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DISPLACEMENTS WITHIN THE FRAMEWORK OF ENVIRONMENTAL AND CLIMATE JUSTICE:
CONCEPTS, DEBATES, AND CASES

4/8

Soaring Dams, Lost Lands: The Brazilian Amazons

With its fauna, flora, and water resources, the Amazon Rain Forests, spreading over a nearly 6.3 million kilometer-square area and lying between the borders of nine Latin American countries, is among one of the most essential elements of global biological diversity, water and climate systems of the planet. The Amazon Rain Forests, which constitute the habitation of a minimum of 30% of all known fauna and flora species worldwide, is home to nearly 40,000 plants, 16,000 trees, 3000 fish, 1300 birds, more than 430 mammals, more than 1000 herptiles, and more than 400 reptile species.[1] The Amazon Rain Forests, the widest and densest rain forest in the world, is also one of the biggest carbon sinks in the world; it is estimated that it sequestrates a total of 123±23 gigaton (billion tons) of carbon.[2] The highly tangled and widespread Amazon River water system constitutes the most extensive freshwater network on the planet. 16 to 18% of the freshwater flowing into the seas worldwide belongs to the Amazon River system.[3] The Amazon basin is not only important on a global level but is also the heart of social life in the local context. It is estimated that the number of people living in the wide Amazon basin, which, in addition to the rain forests, contains seasonal and non-evergreen trees, freshwater swamp forests, and savannas, is around 20 to 50 million.[4] Among these, there are a total of about 1.5 million people from indigenous communities belonging to 385 different ethnicities who have been maintaining their lives as a part of the Amazon ecosystem for centuries and who have been primarily depending on forests and rivers with traditional methods for their livelihood.[5]

The Amazon Rain Forests, which constitute 50% of the rainforests on the planet, face severe risks. Due to human activities, such as lumbering, commercial agricultural and stockbreeding, mining, hydroelectric dams, and road construction, the Amazon Rain Forests are rapidly being deforested. In addition, the results of climate change, such as uncontrolled fires and decreases in rains, also lead to deforestation and the destruction of biological diversity and the ecosystem of the Amazon Rain Forests. The total annihilated area in the Amazon Rain Forests since 1978 reached nearly one million square kilometers. Brazil, which hosts the largest part of the Amazon Rain Forests, is also the area where deforestation is at the highest rate.[6] Brazil, whose acreage is 8.5 million kilometers, holds nearly 60% of the Amazon Rain Forests within its borders.[7] Due to various development and agriculture projects and policies implemented since 1970, in addition to deforestation, ecological destruction also occurs intensely in the Amazon Rain Forests' within the Brazilian borders. The long-standing ecological destruction rapidly decreased between 2004 and 2012 thanks to a series of preservation policies and programs that were

AGRICULTURAL POLICIES AND RURAL POVERTY IN BRAZIL

In Brazil—especially in Brazil's Amazon—the effects of the transformations in agricultural policies and land ownership lie at the roots of the imposed displacements and environmental injustices caused by "development" projects which cause ecological destruction and environmental justice problems. At the end of the 19th century, all across Brazil, agricultural production was dominated by big landowners and carried out in extensive commercial agricultural plantations where agricultural wage laborers and tenant farmers worked in market-oriented production. In addition, there were smallholder farmers and peasants working through sharecropping and tenant farming in certain regions. From the 20th century onwards, market-oriented production became the predominant practice in the agricultural sector, where the percentage of large landowning gradually increased and agricultural wage labor spread.[1] In 1964, the military junta government implemented the "agricultural modernization" program to control the intensified class-based land dispute and conflicts; provide for the needs of the growing urbanized population, and become "independent" in food production. Within the framework of this program, mechanization in agriculture increased while the big landowners who were in political alliance with the junta government were provided with incentives, support, loans, and other financial mechanisms; the cultivation of commercial agricultural products, such as soy, corn, and wheat, became central commodities. At the same time, commercial livestock raising also grew in this period. As a result, Brazil became one of the world's leading agriproduct exporters. However, several ecological, social, and economic problems and destructions also emerged. Foremost among these were the decline in the need for human labor in agriculture, small farmers' losing their lands, and the increase in rural-to-urban migration. It is estimated that due to the rural-to-urban migration, which gained an ample pace between 1960 and 1980, around 28 million agricultural laborers and peasants migrated to the cities.[2]

In the 1980s, capitalization in agriculture gained more speed; it sat on a different route with the effect of the implemented general market and commercial liberalization economy policies. Brazil was integrated into the global food system through the big landowners protected by the government and as a result of operations carried out by transnational agricultural companies who directly produced in complexes they built in Brazil. It is estimated that this caused about ten million people to lose their jobs in the agricultural sector between 1985 and 1995. It was recorded that between 1995 and 1999, around four million more people lost their jobs in the agricultural sector.[3] The left and right-wing parties who came to power in the years that followed attempted a series of agricultural reforms. However, none of these reform attempts could resolve the problem of landless peasants, which was the primary goal. For example, although the Lula da Silva and Rousseff governments, who were in power in the 2010s, made progress in eradicating poverty with the programs of transferring the income obtained by agricultural export products, there was no progress related to landless peasants and the inequality in land distribution.[4] 48% of the lands defined as private property in Brazil belong to the top 2%.[5] It is estimated that about five million families living in the rural do not own land.[6]

The indigenous population constituted by 305 different ethnic groups is estimated to be around 897,000 across Brazil. 12.5% of the country's acreage is defined as the lands of indigenous communities. Yet, the borders of 63% of these lands are not legally determined. Due to this complicated legal position, 1290 of the local communities are devoid of their lands, and 821 are devoid of an appropriate legal status; they are vulnerable to the devastating effects of mining, lumbering, commercial agricultural production, and dams. When the Bolsonaro government's policies toward increasing the usage of Amazon Forests as raw material are combined with its discriminative and exclusionary attitudes toward indigenous communities, the destruction of the lands of indigenous communities in Amazon Forests has intensified in recent years. Only in 2020, 1880-square-meters of land belonging to the indigenous communities were deforested. This ratio is 90% higher than the annual average deforestation happening in the lands of indigenous communities between 2009 and 2018.[7]

1- Leandro Vergara-Camus, "The MST and the EZLN's struggle for land: Newforms of peasant rebellions," *Journal of Agrarian Change* 9, no. 3 (2009): 365-91, https://eprints.soas.ac.uk/13021 (Accessed: February 17, 2022).
2- Leandro Vergara-Camus, 2009, Ibid.; Arilson Favareto, *Beyond "Family Farming versus Agribusiness" Dualism: Unpacking the Complexity of Brazil's Agricultural Model* (CBAA Working Paper 138), Future Agricultures (2016), https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/12717/FAC_Working_Paper_138.pdf?sequence=1&isAllowed=y (Accessed: August 2, 2022).
3- Arilson Favareto, 2016, Ibid.
4- Wilder Robles, "Revisiting agrarian reform in Brazil, 1985 – 2016," *Journal of Developing Societies* 34, no. 1 (2018): 1-34. https://doi.org/10.1177/0169796X17749658
5- Gerd Sparovek, et al., "Who owns Brazilian lands?," *Land Use Policy* 87 (2019). https://doi.org/10.1016/j.landusepol.2019.104062
6- USAID, *Brazil* (May 2011), https://www.land-links.org/country-profile/brazil/ (Accessed: June 27, 2022).
7- Dwayne Mamo, ed., *The Indigenous World 2021* (The International Work Group for Indigenous Affairs (IWGIA) Report, April 2021), iwgia.org/doclink/iwgia-book-the-indigenous-world-2021-eng/eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJpd2dpYS1ib29rLXRoZS1pbmRpZ2Vub3VzLXdvcmxkLTIwMjEtZW5nliwiaWF0IjoxNjI4ODM5NjM2LCJleHAiOjE2Mjg5MjYwMzZ9.z1CuM7PcT5CPkV0evx8ve88y6v0vmwDu_51J0_IwAkM (Accessed: June 27, 2022).

The Amazon Rain Forests, which constitute the habitation of a minimum of 30% of all known fauna and flora species worldwide, is home to nearly 40,000 plants, 16,000 trees, 3000 fish, 1300 birds, more than 430 mammals, more than 1000 herptiles, and more than 400 reptile species.

implemented in the 2000s.[8] However, this situation changed in the mid-2010s due to insufficient and loose implementation of the instated measures; and in 2012, deforestation and ecological destruction started to increase again.[9] It is estimated that by 2018, about 20% of the Amazon Rain Forests had disappeared or been destroyed.[10] With the right-wing populist Jair Bolsonaro government, which came to power in 2018 and opened the Amazon all out, especially to transnational agricultural companies and mining companies, despite all objections by the ecology activists and indigenous communities, the situation worsened rapidly.[11] It is claimed that the legal regulations proposed by the Bolsonaro government, which argues that the indigenous communities are "given" "too much" protected land and tries to pave the way for mining and energy projects in the Amazon, will soon be implemented, further increasing the extent of the environmental injustices and displacements in the Amazon in the near future.[12]

In addition to the ecological massacre, Brazil is the leading country worldwide regarding unequal land and income distribution.[13] Poverty rates, which had tended to decrease due to various policies since the beginning of the 2000s, started rising again in the mid-2010s. Today, Brazil, especially the states containing the Amazon Rain Forests, face seriously deep poverty.[14] The groups exposed to poverty and inequality most commonly and most intensely are listed as the youth between 20 and 24, illiterate persons, women, and those who live in the northern and northeastern states whose acreages are covered mainly by the Amazon Rain Forests.[15] Augmenting many other social and cultural discriminations and inequalities, when poverty is combined with the ecological destruction in the Amazon, Brazil turns into one of the countries where displacements, dispossessions, and environmental injustices are very common and intense.

The environmental injustices' relation to the displacements in Brazilian Amazon proceeds on two intersectional lines. On the one hand, there are activities such as opening

THE BOOM-AND-BUST ECONOMY IN THE AMAZONS

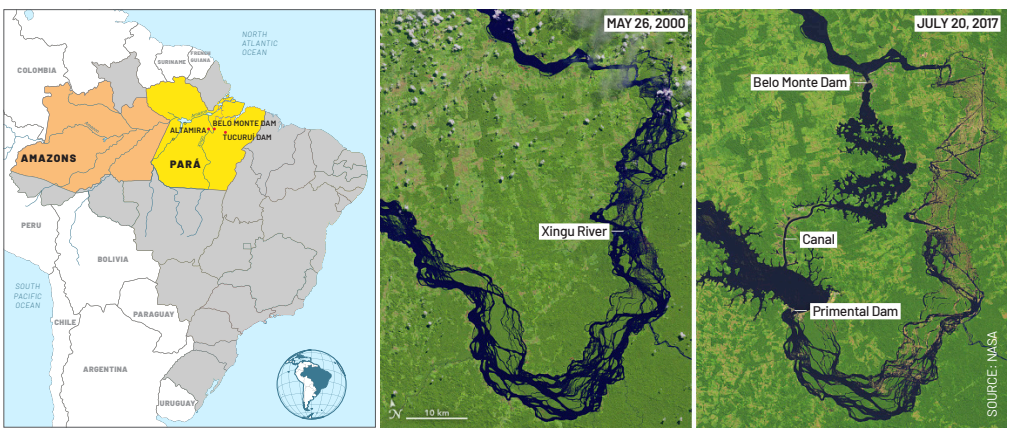
The development process in the Amazons; the effects of lumbering, the opening of agricultural lands, and other development activities such as mining, in the mid and long run on the local economy, are described as a "boom-and-bust economy."[1] The job and transportation opportunities, which have increased with the infrastructure works such as the construction of connection roads and highways, in addition to the agricultural and stockbreeding activities carried out in the lands obtained by deforestation, speed up the migration to these places. For example, the population of Amazonas, the largest state of Brazil, covering the Amazon Region of the country, quadrupled from around seven million in 1970 to about 28 million in 2020.[2] In these places, which were attractive for landless peasants and the poor initially, there was a relative improvement in criteria counted as indicators of development and wealth, such as living standards, literacy rate, and life expectancy. Yet, this situation did not last long. The limited job opportunities in these regions fall short of meeting the demands of migration which leads to unemployment. As a result of emergent ecological problems, such as decreases in soil fertility, water pollution, and increased risk of flood and erosion due to deforestation, all living standard elements which improve initially regress in a short while; unemployment increases, and opportunities to maintain livelihood decrease. New parts of the Amazon Region are deforested to provide for the growing resource needs of agriculture, stockbreeding, lumber, and other sectors.[3] This process, which continues in a vicious cycle, brings along a constant state of displacement. While some of the small farmers, landless peasants, and workers, who are not able to provide for themselves, migrate to the new deforested areas, the ones who have lower capacities due to structural reasons are not able to change their living spaces and imprisoned in deepening poverty.

The local indigenous communities are the groups most intensely exposed to the adverse effects of displacements. 896,900 people from 305 indigenous communities live in Brazil. While nearly one-third of these people live in cities, the living space of the rest majority is rural areas in Amazon Forests. 505 regions, which constitute 12.5% of all the lands in Brazil and all of which are within Amazon Rain Forests, were legally declared the living space of indigenous communities and put under protection.[4] However, the laws are inadequate for protecting the living spaces of indigenous communities. Expanding lumbering, stockbreeding, and agricultural sectors into the Amazon Region causes indigenous communities, who mostly rely on the ecosystem resources that the forests and rivers provide to maintain their lives, to lose their houses, lands, and livelihoods. Another adverse effect of this process is that indigenous communities, who do not want to lose their living spaces, had to come against landless peasants and small farmers, who also seek to ensure their livelihoods in newly opened lands. Conflicting relationships frequently emerge between these groups around issues such as access to resources and usage of resources, as well as cultural issues.

1- Ana S. L. Rodrigues, "Boom-and-bust development patterns across the Amazon deforestation frontier," Science 324 (2009): 1435-1437. doi:10.1126/science.1174002; Danielle Celentano and Adalberto Verissimo, *The Amazon Frontier Advance: From Boom to Burst* (Belem: Imazon, 2007), https://imazon.org.br/en/publicacoes/the-amazon-frontier-advance-from-boom-to-bust/ (Accessed: February 17, 2022).
2- Bruna Alves, *Resident Population in the Legal Amazon Area in Brazil from 1970 to 2020*, Statista (2021), https://www.statista.com/statistics/1251314/amazon-population-brazil/ (Accessed: June 27, 2022).
3- Arilson Favareto, *Beyond "Family Farming versus Agribusiness" Dualism: Unpacking the Complexity of Brazil's Agricultural Model* (CBAA Working Paper 138, Future Agricultures, 2016), https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/12717/FAC_Working_Paper_138.pdf (Accessed: August 12, 2022).
4- Dwayne Mamo, *The Indigenous World 2021* (The International Work Group for Indigenous Affairs (IWGIA) Report, April 2021), https://iwgia.org/doclink/iwgia-book-the-indigenous-world-2021-eng/eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJpd2dpYS1ib29rLXRoZS1pbmRpZ2Vub3VzLXdvcmxkLTIwMjEtZW5nliwiaWF0IjoxNjI4ODM5NjM2LCJleHAiOjE2Mjg5MjYwMzZ9.z1CuM7PcT5CPkV0evx8ve88y6v0vmwDu_51JQ_IwAkM (Accessed: June 27, 2022).

the agricultural lands for market-oriented products like soy and cocoa, opening grasslands for stockbreeding, and expanding the lumbering sector, which the Brazilian government either overlooks or, more commonly, supports. In addition to causing the deforestation of the Amazon, such activities are promoted through various policies, permissions, and programs based on justifications such as lairdship of the landless peasants; fostering economic development on the local level, and providing the basic needs of Brazil, all of which, to the contrary, put small farmers, indigenous communities and workers in inextricable poverty and lead to constant migration mobility in the region.

The other two dangers, which threaten the Brazilian Amazon, are extractivism and the activities of the energy sector. It is recorded that between 2000 and 2015, 7000 hectares of forest area were eradicated in the region due to mining; it is estimated that 10% of the total deforestation happening between 2005 and 2015 is due to mining activities.[16] The extent of the ecological and social damage that the hydroelectric power plant dams create in the Brazilian Amazon in terms of the breadth and depth of the destruction they cause in the forest areas and the water systems; the versatility of the environmental injustices that they lead to, and the massive displacements they result in, are much more significant. It is estimated that the total number of dams that are active or under construction in the Amazon Basin, most of which are in Brazil, is 158, while 351 projects are in the planning phase.[17] It is assumed that the total number of displaced people due to 81 hydroelectric power plants built since the beginning of the 2000s in the Brazilian Amazon is between 150 to 240 thousand.[18] The environmental injustices and displacements



related to dams in the Brazilian Amazon can be observed in depth via the events evolving around the *Belo Monte* and *Tucuruí* hydroelectric dams.

THE BELO MONTE DAM: UNKEPT PROMISES, DEEPENING POVERTY

The massive Belo Monte Dam, located on the Xingu River in the Para state of Brazil, is the fourth biggest hydroelectric power plant in the world as of 2022. The Belo Monte Dam project, one of the six dams the Brazilian government planned to build on the Xingu and Iriri rivers, was first proposed at the end of the 1970s. The indigenous community and environmental organizations opposed Belo Monte (named Kararao in that period) as it would submerge a 1225 square-kilometer area containing villages and agricultural lands. As a result of the protests, the World Bank withdrew from the project, which then was shelved for a while towards the end of the 1980s. The project was then

Belo Monte Dam, 2016.
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Boys climb a tree flooded by the Xingu River in 2014.
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once again brought to the agenda and put into effect by the Labor Party after protracted discussions, with a revision that reduces the project coverage area. The Belo Monte Dam, whose construction started in 2011 by the collaboration between the Brazilian government and Norte Energia Company, was completed in 2019 in a way that it could operate with a total of 24 turbines and reach the full capacity of 11,233 MW.[19] Unlike the previous ones, for this project, the Labor Party pledged to carry out actual participatory processes, reduce the dam's social, economic, and ecological effects to a minimum, and protect the local community, yet it did not follow through. The dam, which submerged a 441 square-kilometer area, directly affects nearly 1500 square-meter wide area.[20] In and around Altamira, which has a rich biological diversity and a complex ecosystem and is one of the poorest regions of Brazil, several environmental injustices, primarily displacement, occur due to the Belo Monte Dam.

The region that the dam affects is the living space of nearly 1000 people from Jurana, Xikrín, Arara, Xipaia, Kuruaya, Kayapó, and other indigenous communities.

Due to the construction of the Belo Monte Dam, more than 40,000 people lost their lands and houses. Among the displaced people, there are 25,000 people living in 5141 households in Altamira city. Life has also gotten pretty harsh for the non-displaced people. On the other hand, with the start of the construction, Altamira city near the dam area received massive migration; the city's population, which was around 100,000 in 2010, increased to more than 140,000 in 2012. The weak infrastructure of Altamira city became unable to meet the needs of the rapidly increasing population. At the same time, rapid increases in rents and food prices in the city, and the rise of other problems, such as violence and traffic, in addition to other expenditures, decreased the living standards and complicated the livelihoods of the poor, who constitute the majority of the city.[21]

3568 households comprising 18,000 people from the local communities living in *Ribeirinhos*, which are traditional living spaces on the coastlines of the Amazon River and its reaches located in the Belo Monte reserve area, were submerged. In addition to the physical displacements, the Belo Monte Dam makes it difficult for the local community to earn their livelihoods with the destruction it causes in the broader region, leading to economic displacements. The region that the dam affects is the living space of nearly 1000 people from Jurana, Xikrín, Arara, Xipaia, Kuruaya, Kayapó, and other indigenous communities.[22] While some of these communities are directly displaced, others have lost the livelihood they were earning through forestry and agriculture using traditional methods due to ecosystem destructions in the region. Since the dam holds the waters, the water ecosystem downstream of the Xingu River where the water decreases is exposed to massive destruction.[23] Those from *Ribeirinhos* communities, whose basic food and livelihood source is fishery and who were not physically displaced, were exposed to the risk of losing their livelihoods due to decrease in fish population. Yet still, the company and the authorities did not count the downstream indigenous communities living in these areas as directly affected because their living spaces were not submerged by the dam reservoir. Thus, the indigenous communities' losses, caused by threatened or lost livelihoods due to the Belo Monte Dam, were not compensated. Lastly, the small farmers in the area were

also adversely affected by the dam as the construction of the dam and the roads made for the operation of the dam were passing through their lands and widely dividing these lands in a way that could destroy the ecosystem.[24]

The displacements which took place in relation to the construction of the Belo Monte Dam have proceeded as a process that spread over a long time frame and progressed gradually. The Basic Environmental Plan (Plano Básico Ambiental - PBA), which involves the actions and programs to compensate for the estimated destructions that were determined in the Environmental Impact Assessment report prepared by the Norte Energia Company as the constructor and the operator of the dam announced that different mechanisms would be used to compensate the losses of the displaced people: monetary compensation for lands and properties; relocation to an area that is in the same region with the direct management of the company; (in cases where the lands are submerged), building of houses in the same land with the help of the company; relocation of small farmers and landless peasants who lost their lands and houses to the settlement areas which would be built by the company.[25] Nevertheless, since these mechanisms' were not implemented in the way they were proposed and the company neglected to meet the conditions it promised, the process ended up with the grievance of the majority of people who lost their lands and houses due to the construction of the dam.

Those relocated to the new settlement area, which was comprised of social housing built near the region, were exposed to adverse housing, living, and working conditions.

Many riverside residents displaced by Belo Monte were relocated to new communities such as Agua Azul, seen here in 2016.
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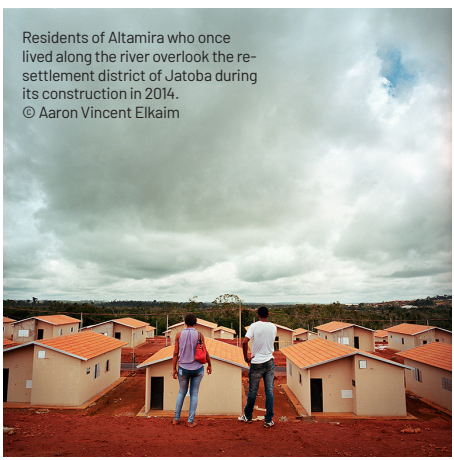

Residents of Altamira who once lived along the river overlook the re-settlement district of Jatoba during its construction in 2014.
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A girl stands alone in a flooded home in the Palifitas neighborhood of Invasão dos Padres, Altamira. The neighborhood has now been completely destroyed by the Belo Monte dam. © Aaron Vincent Elkaim

Before the project started, the constructor and operator company of the dam, Norte Energia Company, announced that to emplace the displaced population, settlement centers located near the original living spaces (maximum two kms away) would be created, with three different types of housing, as well as electricity, water, and sewage infrastructures, and education, and health services. However, the company later changed these plans and built settlement centers that contained a few unstable and tiny houses that could only accommodate some of the displaced population and lacked the promised infrastructure and essential services. While the local community's needs, demands, and expectations were not considered and thus not included in any part of the planning and decision-making processes, the building of the new settlement areas in far regions prevented the local community from gaining their livelihoods in traditional ways.[26]

Those who received monetary compensation for their lost houses and lands also faced several difficulties and obstacles. Firstly, it was necessary for the ones who got

monetary compensation to create their own housing and working opportunities. The first obstacle for those who had to find new lands and houses for themselves was the increase in housing prices in the region following the dam construction. Thus, many people could not afford stable, healthy, and large enough houses and quality lands that were large enough to ensure their livelihoods using the monetary compensations they received. In addition, delayed compensations, uncertainties regarding the payment times and amounts, and having limited negotiation power against the company for the compensation amounts resulted in difficulties in finding new houses and lands in the region for the displaced people.[27]

THE TUCURUÍ HYDROELECTRIC POWER PLANT: ENDLESS DISPLACEMENTS

The events happening in Tucuruí Power Plant, built on the Tocatins River, again in the Para state, is another striking example of hydroelectric power plant dam-induced environmental injustices and displacement in the Brazilian Amazon. The Tucuruí Power Plant construction started in the 1970s by the Eletronorte Company, 52% of which belonged to the Brazilian government, and was completed and started operating in 1984. The additional part of the power plant (Tucuruí-II) was completed in 2007. The Tucuruí Power Plant, one of the world's ten largest hydroelectric power plants, provides the electricity for about 13 million local inhabitants. In return, two-thirds of the produced electricity in the power plant is used by the well-developed aluminum sector in the region.

Tucuruí Dam brought along several devastating ecological and social problems. It would not be wrong to describe this dam as a "development project" that meets the industry's needs rather than the local communities' needs.

There is a long list of devastating effects that were caused by the Tucuruí Power Plant in the ecological balance and biological diversity. Due to the dam, a 3000 square kilometer wide area was submerged, 90% of which was forests.[28] The deforestation in the region continues after the construction of the dam as a consequence of opened roads and migration to the region.[29] In addition, other ecological destructions caused by the construction and operation of the Tucuruí Power Plant include pollution of the underground and overground waters and decreases in water availability; destruction of the ecosystem and hydraulics system in the region as a result of lands' being divided; decreases in fish population; decreases in fishery and agricultural products, and other probable loss of

biological diversity and worsening of the soil quality because of erosion.[30] All these adversely affect the lives of local communities in the region, who earn their livelihoods through forestry, agriculture, and fishery, and deepen the poverty situation that they are in even further. In other words, the Tucuruí Power Plant hardens the conditions for the local population for maintaining their social and economic existence; the local communities are losing their chance of economic survival in their own living spaces.

The Tucuruí Power Plant caused a sizeable local population to directly lose their lands, houses, and living spaces through displacements. In addition to Quilombolas (Afro-Brazilians) and other indigenous communities, such as Asurini, Gavião, Suruí, Parakana, Xikrin, Guajará, and Krikatis, whose living spaces were in the area and covered by the dam and its surroundings, small farmers, communities, who were ensuring their livelihoods traditionally by living in the river coastline, and even migrant workers, who came to the region to work in the mines or in agriculture, had to abandon their living lands.[31] According to official numbers, the number of people who had to abandon their abodes due to the Tucuruí Power Plant is around 32,000.[32] Yet, considering that the indigenous communities are not included in the official numbers, it is estimated that the actual number is much higher. The process of displacement induced by the Tucuruí Power Plant proceeded in a way that was long, complicated, and involved several injustices. The events that took place during the displacement process, which ignored the local community's conditions, and demands, and did not implement the principle of participation, can be summarized as:[33]

- Foremost, the problems related to landlessness and land property, which exist in all of Brazil and intensely occur in the Para state, have also affected the process. As a result of few people holding official property ownership of their lands, the number of people who could benefit from the Eletronorte Company's relocation program was limited. In the Environmental Impact Assessment report, which was prepared two years after the start of the construction of the power plant, it was indicated that between one-third to two-thirds of the local inhabitants would not be able to claim loss of a right as they do not possess "official" ownership of the lands they live in. In point of fact, during the region's evacuation, only 3636 people could demand compensation officially.
- The number of people who would be affected by the construction of the dam was kept low in the estimations that the company made before the project. Although

the number, which was first determined to be around 17,000, was increased to 23,000, it was still way under the number of affected people. The main reason for this "low" estimation is that the affected population was determined as those who lived in the area that would be submerged; those who lived around this area or who were seasonally earning their livelihoods in this area were not included in the calculations.

• As a result of inaccurate calculations of the topography and the water level, some part of the settlement area built by the company within the framework of the relocation program was submerged when the dam accumulated more water. Therefore, around 3700 people were again relocated to somewhere else. Some of those whose allocated lands were partially submerged continued living in these places.

• There were deficiencies in infrastructure and services in areas developed by the company. While it was recorded that several houses had no electricity and tap water and no proper sanitary conditions, it was reported that there was no access to health and transportation services in these settlement areas.[34]

• Apart from the issues in the relocation program, there were other problems such as low monetary compensations paid by the company to those who lost their lands and these compensations lost value in face of inflation since they were paid in installments, and the monetary compensations for the already poor were spent on basic needs rather than obtaining land and housing. This caused many households to be unable to create permanent housing and agricultural production conditions.

• In matters like land and housing, displaced people became obliged to compete with people who migrated to the region from outside as a result of the increase in job opportunities in the lumbering sector that is active in the region, which most of the time turned into conflict.

• The disrupted ecological balance, which is also a result of intense deforestation, annihilated the opportunity to live in a healthy environment. For example, the people who the company relocated were displaced and relocated again due to the threat of an epidemic which is caused by the Mansonia mosquito.

• The Tucuruí Dam submerged the reservation area of three indigenous communities—Parakaña, Pucurui, and Montanha—; it also ripped the indigenous communities living in this area of their traditional living spaces. On the other hand, the energy transmission lines which transmit the produced electricity in the dam pass through four reservation areas that are under protection. As a result of the ecosystem being damaged, the lives of indigenous communities living in the reservation

Indigenous Juruna from the Paquiçamba Reserve at a 2016 public audience where ribeirinho (river-dwelling) communities voice their grievances to Norte Energia, the dam's builder, and Brazil's Public Ministry (independent federal prosecutors). © Aaron Vincent Elkaim

areas of Mae Maria, Trocara, Krĩkati, and Cana Brava were adversely affected; again, because an area near the dam was used within the relocation program, the indigenous communities were denied access. The limited number of vehicles, such as tractors and trucks, and monetary compensations for the losses of the indigenous communities were way under the level that these communities needed to reform their lives steadily and permanently.

• As a result of the 60% decrease in fish population after the dam's construction, the *Ribeirinhos* communities, who were living on the river coastlines and living off fishery, became unable to provide for themselves.

THE MOVEMENT OF PEOPLE AFFECTED BY DAMS (MAB): "WOMEN, ENERGY, AND WATER ARE NOT COMMODITIES!"

The emergence of the anti-dam movement in Brazil dates back to the 1980s. The threatened indigenous communities and small farmers started to mobilize locally and organized protests during this period. The disconnected movements against the active dams in their own regions came together in 1987 and organized the First National Meeting of People Affected by Dams. The solidarity and collaboration between these local movements started developing with this meeting. In the First Congress of People Affected by Dams, organized in 1991, the local anti-dam movements gathered under the roof of the Movement of People Affected by Dams (*Movimento dos Atingidos por Barragens*, MAB).[1]

MAB, which is a national umbrella movement network, advocates for fundamental rights, such as housing, health, education, and access to food, for local communities who lost their lands, houses, and livelihoods due to dams; it objects to ecological destructions caused by hydroelectric power plants. The movement also draws attention to connections between several inequalities and injustices, from gender inequality to poverty, with the advocacy of the rights of displaced people due to dams and fights against these. MAB, which uses the "Women, energy, and water are not commodities!" slogan, argues that as a result of the governments and companies' pursuit of profit, growth, and development, waters, rivers, and natural resources are privatized, and indigenous communities and small farmers are deprived of their living spaces for the sake of the energy production required for the industry. It also argues that the solution is not the implementation of programs promoted under the name of "sustainability" by the capitalist system, which actually is the cause of the problems, and drawing from the idea of the commons such as water, soil, and forests, it argues that the solution is communities' making the decisions related to their lives autonomously and self-governing natural resources.[2]

Through the solidarity practices that it developed on the local level, the movement provides for the basic needs of people, who are adversely affected and displaced by the dams, including housing, food, education, and health-related needs; it makes an effort to develop alternative life prospects on the local level. It is recorded that thousands of people from indigenous communities and small farmers are attending the mass protests and activities of MAB. The movement, which includes ecology organizations and unions, is organized in around 100 dam regions in Brazil. It is possible to understand the enormity of the movement network by the fact that 20,000 people joined the demonstration march in 2017 in Rio de Janeiro that was held to protest the energy policies and operations of the government and energy companies.[3]

MAB, which also makes its presence felt on the transnational scale, organizes collaborative campaigns, protests, and meetings with other national and local social movement networks such as the Movement of Landless Peasants (*Movimento dos Trabalhadores Rurais Sem Terra*, MST), Movement of Small Farmers (*Movimento dos Pequenos Agricultores*, MPA), and Movement of Homeless Workers (*Movimento dos Trabalhadores Sem Teto*, MTST). Also a member of the global network of landless peasants and small farmers *La Via Campesina* (The Path of Peasant, LVC), MAB is among the organizing committee of the International Meeting of People Affected by Dams, first held in 1995, with the participation of water rights and anti-dam movement networks in other regions of the world. Finally, in 2016, MAB led the foundation of the Movement of Dam Affected Peoples in Latin America (*Movimiento de Afectados por Represas en América Latina*, MAR), which is a regional social movement network bringing together anti-dam organizations and groups from 12 countries in Central and Latin America.[4]

1- Movimento dos Atingidos por Barragens (n.d.), *Quem Somos*, https://mab.org.br/quem-somos/ (Accessed: June 27, 2022); Caitlin Schroering, "Resistance and knowledge production: Social movements as producers of theory and praxis," *Revista* CS 29 (2019): 73-102, http://www.scielo.org.co/pdf/recs/n29/2011-0324-recs-29-73.pdf (Accessed: June 27, 2022); Thousand Currents (n.d.), *Movimento dos Atingidos por Barragens*. https://thousandcurrents.org/partners/movimento-dos-atingidos-por-barragens/ (Accessed: June 27, 2022); David J. Hess, "The Anti-dam movement in Brazil: Expertise and design conflicts in an industrial transition movement," *Tapuya: Latin American Science, Technology and Society* 1, no. 1(2018): 256-279.
2- Movimento dos Atingidos por Barragens (n.d.), Ibid.; Caitlin Schroering, 2019, Ibid.; David J. Hess, 2018, Ibid.
3- Movimento dos Atingidos por Barragens (n.d.), Ibid.
4- David J. Hess, 2018, Ibid.

Several dam projects are lined up in the Brazilian Amazon. The 2000-3000 MW-powered giant dam, which is planned to be built on the Tromberat River as part of the infrastructure project named Barao do Rio Branco of the Bolsonaro government, and cover the lands of Quilombolas' (Afro-Brazilians) and indigenous communities, is one of such projects. Tabajara in Rondônia, Castanheira in Mato Grosso, and Bem Querer in Roraima, all of which are part of the "National Energy Plan" of Brazil, are among other dams which are in the project phase. It is not hard to forecast that if these projects are realized, further environmental injustices and displacements will emerge, which will resemble those that occurred during the construction and operation of the Belo Monte and Tucuruí Power Plants.[35] In addition to indigenous communities, landless peasants, small farmers, and ecology activists, national movement networks or transnational movements solidarity networks such as Brazil Movement of People Affected by Dams (Movimento dos Atingidos por Barragens, MAB) and the Movement of Landless Peasants (Movimento dos Trabalhadores Rurais Sem Terra, MST) are also fighting to stop such projects. They object to the violation of rights through legal processes against Belo Monte, Tucuruí, and other existing dams, big demonstrations, protests, and civil disobedience activities.[36]

Dilma Ferreira Silva
Illustration: Cafe.art/Repórter Brasil

The movements against dams gained some achievements, such as ensuring the payment of late compensations, realizing delayed promises of relocations, or as in the example of Belo Monte, delaying/retarding the project and enforcing improvements in projects. However, it is hard to say that these movements' primary demands, which are participatory, recognitional, and distributive justice, are met. As in many examples, they are exposed to violence and even lose their lives. In the last example where the anti-dam activists were exposed to the violation of the right to live, the coordinator of the MAB Para Region, Dilma Ferreira Silva, who herself was displaced in the 2000s due to the Tucuruí Dam and forced to live in a relocation area, was assassinated on March 22, 2019, with her husband Claudionor Costa da Silva and her friend Hilton Lopes; all of whom lost their lives.[37]

1- WWF (n.d.), *What Animals Live in the Amazon? And 8 Other Amazon Facts*, https://www.worldwildlife.org/stories/what-animals-live-in-the-amazon-and-8-other-amazon-facts; Rhett A. Butler, "The Amazon rainforest: The world's largest rainforest," *Mongabay* ((June 4, 2020), https://rainforests.mongabay.com/amazon (Accessed: June 27, 2022).

2- Yadvinder Malhi, et al., "The regional variation of aboveground live biomass in old-growth Amazonian forests," *Global Change Biology* 12 (2006): 1107-38. doi: 10.1111/j.1365-2486.2006.01120.x

3- Edgardo E. Latrubesse, et al. "Damming the rivers of the Amazon Basin," *Nature* 546 (2017): 363-369. https://doi.org/10.1038/nature22333

4- Rhett A. Butler, "People in the Amazon Rainforest," *Mongabay* (April 1, 2019), https://rainforests.mongabay.com/amazon/amazon_people.html (Accessed: June 27, 2022); Amazon Aid Foundation (n.d.), *Peoples of the Amazon* https://amazonaid.org/resources/about-the-amazon/peoples-of-the-amazon/ (Accessed: June 27, 2022).

5- Patricia Quijano Vallejos, et al., *Undermining Rights: Indigenous Lands and Mining in the Amazon* (World Resources Institute, 2020), https://www.wri.org/publication/undermining-rights (Accessed: June 27, 2022).

6- Rhett A. Butler, "Amazon destruction," *Mongabay* (November 23, 2021), https://rainforests.mongabay.com/amazon/amazon_destruction.html (Accessed: June 27, 2022).

7- Rhett A. Butler, June 4, 2020, Ibid.

8- Some of the measures taken in this period are: planning of the land usage in the Amazon; creating new preservation areas; making changes in the laws of environmental preservation; monitoring-inspecting by technological means; controls/regulations in the areas of soy production and stockbreeding, and banning the commerce and usage of the lumbers which were obtained from the deforested areas. For further details, see: William D. Carvalho, "Deforestation Control in the Brazilian Amazon: A conservation struggle being lost as agreements and regulations are subverted and bypassed," *Perspectives in Ecology and Conservation* 17, no. 3 (2019): 122-130. https://doi.org/10.1016/j.pecon.2019.06.002 ; Rhett A. Butler, "Brazil's Forests," *Mongabay* (August 14, 2020), https://rainforests.mongabay.com/brazil/ (Accessed: June 27, 2022).

9- William D. Carvalho, et al., 2019, Ibid.

10- Denis Conrado da Cruz, et al., "An overview of forest loss and restoration in the Brazilian Amazon," *New Forest* 52 (2020): 1-16. doi: 10.1007/s11056-020-09777-3

11- It is recorded that in the Amazon, just between August 2020 and July 2021, a total of 10.476 kilometer square area was deforested, this loss is 57% higher than the deforestation of the previous year, and it is the highest annual deforestation since 2012. For further details, see Imazon, *Deforestation in the Brazilian Amazon Reached 2095 km²* (August 19, 2021), https://imazon.org.br/en/imprensa/deforestation-in-the-brazilian-amazon-reached-2-095-km%C2%B2-in-july-and-the-last-12-months-cumulative-is-the-highest-in-10-years/ (Accessed: June 27, 2022); "January deforestation in the Amazon highest in 14 Years," *Mongabay* (February 11, 2022), https://news.mongabay.com/2022/02/january-deforestation-in-the-amazon-highest-in-14-years/ (Accessed: June 27, 2022).

12- Since the beginning of 2022, the Bolsonaro government has been getting ready to impose a series of laws which will provide the legal basis for the plans of increasing the usage of resources in the Amazon Forests. The omnibus bill also involves opening the lands of indigenous communities to mega-projects such as mining activities and hydroelectric power plant dams. It is argued that in this way, such projects will be realized without the need to legally get the permission of the indigenous communities and obtain environmental licenses/permits; and while the destruction in Amazon Forests will gain speed, expropriation of the lands will get easier. For further details, see: Sarah Brown, "Brazil agrochemical bill nears passage in Bolsonaro's 'agenda of death'," *Mongabay* (2022), https://news.mongabay.com/2022/02/brazil-agrochemical-bill-nears-passage-in-bolsonaros-agenda-of-death/ (Accessed: June 27, 2022).

13- According to World Bank data, Brazil, whose 2019 GINI index was calculated as .534, is considered as one of the most unequal countries in the world. According to the World Inequality LAB's data, the bottom 50% of the population in Brazil possess 10% of the national income whereas the top 10% possess 59% of it. It is calculated that the income of the 10% of the population with the highest income level is 29 times higher than the bottom 50% section of the population. For further details, see: World Bank (n.d.), *Gini index – Brazil*, https://data.worldbank.org/indicator/SI.POV.GINI?locations=BR (Accessed: June 27, 2022); Lucas Chancel, *World Inequality Report 2022* (World Inequality LAB, 2021), https://wir2022.wid.world/www-site/uploads/2022/03/0098-21_WIL_RIM_RAPPORT_A4.pdf (Accessed: June 27, 2022).

14- In 2014, 8.38% of the population was living under the poverty line in Brazil; this percentage increased to 11.2% in 2018. The approximate number of the people living under the poverty line went up to nearly 23.3 million. For details, see: Marcelo Neri, *The Escalation of Inequality – What Was the İmpact of the Crisis on Income Distribution and Poverty?* (Rio de Janeiro: FGV Social Report Executive Summary, August 2019), https://www.cps.fgv.br/cps/bd/docs/A-Escalada-da-Desigualdade-Marcelo-Neri-FGV-Social.pdf (Accessed: June 27, 2022); Lucianne Carneiro, "Poverty Swells all over Brazil," *Valor International* (August 24, 2021), https://valorinternational.globo.com/economy/news/2021/08/24/poverty-swells-all-over-brazil.ghtml (Accessed: June 27, 2022).

15- Marcelo Neri, August 2019, Ibid.; Lucas Chancel, 2021, Ibid.

16- In Brazil, carrying out mining activities in areas which are legally acknowledged as the lands of the

indigenous communities is forbidden by law. Yet, especially illegal mining activities threatens the protected areas of the Amazon. For example, it is estimated that in the lands of Yanomami indigenous community living in the Brazilian Amazon, around 20 thousand miners are carrying on their business. For detailed information about the effects of mining activities in the Brazilian Amazon, see: Patricia Q. Vallejos, et al., *Undermining Rights: Indigenous Lands and Mining in the Amazon* (World Resources Institute, 2020), https://www.wri.org/publication/undermining-rights (Accessed: June 27, 2022); Sarah Villén-Pérez, et al., "Mining threatens isolated indigenous peoples in the Brazilian Amazon," *Global Environmental Change* 72 (2022). https://doi.org/10.1016/j.gloenvcha.2021.102398; Zoe Sullivan, "Mining activity causing nearly 10 percent of Amazon deforestation," *Mongabay* (November 2, 2017), https://news.mongabay.com/2017/11/mining-activity-causing-nearly-10-percent-of-amazon-deforestation/ (Accessed: June 27, 2022); Laura J. Sonter, et al., "Mining drives extensive deforestation in the Brazilian Amazon," *Nature Communications* 8, article no. 1013 (2017). https://doi.org/10.1038/s41467-017-00557-w

17- Philip Fearnside, "Many rivers, too many dams," *New York Times* (October 2, 2020), https://www.nytimes.com/2020/10/02/opinion/amazon-illegal-dams-brazil.html (Accessed: June 27, 2022).

18- Robert Muggah, et al. "Opinion: Tempering the human cost of building Brazil's dams," *Devex* (June 29, 2017), https://www.devex.com/news/opinion-tempering-the-human-cost-of-building-brazil-s-dams-90566 (Accessed: June 27, 2022).

19- Norte Energia (n.d.)., *UHE Belo Monte em Números*, https://www.norteenergiasa.com.br/pt-br/uhe-belo-monte/uhe-em-numeros (Accessed: June 27, 2022).

20- Amazon Watch, *Fact Sheet: The Belo Monte Dam* (August 2011), https://amazonwatch.org/assets/files/2011-august-belo-monte-dam-fact-sheet.pdf (Accessed: June 27, 2022).

21- Peter Taylor Klein, "Engaging the Brazilian state: the Belo Monte dam and the struggle for political voice," *The Journal of Peasant Studies* (2015). doi:10.1080/03066150.2014.991719

22- Amazon Watch, August 2011, Ibid.

23- It is recorded that due to decreases in river waters, and differences in water levels between dry and rainy seasons with climate change, the Belo Monte is not able to produce the anticipated annual average capacity, which results in the river waters' being held to a larger extent; correspondingly, the flow in the area of the river below the dam decreased by nearly 85%. Tiffany Higgins, "Amazon's Belo Monte dam cuts Xingu River flow 85%; a crime, Indigenous say," *Mongabay* (March 8, 2021), https://news.mongabay.com/2021/03/amazons-belo-monte-dam-cuts-xingu-river-flow-85-a-crime-indigenous-say/ (Accessed: June 27, 2022).

24- Philip Fearnside, "Belo Monte: Actors and arguments in the struggle over Brazil's most controversial Amazonian dam," *DIE ERDE* 148, no. 1 (2017): 14-26.

25- Heather Randell, "Structure and agency in development-induced forced migration: The case of Brazil's Belo Monte Dam," *Population and Environment* 37, no. 3 (2016): 265-287. doi:10.1007/s11111-015-0245-4

26- Maíra Irigaray, "The human impact of the Belo Monte Dam has already begun: Displacement and despair in Itamira," *Amazon Watch Blog* (October 23, 2014), https://amazonwatch.org/news/2014/1023-the-human-impact-of-the-belo-monte-dam-has-already-begun (Accessed: June 27, 2022).

27- Heather Randell, 2016, Ibid.

28- Claire Salisbury, "Forest loss increased annually for 25 years at oldest Amazon mega-dam," *Mongabay* (January 14, 2016), https://news.mongabay.com/2016/01/forest-loss-increased-annually-for-25-years-at-oldest-amazon-mega-dam/ (Accessed: June 27, 2022).

29- Research shows that between 1988 and 2008, an annual average of 591-660 square kilometer area, and between 2008 and 2013, an annual average of 325 square kilometer area had been deforested in the region. For details, see: Claire Salisbury, January 14, 2016, Ibid.

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33- Philip Fearnside,1999, Ibid.

34- EJAtlas, April 19, 2019, Ibid.

35- Philip Fearnside, October 2, 2020, Ibid.

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