

Humanitarian Disasters and Industrial Expansion in the Amazon

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Introduction

The Amazon region is considered a key region of wellbeing for the environment and for people and cultures, both locally and internationally. It covers around 6.7 million square kilometres of land, stretching across 8 countries in South America and a “French” district in Abya Yala (South America), and covering about 40% of the total landmass of the continent. **The forest is responsible for storing a carbon equivalent of 15-20 years of global emissions, and contributes to around 50% of South America’s moisture supply.** The Amazon is also home to over **30 million people, including around 2.7 million indigenous people from 385 different ethnic groups.**

However, the Amazon is also a ‘ground zero’ for some of the most rapaciously extractive and damaging (business) practices that span the spectrum of activities from **dumping of toxic materials** and **by-products**, land grabbing, invasive deforesting and mining activities, extended monoculture plantations, dozens of hydroelectric dams and many more besides. Those practices have resulted in changing risk and disaster profiles for people and the environment, as well as introducing new hazards. At the same time, many governments across the Amazon have attracted and supported those company practices, putting lives and livelihoods at risk.

This research brief considers factors around these disasters and potential disasters, with a special focus on the municipality of Barcarena in the state of Para in the Brazilian Amazon. Initially a rural and heavily forested area, Barcarena was transformed in the 1970s and 1980s by the building of several large industrial and harbour facilities, part of a globalised commodity trade system, for materials such as: soy beans, corn, cattle, aluminium, bauxite, kaolin, and petrochemicals. This area is referred to as an industrial-harbour-logistical-urban complex, and is a central node in the exploitation-processing-exportation chain in the Amazon. This industrial complex is both permanent and expanding, and forms part of a patchwork of exploited and devastated areas in the Amazon, caused by mining, cattle **fazendas**, monocultural plantations, dams, roads and railways.

All of this takes place where traditional communities live and have lived for generations. These communities practice, and have practiced sustainable lifestyles, and are expelled, threatened, contaminated and cut off from accessing their lands and rivers. These areas are considered by leading scholars as sacrifice zones. These zones have been created as part of development policies, that have the effect of deciding who can live and who has to die, or be sacrificed.

Useful terms and concepts

Sacrifice Zones – A term that generally describes an area that has been so badly affected by (ie) pollution or industrial expansion (and often by extension: prioritising profit over the people that live there) that it can no longer sustain meaningful life. It has therefore been ‘sacrificed’ to business or economic interests (Perkins, 2024).

Refugees of Development – So-called “development projects,” such as roads, railways, and dams, are responsible for the forced displacement and impoverishment of millions of people, despite the promises of “progress” that justify their implementation. The victims of this “unknown war” have been called “refugees of development” a political and theoretical framework that seeks to make visible the suffering these people experience and to seek appropriate means of reparation for the damage caused.

Hazards – Anything that has the potential to cause damage to lives or livelihoods. Depending on how well prepared a society or place is for the Hazard, it may or may not become a disaster. A Hazard can be man-made or natural in character: for example a volcano is a natural hazard. A large and poorly-managed industrial facility is a man-made hazard. Many places are ‘multi-hazard’, with various potential disaster-causing hazards (UNDRR).

Disaster Risk (Creation and Reduction) – Risk is a combined way of talking about the different factors that make a disaster more or less likely, and more or less impactful. It is also important to consider the speed of onset of a disaster. Some activities increase the risk of a more likely/ impactful disaster (Disaster Risk Creation), whilst some activities might reduce that risk (Disaster Risk Reduction). Societies/places that are likely to suffer a lot of damage from a disaster are often referred to as vulnerable (Bankoff & Hilhorst, 2022).

Making disasters more likely

How does industrial expansion increase the risk of disasters and create new hazards in the Amazon?

Industrial activities, especially those for widescale agriculture and mining operations, drastically increase the risk profile faced by people across the Amazon region. Whilst there will always be some form of **residual risk** to living in any context (for example, areas of the Amazon basin flood annually), having a large aluminum or bauxite plant within your locality heightens exposure to a number of potential disasters, both sudden-onset and slow-onset. This worsened when there are implanted and functioning more than hundred different companies nearby, without planning and studies about the synergic impacts of pollution, risk, accidents and disasters.

Fast-onset disasters are usually associated with calamities, for example the overspilling of a damn for waste materials from mining operations, or the collapsing of pools for containing animal waste. Other potential hazards (**via UNDRR**) for mining can include ground collapse, subsidence, fissures, mine water rebound, or explosions due to gases combusting. Within the industrial agriculture sector, sudden-onset disasters are more likely to involve land-grabbing, accidents related to deforestation (including wildfires), and (often armed) conflict between local residents and industrial representatives.

However, within the Amazon region and in the state of Para, the risk of fast-onset disasters is combined with slow-onset disaster, affecting people in a wider area. Especially with the growth of multiple overlapping hazards, researchers have noticed that many people live in a permanent state of pervasive fear. Land rights are often poorly defined, respected and implemented, leading to the loss of access to territories traditionally occupied by the local population for many people. This land is then used for industrial expansion, supporting infrastructure and land speculation.

The large industrial-port complex in Barcarena, too, has led to a greater exposure to longer-term hazards including air pollution and unsafe working conditions. Projects intended accelerate industrial expansion in Para State have also inadvertently increased vulnerability to shocks for those living nearby: for example, through the manipulation of waterways for the creation of hydroelectric dams, large mining projects and (rail)roads leading to deforestation (which increases the risk of loose-ground related disasters), and through the loss of traditional livelihoods.

It is also important to note that much of this development is actively encouraged by the local, state, and national governments – with the aim of raising business and economic activities, and therefore accept high disaster risks with no prevention, mitigation, emergency or repairing policy.

What do we mean by Industrial Expansion in the Amazon, Permission regimes and extractive capitalism?

The Amazon has become a site of extractive capitalism, with a focus in the last few decades on developments driven by a neoliberal political and economic ideology that aims to create a “hyperfluidity of goods, money, capital, workforce and people, information and speculation.” Whilst the Amazon has supported livelihoods for (especially indigenous) people for many generations, it is especially in the last 150 years that it has become a key part of global industrial and economic systems.

At the same time, the Brazilian government, along with many others around the world, has also taken inspiration from neoliberal and small-state ideologies. These hold that the state should take a permissive and facilitative approach to large-scale industry, cutting regulation and privatising assets. What this has resulted in, say Rodrigues, Hazeu, and Nascimento is a permission regime: where government policies, including lax inspection and licensing procedures, effectively give permission for large industrial concerns to pollute, land-grab, displace (indigenous) peoples, and prioritise low running costs over safety.

Why are disasters made more likely through industrial expansion?

“Societies need robust risk governance to address what makes us exposed and vulnerable to disasters: poverty and inequality, environmental degradation, rapid and unplanned urbanisation, weak building codes, population growth in hazard-exposed areas” (UNDRR).

Within the context of the Brazilian Amazon in the Para State, the widescale development of industrial areas has caused people to move: whether having been displaced by the development or being attracted due to the jobs being created. These people have ended up living ‘between the industry’. In Bacarena, for example, the ‘industrial zone’ has a very large population, which have very few public services, (urban) planning, or recourse against actions like pollution, dam breaks, overflow, floods, sunken boats and explosions by the industrial projects.

This naturally increases disaster risk for these people by multiplying the number of hazards that could become disasters (a new large aluminum smelting plant, Kalim processing installations, tailings ponds, fertilizer mixers, storage of containers, etc) as well as increasing the vulnerability of the community as they cannot access public services including, for example, emergency services. It is also important to remember that, due to the role of the national and local governments in creating a permission regime, many important safety concerns and codes are ignored during the creation of new industrial structures.

Case study

Barcarena Tailings Dams and Hydro Alunorte

The Hydro Alunorte alumina plant in the Barcarena region of Para state is one of the largest alumina producing plants in the world. It is often heralded as an effective economic asset for Brazil's national economy. However, it is also a source of significant disaster risk creation, as well as the cause of a number of slow-onset crises. During the construction and continuous expansion of the plant, two very large 'tailings dams' were created, to contain byproducts of alumina production (including toxic heavy metals). These 'tailings dams' cover huge areas, as much as 130 hectares, and the dams themselves can be up to 30 meters tall. These 'tailings dams' are examples of huge hazards: especially because they are not technically considered dams by the Brazilian Política Nacional de Segurança de Barragens (PNSB). This means that they are not subject to the same safety inspections or regulations as other projects: indeed (referencing Hazeu and Rodrigues), the larger dam at the Alunorte plant has only been inspected twice in the period 2009-2019.

There has already been a big disaster due to an overflow of toxic waste material in one of the 'tailings dams', which polluted and poisoned the Mucurupi River (the main source of water for around 100 families) in 2009. It is worth noting that Hydro Alunorte "took advantage" of the area where the 2009 overflow took place in order to expand the dam.

On February 16th and 17th of 2018, one of the Hydro Alunorte overflows occurred, carrying toxic waste and heavy metals (lead, chromium and nickel) towards communities (particularly Bom Futuro, Vila Nova, Burajuba), secondary water courses and the Pará river. This was an emblematic case of the systemic denial by the company—and first of all, by the State—who blamed the heavy rains. The company was also accused of using a "clandestine pipeline" to discharge untreated effluent into environmental preservation areas. The disaster had serious consequences for the environment, the health of communities and the local economy, with three years without access to clean water.

There continues a high risk of large disasters due to the presence of these dams and the ongoing deposit of tailings. For example, in 2019 in Brumadinho in the state of Minas Geras (in the south-central region of Brazil) a tailings dam at an iron ore mine collapsed, leading to 270 people's deaths, as well as another 13 people still missing. Similarly, in 2015 a tailings dam collapsed near Mariana (also in Minas Geras) collapsed, causing 19 deaths, and polluting an estimated 668 km of rivers and streams.

Across the world, over the last 50 years, tailings dam or containment heap collapses have caused multiple disasters, including in 1971 in Certelj, Romania; in 1985 in Val di Stava, Italy; in 1994 in Merrispruit, South Africa; in 2020 in Hpakant, Myanmar, and several others besides.

How do local people resist and react?

'Zones of Re-existence' and solidarity-based 'Everyday Humanitarianism'



Meeting of the traditional community of Acui Barcarena (Gesterra, 2023)

Within and throughout this context, large numbers of people are still working to both exist and resist creeping industrialization, and its associated risks. Traditional communities in particular have been agents of prevention, (early) warning, resistance, advocacy, and response.

Members of traditional communities are able to provide nature-based early warning by, for example, looking at the coloring of the river, the movement of the fish and birds, the changing behaviour of fruit and leaves, and

through the presence of animals. These communities are also often first-responders to disasters: helping affected families through shelter, food and support. Similarly, members of traditional communities have been at the forefront of questioning the lack of (official government) assistance, control and planning. They also lead court efforts to require justice, reparation, protection and changes to legislation.

One of the main strategies to avoid disasters and create resilient spaces and environments is through recognition of traditional community lands: the ILO Convention 169 - Indigenous and Tribal Peoples Convention is an important reference for this struggle. The Convention, ratified by the Brazilian state, says that governments shall consult the peoples concerned, through appropriate procedures and in particular through their representative institutions, whenever consideration is being given to legislative or administrative measures which may affect them directly.

Several communities (people) in Brazil have created their own protocols for consultation (free, previous, informed). These are worded specifically, to define who and what the community is, how they make decisions and how they have to be consulted. Instead of implanting by decree and without considering the impacts and local interests of new, high disaster risk-laden activities in or nearby their territories, the communities have to be informed, define how they will organize the consultation and decide if the proposal is acceptable.

The resistance becomes a form of a legal, territorial and traditional framework for disaster mitigation. Some scholars refer to this process as establishing 'Zones of Re-Existence', within 'Zones of Sacrifice'. This work in both reducing risk, and being first responders, can be conceptualized as a form of **'Everyday Humanitarianism'**.

Key and further reading

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