

Environmental and socioeconomic impacts of the Hydroelectric Power Plant: the case of Belo Monte, Brazil

Rodrigo A. da S. Pimentel [rodrigo.pimentel@ifrn.edu.br]

Supervisor: Paula F. Varandas Ferreira

INTRODUCTION. Hydroelectric Power Plants (HPP) are frequently considered “clean energy” technologies. However, these plants can cause numerous social and environmental conflicts throughout the world. This is mainly due to the adoption of large reservoirs for the dam, requiring the displacement of significant contingents of the population and also implying restrictions regarding the multiple uses of water.

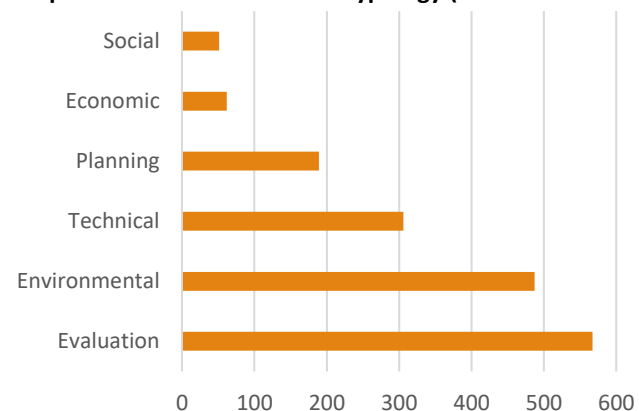
METHODOLOGY. The effects caused by the construction of the Belo Monte plant (one of the HPP with the highest nominal power, worldwide) were analyzed, considering the environmental and social perspectives based on:

- The environmental impact studies.
- A comprehensive bibliographic carried out in databases of scientific articles.



RESULTS AND CONCLUSIONS. Some limitations were identified in the studies presented for the project, such as the rather superficial and incomplete assessment of greenhouse gas emissions and impacts on the population's health. It was also found that the affected area was undersized, especially affecting fishermen and the riverside population, and that there is little focus on aspects related to health.

Graph: Articles related to HPP typology (search for terms such as impacts and externalities)



Using 110 descriptors to filter and classify articles in 6 dimensions (Environmental, Social, Economic, Planning, Evaluation and Technical), it was identified that the smallest share of studies is of the social aspect, with 51 articles (7% of the results).

Source: own elaboration

The decision to reduce the area flooded by the dam caused strong seasonality, as the plant remains at full capacity for only three months a year, a fact that leads to the question of whether the construction of the project has actually fulfilled its objectives, since it has a high social, environmental and economic cost.

Figure adapted from: Google Maps; <https://outraspalavras.net/outrasmidias/belo-monte-ameaca-a-volta-grande-do-xingu/>; https://pt.wikipedia.org/wiki/Usina_Hidrelétrica_de_Belo_Monte#/media/Ficheiro:Usina_Hidrelétrica_de_Belo_Monte.jpg.