

The tragedy of mining and development in Brazil: public health challenges

A tragédia da mineração e do desenvolvimento no Brasil: desafios para a saúde coletiva

La tragedia de la minería y el desarrollo en Brasil: desafíos para la salud colectiva

*Marcelo Firpo de Souza Porto*¹

¹ *Escola Nacional de Saúde Pública Sergio Arouca, Fundação Oswaldo Cruz, Rio de Janeiro, Brasil.*

Correspondence

*M. F. S. Porto
Centro de Estudos da Saúde do Trabalhador e Ecologia Humana, Escola Nacional de Saúde Pública Sergio Arouca, Fundação Oswaldo Cruz, Rua Leopoldo Bulhões 1480, sala 302, Rio de Janeiro, RJ 21041-210, Brasil.
marcelo.firpo@ensp.fiocruz.br*

November 5, 2015 will be marked as the day one of the largest socioenvironmental tragedies occurred in Brazil. Other disasters have also taken place. In 1984, a fire in Vila Socó, a district of Cubatão, São Paulo State, killed 98 people after a leak in a Petrobras gas pipeline, according to official reports. However, estimates are that more than 500 people lost their lives. Carbonized body remains, without documents, memory, or acknowledgement.

In the Mariana, Minas Gerais State, tragedy, more than 70 million cubic meters of mud and iron waste leaked after Fundão dam, owned by Samarco, a joint venture between Brazilian Vale and Anglo-Australian BHP Billiton, collapsed. In the path of the deadly mudflow, 17 bodies were found, at least 2 are missing, and more than 1,200 were forced out of their homes. Most of the dead people are outsourced workers (12). Of the five other deceased that were buried by the mud, two were children (5 and 7 years of age), and three were between 60 and 73 years of age, evidencing the vulnerability of children and older people.

In addition to destroying villages, like Bento Rodrigues and Paracatu de Baixo, the mud ran 663km along the rivers Gualaxo do Norte, Carmo and Doce, reaching the mouth of the latter and affecting its marine ecosystem in an area where sea species reproduce. Thirty-five cities in the state of Minas Gerais and four cities in the state of Espírito Santo were hit, and some 1.2 million people were affected by lack of water, fearing that

the Doce river water, which was being used for human consumption, was contaminated. In the river basin, 11 tons of dead fish were collected, and five species might have become extinct. Estimates are that it will take decades for the basin to be restored. In addition to the urban population, among those that were hit the hardest are fishermen, people living alongside the banks, the Krenak Indians, farmers and agrarian-reform settlers¹. A survey by Brazilian Agricultural Research Corporation (EMBRAPA)² showed that the 1,430 hectare area within the cities of Mariana, Barra Longa and Rio Doce hit by the mud is no longer suitable for farming or stock-raising, as the deposits that make up the upper layer prevent soil fertility, and it will take years of investment to be restored.

Iron mining does not result only in billions of dollars and “development”, it is filled with dangers, deaths and socioenvironmental destruction. Workers die or get ill, large areas are deforested, trucks and trains circulate, and hit people and animals; processing plants pollute the air; aquifers formed in iron-rich areas are contaminated and destroyed; in a time of water crisis, the amount of water used, including water in mining pipelines, is huge; the amount of waste is gigantic, and it is accumulated in dams; the burst of dams because of the mud with different toxicity levels can cause huge tragedies. In the state of Minas Gerais, serious accidents involving dams have occurred with some frequency: 2001, 2003,

2007, 2008, 2014, and have caused deaths and environmental destruction. Mariana was a tragedy foretold.

How can this tragedy be understood by public health, and what are the challenges implied?

The first, and, for me, the most important, is to see the disaster from the perspective of the social determinants of health with a critical socio-environmental focus that relates health inequalities with economic development processes, their contradictions, conflicts and environmental injustices³. In other words, one should consider health inequalities in relation to social, spatial and environmental inequalities in the framework of the current globalized capitalism.

This perspective allows public health to dialogue with other relevant fields in face of the current socioenvironmental crisis, such as political ecology and ecologic economy, bringing together transdisciplinary, structuralistic and constructivist approaches that articulate health promotion with emancipatory struggles for human, social and territorial rights, and for other economies and societies that are more solidary, just, and environmentally more sustainable.

As stated by Brazilian Public Health Association (ABRASCO)⁴ in a press release, Brazil ranks second in the world in iron ore exports, and Vale is the largest company in this field worldwide, in addition to being a major financier of political parties and politicians who, after elected, act biased and recklessly as lawmakers and managers. This makes the growing self-regulation of companies stronger and weakens the State's regulatory and inspection activities. The environmental licensing of Samarco's dam that collapsed is a tragic example that shows the huge gap between the rapidity with which investments are made and the inability/complicity of the State.

The expansion of iron ore, pig-iron and crude steel, as well as the agribusiness export products, evidence a re-primarization of the Brazilian neo-extractive economy in the past two to three decades. The commodities market is of low added value, it exploits workers and nature in a degrading way, and it is extremely volatile: the price of the iron ore ton ranged from 12 dollars in 2000 to 50 in 2008, to 177 in 2011, and starting in 2012, began to fall, reaching 50 dollars in October 2015.

The basis of mega-mining is the concentration of financial capital among major transnational corporations, including Vale. It is made possible by the enormous amount of mining areas, with technologies that allow the production of iron ore, even in smaller concentrations, which increases the amount of waste to be stored. The best socioenvironmental solutions include the reduction of waste, with the use of

electromagnetic separation or dry stacking, limiting or even eliminating the existence of dams. So, why are these still used in countries like Brazil?

First of all, because life and the environment are worth little, which characterizes what economists call negative externalities. The risk of existence of disasters, deaths and environmental destruction are not included in the price of ore. The few fines paid by Samarco issued by environmental agencies due to lack of compliance or accidents were of derisive amounts. The second reason is the post-boom crisis: with the prices of iron plummeting in the international market, strongly pulled down by China, mining companies have reduced their costs with technology innovation, operational and labor costs, which explains the increase in labor outsourcing and layoffs in companies like Vale and Samarco. Paradoxically, in times of crisis, production-increasing projects are expedited so that profit levels and shareholder payments are maintained. There is a strong correlation between an increase of accidents in mining companies and post-boom periods¹.

Many articles and reports published after the disaster disclose problems from management to licensing, to inspection, to monitoring up to surveillance and management systems, which includes a sort of "shutdown" of the local, state and federal Brazilian Unified National Health System (SUS). The main post-disaster actions were coordinated by Samarco, including matters related to social work and mental health of the more than 600 people who were forced out of their homes and had to move to lodges and hotels.

The disaster is, therefore, systemic, technologic and social. It reflects a trap of our development model that is based on the exports of commodities, which are pieces that share the same board with mega-mining, the might of corporations, the complicity and fragility of the State, the "wild west" environmental management model, and the difficulties of workers and communities to be organized and defend their rights.

To reverse the current standard, we must face the sludge that makes more vulnerable the agencies that regulate, inspect, and refrain from giving warnings and imposing precautionary measures to the operations. The application of the principle of precaution to defend life should force the disposition of unsafe technologies. The emergency and disaster response systems of the Emergency Response bodies and the SUS should be enhanced, in addition to the environmental surveillance of water for human use. Furthermore, those in charge of the companies that caused the disaster and neglectful

public officials should be penalized financially, and brought to civil and criminal courts. But this is not easy to change. Even during countrywide commotion, a few weeks after the tragedy, the *Bill of Law n. 2,946/15* that makes environmental licensing more flexible, proposed by governor Pimentel, was outrageously approved, with an overwhelming majority, by the State Assembly of Minas Gerais.

There is no way out: public health must better appreciate life and nature, with more democracy and environmental justice. The ecological economy advocates the reduction of the unsustainable social metabolism due to the huge extraction of raw material and waste production from the productivism and consumerism of our civilization to other types of economy that are more solidary, fair and sustainable. Political ecology favors the use of democracy and the struggle for rights to confront the countless environmental conflicts and the tremendous power asymmetry between, on one hand, the sectors, corporations, institutions and countries that benefit the most from this unfair trade and, on the other hand, the communities and workers who suffer or will suffer the most from the destruction of life and environment.

How about public health, what can it advocate or do? It can, for instance, organize efforts

and rallies that keep alive the memory of the disaster, the thirst for justice, the ensuing search for knowledge, the communication of reliable information, and it can support public agencies that are committed and responsible. What were the territories and the population hit? What are the levels of contamination and the actual and expected health effects on the exposed population, particularly in the soil and the quality of water for human use? How have ecosystems and biodiversity been affected? How to support the restoration of the Doce river basin and the reconstruction of the land? Which economic, social and cultural activities in the region are more healthy and sustainable for restoration, including family and agro-ecologic farming, handicrafts, ecologic and historic-cultural tourism? How to reduce mining hazards?

At this point, a number of initiatives are being developed by organizations, academic groups, social movements and affected communities. We must increase the synergy among them, and prevent some institutional and political practices from blocking their potential to make transformations.

After all, public health could investigate: development, what for, for whom, and how? Were it a farce, Marx would say the repetition makes it into a tragedy.

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