

A comparison of SIA between company and community in the Amazon region.

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ABSTRACT

The increase in social and environmental conflicts surrounding mining has stimulated the growth of research focused on Social Impact Assessment. From the constructivist paradigm impact is a social construct. SIA proposes participatory methodologies that include other evaluators, differing from the technical-scientific approach. This work is the first stage of an international research project (Brazil-Spain) and it focuses on the world's largest iron mineral exploration project located in the Amazon region. The objective is to identify and compare the perception of the social impacts of a mining project between the company and community views. This explorative, qualitative, and applied case study used as data collection techniques documental analysis, and semi-structural interviews, and six workshops (one with mining employees and five with leaders of local communities). The results show that while the company focuses on the immediate impacts, which are confused with the vision of business risks, the community brings a look at the subjective and cultural impacts associated with change processes. Ignoring impacts such as loss of tradition and sense of collectivity weakens compensatory strategies such as social projects implemented.

Keywords: Social Impact Assessment; Mining; Local Community; Brazil; Amazon; Perception

INTRODUCTION

A vast scientific production on impacts generated by mining enterprises has been produced in recent decades (VANCLAY, 2002; MANCINI; SALA, 2018). Most of these studies focus on a technical-scientific approach derived from the exact sciences to the detriment of the social approach of risk, derived from the human sciences. Thus, a broader understanding of the phenomenon is lost in this process, including other types of impacts over considered by the technical-scientific approach. We argue in this draft that, without disregarding the importance of the technical-scientific approach in the debate on risks and impacts in the mining sector, it is necessary to incorporate also a constructivist and participatory approach in this process.

In recent years, researchers have highlighted the importance of applying the Social Impact Assessment (SIA) as an effective process of identifying, in advance, the consequences of real action or a project (JOYCE; MACFARLANE, 2001). Based on a constructivist paradigm, AIS proposes participatory methodologies (WEBLER; KASTENHOLZ; RENN, 1995; ESTEVES; FRANKS; VANCLAY, 2012) with a

bottom-up approach, which implies ensuring the presence and giving voice to the most vulnerable and affected communities. This approach focuses on expanding the evaluators' community seeking a process of identification and management of social risks and impacts that reduces harm to the community and expand the benefits (ALEDO; DOMÍNGUEZ-GÓMEZ, 2018). Understanding the complexity of human relations with the territory allows us to point out the transdisciplinarity and diversity of social issues, capturing the risks present in the project. The comprehensive analysis involved in the AIS allows us to extrapolate the mere mitigation of negative impacts, expanding the positive aspects that seek to ensure local development.

Decision-makers should be aware of the consequences of their decisions before taking action and consider that the population affected by the project should not only be informed of the potential effects but should have the opportunity to participate in the discussion on the future of the territory (HARVEY; BICE, 2014; HANSEN et al., 2016). Regular consultations with the community in decision-making processes have greater chances of lasting results and long-term ties (HARVEY; BICE, 2014). If the community feels that it is being compensated inappropriately or lightly, tensions and conflicts will influence the progress of the project (HANSEN et al., 2016). On the other hand, tolerance to negative impacts increases when the impacted perceive that the benefits are being distributed more equitably to meet their interests and not only those of the company (ESTEVEZ et al., 2017).

This research uses the categories of social impacts proposed by Mancini and Sala (2018) and the approach of identification and qualification of social impacts proposed by Aledo and Dominguez-Gomez (2018). The main objective is to identify and compare the perception of the social impacts of a mining project in the view of the company and the local community. We argue that the research allows looking at the impacts of mining projects in a broader way. It reveals the contradictions between the company and the communities in understanding the impacts generated by the mineral operation and its compensatory social projects.

METHODOLOGY

Considering the research objective that was to identify and compare the perception of the social impacts of a mining project in the view of the company and the local community, a single case study was carried out in the Amazon region, where operates the biggest iron ore mining project worldwide. study n exploratory, qualitative, and applied research was carried out, based on a single case study. Data were collected through documentary analysis, semi-structured interviews, and workshops with local stakeholders.

The document analysis was based on both internal and external documents. Company documents, as well as, public data information and NGOs reports were selected. This analysis resulted in the baseline study that seeks to understand the socioeconomic and cultural characteristics of the region in which the SIA was developed.

The interviews focused on the identification and analysis of the different social impacts, considering the perceptions of the company and communities. Seeking representativeness of the various stakeholder categories, 64 interviews were conducted, including public sector, private sector, mining employees, media, educational centers, religious institutions, other social organizations, rural and urban communities.

The workshops on social impact assessment, based on the model proposed by Aledo and Domínguez-Gómez (2018) aim to identify the most relevant impacts from the perspective of the company and the community. The impacts were grouped according to the categories of Mancini and Sala (2018) and then qualified in the workshops. Then, a comparative analysis was carried based on the impacts raised by the community and the company.

BACKGROUND OF THE CASE

The single case study was conducted in the city of Parauapebas, in the State of Pará, where it is located the Carajas Mine Project, the largest iron ore mine in the world. Operations started in 1980 implemented by the military government, as a strategy for integrating the Amazon region in the Brazilian economy through infrastructure projects.

With a high purity rate, the iron ore exploited in the area is responsible for more than 30% of the total produced by the mining company Vale annually. The mining complex includes several plants, storage yards (3.3 million tons), and 892 km of railway tracks to transport the ore to the port. Each train carries 34,000 tons of ore in 330 cars totaling 3.5km long.

The mineral project led to profound and contradictory changes in the municipality, including demographic, economic, and social variables. The population grew from just over 50,000 people in 1991 to more than 200,000 by 2020. Municipal revenues associated with mining increased significantly in this period. The Gross Domestic Product of Parauapebas is the second largest of the State of Para and the 78° in the Brazilian National Ranking, considering 5570 municipalities. On the other hand, when considering the Brazilian Ranking of Efficiency of Public services provided by municipalities, Parauapebas is in the 5.108 positions. Also, social indicators as homicides rates and victims in traffic accidents are much higher than the average of the State of Pará.



Image 01. Mining site, urban structure and railway track.

RESULTS AND CONCLUSIONS

The interviews and workshops conducted with the company and community result in a total of 222 impacts related to mining activity subdivided into the categories proposed by Mancini and Sala (2018).

Impact Categories	Mining company		Community	
	Positive	Negative	Positive	Negative
Economy, income and protection	4	10	18	41
Employment and Education	2	2	11	5
Land use and territorial aspects	3	4	2	12
Demography	0	2	0	25
Environment, Health and Safety	2	19	1	51
Human Rights	2	1	2	3
Total	13	38	34	137

Both company and community indicated a predominance of negative impacts compared to the positive ones, especially in two categories: economy, income and protection; environment, health, and safety. However, the perception of the impacts and their explanation are quite different considering the perception of the company and the community, which allows us to understand the impacts generated by the mining project more broadly. Some examples of the analysis process are presented below.

Category	Subcategory	Impact Discriptions	Mining company	Community
Economy, income and protection	Poverty	Reduction in the agricultural production and the community income	N	N
		Loss of the traditional agriculture and culture		N
	Social Project	Income generation		P
		Production rising		P
		Disconnection of Social projects to local reality		N
		Few members of the community benefit from social projects		N
Demography	Gender inequality and migration	Population growth and social disorder	N	N
		Youngsters migration		N
Environment, Health and Safety	Conflicts on water use	Overconsumption affecting water availability	N	N
	Environmental Impacts (quality and quantity of water)	Water quality is reduced by iron ore concentration		N
		Water supply rises	P	

First, when considering the subcategory Poverty, community and company recognize the loss of agricultural production and its impacts on community income. But while Company perception highlights logistic challenges: roads in bad conditions for produce transportation, the Communities highlight the impact of a loss of agricultural tradition and the lack of technical guidance. Differently from the company perspective, the workshops with the communities revealed second-order impacts as the lost sense of community.

Second, focusing on the subcategory Social Projects, the community recognize the contribution of social projects to the recovery of agricultural activities in the municipality and income generation but they also criticize the disconnection of social projects with the culture and agricultural tradition of the residents, as the "Milk project". As one of the community interviewed argues. "We have a long tradition in growing fruits and vegetables, not milk, we like fruit, not milk". The company recognizes the problem related to the "Milk Project" but argues that external factors harm social projects efficiency, such as the absence of the public sector in projects, as well as corruption. Another problem pointed out by community representatives is the breadth of social projects. For them, few members of the community benefit from social projects.

Third, regarding the subcategory Gender, Inequality and Demographic, company representatives argue that demographics problems are related to disordered population growth (not a company responsibility). For community, however, population growth and social disorder affect the social organization profoundly. Migration of youngsters appears to be a huge problem because parents have great concern with the difficulty of adaptation of youngsters in the city and the aging of the local population as well as the weakening of cultural traditions. Also, a rural community reveals a problem that seems to be ignored by the company: the difficulty for the youngest population to constitute a family. The migration of youngsters is mainly by women because young males end up under greater pressure to stay and work in the small rural family property. Therefore, youngster male solitude is a real impact ignored by the company.

Finally, regarding the subcategories, Environmental Impact and Conflicts in Water Use, both the company and the community recognize the problem of water availability. Community representatives criticize the change of water quality due to the presence of iron ore contaminants. Also, they complain about water scarcity. The company does not deny the increase in the water turbidity but claims that the quality of water quality is strictly in compliance with the environmental legislation. Besides, for a company representative, mining activity may in certain conditions expand water supply. The activity of water drainage in mining and measures to ensure the quality of the water captured can expand water supply services for communities that live with the scarcity of water resources.

FINAL REMARKS

This draft paper briefly presents some of the results of our research that aim to identify and compare the perception of the social impacts of a mining project between the company and community views. The systematization of the field work shows that the company and communities more easily perceive the negative impacts of mining operations comparatively to the positive ones. However, impacts perceived similarly by the company and community are described quite differently.

On one hand, the company emphasizes technical aspects that are often understood as external to its governance capacity. On the other hand, the community also highlights technical aspects but reaches other dimensions related to cognitive aspects that bring new meaning to the impacts: loss of community life, loss of agricultural tradition, and the loneliness of youngsters.

The research reveals also that the company's initiatives to stimulate rural and urban development projects fail because they are decontextualized and do not have a structural character. The Focus on technical aspects covers the great dilemma of mining territories in vulnerable contexts: the enormous inequality of the distribution of effects generated by mining activity.

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