# The HIA4SD Project: from research to policy dialogue

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Disability adjusted life years (DALYs), all causes, both sexes, all ages, 2019 Source: <u>https://vizhub.healthdata.org/gbd-compare/</u>







Source: <a href="https://knowledge.uclga.org/IMG/pdf/mineralsresourcesanddevelopmentinafrica.pdf">https://knowledge.uclga.org/IMG/pdf/mineralsresourcesanddevelopmentinafrica.pdf</a>

#### The potential of HIA









#### Passionate HIA practitioner...



...with lots of frustration



### The problem with HIA on the African continent

- Lack of policies and legal frameworks that regulate use of HIA (or health in environmental impact assessment)
- Inadequate knowledge about HIA by policy-makers and project proponents
- Only applied by "responsible" projects (as long as things go well...)
- Limited technical expertise and capacity for conducting HIA





### How can we make HIA more sustainable!?

- Trigger a policy dialogue to explore how impact assessment as a regulatory mechanism can be strengthened\*:
  - To avoid negative effects of natural resource extraction projects on public health
  - To actively engage natural resource extraction projects in health promotion

\* Health in EIA or HIA as stand-alone approach





### **Project description**

#### HEALTH IMPACT ASSESSMENT HIHUSI FOR SUSTAINABLE DEVELOPMENT

 Health impact assessment (HIA) for engaging natural resource extraction projects in sustainable development in Africa





**Swiss Programme for Research** on Global Issues for Development



Swiss Agency for Development and Cooperation SDC

### **Project description**

#### HILLSD HEALTH IMPACT ASSESSMENT FOR SUSTAINABLE DEVELOPMENT



#### Stakeholder engagement process

# HIA4SD

- Multi-stakeholder meetings
  - Ministries
  - Private sector
  - Civil Society
  - Academia
- Stakeholder engagement as continuous process



Inform about project —— Raise awareness Learn from stakeholders —— Influence research



#### Research phase (2017-2021)

• 6 PhD students supported by 18+ post docs and senior researchers



### Quantitative research – international level

Retrospective analysis of 131 Demographic Health Survey, applying pseudo-panel methods



**Figure 1.** Spatial distribution of mines (panel A) and visualization of the selection of Demographic and Health Survey clusters (panel B). DHS: Demographic and Health Survey.

Effects of mining and urbanization on:

- Housing quality...
- Access to water and sanitation...
- Sexual behaviors...

...and associated health outcomes

HIL4SD

Cossa et al. Globalization and Health (2022)

#### Quantitative research – national level

- HIH4SD
- Quantification of annual settlement growth in mining areas using machine learning



preparation Google Earth (GE) Landsat Level-2 imagery Surface Reflectance images Extraction of historic GE scenes training dataset GE scenes from beginning and end Apply cloud mask of study period Identification of pixels with , unchanged land-use mage and Cloud free scenes Training dataset

**Figure 2.** Data sources and methodological flowchart. GE: Google Earth. SVM: support vector machine. LU: land use.

Figure 1. Location of gold mining areas included in this study. Dietler et al. Remote Sensing (2020)

#### Quantitative research – local level



• Prospective mortality surveillance system



Mortality burden associated with gold mining in Tanzania?

Fig 1. Location of the mining areas and the study sites (left) including location where the verbal autopsy interview occurred (right). This figure was created using QGIS, an open-source application. The source basemap was obtained using OpenStreetMap plugin in QGIS. OpenStreetMap follows open data license under Open data Commons Open Database Licence (ODbL, <u>https://openstreetmap.org/copyright</u>).

Lyatuu et al. PLoS Global Public Health (2021)

#### Qualitative research – local level







### Qualitative research - local level

In 3 mining areas in each project country:

- 181 Focus group discussions (FGD)
  - Women, men, adolescents
- 343 Key informant interviews
  - Local authorities
  - Community leaders
  - Religious leaders
  - Health care staff
  - Private sector

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#### Leuenberger PLoS ONE (2021)

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**Stakeholder** 

engagement

Research topics

- Equity
- Gender
- Perceived impacts
- Health system
- Partnership
- Etc.

#### Qualitative research – national level

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#### Q-methodology

- Policy proposals (Q-statements)
- Ranking by stakeholders (Q-sorts)





#### Stakeholder engagement

#### Qualitative research - national level

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**Stakeholder** 

engagement

#### Q-methodology

- Policy proposals (Q-statements)
- Ranking by stakeholders (Q-sorts)



Which of the proposed policy options have the broadest acceptance among stakeholders and policy-makers?



#### Q-method study findings – areas of consensus

- Near unanimous support for strengthening public health
  - Public health is not sufficiently considered
  - Current EIA frameworks are insufficient / lack of public health dimension
- General agreement that monitoring of public impacts needs to be improved
  - Widespread support for the collection of baseline data
  - Health impact monitoring is public task and should not be left to companies



### Q-method study findings – diverging views

- Financing and provision of public health services
  - Government vs. private sector responsibility
- Regulatory framework
  - Health in EIA versus HIA
  - Sanctions for companies
- Distribution of responsibilities between government agencies
  - Central vs. regional authorities



#### **Research findings**

## HIA4SD

and Public Health	
in Communitie	re Living in a Different World": Health Inequity s Surrounding Industrial Mining Sites in Mozambique, and Tanzania
Andrea Leuenberger <sup>1,2,</sup> *© Khátia Munguambe <sup>3,6</sup> ©, 9	. Olga Cambaco <sup>1,2,3</sup> 0, Hyacinthe R. Zabré <sup>1,2,4</sup> , Isaac Lyatuu <sup>1,2,8</sup> , Jürg Utzinger <sup>1,2</sup> , ionja Merten <sup>1,2</sup> 0 and Mirko S. Winkler <sup>1,2</sup> 0
	<ol> <li>Swim Tropical and Public Health Inseltute, ICO, Box, CH-4002 Basel, Switzerland; olgac.ambxoofmanbio.net (OC), pranogdoys.inthe@sphao.of (H.R.Z.), physrubiblicate (LL), jourguittingr@inseltab.(dl, LL) and journetendiowidghts (AS), minkt owithself-widephth, (M.S.W.) University of Basel, PCD: Basel, Sciences, Osuandisque; Matianungaambe@manbica.net Research Institute of Health Sciences, Osuandisque; Matianungiaambe@manbica.net Research Institute of Health Sciences, Osuandisque; Matianungiaambe@manbica.net Research Institute of Health Sciences, Osuandisque; Salama 2013, Tancania Bakara Health Healthing, ICO, Bacel, Sciences, Osuandisque; Matianungiaambe@manbica.net Research Institute of Health Sciences, Osuandisque; Salama 2013, Tancania Bakara Health Healthing, ICO, Bacel, Salama 2013, Tancania Cartospondences: anabas.centedegr@molices.phch</li> </ol>
Check for updates Citation: Leuenberger, A.; Cambaco,	Abstract: Background: Health equity features prominently in the 2020 Agenda for Sustainable Development, yet there are wide disparities in health between and within countries. In settings of natural resource extraction (e.g., industrial mines), the health of surrounding communities is affected through myriad changes in the physical, social, and economic environment. How changes triggered
O.; Zabré, H.R.; Lyatuu, I.; Utzinger, J.; Munguambe, K.; Merten, S.; Winkler, M.S. "It Is <i>Like We Are Listing</i> it a <i>Different World</i> ": Health Inequity in Communities Surrounding	unorganization and a probability of the second and economic thread and the second
Industrial Mining Sites in Burkirsa Faso, Mezzambique, and Yanzania. Int. J. Entiron. Res. Pathic Health 2021, 18, 11015. https://doi.org/10.3390/ ijerph182111015	intermediate factors acting on the community level, and structural conditions. Due to environmental pollution and land loss, participants were concerned about unsecured livelihoods. Positive impacts, such as job opportunities at the mine, remained scarce for local communities and were claimed not to be equally distributed among community members. Conclusion: Extractive industries bear
Academic Editor: Paul B. Ychourswou Received: 14 June 2021	considerable risks to widen existing health gaps. In order to create equal opportunities among affected populations, the wider determinants of health must be considered more explicitly in the licensing process of resource extraction projects.
Accepted: 12 October 2021 Published: 20 October 2021	Keywords: community-based research; equity; extractive industries; focus group discussion; health impact assessment; social determinants of health; sub-Saharan Africa; Sustainable Development Goals
Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affil- iations.	1. Introduction
Copyright © 2021 by the authors. Linewes MDR, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Cheative Commons Antibulion (CC BY) lineme (https:// centure.commons.org/linemes/by/ &0/).	Many low- and middle-income countries (LMICs) are rich in natural resources, which encompasses both opportunities and risks for sustainable development. Indeed, natural resource extraction projects act on several of the Sustainable Development Goals (SDGs), including various bealth-related targets [1,2]. At the global level, it has been emphasized that extractive industries will contribute to achieving the 2030 Agenda for Sustainable Development [1,3]. In the strive loward a low-carbon future, the demand for metals and minerals is rising [5]. At the national level, sectors engaged in natural resource extraction (e.g., mining, oil, and gas) are important partners for economic development [6]. Fiscal revenues and public-private partnerships hold promise to improve public services, such as education and health care [7,8]. At the local level, industrial mining companies are
ht. J. Environ. Res. Public Health 20	21,18,11015. https://doi.org/10.3390/ijerph182111015 https://www.mdpi.com/journal/ijerph

 Natural resource extraction projects represent risks and opportunities for public health

- Quantitative research: positive effects dominated
- Qualitative research: perceived negative impacts dominated
- Mixed-methods!



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### Communication and application phase (3 years)

programm

STR. BAR



(currently n=29)

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being disproportionally affected. Diverse impacts on health were identified, including increases in sexually ansmitted, diarrheal and chronic Strengthening I ment (HIA) practice for industrial mining projects could improve the health of local communities. **Policy briefs** (currently n=5)

#### https://hia4sd.net



# engagement Stakeholder

### Dissemination, policy dialogue & capacity building



**Stakeholder engagement** 

#### Preliminary conclusions – impact research

- Extractive projects trigger a diversity of impacts (positive & negative) on determinants of health and health outcomes
  - Importance of combining quantitative and qualitative approaches
- Health equity is a major concern, with women and the poorer households being disproportionally affected



	NEGATIVE IMPACTS	HEALTH EQUITY	POSITIVE IMPACTS
ENVIRONMENTAL IMPACTS	<ul> <li>Air pollution</li> <li>Water quality</li> <li>Soil pollution</li> </ul>	• Exposure and adaptive capacity depending on, place of residence, gender and socioeconomic factors	• Construction of wells or taps with drinking water
SOCIAL IMPACTS	<ul> <li>Social disruption</li> <li>Loss of local customs and culture</li> </ul>	<ul> <li>Women dispropor- tionally affected by negative impacts</li> <li>Greatest improve- ments in infrastruc- tures among wealthier households</li> </ul>	<ul> <li>Improved community infrastructures (e.g., schools, health facilities)</li> <li>Improved household infrastructures (e.g., sanitation, housing)</li> </ul>
ECONOMIC IMPACTS	<ul> <li>Loss of farmland</li> <li>Restricted fishing activities</li> </ul>	<ul> <li>Men are more likely to benefit from job opportunities</li> <li>Subsistence farmers disproportionally affected by land loss and soil pollution</li> </ul>	<ul> <li>Direct employment</li> <li>Indirect employment and business opportunities</li> <li>Wealth gains for local communities</li> </ul>
HEALTH OUTCOMES	<ul> <li>Sexually transmitted diseases (e.g. HIV)</li> <li>Respiratory diseases</li> <li>Diarrheal diseases</li> <li>Chronic diseases</li> <li>Mental health and substance abuse</li> </ul>	GAP IN HEALTH EQUITY	<ul> <li>Reduction in neonatal mortality</li> <li>Perceived improvement of maternal and child health care</li> <li>Child development and nutrition</li> </ul>

#### Preliminary conclusions – governance

- Broad recognition among stakeholders in the four project countries that health is insufficiently included in impact assessment regulation
- Importance to accommodate diversity in policy dialogue processes across countries





#### Preliminary conclusions – capacity building

- Mutual learning is essential in the process of developing technical HIA capacity
- There is strong interest by stakeholders (e.g. ministries, private sector and academia) to learn more about HIA
- We are looking forward to the upcoming HIA short-courses..!





#### Acknowledgements

# Thank you...!









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Swiss Programme for Research on Global Issues for Development

#### www.r4d.ch

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### Let's continue the conversation!

Post questions and comments via chat in the IAIA22 platform.



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