and soil pollution attributed to resource extraction activities, such as blasting of rocks and increased traffic.

In Mozambique, focus group participants reported food pollution from the coal dust, causing gastrointestinal problems, such as abdominal pain and diarrhoea. Moreover, communities close to mining projects were prohibited from constructing infrastructures like latrines and landfills that require digging the soil. As a result, sanitary conditions and waste management are often insufficient in affected communities.



House destruction due to vibrations from coal mine-related blasting in Moatize, Mozambique.
© Herminio Cossa

HEALTH IMPACTS OF RESOURCE EXTRACTION PROJECTS

The changes in environmental, social, and economic factors in natural resource extraction areas can also positively impact the health of local communities (Figure 4). For example, mining areas were associated with reduced neonatal mortality risk and diarrheal incidence and improved child nutrition compared to non-mining areas. In addition, land rents for natural resource extraction generally increase overall life expectancy.

However, according to local communities, adverse health outcomes prevailed. For example, quantitative and qualitative evidence shows an increase in respiratory diseases in mining areas, potentially linked to mining-related air pollution. Further analyses using data from multiple African countries show that mines' opening increases the prevalence of HIV infection and reduces knowledge about protective measures. Additionally, it increases the frequency of risky sexual behaviours, such as having multiple sex partners and unprotected sex in numerous relationships. Furthermore, the higher traffic volumes in mining settings were associated with increased mortality from traffic-related accidents.

IMPACTS ON HEALTH-RELATED INEQUALITIES

The impacts of industrial mining projects are not equally distributed across population groups. For example, poorer households are less likely to benefit from the overall development of community infrastructure. Further, in terms of gender equity, men were more likely to benefit directly through the job opportunities provided by mining companies. Women tended to be affected disproportionately by negative impacts and continued to engage in agriculture as their primary source of income.

	NEGATIVE IMPACTS	HEALTH EQUITY	POSITIVE IMPACTS
ENVIRONMENTAL IMPACTS	<ul style="list-style-type: none"> Air pollution Water quality Soil pollution 	<ul style="list-style-type: none"> Exposure and adaptive capacity depending on place of residence, gender and socioeconomic factors 	<ul style="list-style-type: none"> Construction of wells or taps with drinking water
SOCIAL IMPACTS	<ul style="list-style-type: none"> Social disruption Loss of local customs and culture 	<ul style="list-style-type: none"> Women disproportionately affected by negative impacts Greatest improvements in infrastructures among wealthier households 	<ul style="list-style-type: none"> Improved community infrastructures (e.g., schools, health facilities) Improved household infrastructures (e.g., sanitation, housing)
ECONOMIC IMPACTS	<ul style="list-style-type: none"> Loss of farmland Restricted fishing activities 	<ul style="list-style-type: none"> Men are more likely to benefit from job opportunities Subsistence farmers disproportionately affected by land loss and soil pollution 	<ul style="list-style-type: none"> Direct employment Indirect employment and business opportunities Wealth gains for local communities
HEALTH OUTCOMES	<ul style="list-style-type: none"> Sexually transmitted diseases (e.g. HIV) Respiratory diseases Diarrheal diseases Chronic diseases Mental health and substance abuse 	GAP IN HEALTH EQUITY	<ul style="list-style-type: none"> Reduction in neonatal mortality Improved maternal and child health care Child development and nutrition

Impacts of industrial mining projects on health outcomes

PREVENTING NEGATIVE HEALTH IMPACTS OF EXTRACTIVE INDUSTRY PROJECTS IN MOZAMBIQUE

Adequate policy frameworks can help minimize the negative health impacts of resource extraction projects while maximizing the potential for local development (see textbox 1). In Mozambique, an assessment of these impacts through an environmental impact assessment (EIA) is legally required for all industrial resource extraction projects under the Environmental Law ([Law n.o 20/1997](#)) and the Regulation on the EIA Process, [Decree no. 54/2015](#). In addition, health and social dimensions are generally included in other legal documents within the licensing framework of the extractive industries, including public participation, monitoring, auditing, resettlement processes, waste management, environmental pollution and quality.¹

Research within the frame of the HIA4SD project, however, has shown that health issues are not explicitly addressed as mandatory elements of an EIA. For example, there is no legal requirement for a health management plan when licensing industrial mining projects. Companies can decide for themselves the extent to which they consider public health in their impact assessment, operations and community engagement. In a more positive development, an interdepartmental Technical Commission with representatives from the Ministries of Mining, Environment, and Health is tasked to review the EIA reports. This commission should receive capacity development for better promoting health in the impact assessment process. The capacity development could involve requiring publicly available written recommendations by Technical Commission members and including public health explicitly in the requirements for EIAs. The explicit need to have public health-related measures in the management plan during the project's implementation phase could provide the basis for follow-up, monitoring and enforcement.

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 the licensing process.

Health impact assessments (HIA) focus specifically on potential health impacts in affected communities and the distribution of those effects within the population. They generate evidence for appropriate actions to avoid or mitigate health risks and promote health opportunities. HIA guide the establishment of a framework for monitoring and evaluating changes in health as part of performance management and sustainable development. Health impacts can either be assessed in a stand-alone HIA, as part of widely established environmental impact assessments (EIA) or through integrated approaches, such as Environmental, Social and Health Impact Assessments (ESHIA).

¹ See [Ministerial Diplomas n.o 129/2006, n.o 130/2006, Decree No 25/2011, Decree n.o 31/2012](#), [Decree 18/2004, Decree 13/2006, Decree 45/2006](#)

LESSONS LEARNED

- **Resource extraction projects impact health through various pathways:** The establishment of a mine comes with a series of environmental, social, and economic changes that affect the health and well-being of local communities. To address these health impacts, factors that determine health need to be systematically addressed. Health impact assessment is an approach to identify potential positive or negative effects of extractive industrial projects on health.
- **These impacts can increase existing health inequities:** Health impacts are not equally distributed within and across communities and population sub-groups. Poorer households and women are particularly affected by the adverse effects of mines. Engagement of local communities in the impact assessment process, particularly marginalized groups and women, can help to address these health inequities.
- **There are gaps in impact assessment policy in Mozambique:** Health impact assessment practice should be strengthened to mitigate the adverse health impacts of industrial mining projects. Legislation and HIA guidelines require further specificity on addressing the health-related effects in mining settings. Furthermore, local human resource capacity to conduct HIA should be strengthened.

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LINKS



Video clip about the HIA4SD project set up: [here](#)

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