Student Handout: Mekong Basin Case Study

QUICK ISSUE DESCRIPTION

The Mekong River is a large river that is approximately 4,350 km long, with a drainage area of 795,000 km2. It is the twelfth longest river in the world and the seventh longest river in Asia. Originating in the Tibetan Plateau, the Mekong River crosses southern China before passing Myanmar (Burma), Laos, Thailand, Cambodia, and Vietnam, where the Mekong flows into the South China Sea.

The Mekong River Basin is home to a large variety of ethnic groups. Over 60 million people live along the river and in the river basin. They are heavily dependent on Mekong Basin fisheries for food and income. No wonder the Mekong River Basin supports the most important fresh-water fisheries in the world, with an estimated annual fish production in the basin of between 2.3 and 3 million tonnes annually! This freshwater biome supports well over 1000 (around 1200) species of fish, along with 20,000 species of plants, 1200 species of birds, 800 species of reptiles and amphibians, and 430 mammal species, making the Mekong one of the most biodiverse rivers in the world. The river itself is situated in both tropical and subtropical biomes/areas. The seasons of the Mekong River Basin are separated into wet and dry seasons, with the wet season characterized by intense rain and monsoons.

Map of the Mekong Basin
Photo Credit: Ian C. Campbell https://ars.els-cdn.com/content/image/1-s2.0-S1642359316300428-gr1.jpg

DID YOU KNOW?

The Mekong Basin is one of the most biodiverse freshwater systems in the world? There are over 1200 recorded fish species!

One of the most famous species of freshwater fish to exist in the Mekong Basin is the Giant Catfish or "Plā duk yaks."

Thai Translation for Giant Catfish:

ปลาดุกยักษ์

Plā duk yạkṣ̄

People in the Mekong River Basin primarily live in rural areas rather than cities. The livelihoods of people living in the basin are connected to fish, other aquatic life, plants, rapids, tributaries, streams, and more. Many local people believe that all natural phenomena are not simply objects to be used but that they each have a spirit. This belief is called "animism," and it emphasizes the spiritual nature of both land and water.

Despite the importance of the river system to both survival and spirituality, the value of this natural system to people's livelihoods appears to be frequently underestimated by outsiders.

ISSUES FACING THE MEKONG RIVER

Over the past 15 years, a series of hydropower dams were constructed in China. Currently, several more are in the planning and construction phases. Hydropower dams pose a significant threat to the river's ecology and ways of life of communities in the basin. Women are especially impacted, as they are one of the main water use and management stakeholders.

WOMEN OF THE MEKONG BASIN:

Women from diverse socio-economic statuses have different river knowledge. Wealthier women tend to depend more on land-based and farmed resources and thus know little about the river system. Women (and men) who depend on fish and other aquatic animals for food and income have more in-depth knowledge of the river. These women have been forced to adapt to the environmental devastation caused by hydropower dams to survive and continue providing their household livelihoods.

Fisherwoman on the Mun River (Baan Kho Tai Village, Thailand)
Photo Credit: Abby D'Souza

IMPACTS OF HYDROELECTRIC DEVELOPMENT ON WOMEN

- Women have the most household responsibilities for food collection and income generation for their families, which hydroelectric dams threaten by changing water levels and impacting the surrounding ecosystem.
- Typically, women living just below the Mekong dams experience a reduced quality of life after dam construction due to difficulties accessing fish for food.
- Gender bias favors men, who have an easier time accessing programs that compensate them for the harmful impacts of hydroelectric development.

THE STORY OF MAE MII SANTAWEESOONG (BAAN DON SUMRAN - THAILAND):

Mae Mii Santaweesoong is a fisherwoman from the village of Baan Kho Thai in Thailand. She spends most days fishing and trapping other aquatic animals, selling her fish, taking care of her family, and creating her own fish traps! However, hydroelectric development has prevented her from relying solely on fishing for her livelihood. Due to this, she also works harvesting rice to make ends meet (D'Souza, 2019).

IMPACTS OF CLIMATE CHANGE ON THE MEKONG BASIN

The area surrounding the Mekong River is highly vulnerable to the impacts caused by climate change, which affect the people, biodiversity, and natural resources. Climate change can be seen as an "amplifier" of any current environmental threats in the region, threats such as habitat loss, poorly planned infrastructures, unsustainable resource extraction, and so on. An "amplifier" means that climate change intensifies the effects of already existing issues.

These environmental threats weaken the ecosystem's ability to recover from the damage, making it even more vulnerable to climate change. Temperature rises due to climate change result in changing rainfall patterns and the possibility of droughts in the future, creating issues of water scarcity for the people and reduced agricultural production.

The warmer temperatures caused by climate change are intensified by the construction of the hydroelectric dams in the area of the Mekong River. In order to build a dam, the surrounding forest is cut down. As a result, fewer trees are available to absorb the carbon dioxide in the air caused by fossil fuels. Recent studies have also found that the decaying vegetation caused by hydroelectric dams also cause greenhouse gas emissions, further contributing to climate change. The decaying vegetation caused by dams around the world emits roughly a billion tons of greenhouse gases every year. As dams have been used for a long period of human history (over 100 years), dams have collectively produced more methane than rice plantation and biomass burning. Therefore, the damming of the area along the Mekong River further adds to the threats of climate change.

KEY DEFINITIONS:

ENVIRONMENTAL HEALTH: The concept of "environmental health" focuses on the interrelationships between people and their environments. It includes all abiotic and biotic factors that are needed to sustain life. The "environment" part of the term includes both the natural environment and spaces made by humans.

HYDROELECTRIC DEVELOPMENT: Hydroelectric engery, or hydroelectric power, is a form of energy that harnesses the power of water in motion - as a hydroelectric dam on a river or a waterfall - to create electricity.

LIVELIHOOD: A means of securing the necessities of life. Those who are living along the Mekong River and its surrounding rivers, creeks, and other tributaries, rely on resources from the Mekong River for their livelihoods. An example of these resoureces is fish.

CLIMATE CHANGE: Climate change includes both the global warming driven by human emissions of greenhouse gases, and the resulting large-scale shifts in weather patterns.

BIODIVERSITY: The variety of life in the world or in a particular habitat or ecosystem.

TRACKING CHANGE RESEARCH EXAMPLE: DIVERSIFICATION OF LIVELIHOODS IN A REGION IMPACTED BY HYDROELECTRIC DEVELOPMENT, THE MUN AND SEBOK RIVERS (THAILAND)

Research helps us understand the impacts of hydroelectric dams on local communities. This research study by Amabel D'Souza (conducted through the Tracking Change Project) looks how local people living along the Mun and Sebok Rivers (Mekong Basin) are impacted by hydroelectric development.

Overview:

Local people living along the Mun River and its tributary, the Sebok River, have a deep connection to the ecosystem, as well as longstanding knowledge and practices that are critical to their fishing livelihoods. However, due to rapid hydropower expansion in the Mekong region, communities have had to diversify their livelihoods in an effort to adapt to the associated ecological and socio-economic changes in their regions.

To understand people's experiences with these changes, researchers interviewed 26 people in nine different communities in the Isan region of Thailand in an effort to better understand historical fishing practices and adaptations that have taken place over the past two decades. Many of these communities have been impacted by the Pak Mun Dam, a major dam that blocks fish migration and has had other adverse impacts. The villages in this project are Baan Kho Tai, Baan Don Sumran, Baan Hua Hew #11, Baan Hua Hew #4, Baan Na Choom Chon, Baan Thalat, Baan Doom Yai, Baan Huay Mak Tai and Baan Wangsabang Thai.

DID YOU KNOW?

The word "Baan" means "Home" in Thai. That is why every village has the word "Baan" in front of it.

Thai Word for "Home":

บ้าน

Bân

"Take my story and share it with Canada as a lesson" -Mae Charoen Gong Suk, Baan Hua Hew #11

Fisherwoman collecting shellfish on the Mun River
Photo Credit: Kanokwan Manorom

Findings from the Interviews:

Impacts of the Pak Mun Dam:

- Local communities were not consulted prior to the construction of the dam, and local people protested for years in attempts to halt construction.
- Households were displaced and entire communities were relocated due to flooding when the dam was built. After completion of the dam, the most notable impact is the blocking of fish migration.
- Other impacts included the loss of rapids/deep pools, high sediment levels in the river, and the loss of riverbanks.

Livelihood Diversifications

- Local people can no longer support themselves on fishing alone.
- These people have coped with the loss of fishing livelihoods by migrating to bigger cities to look for work, switching to manual labor for income, farming fish, purchasing fish from the market for food, and agricultural work.

DIVERSIFICATION

Diversification refers to the process of developing multiple income sources, rather than relying on a single basis for one's livelihood. Diversification is a way of avoiding risk. For instance, if one source of income (such as fishing) is harmed, a person's livelihood is protected because they can turn to an alternative source.

The Mekong side of the Pak Mun Dam - This Dam blocks fish migration into the Mun River from the Mekong River
Photo Credit: Abby D'Souza

Looking Towards the Future:

The research in the Mekong River Basin focuses on involving local people and local researchers in order to investigate how deep knowledge about fish and fish migrations is shared through social networks that extend over space, including across national borders and across generations.

This research is significant because it draws attention to the voices of those people in communities that are directly impacted by the Pak Mun Dam.

These communities came up with several recommendations to address the issues caused by the hydroelectric dam, which are as follows:

- Decommission (shut down) the Pak Mun Dam.
- Should it be impossible to decommission the dam, open the dam during times when fish are migrating in larger numbers, such as from mid-May to mid-July.
- Compensate those living along the Sebok River for the loss of livelihoods. Compensation may be monetary or it may be something else.
- Strengthen the communication between government, academics, community members, and other stakeholders. Better communication between local people and other stakeholders increases the possibility of producing positive results and strengthening relationships.

Statements from Local People living along the Mun and Sebok Rivers:

In the future, my grandchildren might not have fish - Weera Suriach, Baan Doom Yai

Now very few people get together and share fish - probably because less people are fishing at all. - Wittaya Tong Noi, Baan Don Sumran

In the past, no one needed to leave the village. But now they have to because thay have no money. - Mae Tussanee Chiangman, Baan Huay Mak Tai

I would love if my children were able to live in the village, but they don't have fish careers anymore. Traditional way of live doesn't offer careers anymore. - Pratim Kamparat, Baan Don Sumran

Before the dam we could go anywhere to fish, but now there are more people and less fish. When my grandpa was fishing, he fished. He didn't have to sell the fish. He just traded and brought the rice home. - Mae Tussanee Chingman, Baan Huay Mak Tai