

## Summary and History of the Belo Monte Dam: Rainforest Foundation

The dam was first proposed in 1989, and was defeated due to pressure by indigenous and social movements. Opposition to the dam has built over the past 20 years. Belo Monte is the largest dam project under consideration anywhere on the planet. It would be the world's third largest dam in installed generating capacity if built, involving more earth moving than the building of the Panama Canal.

It would affect the land and livelihoods of nearly 40,000 people in the Xingu basin, including 10,000 indigenous people from 18 ethnic groups. There are solid technical arguments to the dam's viability but the negative effects of this dam have not been fully disclosed to the public and the public hearings have been biased and insufficient for real discourse.

### Political Context:

Belo Monte would serve primarily to furnish energy for electro-intensive industries which are being constructed or are in expansion in the region, rather than to supply the national market. The development process has been extremely hurried, without proper observance of Brazilian environmental law and constitutional requirements that indigenous peoples be consulted regarding such projects on their lands. Six indigenous groups have filed suit with the Public Prosecutor's Office, calling for hearings. Twelve indigenous communities that FUNAI met with in September 2009 have asked for additional hearings in their communities. The government has not announced any new meetings and pressuring environmental authorities to issue the licenses for Belo Monte this year.

Belo Monte would be the first major dam in the last 20 years to displace and affect the natural resources of indigenous peoples in Brazil. This is an important test for the dozens of dams that are planned and would impact indigenous lands.

### Why the Rainforest Foundation is getting involved in Belo Monte:

- Our history: Potential damming of the Xingu was a galvanizing issue for the Rainforest Foundation 20 years ago.
- We've supported indigenous communities in the Xingu basin secure their land and resources, we will now help them assert their rights to protect them.
- We believe in empowering indigenous communities in decision-making that affects their lives and livelihoods.

### Main issues For Rainforest Foundation:

Communities that would be impacted by the dam have not been provided with adequate scientific information on the dam's impact and have not been adequately consulted in the decision making process.

Timeline:

1989: 5 dams planned for the Xingu basin, which would have flooded 18,000 sq km of rainforest, generating 20,000 MW of electricity. Kayapo and other indigenous groups oppose dams, held major protest in Altamira, and successfully stopped plans for the dams.

2002: Brazil re-launched plans for a huge dam ("Belo Monte") on the Xingu River.

2008: Over 1,000 indigenous people and social movements gathered in Altamira and met with government and electric company officials to protest the dam.

2009:

July: Meeting with Lula. A delegation of groups opposing the dam met with President Lula who said he would review the project and promised "no one is going to stuff this project down anyone's throats".

September: Public Hearings. Ibama, Brazil's environmental authority, organized 4 public hearings. Hearings were marked by strong protests by social movements and by massive military and police presence. 6,000 people gathered for the hearing in Altamira. Presentations by government officials only focused on benefits of the dam, time for audience member questions was inadequate, and government responses to questions were superficial.

October: Independent Expert Panel Report on the Environmental Impact Analysis (EIA) is Released

An independent experts panel consisting of forty specialists from various Brazilian universities and research institutions published a report of their findings on the Environmental Impact Analysis issued by the Brazilian Environmental Agency. The study was made possible by support from the Fundação Viver, Produzir e Preservar of Altamira, WWF Brasil, Instituto Sócio Ambiental (ISA), International Rivers, FASE and the Rede de Justiça Ambiental.

The panel found various omissions and methodological inconsistencies in the EIA, with regards to its economic viability; social and environmental impacts; and underestimates of emissions, population affected, and area. Most seriously, while the EIA states that 1,500 sq. km would be directly affected" (flooded, new roads, dumps, canals) by the dam, it does not address the drying of a 100 kilometer of the Xingu River, an area called the "Big Bend", which would suffer a nearly permanent drought because of the dam's plan to divert about 80% of the River flow into man made canals near the dam. The people who live in this "Big Bend" area – indigenous communities, river dwellers, and small farmers – were not considered by the EIA as "directly impacted" by the dam. The Expert's Panel found that these communities' livelihoods will be profoundly impacted.

An executive summary of the Expert Panel's report in English was published on October 12, 2009, and can be found here: [http://www.internationalrivers.org/files/EXEC%20SUMMARY%20ENGLISH\\_0.pdf](http://www.internationalrivers.org/files/EXEC%20SUMMARY%20ENGLISH_0.pdf).

The following is a brief list of the main issues identified by the study:

### Cost:

No one knows the actual costs of Belo Monte. First estimated at R\$ 7 billion (USD\$ 4 billion), it is now estimated by the government at R\$16 billion (USD\$ 9.4 billion) (Estado de São Paulo, 23/9/2009) – these do not include transmission costs. Companies interested in the project estimate the total cost to be between R\$ 20 and 30 billion (USD\$ 12 and USD\$ 18 billion). None of these include social costs, such as dealing with unemployment after the project is over.

### Capacity and scope:

The 'firm energy' coming from Belo Monte is only 39% of potential (from 11MW at peak to 4MW during the 4-month long dry season). This is because during the dry season, the Xingu River reduces its flow dramatically. If outflow goes as low as 700 m<sup>3</sup>/s, as it has in the past, the dam would not generate any electricity. The technical solution to deal with the extreme variation in river flow would be to build dams upstream on the Babaquara, Ipixuna, Kokraimoro and Jarina Rivers, which would flood large areas, normalize the river flow, and help Belo Monte obtain the full potential of Belo Monte. There are no guarantees that this would not happen. Government spokespeople have said that their estimates have shown a larger percentage of 'firm energy', but have not said how much.

### Deforestation:

The EIA only contemplates the direct impact that Belo Monte would have on deforestation – in the immediate area where construction will take place, and the area flooded. The increase in population levels and the construction of infrastructure and roads needed for a dam the size of Belo Monte is a known cause of large-scale deforestation, and the municipality of Altamira already has the highest rate of new deforestation in the Brazilian Amazon. The EIA has not, however, used any computational models or simulations to measure the impact that Belo Monte would have on deforestation in the region over the next few decades. These predictions of deforestation are important, considering the proximity of the work sites and workers camps to protected areas and indigenous reserves.

### Greenhouse Gas Emissions:

According to national inventories conducted under the 1990 Climate Convention, all of the large dams in the Brazilian Amazon (Tucuruí, Samuel, Curuá-Una and Balbina) caused much larger emissions than the same amount of energy generated by thermoelectric plants. According to studies done in Balbina (Amazonas state, Brazil), and Petit Saut (French Guiana), water deep in reservoirs is under high pressure and contains a high concentration of dissolved methane. When the pressure is suddenly released as the water emerges from the turbines or spillways, a considerable amount of methane escapes into the atmosphere. Each ton of methane emitted has a global warming effect 25 times greater than a ton of carbon dioxide. The EIA, however, only considered the methane emanating from the surface of the reservoir, ignoring several studies on the impacts of the water emitted from the turbines and spillways. This omission in the EIA is especially distorting in Belo Monte's case, because Belo Monte's reservoir is relatively small, while a large volume of water flows through the turbines, especially in the first years. A recent study estimated that the energy generation from the Belo Monte dam and an upstream dam at Babaquara/Altamira would take 41 years to have a positive impact on greenhouse gas emissions. (Fearnside)

### Impact on livelihoods:

While the reservoir that would be created by Belo Monte is relatively small, it would drastically reduce almost 100 kilometers of shoreline, or about ¾ of the "Big Bend". The dam would in effect cause a "permanent drought" in this region since 80% of the water would be diverted into two man made

canals. This is not adequately addressed in the EIA, and the indigenous peoples, river dwellers, and others who live near the “Big Bend” were not considered directly impacted by the dam in the EIA.

Probable effects:

- Fish stocks: would be drastically reduced, some species likely to go extinct. People in the area currently get 70% of their protein from fish and river animals. The Xingu River is one of the richest in fish species in the world, containing 3 – 4 times as many species than all of Europe. “Ornamental fish (an economic activity in the region), would be destroyed.
- Navigation: Reduction in river levels would compromise transportation in the area, making it impossible for indigenous communities to reach Altamira to sell or buy products.
- Groundwater: Upstream from the dam, in Altamira, the water table would rise, risking contamination of wells, the main source of water used in the city. Downstream the water table would lower, negatively affecting agricultural production in the region for indigenous and non-indigenous farmers.
- Water borne diseases: formation of small, stagnant pools of water among the rocks of the Big Bend would be an ideal environment for proliferation of water-borne diseases.
- Population growth: The EIA underestimates the number of people who would migrate to the region in search of a job when the dam is built. The expert’s panel estimates some 100,000 people would migrate to the region, with only 18,700 of them hired to work directly on the project. Of these, 18,000 would be dismissed once the dam is built. It is expected that the majority of the migrants who will not get work on the dam would seek land in the rainforest areas. None of the government’s studies has addressed population growth on this scale, nor the physical and social infrastructure that will need to be put in place to handle it. These costs are not included in official estimates of how much the dam will cost.