

## **Actors in Action - The Tabajós Basin Dams**

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### **The case description**

The Tabajós Basin is located in the Amazon Rainforest, and is an ecosystem for an extraordinary collection of plant and animal biodiversity. As well as this, the Tabajós Basin is the home to 820,000 people, making up ten different indigenous groups. One of these being the Munduruku Tribe. The Brazilian Government in conjunction with large private construction companies has the intention of building three major dams, and a series of smaller ones on the mainstream of the river and its tributaries to accommodate for Brazil's growing energy needs (Millikan, n.d.). These dams would act as hydroelectric power plants which store water, to later be released into a turbine. The spinning of this turbine activates a generator, and in turn, produces electricity (Renewable Energy World, 2018).

This intention faces opposing actors as different stakeholders have conflicting outcomes and interests. The main stakeholders include: Fernando Coelho Filho - the Energy Minister for Brazil; Antonio Brasiliano - the Director of one of the private construction companies, called Energia Sao Manoel S.A; Native inhabitants of Munduruku Tribe whose land will be affected; the United Nations; and Amazon Watch.

The reason for these opposing actors is due to the environmental and ethical consequences of such an action, and the desire to expand Brazil's energy supply to accommodate for such extreme economic growth, and development rates. Namely, the successful construction of the three large hydroelectric dams will result in the flooding of a total of 198,400 hectares of land (Millikan, n.d.). As a result, the abundance of biodiversity and delicate ecosystems in these environments will be damaged. Moreover, this land is home to several indigenous communities who have a historical, and spiritual connection to their land.

The construction of these dams however, will increase Brazil's energy supply by 25%, as they have the capacity to produce 29gW. This power capability is equivalent to burning 30.5 million barrels of oil annually (Watts, J., 2017). Moreover, in an attempt to limit environmental impacts, the Brazilian government has claimed to attempt to utilize an innovative model called

‘platform dams’. This model entails the construction occurring without roads, but rather workers will be transported to and from construction by the means of a helicopter in order to reduce extra construction to surrounding lands (Millikan, n.d.).

As Brazil continues to emerge into a developed country, and accommodate for growth in population size, Gross Domestic Product, and a higher standard of living for its citizens, environmental trade-offs are inevitable in order to catch up to the rest of the developed world. This ethical dilemma with extreme conflicts of interests amongst multiple parties has been a worldwide, ongoing, and inconclusive debate for years. Consequently, this situation attracts a variety of actors who utilize different methods of change in order to create social outcomes they deem desirable.

### **The actors involved**

#### *Fernando Coelho Filho, Energy Minister for Brazil*

As Minister of Mines and Energy, Fernando Coelho Filho’s job is to encourage investments in mining and energy related activities, fund research and establish government policies (Wikipedia). Brazil is already the largest economy in Latin America and is developing towards a more energy-consuming future, due to the country’s expanding industries and growing cities (Forero, 2013). Expanding the use of hydropower would answer to the country’s need of an increased energy supply, while meeting the sustainability goals and the ambition of the Paris agreement (Vidal, 2017). Brazil already generates nearly 65% of its electricity from hydropower (Vidal, 2017), and the 49 dams the Brazilian Government has planned to build on the Tabajós and its tributaries would increase the country’s current supply by 25% (Watts, 2017). Building dams in the Tabajós Basin would brace a development of the national economy, as well as favor local politicians by opening up an opportunity to industrialize and develop business in the local areas. It is a great investment for the state-run energy utility, Eletrobras, as they plan to sell power to distant cities and local mining companies that will extract minerals from the forest (Watts, 2017).

From this point of view, hydropower seems like a great, if not the best, solution. Being responsible for Brazil's energy related activities, and with the pressure coming from the need of an increased energy supply, Coelho Filho might look at the rivers of the Amazonas as a source just waiting to be used for hydropower. It will favor the country’s economy, as well as provide the people with energy.

*Antonio Brasiliano, Director of Empresa de Energia São Manoel S.A.*

Antonio Brasiliano is the Director of Empresa de Energia São Manoel S.A., the company responsible for building the dam. As the Director, his job is to ensure that the construction of the dam will go through and that eventual protests and discussions will not delay the project and affect profit. It is of utmost importance to the company that this project will become reality since it includes building a total of 49 dams that would increase the revenue immensely.

Antonio Brasiliano is also determined that hydroelectric power is the best suited source to satisfy Brazil's rapidly growing energy needs since it would increase the total supply by 25% which would be the equivalent of burning 30.5 million barrels of oil annually. The company is aware that the construction of these dams would affect some nearby communities but argues that hydropower is the best option for providing low-cost energy to Brazilians while still complying with the Paris Climate accord by phasing out oil and coal-based options (Office of Energy Efficiency & Renewable Energy, n.d.). Another argument for this project is that other renewable energy sources such as wind power would not be able to produce enough power to meet the high demand. For example, an industrial wind turbine could produce a maximum of 3MW/year if it would receive constant wind 24h/day but in reality that number is closer to 1MW/year (Sciencing, 2018). These numbers would suggest that Brazil would have to invest in about 30,000 wind turbines to gain an equal amount of energy as the dam would produce. Antonio Brasiliano argues that such an enormous wind farm – which would be approximately five times larger than the world's currently largest (Wikipedia, 2018) – would displace a way larger population than the dams would.

*Native Inhabitant of Munduruku Tribe--Sawre Muybu*

The chosen representative of the Native Inhabitant of Munduruku Tribe is Sawre Muybu, the chief of the tribe, who holds strong feelings about the situation and has been a heavily involved actor in an attempt to make positive changes for the people of the Munduruku Tribe. Sawre Muybu is very strongly against the construction of the Tabajós Basin Dams in the Amazon. The Munduruku people inhabit the south west of the state of Para and have for hundreds of years. The seclusion that the large Amazon has given this community for hundreds of years is slowly deteriorating with the increasing dependence on the Brazilian economy, leaving many traditions and customs on the verge of extinction (The Editors of the Encyclopedia Britannica, 2018). As a

result, it is crucial at this point in history to preserve the land and the community of the Munduruku Tribe. The construction of the dams will not only result in deforestation, but also forced colonization.

The modern day Munduruku people collect latex from wild rubber trees on their land and exchange the latex for manufactured items (The Editors of the Encyclopedia Britannica, 2018). The Munduruku people are working with Greenpeace to prevent the construction of these dams, as they will bring drastic consequences and changes for the indigenous owners of the land. For example, their livelihood will no longer be able to be funded by their latex trade and business. Greenpeace has assisted the Munduruku people in fighting towards the formal recognition of their land by the Brazilian government for many years. They have attempted to set physical boundaries to assist in defining the land of the Indigenous people and raised international awareness and support for their cause (Vidal, J., 2016).

Sawre Muybu would like to mention that the destruction of hundreds of square kilometers of the Amazon rainforest will not only be a devastation to those who inhabit the land, but also to everyone in the world (Vidal, J., 2016). The Amazon is one of the largest forests on the planet with a beautiful array of biodiversity in every layer. Sawre Muybu understands Brazil's energy problem, however he believes that there are alternatives that would have less harmful consequences to the environment and to people. The Munduruku people are trying to get help from around the globe as they continue to face a losing battle with the Brazilian Government (Irigaray, 2015).

*Representative from the Interamerican Commission of Human Rights and the UN Human Rights Council--Anita Schmidt*

Anita Schmidt is a representative from the Interamerican Commission of Human Rights (IACHR) and the UN Human Rights Council (HRC). She has worked with the IACHR for 5 years and has a particular interest in defending the rights of indigenous peoples in Brazil. Anita opposes the construction of the Tabajós Basin Dams as it would be both a literal and figurative death sentence to many of the indigenous tribes that occupy the land, all for the development of an inefficient and unsustainable source of energy that will likely only serve to benefit the more industrialized regions of Brazil (Fainguelernt, 2016).

Four dams constructed along the Teles Pires River have already caused extensive damage to one of the sacred sites of the Munduruku people, the Sete Quedas waterfalls, a human rights

violation which the Brazilian government is refusing to acknowledge or offer any form of restitution for by illegally prohibiting the complaints to be heard in courts (Millikan, n.d.). Per Article 8 (“Everyone has the right to an effective remedy by the competent national tribunals for acts violating the fundamental rights granted him by the constitution or by law”), Article 10 (“Everyone is entitled in full equality to a fair and public hearing by an independent and impartial tribunal, in the determination of his rights and obligations and of any criminal charge against him”), and Article 21.3 (“The will of the people shall be the basis of the authority of government; this will shall be expressed in periodic and genuine elections which shall be by universal and equal suffrage and shall be held by secret vote or by equivalent free voting procedures”) of the 1948 Universal Declaration of Human Rights (UDHR), the Brazilian government is grossly violating the human rights of the indigenous peoples of the Amazon (United Nations General Assembly, 1948). It is absurd to think that these suggested ‘platforms dams’ will do any less environmental and ecological harm, and more ridiculous still to believe that the Brazilian government and wealthy construction companies are truly concerned about these matters over their bottom line.

Finally, perhaps the most tragic and pressing concern for the IACHR and HRC is preventing extrajudicial executions of indigenous leaders that are standing up against those in power and fighting for their land (Human Rights Watch, 2018). Since 2015 human rights organizations have noticed an increase in what is likely state-sanctioned violence, beginning with the murder of indigenous leader Eusebio Ka’por of the Alto Turiaçu territory, who protested the illegal logging operations occurring in the region (Rivero, 2015). For these reasons, Anita wants to bring attention to the suffering of the indigenous tribes who will suffer the brunt of the harm and also hopes to stall the construction of the dam so that other less harmful alternatives can be discussed as viable investments.

#### *Representative from Amazon Watch--Christian Poirier*

The planning of dozens of hydropower dams in the heart regions of the Amazon will be devastating according to Amazon scientists (Salisbury, 2016). The industrial waterways will benefit mainly the soy industry, and will result in displacing indigenous people, the emission of greenhouse gases and disruption to the natural water flow (Branford and Torres, 2017).

Amazon Watch (2018) has been serving to protect the Amazon rainforest and advance the rights of indigenous people since 1996. Christian is a senior member and the program director

for Amazon Watch. His efforts to encourage non-hydro energy alternative in Brazil's electricity matrix has been substantial. Christian has sought out to join with friends in not only stopping the emblematic problem of Tabajós Basin dams, but to challenge the whole destructive development model of economic growth and encourage a paradigm shift toward truly clean, alternative solution. Amazon watch supports and believes in promoting indigenous-led alternative to climate change, natural resource extraction and industrial development.

They have been partnering with and supporting the native inhabitant of Munduruku Tribe; Sawre Muybu and with IACHR/HR in standing up and protesting against the construction of the Tabajós Basin dams since it will harm the very rich biodiversity in the area severely. It will also have holocaustic effects on the native indigenous population living in the Amazon forest. These effects have already been visible to a large degree in the last decades.

Brazilian authorities have been leading brutal military incursion into Munduruku lands, and killed and hurt their people (Saud, 2014). They were also affected by the miners who had severely damaged the environment in the area, and later the construction of the Teles Pires dam which caused serious devastations. These developments also went against the Brazilian laws (Branford and Torres, 2018). Munduruku tribe is today a very well organized and resisting indigenous community which Amazon Watch have been supporting (Rosa, 2016).

### **The change theories**

#### *The three spheres of transformation*

The three spheres of transformation are the practical, political and personal spheres (O'Brien and Sygna, 2013). The spheres are interrelated with practical being the core sphere, the middle sphere as the political and the outermost sphere is the personal. The practical sphere is where emphasis is on the practical changes which can lead to transformation. In the political sphere one finds economic, political, legal, social and cultural systems. This sphere can be seen as very complex since it contains so many different actors trying to accomplish different agendas. The emphasis in the personal sphere is on organic endogenous change through educating the individual and the collective. Looking at the different actors through the lens of the three spheres of transformation they might fall in either one sphere or more.

Fernando Coelho, the energy minister and Antonio Brasiliano, the director of the company responsible for building the dam are in favor of the construction of the Tabajós Basin dams. Coelho

is responsible for looking after the energy demands of the country, driven by the values of economic growth and GDP, and so thinks it's the best solution to use the Amazon river to produce energy which would cater millions of people. He is for certain a political actor and would be in the political sphere, a sphere where social systems and structure define the constraints and possibilities under which practical transformation take place (O'Brien and Sygna, 2013). Hence the building of the dams might be considered the practical part, and the director of the company falls in the core of the sphere. Although, the change is considered to have negative environmental impact in the region and is contested by actors against its construction.

The struggle between the status-quo and the elite with power, versus the social movements and climate action campaigns also takes place in the political sphere (O'Brien and Sygna, 2013). In this sphere we would also include the other three actors in this case, Native Inhabitant of Munduruku Tribe, Sawre Muyby; Representative from the ICHR and the UNHCR Council, Anita Schmidt; and the Representative from Amazon Watch, Christian Poirier. All of these actors are resisting the construction of the dams. Their interest in doing so is to protect the biodiversity in the region and the rights and healthy environment for the indigenous people who live there. Management of ecosystems, climate systems and water systems are crucial in an era when human activities affect the global geophysical process in transforming the environment (O'Brien and Sygna, 2013). Systems and structures which are dominant are established throughout time. They often reflect the past and present beliefs, values and worldviews.

The personal sphere is where the transformation of individual and collective beliefs, values and worldviews take place (O'Brien and Sygna, 2013). The Amazon Watch representative is certainly in this sphere as well. They are effective in spreading of awareness and educating about what is taking place in the Amazon rainforest. Secondly, the natives would also be in this sphere, since Amazon Watch have made a lot of short documentaries where they work in collaboration to share their story with the rest of the world. It is from this sphere discourses and paradigms emerge and influence the framing of issues and lays ground for paradigm shifts. It is also considered to have more powerful consequences than the other two spheres.

With the support of Anita Schmidt and the IACHR/HRC which have international linkages and reach to the corridors of power, and Amazon Watch supporting the Amazon rainforest and its native inhabitants, the potential chance of positive change increases. In this case it would be influencing the public opinion through education and spreading awareness. Hence, these three with

more actors would put pressure on the political and economic actors in the political sphere. The pressure could be from many ways, on international, national and local levels. The utmost success would be a sustainable solution for producing energy for the Brazilian population and denouncing the construction of Tabajós Basin dams would be a victory and good news for the natives and the biodiverse Amazon rainforest.

### *The amoeba model of cultural change*

In this case, there are two opposite ‘sides’ among the actors; those who want to continue building the dams on the Tabajós, and those who want to prevent it. A positive change would mean that the actors fighting to stop the building of the dams succeed, and no more dams would be built in the area. The way of the change process could be well compared to the Amoeba Model of Cultural Change, presented by Alan AtKisson. The model presents the different stages of change, and thereby states what is needed from different parts of a society in order to create change (Poyourow, 2010).

The first actor in this situation is the chief of the Munduruku Tribe, Sawre Muyby. As a representative of the Tribe, Muyby would be compared to The Amoeba Model’s explanation of an inventor. As inventors they started the change process by forming the idea (Poyourow, 2010), which is resisting and expressing their disagreement to the building of the dams. The actors they are opposing are the Brazilian government and large corporations, which are more powerful actors in society. The tribe has potential to create the change desired but faces challenges early in the process, such as being a small group of people, not having political knowledge and connections, and being less respected and less powerful as actors. But if they get support from someone in a position to reach out and explain the issue to more people, that would be an opportunity to take their idea further (Poyourow, 2010).

This person could be the representative of the non-profitable organization Amazon Watch, Christian Poirier. In the Amoeba Model, this actor is presented as the Change Agent. The Change Agent is someone that understands the inventors and shares the same beliefs but can also translate and express this into something comprehensive for a larger group of people (Poyourow, 2010), like those beyond the tribe that might not be directly affected by the dams. As a Change Agent, Poirier has the possibility to reach out to the masses and spread the message (Poyourow, 2010), but faces the challenge of not gaining enough support. In order to move forward, he also

needs to reach out to more powerful people, in the political area.

The next step in the change process would be for the Change Agents to work with what the Amoeba Model refers to as the Transformers (Poyourow, 2010). In this case that would be the representative from the Interamerican Commission of Human Rights and the UN Human Rights Council, Anita Schmidt. As a Transformer she is in a position to explain the issue even further, to the political area of the society, and push the change process by making the issue appealing to her group (Poyourow, 2010), which is the UN and other governmental organizations. In order to do so, she might have to change the initial vision of the change process to make it seem favorable for that group of people (Poyourow, 2010). She might face struggles in making that compromise, but since she has a particular interest in defending the rights of the indigenous peoples in Brazil, it will probably be in the favor of the Munduruku Tribe.

The toughest obstacle for all these actors working towards the same goal is in the Amoeba Model explained as the Reactionaries (Poyourow, 2010). In this situation that would be the director of the company building the dams, Antonio Brasiliano, and the Minister of Mines and Energy, Fernando Coelho Filho. Both actors are in charge of building the dams and have a lot of money invested in the project. They will resist with everything they have in order for things to stay the same (Poyourow, 2010). The challenge these actors might face is balancing the country's need of an increased energy supply as well as its economic development, while not losing the majority of the people's support.

Overall, movements where people in the civil society are standing up against more powerful actors, like governments and large corporations, have in history shown not to be very successful (Massey, 2016). It's not very often that the people manage to get the change desired, by protesting or spreading their message. In this case, the Munduruku Tribe have got support from other powerful actors in society, like Amazon Watch and the IACHR. That means a greater potential to bring about change if they work together. Still, it's more likely that Coelho Filho and Brasiliano will stick to their plan, if none of the actors working against them manage to put enough pressure on them, either from the people in Brazil or internationally.

### **The 'best case' scenario**

If all perspectives and opinions on the matter are to be given fair consideration, then the ideal resolution of the Tabajós Basin Dam issue would be an agreement between parties to cancel

construction planning and instead divert planning efforts, resources, and investments into proposed wind power projects in northern Brazil (Dezem, 2018). While this option might seem like it favors the desires of the Munduruku tribe and other indigenous peoples, as well as the wishes of the representatives from the UN HRC and Amazon Watch, it is likely to be recognized as a critical pivot for the Brazilian government as well, in the coming years.

Recent research has shown that hydropower may be experiencing a decline in returns in Brazil, partially due to the extremely high construction and infrastructure maintenance costs but also because of increasing uncertainty of rainfall patterns as a result of climate change (Turner et al., 2017). The geographic location where the Tabajós Basin is located is already typically subjected to a three-to-five-month dry period, and if rainfall patterns were to be altered by climate change conditions, river patterns could thus be affected in unforeseen ways (World Weather and Climate Information, n.d.; Turner et al., 2017). While changes to rainfall patterns are anticipated, there is little way of knowing whether the impact would be positive and result in sustained or increased rainfall, or negative and cause longer drought periods that would certainly have a detrimental impact on the production of hydroelectricity (Turner et al., 2017). Therefore, it would be unwise for the Brazilian government or Empresa de Energia São Manoel S.A. to invest so strongly in hydropower at this point in time, particularly given the amount of environmental damage that would be caused and the fact that wind power is a viable option that is both more sustainable and more environmentally sound.

This scenario would represent the best possible outcome for all actors involved; the Munduruku tribe would have effectively brought attention to their cause through grassroots efforts and also collaborative work with more influential actors such as the UN HRC representative and the Amazon Watch representative, both of whom have greater platforms and more resources to invest into the cause (Massey, 2016). Further, it allows both the government and the energy company to step back from the matter without damaging their reputations any more—by accepting the will of the other actors involved, the government and the energy company are not forced to act as change agents themselves but can potentially benefit from the shifting trends by embracing them and incorporating ideals such as sustainability into their political and corporate values (Massey, 2016). Each actor would be able to come away from the situation with the perception of a win.

### **The ‘worst case’ scenario**

Considering all environmental, financial and humanitarian aspects of this case, the worst-case scenario would be either continue the planned construction of the dam or turn to fossil fuels to sustain the necessary growth in energy supply. A coal or oil powered plant would of course be the worst possible solution since it would hinder Brazil from complying with the Paris agreement and therefore contribute to substantially increased pollution. This increased pollution would further lower the living conditions of the citizens but also damage the fragile ecosystems in the surrounding areas. Due to Brazil's commitment to comply with the Paris agreement this solution is highly unlikely which leaves building the planned dams the realistic worst-case scenario. As mentioned previously, the risk of extended dry seasons together with enormous construction and maintenance costs could very likely result in an investment that is not cost effective enough compared to the energy output. As mentioned by Sawre Muybu, the chosen representative of the Native Inhabitant of the Munduruku Tribe, the construction of the Tabajós Basin Dams would not only displace the native population of the area but also greatly hinder them from earning a living from the latex harvest and trade. According to Anita Schmidt, the representative from IACHR and UNHRC, Brazil has already violated several articles through the construction of dams in other parts of the Amazon which have destroyed sacred sites of the Munduruku tribe.

If Brazil were to continue constructing these new dams, it would likely lead to even more conflict between the state and its indigenous people which would bring unwanted negative attention from other nations. If more human rights are violated, Brazil might be subjected to sanctions from other United Nations members which would be devastation for the country's further development. Sadly, the issues of these dams do not stop with lowered quality of life of the indigenous tribes but as stated by Anita, tribe leaders and members who protest against these violations often face unjust imprisonment and in some cases murder. It is most likely that this unjust treatment of indigenous people will increase with this build and that the conflicts will grow even louder and more violent. It would be much better to turn to alternative methods of energy production such as wind power even though it is not as effective. Wind farms could be spread over much larger areas to reduce the impact of the native inhabitants while still producing enough energy to sustain continued growth.

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