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# **The Belo Monte Hydropower Complex in Brazil: Actors, Interests, and Environmental Justice**

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International Environment and Development Studies

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## I. Acknowledgments

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## II. Introduction

In 2016, the Belo Monte hydroelectric complex on the Xingu River in the Northern part of Brazil was officially opened. Since the Belo Monte was first proposed in the 1970s, the hydroelectric dam has been the source of great controversy surrounding development projects in Brazil. The controversy has revolved around hydroelectric dams, and how the construction of such dams can affect the biodiversity of the river and impact indigenous communities that live along- and depend on it for their livelihoods. In the controversy, two opposing sides have unfolded: one pro-dam side which prioritizes socioeconomic development, and one anti-dam side which is concerned with socio-environmental sustainability. The pro-dam side uses the storyline of socioeconomic development to legitimize the project by arguing for Belo Monte's role as a solution to energy insecurity in Brazil, as well as its importance for the development of the country to sustain economic growth. On the other hand, the anti-dam side uses the storyline of socio-environmental sustainability to challenge the assumptions made by the pro-dam side and highlights how the Belo Monte project has led to environmental injustices against indigenous communities who depend on the river for their livelihoods (Bingham, 2010).

In this thesis, the Belo Monte controversy is analyzed by looking at the actors involved, their interests, and the impacts of the dam on indigenous communities. By combining conceptual tools from the field of sustainable development, environmental justice, and political ecology, this thesis will answer the following research question:

*What are the interests of the different actors in the Belo Monte controversy, and how can the radical environmental justice framework be used to explain the impacts of the hydroelectric dam on indigenous people?*

### III. Conceptual Framework

The conceptual framework of this thesis consists of four parts. In the Belo Monte conflict, two opposing storylines have unfolded: one socioeconomic development storyline and one local socio-environmental sustainability storyline. Despite the differences between these storylines, they are a part of the hegemonic global discourse of sustainable development. I will begin by explaining the concept of sustainable development (SD) and the Sustainable Development Goals (SDGs), and the contradictions that exist therein. Second, I explain the concept of Political Ecology (PE), with a focus on the three dimensions of power: actor-oriented, economic-structural, and discursive. Third, I will explain the concept of Environmental Justice (EJ), and the three key approaches of distributional justice, recognition, and procedural justice that exist within the radical EJ framework. Finally, I will explore the potential of cross-fertilization between PE and radical EJ and explain how this interaction can be useful for my analysis.

#### A. Sustainable Development

In 1987, the World Commission on Environment and Development (WCED) published a report entitled “Our Common Future” that placed sustainable development on the international political agenda. Sustainable development is defined as: “development that meets the need of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987). In 2012, the United Nations (UN) member states agreed to develop a set of “sustainable development goals” that is meant to guide world politics from 2015 to 2030. The sustainable development goals (SDGs) consist of 17 goals and 169 sub-goals ranging from goal 1 of “no poverty” to goal 8 of “decent work and economic growth” (Sachs, 2017). Due to the comprehensive list of goals, some scholars have argued that the SDGs have ended up as vague, weak, and meaningless (Holden, Linnerud, & Banister, 2017), as there is a great tension between the goals prioritizing sustainability and the goals prioritizing growth (Hickel, 2019). Hickel (2019, pp. 1-2) agrees with this assumption and argues that there are two sides to the SDGs, which appear at risk of contradiction:

*“One side calls for humanity to achieve “harmony with nature”, to protect the planet from degradation, and to take urgent action on climate change... the other calls for continued global economic growth at existing levels or higher through 2030, as outlined in Goal 8, on*

*the assumption that growth is necessary for human development and the eradication of poverty and hunger... ”.*

The contradictions within the SDGs can be better understood by looking at the three goals of “clean water and sanitation”, “affordable and clean energy”, and “industry, innovation, and infrastructure”. Goal 6 of the SDGs is dedicated to water, as clean and safe water is important for human beings to live a full and healthy life. Despite the recognition of the importance of water, there is still uneven distribution of water across the globe, as water is frequently being dammed, piped, and polluted (Sultana, 2018). Industrial growth, on the other hand, is important for economic development, as it creates jobs and enhances GDP growth. The SDG goals of “affordable and clean energy” and “industry, innovation, and infrastructure” are therefore considered important aspects of creating sustainable economies and societies. However, the goal of clean water and sanitation can often be undermined in the planning of infrastructure projects, such as in the development of hydroelectric dams (Herrera, 2019). Hydroelectric dams can therefore be used as an illustrative example to reveal the contradictions within the SDGs.

Hydroelectric dams provide renewable energy and are often referred to as providing “clean energy”. However, the construction of hydroelectric dams can often result in negative environmental impacts such as changes in the biodiversity of a river. The negative externalities associated with dam construction become more notable when the dam is constructed close to local- or indigenous communities that depend on the river for their livelihoods. Furthermore, such challenges have led some scholars to argue that the relationship between the economic- and the social pillars of the SDGs has proved itself to be a conflicting issue (Sachs, 2017). On the one hand, the SDGs recognize the need for clean water and sanitation, and on the other hand, it calls for clean and affordable energy. To overcome the contradiction between economic growth, and sustainable development, “green growth” has often been called upon (Sachs, 2017). Green growth means fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services that humans rely on (Wang, Sun, & Guo, 2019). However, Sachs (2017) argues that growth without further depleting the biodiversity and reproducing inequalities is yet to be proven.

## B. Political Ecology

The concept of political ecology (PE) embraces a range of different definitions. Since the 1970s, the term has been defined by several scholars with important differences in emphasis. However,

Robbins (2012, p. 14) argues that there seems to be a set of common elements within the definitions. The many definitions together suggest that political ecology represents an alternative to “apolitical ecology”. Much of apolitical ecology has tended to blame poor people for processes such as environmental change and land degradation. Political ecologists, on the other hand, have worked to challenge the assumptions of apolitical ecology (Robbins, 2012, p. 14). Rodríguez-Labajos & Martínez-Alier (2015) defines political ecology as the study of “how the distribution of power (which is the main subject of political science) determines the use of the natural environment between categories of humans and with regard to other species”. Furthermore, political ecologists focus on how the costs and benefits associated with environmental change are unevenly distributed among humans (Rodríguez-Labajos & Martínez-Alier, 2015). For example, in terms of hydroelectric dams, local- and indigenous communities are often experiencing the costs in form of reduced water quality in the river on whom they depend, while large development companies or governments experience the benefits in the form of economic growth.

As mentioned, power is a key concern of political ecology. Svarstad, Benjaminsen & Overå (2018) have studied the power dimensions of environmental conflicts and identified three main theoretical perspectives on the power that tend to dominate within the field of PE: actor-oriented, economic-structural, and discursive. First, according to Svarstad and Benjaminsen (2020): “actor-oriented power focuses on ways that actors exercise power in relation to others, with intention, and with wanted results for themselves”. Political ecologists have identified two different types of actors, as will also be shown through the case of Belo Monte, those who advocate for environmental interventions and those who resist them. Second, structural power perspectives drawn from Marxist political economy contribute to understanding how economic structures provide opportunities for some actors while leaving others disempowered and marginalized. Finally, political ecologists analyze how actors exercise power through producing and reproducing discourses. Discourses influence ways of thinking, public opinion, and decision-making. Political ecologists have identified such mechanisms in situations of contestation over land and natural resources (Svarstad & Benjaminsen, 2020; Svarstad et al., 2018). Although these perspectives often overlap, the analysis of this thesis will be focused on the actor-oriented and discursive power dimensions.

### C. Environmental Justice

The academic field of Environmental Justice (EJ) and the movement with the same name arose in 1982 in Warren County, North Carolina when an African American neighborhood was chosen to host a toxic waste landfill. African Americans, together with rural- and poor people, were joined in their protests by environmental groups and national civil-rights groups to oppose the toxic waste dumping. Although the protests didn't end up halting the construction of the landfill, the Warren County demonstrations marked the emergence of a new type of movement in which environment, anti-racism, and civil rights concerns were brought up (Cutter, 1995; Martinez-Alier, 2019, p. 182; Urkidi & Walter, 2011). Since the turn of the millennium, environmental justice has developed to become a broad field, both in terms of academic literature as well as geographically. Within the field of EJ, a "radical environmental justice" framework has been established. The radical EJ framework was first developed by Schlosberg (2004) by focusing on three key elements: distributional justice, recognition, and procedural justice. With a focus on the three elements of justice, radical EJ has become a leading framework for many EJ studies. However, it is worth mentioning that radical EJ is only one of the various types of EJ approaches that are applied today (Svarstad & Benjaminsen, 2020).

Distributive justice is the first element within the radical EJ framework. For the past four decades, scholars have focused on the distributional dimension of injustice. Distributive justice refers to the issue of equity in the distribution of costs and benefits related to environmental interventions (Svarstad & Benjaminsen, 2020). The focus of justice as distribution stem from the work of John Rawls called a "Theory of Justice" (Rawls, 1971). Rawls (1971) argue that in order to develop "a right" theory of justice, one has to step behind "a veil of ignorance". In other words, without knowing one's situation in life, one would come up with a fair notion of justice, where everyone would have the same political rights and the distribution of economic and social inequality in society would benefit everyone (Schlosberg, 2004). The focus of Rawls has been criticized by other scholars, such as Iris Young (1990) and Nancy Fraser (Fraser, 1997, 2000, 2001). The argument of Young and Fraser is straightforward: in moving towards justice, issues of distribution are essential but incomplete. Injustices are not solely based on material distributions, as there are key reasons why some people get more than others in the first place, such as a lack of recognition of group differences. Young and Fraser argue that a lack of recognition is the foundation for distributive injustices (Schlosberg, 2004).

Justice as recognition is the second element within the radical EJ framework, and "concerns who is given respect (or not) and whose interests, values and views are recognized and taken

into account” (Svarstad & Benjaminsen, 2020). Svarstad & Benjaminsen (2020) draws on the theory of Fraser, combined with a decolonial lens, and suggest a focus on “senses of justice” and “critical knowledge production”. “Senses of justice” are defined as: “ways in which affected people subjectively perceive, evaluate and narrate an issue, such as their perspectives on an environmental intervention” (Svarstad & Benjaminsen, 2020). According to Svarstad and Benjaminsen (2020), a “senses of justice” approach is useful to avoid stereotyping and paternalism. The perspectives and interests of people affected by environmental interventions should be subjected to empirical examination, as their perspectives are rarely homogenous. In addition, marginalized groups are often exposed to knowledge production that goes against their interests and values. Marginalized groups must therefore be given “the opportunity to conduct their own critical knowledge production and thereby analyze their situation, independently of narratives produced by powerful actors” (Svarstad & Benjaminsen, 2020).

The third element of the radical EJ framework is procedural justice. Procedural justice is concerned with issues of power and focuses on just participation in decision-making (Svarstad & Benjaminsen, 2020). David Schlosberg (2004) draws on the theory of Young and Fraser and criticizes most theories of environmental justice for being incomplete theoretically, as they remain tied to the distributive understanding of justice. Schlosberg (2004) recognizes distribution and recognition as key elements of justice but argues that environmental justice theory needs to encompass the three elements of distributive justice, recognition, and procedural justice, as they are three overlapping circles of concern (Schlosberg, 2004). In contrast to Young’s focus on individual participation, Schlosberg (2004) addresses the same issue in the context of social movements. In the case of indigenous movements calling for social and environmental justice, Schlosberg (2004) highlights that one cannot talk of one aspect of justice without it leading to another and that all the three elements need to be considered in development planning. The three elements of justice will further be explored in the case of the Belo Monte conflict.

#### D. Combining Political Ecology and Environmental Justice

Svarstad & Benjaminsen (2020) have read the radical environmental justice framework through a political ecology lens and looked at the potential for cross-fertilization in relation to the three elements of distributive justice, recognition, and procedural justice. This cross-fertilization is central to this thesis and will be used to analyze the different actors involved, their interests, and the impact that the hydroelectric dam has had on indigenous communities.



First, distributive justice is also a key concern within political ecology. As mentioned, political ecologists focus on how the costs and benefits associated with environmental change are unevenly distributed among humans. Political ecologists have documented several cases of unjust distribution of costs and benefits following environmental injustices, as will also be demonstrated in the analysis of the Belo Monte conflict (Svarstad & Benjaminsen, 2020).

Second, two of the key power dimensions of environmental conflicts in PE are, as mentioned, actor-oriented and discursive. Political ecologists analyze how different actors exercise power through producing and reproducing discourses and narratives in their favor. Svarstad & Benjaminsen (2020) argues that increased recognition of marginalized groups is crucial for increasing the power of these groups, as well as decreasing the injustices that they may suffer. However, there are often some methodological challenges associated with understanding the perspectives, feelings, or notions of justice among people who are to be recognized. Discourse analysis can therefore often provide useful insight into understanding the perceptions and strategies of actors involved in environmental conflicts (Svarstad & Benjaminsen, 2020). In the analysis, the actors involved, as well as the discourse and storylines used to legitimize the Belo Monte will be identified.

Finally, power is a key theme in the broader field of EJ as well as in PE. The radical EJ approach deals with aspects that can be related to various power theories, for example, procedural justice involves issues of actor-oriented power in decision making. However, this is not made explicit and discussed in radical EJ literature, and the radical EJ approach may therefore learn from the more critical and theoretical approaches to power, such as those found in PE (Svarstad & Benjaminsen, 2020).

## IV. Case Study

### A. The Belo Monte hydropower complex

In 1975, the Brazilian military dictatorship proposed the Belo Monte dam project, originally named Kararaó, as part of a larger strategy for infrastructure development on the Xingu River in the Northern parts of Brazil. Six dams were proposed, including the Kararaó, a mega-dam complex that was sought to generate over 20,000 MW and provide energy for over 100 million people. An opposition movement developed in response to the plans of Kararaó, as the dam would flood indigenous land and threaten the livelihoods of indigenous people living along

with the Xingu River (Atkins, 2017; Bratman, 2014). In 1989, an opposition meeting officially named the “First Encounter of the Indigenous Nations of Xingu”, was organized by the indigenous Kayapo in the town of Altamira, a city situated on the shores of the Xingu River. The meeting drew international attention to the negative consequences of the dam and influenced the suspension of the project (Hall & Branford, 2012). Due to the controversy surrounding Kararaó, the plan was not revised until 2003, after the Worker’s Party (PT) and President Lula won the presidential election in 2002. The revised version of the Kararaó, now renamed Belo Monte, although smaller than the original, would still be the third-largest dam in the world in terms of installed capacity (11,233 MW), behind the Three Gorges Dam in China and the Brazilian-Paraguayan Itaipu Dam (Bratman, 2014; Hall & Branford, 2012).

The revised plan for the Belo Monte would avoid flooding any indigenous land by moving the dam upstream from its former location. The new design would divert much of the river’s flow through canals to a powerhouse below the Volta Grande or the “Big Bend” of the Xingu. However, the new design would create a different kind of impact on indigenous people living downstream of the new location, as the Big Bend would be left with greatly reduced flow (Philip Fearnside, 2017b). In 2005, the National Congress approved Belo Monte, and the decision led to new opposition movements, as indigenous people were not consulted prior to the approval of the dam (Philip Fearnside, 2017b). According to Article 231, paragraph 3, in the 1988 Brazilian Constitution (Constitution of the Federative Republic of Brazil, 1988, p. 153):

*“Hydric resources, including energetic potentials, may only be exploited, and mineral riches in Indian land may only be prospected and mined with the authorization of the National Congress, after hearing the communities involved, and the participation in the results of such mining shall be ensured to them, as set forth by law”.*

Despite the continued controversy, the new Belo Monte plan was not defeated as the plans were justified by the national increase in energy demands (Bratman, 2014). Although unsuccessful in stopping the project entirely, indigenous groups forced the government to write and sign a resolution stating that Belo Monte would be the only dam on the Xingu River. However, as will be discussed later, the dam opponents call this claim an “institutionalized lie” (Philip Fearnside, 2017b).

In 2009, an Environmental Impact Assessment (EIA) was delivered to the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) for approval. The EIA

was highly controversial, and a panel of 40 academics was brought together to read and comment on the assessment. The panel of experts publicly criticized the assessment and delivered their report to IBAMA in 2009, with a recommendation against the approval of a preliminary license for Belo Monte. However, due to political pressure, IBAMA granted the license to build Belo Monte in June 2011 (Philip Fearnside, 2017b). The completed version of the Belo Monte would consist of two dams, and two reservoirs, and be located on the lower Xingu River, in the fast-flowing region of the Big Bend. The construction of the hydroelectric complex, officially opened in 2016 by President Dilma Rousseff, flooded 260 square miles of lowlands and forests, displaced more than 20,000 people, and caused extensive damage to the river ecosystem (Atkins, 2017; Phillip Fearnside, 2017; Fitzgerald et al., 2018; Hall & Branford, 2012).

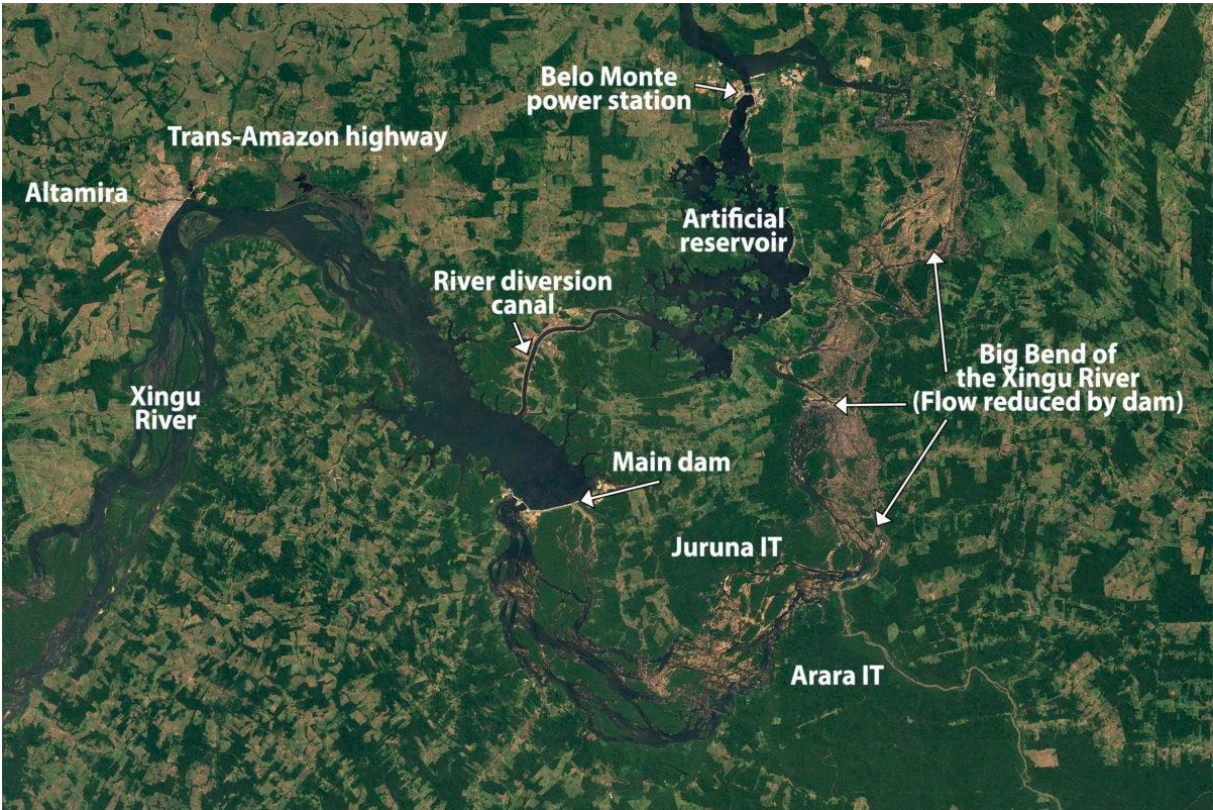


Figure 1: Google earth image of the Belo Monte dam, Xingu River, and Big Bend in December 2020.

The completed version of Belo Monte consists of two dams, and two reservoirs, and is located on the lower Xingu River. As can be seen in Figure 1, the first of the two dams in the complex diverts water through a canal to an artificial reservoir before it is led into the second dam, where the main powerhouse is located (Fearnside, 2021). Due to the design of the Belo Monte, the

flow of the Big Bend has changed (Hall & Branford, 2012), as the canals reroute 80% of the water from the river (Fearnside, 2020). The Xingu River has strong maintenance of global fish fauna, and the Big Bend has been identified as a region of particularly high diversity (Fitzgerald et al., 2018). The construction of the Belo Monte on the Xingu River has generated a series of impacts on the region's fish diversity. According to Araújo et al (2020): "a large part of the river's fishing grounds were flooded by the principal reservoir, which eliminated the river's natural flood pulse, and effectively impeded fisheries in the reservoirs throughout the year". In the Big Bend, the mean level of the river has decreased considerably, which has not only reduced fish stocks but also increased the temperature of the water. These changes have provoked alterations in the natural environment of the river, which affects several fish species. Due to the Belo Monte, some fish species will disappear or be forced to migrate to new areas (De Araújo et al., 2020).

The dam project has not only affected the aquatic life of the river, but also the lives of indigenous people, local communities, and fishermen who live along the river. Riverine communities are dependent on the river for food, water and sanitation, and transportation. (Kuijpers, van Huijstee, & Wilde-Ramsing, 2014). Indigenous people and other riverine communities have a strong relationship to the rivers and the forest, and factors such as the river tide and annual season, knowledge of when to plant crops, which fish to catch, and where and when to hunt have a strong influence on their culture. During the construction of the Belo Monte, a resettlement process was initiated, and riverine families were able to choose between money or new housing as compensation. A large portion of the riverine families that chose new housing was moved into collective urban resettlements (CURs) built by the dam authorities. Five CURs were built on the outskirts of Altamira, far away from the river, and far from the city center. The distance of the CURs has impacted both riverine men's and women's work and daily routines, and access to the river and public services. Several communities experienced trauma, and felt disempowered and disconnected from their riverine traditions and the river due to the resettlement (Mayer, Castro-Diaz, Lopez, Leturcq, & Moran, 2021; Patchineelam, 2021).

## B. Indigenous Rights in Brazil

In 1988, after twenty years of military rule (1964-1984), the Brazilian government replaced the 1967 Constitution. Indigenous people in Brazil participated actively in the process leading to the promulgation of the 1988 Constitution. For the first time in Brazilian history, indigenous people were recognized and guaranteed indigenous rights (Rodrigues, 2002). Article 231 in the

1988 Constitution states that: “Indians shall have their social organization, customs, languages, creeds and traditions recognized, as well as their original rights to the lands they traditionally occupy, it being incumbent upon the Union to demarcate them, protect and ensure respect for all their property” (Constitution of the Federative Republic of Brazil, 1988). In addition to the 1988 Constitution, the Brazilian government voted in favor of the Universal Declaration of Human Rights (UDHR) in 1948. The Brazilian government is therefore obligated to respect, fulfill, and protect the human rights of all its citizens. Following that, in 1992, the Brazilian government ratified the American Convention on Human Rights (ACHR), the International Covenant on Economic, Social, and Cultural Rights (ICESCR), and the International Covenant on Civil and Political Rights (ICCPR) (Jaichand & Sampaio, 2013).

In 2007, Brazil voted in favor of the UN Declaration on the Rights of Indigenous People (UNDRIP). In addition, the Brazilian government has signed the International Labour Organization’s (ILO) Convention 169 on Indigenous Rights (Jaichand & Sampaio, 2013). The ILO Convention and UNDRIP are the two main international mechanisms in place to protect the rights of indigenous people. By signing the ILO Convention 169 on Indigenous Rights, Brazil has guaranteed indigenous people the right to give “free, prior, and informed consent” (Abelvik-Lawson, 2014).

In the case of the Belo Monte, however, some scholars have argued that the Brazilian government did not adequately fulfill the right to free, prior, and informed consent. During the licensing process of the Belo Monte, the government argued that it was unnecessary to consult with indigenous communities as neither the dam nor its reservoir would be located within their land (Jaichand & Sampaio, 2013). However, as mentioned, due to the Belo Monte project, the flow of the Big Bend has changed, as the canals reroute 80% of the water from the flow. The diversion of water has led to a substantive reduction of the water flow downstream, where indigenous communities live. As shown through the case study, a diversion of that size clearly has a direct impact on indigenous communities, as they are highly dependent on the stability of the river for their livelihoods (Jaichand & Sampaio, 2013).

## V. Analysis

### A. Actors involved in the Belo Monte conflict

There are several actors involved in the Belo Monte hydropower dam conflict, as illustrated in Figure 2. The information available on the issue is limited, however, by reviewing academic literature, I have identified the most relevant actors for this thesis. Nevertheless, it is important to emphasize that this overview might not be complete.

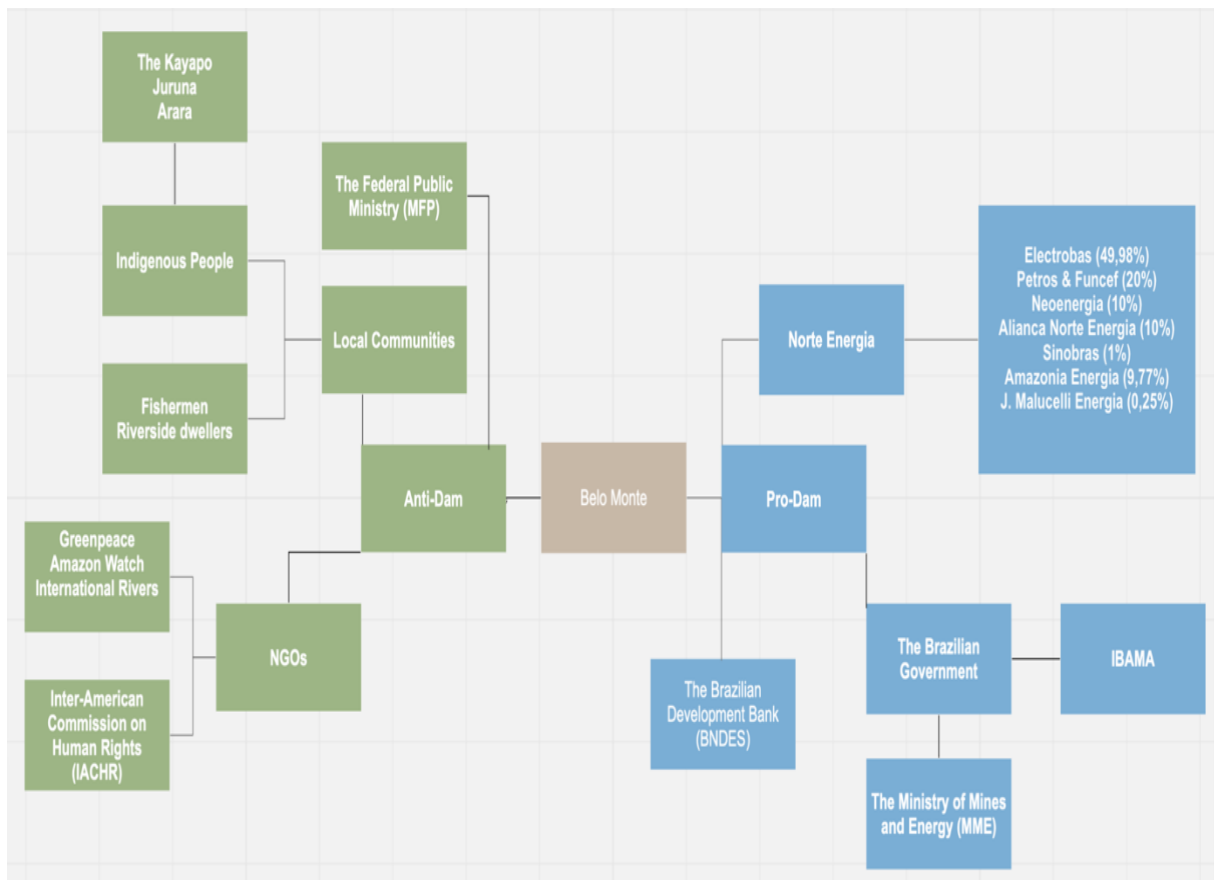


Figure 2: Actors involved in the Belo Monte hydropower dam conflict.

The actors involved in the Belo Monte conflict make up the two sides of the struggle. Bingham (2010) identifies the two opposing sides of the Belo Monte conflict and discusses their struggle for controlling the discourse and storylines about hydroelectric dams in Brazil. Sustainable development is identified as a hegemonic global discourse, and two opposing storylines are identified within this overarching discourse: one dominant side which prioritizes

socio-economic development, and one alternative side which is concerned with socio-environmental sustainability.

For the past decades, hydropower has been framed as a vehicle for development and poverty alleviation, as well as a provider of clean and renewable energy resources. Hydropower projects have therefore become a vital component in the fight against climate change, as such projects are considered sustainable and clean. The maintenance of this storyline has significant implications for how hydropower development is perceived. In framing hydropower projects as sustainable and clean, negative externalities, such as those experienced by indigenous communities, are often dismissed, and cost-benefit analysis in the decision-making process is skewed (Williams, 2020). Nevertheless, it is worth mentioning that Bingham (2010) sees the sustainable development discourse as both enabling and constraining for indigenous people. The SD discourse provides indigenous people with universally recognized and respected organizations that add legitimacy to their cause. At the same time, the “growth” priorities of the discourse remain detrimental to indigenous people as socioeconomic priorities often go against indigenous people’s interests and objectives. Furthermore, Bingham (2010) concludes by acknowledging the need for a re-opened sustainable development debate, to work through contradictions, such as those mentioned in the conceptual framework.

#### *a. The Pro-Dam Actors*

First and foremost, the pro-dam actors make up the Brazilian Government, including IBAMA and the Ministry of Mines and Energy (MME). The consortium Norte Energia got the contract for building the dam in 2011 and is responsible for operating the hydroelectric power plant (Kuijpers et al., 2014). The dam complex is considered a national project as it is mainly funded by the Brazilian Development Bank (BNDES), and the state-owned participation in the consortium constitutes over 80%. The state-owned electric company Eletrobras controls 49,98% of the consortium, while the pension funds Petros and Funcef both control 10% each. Other minority stakeholders, owned by both public and private actors, include Neo Energia S.A. (10%) and Amazonia Energia (9,77%). The Alianca Norte Energia S.A. owns 9% while the fully private companies involved are Sinobras (1%) and Mlucelli Energia (0,25%) (Kuijpers et al., 2014). Since the Kararaó was proposed in 1975, these pro-dam actors have used the storyline of socioeconomic development to legitimize the project.

In 2007, the Brazilian government, with President Lula, launched an ambitious plan for economic growth. The Growth Acceleration Program (GAP1) was established with a budget of

over 225,000 million dollars to invest in a series of infrastructure projects from 2007 to 2010. In 2011, the program was prolonged for four years (GAP2) (Tur, García-Andreu, Ortiz, & Domínguez-Gomez, 2018). Hydroelectric energy was central to the GAP, and Belo Monte was considered one of the most important infrastructure projects in the program. The government legitimized the project by arguing for Belo Monte's role as a solution to energy insecurity in Brazil as well as the country's role toward sustainable development (Atkins, 2019). Former president Lula presented hydroelectricity as the cheapest and cleanest energy source for meeting increased energy demands and presented Belo Monte as the only alternative to the increased burning of fossil fuels. As mentioned, the socioeconomic development storyline is part of the sustainable development discourse, which through the sustainable development goals, emphasizes the need for "clean, and affordable energy". The Brazilian government is therefore legitimizing the hydroelectric dam by referring to the SD discourse and the responsibility of Brazil in achieving the sustainable development goals.

Furthermore, in the socio-economic storyline, the actors involved are using a "national interest" storyline to legitimize the project. "National interest" can include references to protection, in terms of energy security, and opportunity, in terms of socio-economic progress. In other words, the pro-dam actors consider the Xingu River to be an untapped natural resource that could be used to benefit the whole nation. According to Bingham (2010, p. 20):

*"Its exploitation is portrayed as in the interest of the nation and the Amazon region, seen as undeveloped and in need of energy and industry. The economic integration of the region is constructed by the government as beneficial for all, providing jobs and income so that the people can live with dignity".*

The argument is, however, not so far from reality as the hydroelectric complex is sought to generate 11,233MW when operating at full capacity, and thereby provide electricity for over 60 million people (Atkins, 2019). Due to the number of people that will benefit from the dam, one could argue that the benefits of the Belo Monte are greater than the costs. In addition to guaranteeing energy security, the Belo Monte was legitimized through the argument of its importance for the development of the country to sustain economic growth. Within the socioeconomic storyline, infrastructure projects represent a symbol of a shared future of economic development, and anti-dam opponents are therefore described as holding Brazil back from the economic development promised by such projects (Atkins, 2019).



However, several scholars have argued that the economic viability of the Belo Monte will in fact be compromised as the project will be forced to operate below nominal capacity for much of the year. Due to seasonal fluctuations in the river, further dams would have to be built upstream to stabilize the water supply for electricity generation (Hall & Branford, 2012). In addition to the seasonal fluctuations, the future impact of climate change could compromise Belo Monte's power-generating capacity, as the Amazon will experience a higher risk of draught (Fearnside, 2020). As mentioned, the government signed a resolution stating that the Belo Monte would be the only dam on the Xingu River. However, dam opponents call this claim an "institutionalized lie", as the government in previous cases has sold controversial dam projects based on the falsehood that there would only be one dam (Philip Fearnside, 2017b). For example, in the case of the Tucuruí on the Tocantins River in Pará, the Eletrobras were able to sell the project based on the assumption that it would be the only dam on the river. However, this was an obvious falsehood, as the whole river above Tucuruí has been converted into a continuous chain of reservoirs (Philip Fearnside, 2017b).

#### *b. The Anti-Dam Actors*

The anti-dam movement has worked to challenge the storyline of the pro-dam movement. Since the Kararaó was first proposed in 1975, anti-dam actors such as non-governmental organizations (NGOs), environmentalists, and academics who support conservation and environmental protection in line with social welfare, have given the pro-dam actors fierce opposition. Many of the opponents of the project are committed to the alternative socio-environmental sustainability storyline of the global SD discourse. In the case of hydroelectricity, the anti-dam movement has especially worked to challenge the claims of hydroelectricity as "sustainable" and "clean". Despite the reputation of hydroelectricity as a clean energy source, research has shown that over a prolonged time, hydroelectric dams in the Amazon can also emit significant amounts of greenhouse gases into the atmosphere (Bingham, 2010). Hydroelectric reservoirs are responsible for emissions of greenhouse gases such as carbon dioxide and methane (Abelvik-Lawson, 2014). Since hydroelectric dams also emit greenhouse gases, anti-dam actors have attempted to discredit the "clean energy" storyline of large hydroelectric dams in the Amazon. The conflicting opinions of the pro-dam and anti-dam actors show how the sustainable development discourse can facilitate two distinct storylines that share the overall discourse, with different principles (Bingham, 2010).

In addition to the anti-dam actors mentioned, local communities, including Altamira residents, fishermen, and riverine communities are working to challenge the pro-dam storyline. As mentioned, riverine communities have a strong relationship to the river, and due to the construction of the Belo Monte, around 20 000 people have been resettled to CURs and several communities have experienced trauma due to the process (Patchineelam, 2021). In addition to riverine communities, indigenous communities that live along the Xingu River have been involved in the Belo Monte conflict for decades. The Xingu River has a great diversity of indigenous cultures, and there are several indigenous groups, including the Kayapo, Juruna, and Arara that live along and depend on the river. These indigenous groups and their leaders have been at the center of the Belo Monte conflict for decades. In 1989, during the “First Encounter of the Indigenous Nations of the Xingu”, Taira Kayapo, an indigenous Kayapo woman said (Puthuparambil, 2018, p. 10):

*“We don’t need electricity; electricity won’t give us food. We need the rivers to flow freely – our future depend on them. We need our forests to hunt and gather in...”*

In addition to this statement, Taira sent a powerful message to the Brazilian government as she brandished her machete in the face of a government official who was trying to convince indigenous leaders to accept the original Kararaó project. As mentioned, the original Kararaó plan would flood indigenous land and therefore threaten the livelihoods of indigenous people. Taira slid the machete over his cheeks and made it clear that damming the Xingu River would mean a declaration of war from the Kayapo people (Evtimov, 2022). In addition to the Kayapo, the indigenous Arara are also dependent on the river for their physical survival. However, the river also has cultural significance to the community. The Arara believes that the spirit inhabiting the Xingu River, which is necessary for the balance between the group and the environment, will leave the area due to the profound impact of Belo Monte (Jaichand & Sampaio, 2013).

Furthermore, several NGOs, such as Greenpeace, Amazon Watch, International Rivers, and the Inter-American Commission on Human Rights (IACHR) have supported the anti-dam movement and attempted to influence government decisions by publishing articles about the dam and its implications. Additionally, the Federal Public Ministry (MFP) has supported the anti-dam movement by bringing a series of lawsuits against the dam (Philip Fearnside, 2017a). In 2011, several NGOs filed a complaint against Brazil to the inter-American Commission on Human Rights with the argument that the construction of the dam would lead to several human

rights violations against the local community and indigenous people (Jaichand & Sampaio, 2013). After analyzing the claim by the NGOs, the Inter-American Commission requested the government to suspend the licensing process for the Belo Monte with the argument that the Brazilian government had not followed the following obligations (Jaichand & Sampaio, 2013, p. 412):

*“To carry out free, prior, and informed consultations with the affected indigenous peoples in accordance with the jurisprudence of the Inter-American system; to adopt substantial measures that would guarantee the personal integrity of indigenous peoples and their collective existence as such; and to take appropriate measures to prevent the spread of diseases among indigenous peoples as a result of the construction of the dam and of the massive population influx that the project would cause”.*

The Brazilian government found the complaint surprising and unacceptable. In response to the complaint, the government threatened to cut its funding to the Inter-American Commission. As mentioned, government officials argued that it was unnecessary to consult with indigenous people, as neither the dam nor its reservoir, would be located within their lands (Jaichand & Sampaio, 2013).

In other words, there is a great political and commercial interest in the Belo Monte, and accusations of corruption in the licensing process have therefore occurred. In the socio-environmentalist sustainability storyline, the Environmental Impact Assessment (EIA) has been highly critiqued. The role of the EIA is to identify and evaluate the possible impacts of proposed plans or projects before they are carried out. However, anti-dam actors argue that the EIA has been used by the government to protect their interests in the dam project. The EIA was originally not accepted as IBAMA recommended several of its components for further investigation. In the licensing process of the Belo Monte, several IBAMA staff members, including the leader, resigned as a result of high-political pressure to approve the project (Atkins, 2017; Philip Fearnside, 2017b). In addition, the permission grant to build the initial infrastructure was issued long before the dam license, which according to Bingham (2010) signifies that the EIA has been used as a bureaucratic seal. Due to the political interest in the Belo Monte, Brazil’s Court of Electoral Account has explored the potential of corruption in political campaigns. Their findings show that in the period between 2002 and 2012, the top four contributors to political campaigns were construction firms that built infrastructure projects, including the Belo Monte (Atkins, 2017). In 2007, an extensive anti-corruption investigation,

known as Lava Jato (Car Wash) revealed that construction companies had, in fact, paid bribes for Belo Monte contracts (Philip Fearnside, 2017a).

## B. Understanding the Belo Monte conflict through the Radical Environmental Justice framework

### *a. Distributive (in)justice*

Distributive justice refers to the issue of equity in the distribution of costs and benefits related to environmental interventions (Svarstad & Benjaminsen, 2020). As mentioned in the conceptual framework, the cross-fertilization between radical EJ and PE is central here, as political ecologists also focus on how the costs and benefits associated with environmental change are unevenly distributed among humans.

The supporters of the Belo Monte hydroelectric complex, such as the Brazilian government, view greater benefits than costs related to the project. The main benefits described are local socioeconomic benefits such as increased job opportunities and local development. In addition, there are also national benefits associated with the project, as the Belo Monte hydropower complex would indeed provide energy for over 60 million people when operating at full capacity. Furthermore, the Brazilian government presents hydroelectricity as the cheapest and cleanest energy source, and Belo Monte has therefore been presented as the only alternative to the increased burning of fossil fuels. Due to this storyline, the Belo Monte is considered important in Brazil's role toward achieving the sustainable development goals (Atkins, 2019; Bingham, 2010).

The anti-dam actors, on the other side, acknowledge the socioeconomic benefits but argue that these would be temporary and less significant. For instance, further dams would have to be built upstream to stabilize the water supply for electricity generation (Hall & Branford, 2012). In addition, although hydroelectricity is considered sustainable and clean, research has shown that over a prolonged time, hydroelectric dams in the Amazon can also emit greenhouse gases into the atmosphere (Bingham, 2010). Nevertheless, the construction of the Belo Monte has led to great costs for indigenous people and local communities. Indigenous people and local communities have a strong relationship with the river and the forests, and due to the construction of the dam, several communities have been resettled to remote areas outside the town of Altamira. The resettlement process has resulted in a loss of riverine traditions and local

culture. In addition, the indigenous people that still live along the river experience great loss, as they are dependent on the river for water and sanitation, food, and transportation (Patchineelam, 2021).

Although hydroelectric projects, such as the Belo Monte, are argued to be of the national interest, anti-dam actors have challenged this storyline by arguing that hydroelectric projects, instead, are important for the political and economic goals of a particular political group (Atkins, 2019). As mentioned, the licensing process was characterized by high political pressure, as well as corruption. In sum, anti-dam actors describe high socio-ecological costs, while pro-dam actors argue for the dam's role as a solution to energy security. Furthermore, one could argue that the costs and benefits of the project are unevenly distributed. The pro-dam actors, such as the Brazilian government, benefit greatly by generating profits, while the anti-dam actors, on the other side, experience distributional injustices in the form of resettlement, reduced water quality, and loss of culture and riverine traditions. Nevertheless, it is worth mentioning that the people of Brazil would also benefit from the electricity produced by the dam, but that this solution is, as mentioned by the anti-dam actors, only temporarily.

#### *b. Recognitional (in)justice*

Within the radical EJ framework, recognitional justice concerns who is given respect, and whose interests, values, and views are recognized and considered in decision-making processes (Svarstad & Benjaminsen, 2020). As mentioned, indigenous people in Brazil are recognized through the Brazilian Constitution as well as through the ILO Convention 169 on Indigenous Rights and the UN Declaration on the Rights of Indigenous People. However, several UN special rapporteurs have emphasized that the rights of indigenous people cannot be fully understood without recognizing the connection that indigenous communities have with the lands they utilize (Jaichand & Sampaio, 2013). In hydropower dam conflicts, claims for recognitional justice are often a part of a larger struggle for the recognition of indigenous rights, especially the rights to land. Apart from highlighting the importance of lands for indigenous people's physical survival, their lands also have cultural importance, as mentioned in the case of the Arara.

Furthermore, in the Belo Monte case, the Brazilian government argued that it was unnecessary to consult with indigenous people as neither the dam, nor its reservoirs, would be located within their lands (Jaichand & Sampaio, 2013). However, as shown through the case study, the construction of the dam did, in fact, affect indigenous communities as they are highly

dependent on the river for their livelihoods. The argument, made by the Brazilian government, represents a weak understanding of the indigenous communities' cultural identities and their relationship to the river. Nevertheless, the collective urban resettlements (CURs) that were built on the outskirts of Altamira, further prove this argument. The Brazilian government resettled over 20,000 people to CURs without considering how the distance from the river would impact these local communities. In the aftermath, several communities experienced trauma because of the resettlement process, in addition to feeling disempowered and disconnected from their traditions (Mayer et al., 2021; Patchineelam, 2021).

Recognizing indigenous people would also mean recognizing the connections that indigenous communities have with the lands they utilize. Furthermore, one could therefore argue that the Brazilian government failed to recognize indigenous people in the Belo Monte case, as their relationship to the lands they utilize was not taken into consideration in the decision-making process. To achieve environmental justice, vulnerable groups, such as indigenous communities, need to be recognized. Misrecognition, such as failing to understand the relationship that indigenous communities have with their lands, places indigenous culture at risk. To avoid misrecognition, The cross-fertilization between radical EJ and PE is central, as political ecologists analyze how different actors exercise power through producing and reproducing discourses and narratives in their favor. There are often some methodological challenges associated with understanding the perspectives, feelings, or notions among people who are to be recognized. Therefore, identifying the discourses and storylines that exist within environmental conflicts, could provide useful insight into understanding the perceptions and strategies of actors involved in environmental conflicts, such as in the Belo Monte case (Svarstad & Benjaminsen, 2020)

### *c. Procedural (in)justice*

Procedural justice is concerned with issues of power and focuses on just participation in decision-making processes (Svarstad & Benjaminsen, 2020). In 2002, the Brazilian government signed the ILO Convention 169 on Indigenous Rights, which guarantees indigenous people the right to give “free, prior, and informed consent” (Abelvik-Lawson, 2014). In addition to the ILO Convention 169, there are several other legal provisions that guarantee procedural rights to indigenous people in Brazil, such as the Constitution and UNDRIP. However, indigenous people's right to give “free, prior, and informed consent” is not fulfilled by the Brazilian government, as illustrated through the Belo Monte case. At first, the indigenous communities

did not receive any prior consult about the project, as the Brazilian government alleged that none of the communities would be directly impacted. After receiving criticism about this statement, the government controversially stated that it had in fact conducted consultations with the affected groups. The government conducted four public hearings with the aim of informing the local communities about the project (Jaichand & Sampaio, 2013). However, neither of the public hearings were conducted in a free, prior, and informed matter.

First, the meetings were embossed by the presence of hundreds of armed forces. The presence of military police and national security impeded people's access to these public hearings, and the consultations can therefore not be regarded as “free”. Second, very few of the indigenous communities got their questions answered, as no translators were provided. In addition, the EIA was released only two days prior to the public hearings, which made it difficult for local communities to analyze the documents in advance. Lastly, the EIA contained misleading and incomplete information, and can therefore not be regarded as an informed one (Jaichand & Sampaio, 2013). Due to existing power structures and the dominating storyline about hydroelectricity, one could argue that indigenous communities see very limited possibilities influencing decision-making processes regarding hydroelectric projects in Brazil.

## VI. Discussion

Through the analysis, I have identified the interests of the actors involved in the Belo Monte controversy. Furthermore, the environmental injustices experienced by indigenous communities have been read through the radical environmental justice framework. The findings show that indigenous communities have, in fact, experienced distributional, recognition, and procedural injustices due to the Belo Monte project. However, I find it important to emphasize that there might be even further injustices within the injustices described, for example, women might experience the consequences of the dam differently than men, due to already existing injustices related to gender. However, gender injustices related to hydroelectric projects, such as the Belo Monte, would need to be discussed in future research papers.

In addition, I would like to ask and elaborate on the question: “justice for whom?”. The anti-dam actors argue that the Belo Monte is creating injustices. However, one must also consider the millions of people who benefit from the electricity generated by the dam. Although the Belo Monte has created injustices, it is for a significantly small amount of the population, compared to the amount of the population that has benefitted from the project. In fact, the hydroelectric complex would provide electricity for over 60 million people when operating at

full capacity. If justice was measurable, how could one argue that a project in favor of a large population is unjust? Perhaps this is the question that the Brazilian government is trying to answer when arguing for the “national interest”. However, the anti-dam actors have, as illustrated, questioned the intentions of the Brazilian government. The anti-dam actors have criticized the Belo Monte for only being a temporary solution, but also challenged the “national interest” argument of the pro-dam actors, by arguing that hydroelectric projects, such as the Belo Monte, instead are part of the political and economic goals of a particular party. Furthermore, the licensing process, was in fact, characterized by high political pressure, as well as corruption. For the planning of future hydroelectric projects, identifying the actors involved and unraveling the power that resides in the discourses and storylines used to legitimize development projects, could be useful for exposing those in whose interests it serves, as well as avoiding future environmental injustices.

Furthermore, I would like to elaborate on the sustainable development discourse and discuss how I find this overarching discourse challenging for indigenous people. As mentioned, the two opposing storylines of socioeconomic development and socio-environmental sustainability are identified within the overarching discourse of sustainable development. The two storylines both prioritize social objectives, but the socioeconomic storyline claims that economic growth will achieve them, while the socio-environmental sustainability storyline argues that environmental priorities are key. The contradictions between the two storylines reflect the contradictions between sustainability and economic growth that exists in the overarching SD discourse (Bingham, 2010). Although the SD discourse is meant to prioritize both sustainability and development, Sachs (2017) argues that the sustainable development goals are protecting the “growth” model, a model which prioritizes growth over the protection of nature. Sachs's (2017) argument is also applicable in the Belo Monte controversy, as the Brazilian government has legitimized the project by referring to the SD discourse but protected the growth model at the expense of the biodiversity of the river and indigenous communities.

Finally, Bingham (2010) argues that the sustainable development debate must be re-opened to work through the contradictions therein to formulate a stronger, more practicable definition built upon prioritizing social and environmental objectives. However, I would argue that instead of reopening the sustainable development debate, one should instead explore other paths to social transformation that place empathy with humans and non-human beings first (Kothari, Salleh, Escobar, Demaria, & Acosta, 2019, p. XVI). In other words, it is time to abandon the concept of development and think about post-development instead. Post-development theories present alternatives and initiatives to the currently dominant processes of



globalized development (Kothari et al., 2019). Furthermore, I would argue that such theories are much more enabling for indigenous communities, as the SD discourse is constantly being misused by powerful actors hoping to gain legitimacy for their own interests in development projects. Post-development theories share the idea that “development as progress” must be deconstructed to open a way for cultural alternatives that nurture and respect life on Earth (Kothari et al., 2019, p. XVII). Theories that emphasize environmental protection and respect for life on Earth is more enabling for indigenous people, as their traditions and cultures are embedded in nature, and a clean and healthy environment is crucial for their livelihoods.

## VII. Conclusion

Through analyzing the case of the Belo Monte hydroelectric complex, I have identified the actors involved and their interests in the controversy. The analysis shows that the actors involved can be categorized into pro-dam actors and anti-dam actors. The pro-dam actors prioritize socio-economic development and legitimize the dam by arguing for its role as a solution to energy insecurity in Brazil and its importance for the development of the country to sustain economic growth. On the other hand, the anti-dam actors are concerned with socio-environmental sustainability and challenge the pro-dam side by arguing about the negative consequences the dam has on the biodiversity of the river and on the indigenous communities that live along- and depend on the river for their livelihoods. The two distinct storylines are identified within the overarching discourse of sustainable development, and the contradictions between the two storylines reflect the overall contradictions between sustainability and developmentalism that exist in the SD discourse. The SD discourse is both enabling and constraining for indigenous people, depending on the storyline presented: the dominant developmentalism storyline constraints indigenous people, while the sustainability storyline is more enabling for indigenous people. In the Belo Monte case, the developmentalism storyline is dominating, and the pro-dam actors are exercising power through producing and reproducing this storyline. Due to the dominating socio-economic storyline, indigenous people in the Belo Monte conflict are experiencing environmental injustices (Bingham, 2010).

The impacts of the Belo Monte on indigenous people have been read through the radical environmental justice framework, and the findings show the injustices experienced by the indigenous communities that live along- and depend on the river for their livelihoods. First and foremost, the indigenous communities are experiencing distributional injustices due to the unjust distribution of costs and benefits following the Belo Monte project. The construction of

the Belo Monte leaves the pro-dam actors with great benefits such as profit while indigenous communities are left with the costs in terms of displacement and decreased living conditions. In addition, indigenous people are also experiencing recognitional injustices. Although indigenous people in Brazil are recognized through several legal instruments, the Brazilian government has failed to recognize these communities with respect to their culture, and their relationship with the lands they utilize. Furthermore, the analysis shows that the indigenous communities were not given the right to give “free, prior, and informed consent” in the planning process, and have therefore suffered from procedural injustices.

The analysis of distributional, recognitional, and procedural justice illustrates the environmental injustices experienced by the indigenous communities in the Belo Monte controversy experience. For the planning of future hydroelectric projects, the radical EJ framework could benefit from engaging with power theories from political ecology. Identifying the actors involved and unraveling the power that resides in the storylines used to legitimize development projects, could be useful for exposing those in whose interests it serves, as well as avoiding distributional, recognitional, and procedural injustices.

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