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Modernization and Underdevelopment:

A Case of Kaptai Hydro-electric Project

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Abstract

This article discusses the impact of the Kaptai hydroelectric project, located in Bangladesh's Chittagong hill regions, on the lives and livelihoods of local populations from a modernization and underdevelopment standpoint. The project involves the construction of an artificial dam covering an area of 56,000 hectors of land and providing just 230 megawatts of electricity, or about 2% of our entire national electricity production. According to an official report, about 100,000 individuals were removed from the area in the 1960s without proper compensation or even a pre-expulsion assessment of their ability to live comfortably. Additionally, a few fortunate individuals received recompense that was far from enough, leaving others uncompensated and still yearning for a better standard of living. Thus, the project, particularly the dam, had deprived them of their home, cultivating land, other means of subsistence, and nearly everything else. As a total, it can be asserted that the dam has altered the lifestyles of the displaced population in that area, putting them in perilous circumstances. Not only in our country, but also in other countries, dam construction has led in harmful environmental and social consequences as a result of immoral new settlements and livelihood facilities. The purpose of this article is to assess the Kaptai Hydroelectric Dam project from the standpoints of modernization and underdevelopment.

Keywords: Modernization, Underdevelopment, Hyro-Dam.

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1. Introduction

Dam is one of the world's oldest and most intriguing engineering innovations. Dam's history is nearly as old as human civilization itself. Jordan built the world's first dam, the Jawa Dam. It was created in the fourth millennium BCE to protect the waters of the tiny stream and to allow for improved irrigation production on cultivable regions downstream. Following that, more dams were built throughout the world for various purposes. Bangladesh entered the dam era in 1962, most notably with the construction of a hydroelectric dam. It is located in the Kaptai area to obstruct the Rinkhyong River's waters as well as the Freengkhyang fountain. It is capable of generating roughly 230 MW of power per day, which is approximately 1.7 percent of the country's total electricity usage.

Modernization is the current term for an old process—the process of social change whereby less developed societies acquires characteristics common to more developed ones. The process is activated by international or intersociety communication. Modernization theory is used to explain the process of modernization within societies. It refers to a model of a progressive transition from a 'pre-modern' or 'traditional' society to a 'modern' one. Modernization is related to the development of a society. Development refers to a promoted mobility of the entire social system. Development relies on some factors, but that can also lead to some underdevelopment in cases. In this paper, we tried to explain how Kaptai Hydro-electric Dam project is related to modernization and how it caused underdevelopment to a locality.

2. Objectives

The study focuses on the following objectives:

Broad Objective

- To explore modernization and underdevelopment impact of Kaptai Hydro-Dam project

Specific Objectives

- To evaluate the Kaptai Hydro-electric Dam project from modernization and development-underdevelopment perspective.

- To evaluate the Kaptai Hydro-electric Dam project's significance in the present days.

3. Research Question

How Kaptai Hydro-dam project has becoming an impact of modernization and underdevelopment at the same time?

4. Methodology

The study is descriptive in nature, and is conducted based on secondary data. The secondary data is collected from various books, journals, research papers; as well as newspaper articles and internet sources. However, the data has been interpreted in the light of the objectives mentioned.

5. A Short Introduction of Kaptai Hydro Dam

Kaptai Dam construction began in 1957 and was finished in 1962. After Bangladesh's independence, the Dam's capacity was increased to 230 MW. The overall cost of installation and extension was Rs. 503 million and Tk. 1,900 million, respectively. The then-East Pakistani government, the United States, and the Overseas Economic Cooperation Fund supported the project.

No compensation was paid to residents in the storage reservoir area who lost their houses and crops as a result of flooding caused by dam construction. Over 40,000 Chakma indigenous people came to Arunachal Pradesh, India, specifically for this purpose. Land scarcity is cited as the primary reason for the area's ongoing violence. The dam and reservoir construction also resulted in the loss of wilderness and forced migration of wildlife owing to a lack of food and shelter.

Feature	Size/ Type
Body of the dam	Earth
Length	670.6 m
Height	45.7 m

Crest width	7.6 m
Maximum water level	33.5 m (110 feet above mean sea level (MSL))
Minimum water level	20.1 m (66 feet MSL)
Capacity at 33 m MSL	6477×10^6 m
Reservoir at 33 m MSL	777 km^2
Spillway length	227 m
Maximum spillway discharge	16 000 cumecs
Installed capacity (five units)	230 MW

Table 1. Basic features of the Kaptai dam

6. Literature Review

Soon after Pakistan's independence in 1947, the CHT and Kashmir Affairs were transferred to the Ministry of Home and were directly administered by the central government. Although the 1956 and 1962 constitutions preserved the CHT as a "Excluded area," the 1963 constitutional amendment repealed the British-introduced CHT Regulation of 1900. The Chakma people lost their 'autonomy' and their position as a 'excluded area,' which came as a huge shock to them. (Bhattacharya, 2001: 329; Ahsan & Chakma, 1989: 963; Kukreja, 2003: 12-21; Behera, 1996: 988-989; Kukreja, 2003: 12-21).

Area purchase and encroachment on forest land in CHT by the previous government was a major source of contention between indigenous people and the GoB. The Islamic Republic of Pakistan assumed full powers for the acquisition of land under the Chittagong Hill Tracts (Land Acquisition) Regulation in 1958, which violated the CHT Regulation of 1900, which denied the local tribal people a range of rights over land under British rules. Due to the major disparity in legal systems between the CHT and the rest of the country, the laws that apply to the rest of the country do not apply to the CHT; this is why the British Government specifically included them in the CHT Regulation of 1900. (Roy, 1998)

Along with land acquisition, the government's sponsorship of commercial monoculture crops such as rubber and teak in the CHT area sowed resentment among indigenous people. Rubber plantations began experimentally in 1959 in the CHT. In 1969, the government acquired 40,000 acres of land to commercialize it. However, the plantations have been a cause of contention with ethnic communities that maintain their customary rights. Pakistan's government's policies jeopardized their source of livelihood, ethnic identity, and culture. They began to mount armed resistance against this backdrop (Gain, 2001: 23-26; Nayak, 2005:39-40; Nayak, 2006: 61-62; Gain, 2002: 41-48). However, the Pakistani government crushed the battle as guerilla activity spilled over the border from India and Myanmar, two unfriendly neighboring states (Zaman, 1982: 78).

Soon after the Chakma Raja (King) Trivid Roy, East Pakistan Legislative Assembly Member Kamini Mohan Dewan, and a few other regional officials announced their opposition to the Kaptai Dam from their respective positions. Students such as Chakma-born fighter Manabendra Larma and Chittagong's Binoy Kanti Khisa distributed booklets outlining the project's adverse impacts and galvanized the public to reject the proposed dam in Kaptai. However, they were promptly seized and imprisoned.

In response to official repression, the displaced people founded an underground political party in 1966 called the CHT Welfare Association. The primary objective of this group was to safeguard the tribal peoples of CHT. However, organized protests began with the establishment of Bangladesh in 1971, when they were denied ethnic minority status in the constitution, which threatened their cultural identity. The CHT Welfare Association was dissolved in 1972 with the founding of Manabendra Narayan Larma's Parbottya Chattagran Jana Sanghati Samity (PCJSS) (Kazi, 1980: 1510). He began a democratic and nonviolent campaign for their rights. However, when the Sheikh Mujib Government declared martial law in 1975, they shifted their tactics from nonviolent to military combat. Progressively, democratic demonstrations morphed into insurrection (Chakma, 1995: 86-96).

To satisfy the growing demand for electricity, the Government of Bangladesh (GoB) has taken pragmatic actions to increase power supply in a short period of time by supporting private sector energy production and importing electricity from neighboring countries. Bangladesh's government has set a goal of electrifying the entire country by 2021. Bangladesh's electricity demand is expected to reach 33,708 megawatts (MW) by 2030. However, the GoB intends to expand its power generation capacity beyond predicted demand to 40,000 megawatts (MW) by 2030 in order to support the country's fast-growing economy (Bangladesh Power Sector Overview, 2018).

7. Theoretical Analysis

Kaptai Dam from Modernization Theory Perspective

Located in the beautiful Chittagong Hill Tracts (CHT), the Kaptai dam on the River Karnafuli is Bangladesh's sole hydropower source. The dam, which was commissioned on 30 March 1962, initially contained two hydropower units with a combined capacity of 80 MW. Currently, the dam has five units with a combined capacity of 230 MW, providing approximately 5% of Bangladesh's total electricity demand. The Kaptai dam was to benefit hydropower, flood control, irrigation and drainage, navigation, and improved forest resource collection. Except for irrigation and drainage, the most of these objectives have been met to varying degrees. Commercial fish cultivation and leisure activities have been introduced to the lake more recently. Thus, the dam's purposes could be summarized as follows:

• To produce power (Mainly)

• To increase the area irrigated.

• To foster inter-river communication.

• To boost fisheries production.

• To prevent floods.

• For the purpose of harvesting forest resources.

• To increase tourism.

Thus, we may justify that it was a process of modernization at this time. According to Larrain, modernisation refers to 'the process and stages that traditional societies or backward societies must pass through in order to become modern societies.' Three components might be used to define this modernizing process. To begin, it is a hierarchical classification of nations or communities that illustrates how those that are modernized or moderately modernized differentiate themselves from others. Second, elucidation of how cultures modernize by comparison of aspects that promote transition. Finally, generalizations regarding the relationship between the components of a modernized society, including stages of modernization and ideal types of successfully modernized countries. And, to be more

precise, Walt Whitman Rostow made the most significant contributions to the philosophy of modernisation. In his work, "The Stages of Economic Growth: A Non-Communist Manifesto," he constructed an economic model outlining the five stages of nation growth.

Rostow's Five Stages of Growth:

The Traditional Society

⬇

The Preconditions for Take-off

⬇

The Take-off

⬇

The Drive to Maturity

⬇

The Age of High Mass Consumption

These stages of development trace a straight path from a society's backward characteristics to a modern civilization with advanced industries and other development projects. And in the case of the Kaptai Dam, it was unambiguously a step toward modernity. It was constructed to effect change in society and serves as a source of sustainable energy. The lake facilitated communication in that area significantly. As a result, industry accelerated in that region, as a number of companies rely on the lake. Thus, we can state unequivocally that the Kaptai Hydro Project was a component of modernity.

However, no development is free, and the Kaptai Hydro Project is no exception. During construction, the dam flooded an area of approximately 655 kilometers square, including around 22,000 hectares of cultivable land, or 40% of all cultivable land in the CHT. The lake displaced 18,000 families and 100,000 tribal dwellers, 70% of them were Chakma. Additionally, the dam drowned the historic Rangamati town and the Chakma Raja's palace (king).

A fairly haphazard attempt was made to rehabilitate this sizable community, which accounted for roughly 25% of the local population. Officially, the bulk of displaced people were relocated to the higher portions of the Kasalong and Chengi rivers during the project's initial phase. In reality, the newly generated 'environmental refugees' were relocated to the low-lying areas of Langdu, Barkal, and Bhaghaichari per the project's recommendation. By 1962, much of this resettlement area had been submerged as the reservoir progressively filled, displacing many for the second time. This inevitably aggravated the native community, who reaped relatively few benefits from the dam. Many of the displaced people fled the nation; according to some estimates, 40,000 of them made their way to India's thinly inhabited states of Mizoram, Tripura, Assam, and Arunachal Pradesh. Another 20,000 people may have made their way to Burma. This event is referred to the the Chakma as Bara Parang, or the Great Exodus.

Since Pakistan's inception, this event, together with a succession of administrative and legislative acts, culminated in the 22-year-long violent and armed clashes between the GoB and the tribal people, which began in the mid-1970s and lasted until the signing of the peace treaty in 1997. Certain aspects of the treaty have not been implemented, and they continue to be a source of contention between the GoB and the CHT's tribal population.

Thus, this is a development discourse since it conflated development with a few specific facets of society while ignoring the broader end. Additionally, words such as Environmental Impact Assessment (EIA) and Social Impact Assessment (SIA) had not been coined at the time. Additionally, it is obvious how the project's planning failed to handle the project's complex political and social circumstances, which eventually resulted in some severe problems, such as ethnic insurgencies and the other challenges discussed previously.

If we examine the project's current status, we see that electricity output has plummeted to less than 5% of the overall requirement. The fisheries output has also been reduced as a result of the siltation problem, which has resulted in flooding, while the cultivation of periphery land has also diminished.

Kaptai Dam from Circular Causation Model and Underdevelopment Perspective

If we relate this to the circulation causation theory of development, which states that while a social system may remain static or move upward or downward, the dynamics of the system

are determined by the fact that all of the circular causation, implying that if one changes, others will change in response, and the secondary changes will cause further change, and so on. As a result, the criteria are mutually dependent. However, if we consider the aspects of circular causality, it becomes clear how the aforementioned phenomena might be explained.

To begin, when one condition improves in a social system, secondary situations improve in the same direction. It is also possible to go in the opposite direction. This is referred to as the cumulative effect. We can see a series of unintended repercussions as a result of that occurrence.

Second, whether a state or system is improving or deteriorating must be judged in terms of its contribution to development.

Finally, the coefficients of interrelationship between all the variables in the social system, as well as inertia, temporal lags, or, in extreme cases, the total insensitivity of one condition to change in another or in some of them, are frequently unknown or imprecisely known. This is true for developed and developing countries alike. As a result, our examination of development must rely on broad generalizations. And evidently, in the instance of the Kaptai Hydro Project, this did not work out well. Because, while the project may have improved some people's life, there were also numerous notable losers. It begs the question, for whom is this development being carried out? Who are the true beneficiaries? And were the victims suitably compensated? Where were they resettled properly? Was their means of subsistence restored? Were they consulted adequately?

And it is evident that there are no truthful responses to these questions. The sequence of events demonstrates that the evacuation of 100,000 tribal people as a result of the Kaptai dam was nearly inevitable, since their influence over the territory was gradually eroded, culminating in the cancellation of the CHT's tribal area status in 1964. The issue of displaced persons resettlement was handled inadequately for a variety of reasons. The Pakistani government and donor institutions lacked a general understanding of tribal culture (the dam was funded by USAID). They reasoned that these were 'nomadic' hill people engaged in jhum agriculture and that developing a permanent resettlement program for them was superfluous. However, the tribal people did indeed migrate from hill to hill, but they maintained a long cycle of jhum agriculture. Prior to the Karnafuli valley's flooding, the average cycle of jhum cultivation was 7–10 years, and in some cases as long as 10–15 years. After the river valleys were inundated, removing 40% of the fertile agricultural area, this cycle was cut to 3–5 years

as thousands of indigenous people were forced to return to jhum production. This land strain was exacerbated further during the 1960s and 1970s, when the entire CHT area experienced significant population increase. The cumulative effect of these expansions has been intensive agriculture on both the remaining plains and hills, resulting in soil erosion, productivity loss, and water contamination due to greater use of pesticides and chemical fertilizers.

The other significant factor for the absence of an adequate relocation program was simply a lack of budgetary resources. Initially, compensation was granted for land, trees, and structures lost, but there was insufficient funding to rehabilitate 100,000 people. The majority of them were relocated to the Kasalong valley, where a reserved forest was partially removed to make way for these people's homes. When the reservoir's water level rose following the dam's completion in 1962, part of this land became submerged, and the government simply abandoned all efforts to resettle these people, adding to the Bara Parang. As a result, a development project slipped into 'Underdevelopment' status.

Kaptai Hydro-electric Dam: Cost and Benefits

Kaptai Dam encroached on 56,000 hectors of fertile land, displacing around 100,000 people from their aboriginal homeland. The project was undertaken without any rehabilitation measures being implemented. The dam's maximum capacity is 230 MW, or nearly 2% of our country's current electrical production. While electricity's production capacity was sufficient for the time being during its installation, a large number of local residents were forced to pay an unaffordable price for it. Furthermore, the folks who made the ultimate sacrifice did not receive electricity for them at the time. Their sacrifice benefited them in no way. The vast expanse of fertile plains could have aided them in producing crops that would have benefited the country, but everything was submerged. Though the project was undertaken during Pakistan's administration, Bangladesh suffered significantly as a result of the conflict that ensued in the hill areas. Thus, for such a long-lasting insurgency, the Kaptai dam played a significant role.

The dam might be removed and the land reclaimed, but that could leave enormous challenges in its wake. Almost 80 years have gone since the Kaptai Hydro dam project was created, and it has altered the local economy and the river's flow path. The dam's decommissioning will also result in another slaughter in the area. Additionally, the displaced population has gone to India, and thus dismantling the dam will not be as successful in relocating the displaced population in the current context. Numerous residents of hill areas now rely on this man-made lake. The best course of action may be to increase the dam's capacity to generate

power. Because it does not use fossil fuels, it is far more eco-friendly than any other form of energy generation. Adding more turbines with increased production can assist in resolving the current situation.

8. Recommendations

The Kaptai Hydro-Dam was built without any pilot project testing, socio-economic impact analysis, and even without taking consideration of the environmental impact. It has displaced a huge number of people and a vast area of agricultural land went under water over night. The Kaptai Hydro Dam Project is not contributing that in the national grid in present days. In this scenario, the government should take consideration of decommissioning the dam with proper environmental impact analysis. It will provide a huge area of arable land for agriculture. The decommissioning process may be conducted with several series of actions. The displaced people and their present generation should be given their land back, as the Kaptai Hydro-Dam project was a core point of dispute for the CHT insurgency.

9. Concluding Remarks

Over 15,000 major and minor dams exist throughout the world, displacing approximately 60 million people. Turkey has constructed the Ataturk dam in the Kurdish region, displacing over 60,000 people. Another project in this region, the Illisu dam, will impact approximately 75,000 Kurdish residents. Such incursions on the resources and rights of indigenous peoples are not isolated. India's Narmada, China's Three Gorges, Laos' Nam Theun II, and Spain's Itoiz are just a few examples of such infractions. Regrettably, a sizable portion of the population displaced by dams comes from the impoverished and tribal populations. Around 40% of individuals displaced by dams in India are low castes or tribal people, despite the fact that they account for less than 6% of the Indian population. In Bangladesh, the story appears to be very similar. It is past time for the government and affected ethnic groups to figure out a peaceful, mutually beneficial, and agreeable solution inside a well-designed institutional framework. This would go a great way toward ensuring the CHT region's security and prosperity in the future. To summarize, modernization can occasionally result in underdevelopment, as the Kaptai Hydro Dam project exemplifies.

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