

**Understanding the Land Use and Water Systems of the Mekong
River**

(Technical Report)

**The societal influences and impact on hydropower implementation
in the Mekong River region**

(STS Research Paper)

An Undergraduate Thesis Portfolio
Presented to the Faculty of the
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Bachelor of Science in Systems Engineering

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Sociotechnical Synthesis

Problem:

This research addresses the impact of hydropower dam implementation along the Mekong River in Southeast Asia and China. Constructing a dam impacts water flow which has sweeping effects across various areas such as aquaculture and agriculture. This affects the local population's ability to sustain themselves and in some cases uproots them from their home villages due to flooding.

Technology:

The capstone team will be collecting data sets online and aggregating them in order to analyze various aspects of the impact. Through statistical analysis of agricultural, aquacultural, hydropower, and economic data the capstone team will seek to quantify the impact on the local population. The team will use data visualization software and statistics software such as R and Tableau in order to fulfill this goal.

Why it is important to consider the human and social dimensions:

The human and social dimensions of this technology are important in this research because of the various societal forces that influence hydropower implementation. Countries such as China have immense resources compared to the countries along the lower Mekong and directly impact the quality of the dam's construction as well as its placement.

STS Theories:

The Social Construction of Technology framework will be used in order to analyze the various influences that social groups have on hydropower technology. By implementing the concept of interpretive flexibility, the various social group's viewpoints can be analyze in order to study their relationship with the technology.

Methods:

In order to conduct this STS research, I will seek to link the hydropower technology with the surrounding society. In order to analyze this, data sets such as GDP and fishery data will be utilized to quantify the impact of the technology. Various sources exist online that describe the source of the technology's funding as well.

Expected Outcome:

I expect to find that the rural population of Southeast Asian countries has the least influence on hydropower technology and is also the most heavily impacted. Based off of initial research it would appear as though the poorest parts of these countries experience the most negative consequences.

Implications:

When considering the technology and STS research in concert, the benefits of renewable energy need to be weighed against the negative consequences on the local populace.

While hydropower may be found to be a long term solution for energy crises in the region, the rapid increase of its usage may not be the proper method of implementation.