



## Policy Brief

no. 2 | 2020

# Public monitoring of the economic, social and environmental effect of industrial mining

The transition to renewable energy and a digital economy increases the demand for minerals. The development impact of resource extraction is the green economy's Achilles heel. The Resource Impact Dashboard (RID) is an evidence-based policy instrument to encourage constructive dialogue between stakeholders about concerns related to economic, social, environmental and institutional outcomes of industrial mining. Results from the pilot-phase corroborate the necessity and the promises of public monitoring and deliberation.

Picture: Dialogue between worker and researcher at an open-pit mine in Zimbabwe. ©Fritz Brugger

### KEY MESSAGES

- Resource Impact Dashboard (RID) informs about the economic, social, and environmental effects of industrial mining.
- The RID integrates data from government, companies and household surveys.
- Results are available on an open data platform to promote a constructive dialogue and allow to identify relevant contributions from each stakeholder towards improved development outcomes.
- The RID tracks indicators over time to stimulate continuous improvement.
- The RID was successfully tested in Burkina Faso and Mozambique; it can be applied in any industrial mining site globally.

The Resource Impact Dashboard was successfully tested in an iterative process of data collection in four different mining areas in Mozambique and Burkina Faso.



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**Natural resource extraction is a highly disruptive business**

Resource extraction in developing countries is on the rise. The growing demand for green energy technologies will further increase investment in mining, with highly disruptive consequences. For affected communities, everything from livelihood opportunities to the visual landscape changes. For governments, the opportunity – and challenge – is to transform revenue windfalls into sustainable development. For the mining company, costly business interruptions can occur when local populations take to the streets over disagreement and unmet expectations. There is an urgent need to better understand the local development outcomes of resource extraction, to promote dialogue among companies and stakeholders and to continuously improve mining practices.

**Lack of appropriate policy instruments to date**

Attempts to increase transparency in the mining sector have so far mainly focused on revenue transparency at the macro level<sup>1</sup>. Less attention has been devoted to supporting governments and communities in assessing and managing negative impacts of resource extraction at the local level.

Moreover, industry initiatives are typically shaped by a functionalist and output-focused perspective to facilitate operations<sup>2</sup>. This seriously limits their capacity to understand the impact of mining operations on complex local dynamics. Mine-site level disclosure of economic, social and environmental issues, i.e. on matters of direct interest to mining-affected communities, workers and other stakeholders, is largely missing.

**The Resource Impact Dashboard (RID)**

To address these challenges, the RID research project develops an easy-to-apply methodology that provides a holistic and impartial view of how industrial mining shapes local realities and perceptions on the ground.

The theoretical underpinning of the RID-framework is the capital concept, which is widely used in sustainability literature, resource economics and livelihood research<sup>3</sup>. At its core is the idea that people derive utility from the stock of natural, physical and human capital. The depletion of capital stocks reduces the utility and hence the quality of life. The RID assesses how mineral extraction affects the depletion or accumulation of these capitals, including social capital, i.e. the extent and quality of relations between the community, public institutions, and the mining company.

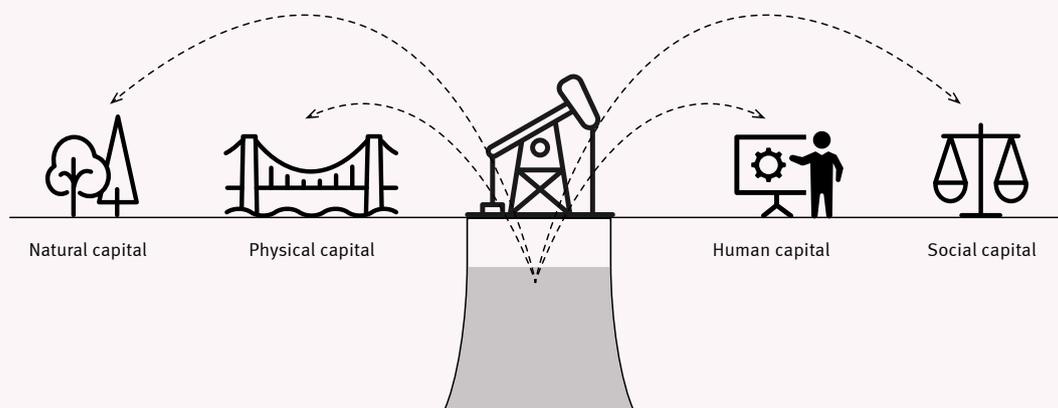


Fig. 1: The RID assesses how mineral extraction affects the depletion or accumulation of natural, physical, human and social capital.

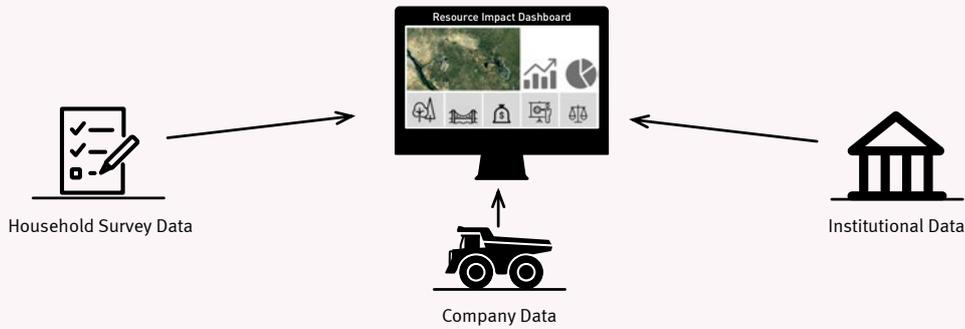


Fig. 2: The RID is the first tool to increase mine-site level transparency. The cloud-based open data system can be applied in any mining site globally.

### Triangulation of different data sources

The measurement of capital stocks is marked by technical and methodological complexities. To keep the RID practical and implementable in low resource settings, this research project has identified reliable proxies and triangulates data obtained from a representative household survey, from government, and from the mining company. The RID thereby acknowledges that both “hard facts” as well as stakeholders’ views and perspectives matter for development. The methodology was tested and refined in an iterative process over three years in two pilot mining sites in Burkina Faso and two in Mozambique.

### Iterative testing and improvement of the RID framework

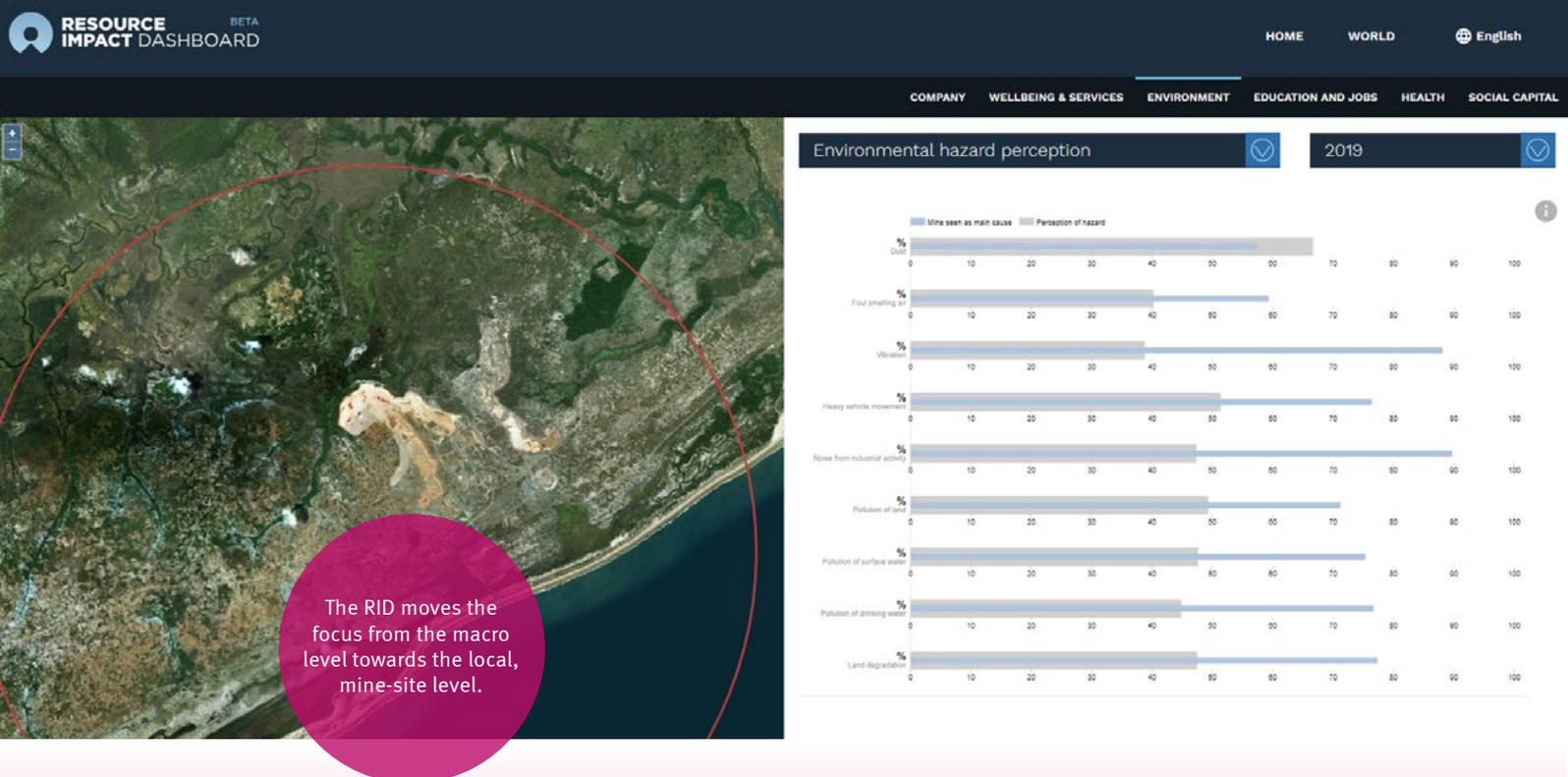
The pilot deployment of the RID confirms the technical viability of the RID. Moreover, the findings reveal patterns that corroborate the need to promote dialogue and foster access to monitoring data on local dynamics around resource extraction. Three examples related to community engagement illustrate this well:

1) Lack of environmental monitoring data fuels the risk of conflict. Mining companies were reluctant to disclose even minimal information about their environmental monitoring system with the RID project. This is mirrored by the survey-based finding that only one out of 10 respon-

dents has ever received information about the environmental hazards of the mining operation that could affect her community. In spite of little information, almost 60% of respondents who perceive their drinking water to be polluted attribute this to the mining operation.

2) Current information and consultation procedures are not effective. The Extractive Industries Transparency Initiative (EITI) transparency initiative is virtually unknown in the four piloted mining areas and less than one-quarter of respondents has ever heard about tax revenues from mining. Moreover, results from the household survey suggest that less than 1% of respondents were consulted by the company about planned activities affecting their community. This contrasts with an explicit appreciation of those who were consulted by the mine, of which over 75% say that the contact was useful.

3) Increasing information and dialogue yield benefits for both, company and government. Information about employment opportunities and social contributions from the mine, as well as being consulted by the mine correlate positively and significantly with respondents’ support of the mining company and the government.



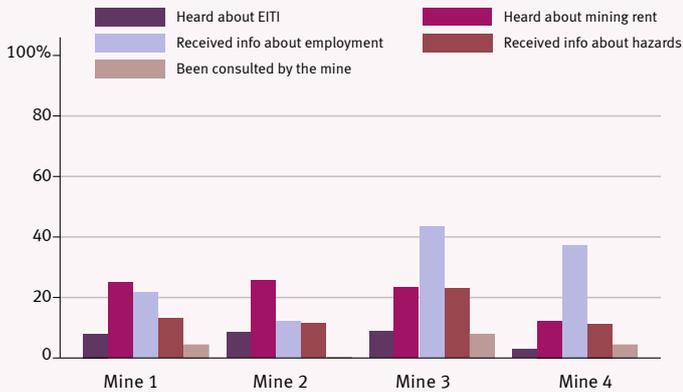


Fig. 3: The infographic displays results from the household survey in the four pilot mining areas. The international transparency initiative, EITI, is virtually unknown and on average 22% of respondents have heard about tax revenues from mining. On average 26% have received information about job opportunities, 14% about environmental hazards and 4% were consulted by the company about planned activities affecting their community.

## Conclusion

The RID research project reveals the need to change gear in addressing local level effects of resource extraction. A first step is to move the focus from the activity level – what companies and other stakeholders do – towards better understanding the outcome level. The RID fills this gap by encouraging company disclosure and by using household surveys that capture wellbeing, social dynamics and perceptions of mining-affected communities. Second, the limited availability of government data lays bare the need to strengthen the oversight and monitoring capacity of public authorities. Finally, the results call for promoting a more inclusive and substantive stakeholder-engagement that is informed by evidence.

## Recommendations

- Governments and mining companies: contribute to a more evidence-based dialogue by committing to the continuous application of the RID to existing, as well as to new industrial mining sites;
- Mining companies: systematically disclose mine-site level data that is relevant for local development. These quick wins increase transparency and create confidence;
- Development agencies: support this process by funding impartial third parties such as local universities and research institutions to run the RID; strengthen honest brokers to facilitate stakeholder deliberation at mine-site level, discuss the RID findings and negotiate response measures.

## References

1. EITI: The Extractive Industries Transparency Initiative. The global standard for the good governance of oil, gas and mineral resources. <https://eiti.org/>
2. Moffat, K. and Zhang, A. 2014. “The Paths to Social Licence to Operate: An Integrative Model Explaining Community Acceptance of Mining.” *Resources Policy* 39 (1): 61–70.
3. Stiglitz, J. E., Sen, A., and Fitoussi, J.-P. 2009. Report by the Commission on the Measurement of Economic Performance and Social Progress. Paris: France.

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## FURTHER INFORMATION

### r4d Project Page:

[www.r4d.ch/modules/thematically-open-research/transparency-in-resource-extraction](http://www.r4d.ch/modules/thematically-open-research/transparency-in-resource-extraction)  
<https://dec.ethz.ch/research/resource-extraction-and-development/development-outcome-of-resource-extraction.html>

### Link to Resource Impact Dashboard:

[www.resource-impact.org](http://www.resource-impact.org)

## DISCLAIMER

This policy brief has been financed by the Swiss Programme for Research on Global Issues for Development (r4d programme). Responsibility for the content rests entirely with the authors. The r4d programme does not necessarily share the expressed views and interpretations.

## PUBLISHER



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

Swiss Programme for Research on Global Issues for Development (r4d programme) > [www.r4d.ch](http://www.r4d.ch)  
 Wildhainweg 3, CH-3001 Bern

May 2020