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Review Paper

Paucity of Energy in Barak Valley: A Review of Tipaimukh Hydroelectric Project and an Alternative Scheme for Development

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Abstract

Barak valley, located at the southernmost part of Assam, is a land that can warrant a comprehensive development of entire Northeast India, if its potential links with the Southeast Asia (via Manipur and Mizoram) are properly utilized. Comprising of three administrative districts- Cachar, Karimganj and Hailakandi, Barak valley is affluent with tea gardens and accommodates major institutes of higher learning and professional excellence. Moreover, it is seen as the second corridor for North Eastern Regional as well ASEAN Countries consolidation for its bourgeoning connectivity-in terms of broad-gauge railway. Despite having a highly prospective future, Barak valley still lags behind many of the remote regions of India due to its poor energy infrastructure. Even after procuring electricity from multiple sources, Barak valley is running on severe energy deficit. While per day requirement for power is 95MW -110MW, Barak valley receives only 30MW-32MWon daily basis, making the situation highly deplorable. The Union Govt. had proposed the 1500 MW Tipaimukh Multipurpose Hydroelectric Dam Project, completion of which would solve the power crisis of Barak Valley along with its adjacent region. However, the Project is being repeatedly postponed by the Forest Advisory Committee, considering its negative impact on environment and biodiversity. Moreover, the indigenous population, afraid of displacement; and the civil society, concerned about the potential catastrophic consequences of the Dam, have vehemently opposed the Project. Now, the urgency of the hour is to trigger a trade-off between development and sustainability. This paper tries to review the major challenges posed by the Tipaimukh Multipurpose Hydroelectric Project then to explore the meaning of Alternative Scheme of Development and finally to suggest an Alternative Source of energy for mitigation of power crisis in Barak valley.

Keywords: Development, Hydroelectric, Sustainability, Biodiversity, Displacement.

Introduction

Barak Valley: A Profile: Barak valley is an integral part of Northeast India. Named after the Barak river, it is the 2nd geographical division of Assam. It is located in the Southern part of Assam with an area of around 6962 km^2. It consists of three districts- Cachar, Karimganj and Hailkandi with Silchar being the largest town and business hub of the entire valley.

Geographical Specification: Barak valley is surrounded by North Cachar Hills (Dima Hasao District) in the north, Manipur in the east, Mizoram in the South and shares border with Bangladesh through the western frontiers. Barak plain accommodates many tributaries of Barak river like Jiri, Jatinga, Sonai, Rupai, Katakhal etc.

Demography: Barak valley is a multicultural plain consisting of Bengali, Hindustani, Marwari, Manipuri, Naga and other tribal groups. Hinduism and Islam are the main religions.

Natural Resources: Barak valley is mostly surrounded by hills, a substantial part is occupied by dense forests having a large variety of flora and fauna and other forest resources. It is a part of Indo-Burma Biodiversity Hotspot. Different and rare animal species are also found in the forests and rivers.

Agriculture: Although paddy is the major crop of Barak valley, tea, jute, sugarcane and pulses are largely cultivated in different places, which fall under the category of cash crops.

Industry: Tea is the major agro based industry of Barak Valley. Other than tea industry, there is a paper mill of Hindustan Paper Corporation and a sugar mill which fall under the category of sick units. Although there are some cottage and home based industries relating to food, spices, plastic, utensils etc., the pottery industry of Panibhara in Cachar district and Sital pati industry of Katakhal in Hailkandi district are commendable. Due to lack of funds and proper promotion, these industries are unable to get proper recognition. Although there are prospects for industrial development, poor connectivity is the main

obstacle. Besides there are lots of bricks industry also running as well.

Energy Situation at Barak Valley: Energy situation in Barak valley is highly deplorable. Major industries of Barak valley are facing enormous challenges due to severe power crisis. The impact on service sector and agriculture is also profound. Highly disrupted electricity supply makes ordinary life of the people precarious, especially during summer. For power supply, Barak valley depends on sources like Namrup, Palatana, Lakwa etc. The daily requirement of power in Barak valley is 95 MW-110 MW, but it is getting only 30MW- 32 MW which has highly disrupted the development process of the region.

Tipaimukh Multipurpose Hydroelectric Project (TMHP): The TMHP is one of the most controversial mega hydroelectric projects of North East India. It is a Joint Venture of Government of India, Manipur Govt., North Eastern Electric Power Corporation Limited (NEEPCO), *National Hydroelectric Power Corporation Limited (NHPC) and* Satluj Jal Vidyut Nigam Limited (SJVNL).

TMHP is planned to be constructed over the Barak river in the south western part of Manipur. With 1500 MW power generation capacity; TMHP was designed to control the excessive flood water in the lower bank of Barak river and to accrue economic benefits by selling the surplus power after meeting the demand of Manipur, Assam and Mizoram. The completion of the dam is likely to affect Bangladesh too as the river flows through the same just below the dam location[2].

Initiated in 1984, the proposed Tipaimukh dam has been subject to continuous postponement in the face of huge protest by indigenous people and civil society on issues like environment damage, displacement, disaster etc. Moreover, water issues between India and Bangladesh have also added to the delays[2.]

Justification of the Study

In the pursuit of greater regional integration, Barak valley can be viewed as a major link between India and East Asia. It is surrounded by Manipur in the east and Mizoram in the South, both of which, in turn share international border with the Southeast Asian nation, Myanmar. Barak valley's connectivity with Myanmar via Manipur and Mizoram can be used as a great strategic tool to promote the Look East Policy's objective of promoting the development of North Eastern region. Thus, Barak valley has got great locational advantage that can open up multiple growth avenues for the entire region. Moreover, Barak plain has got huge potential for development by attracting foreign investment in its tea industry, service, tourism and education sectors. Since the existing power position is mainly hydral energy based and dependent on other states, Barak valley runs on deficit, restricting the scope for development[3].An alternative scheme for energy sector, shall be of large significance to warrant and accelerate the process of growth of the region.

Scope of the Study

Jurisdiction of the Study: Geographically the study covers Barak valley and Manipur, and to some extent, Bangladesh.

Period of the Study: The study focuses only on recent period.

Limitation of the Study: Although a multiple sources of energy are available, the present paper focuses only on Renewable sources covering Hydroelectric, Wind and Solar energy. There is always scope for further research on this topic.

Objectives of study

i. To review the major challenges posed by the Tipaimukh Multipurpose Hydroelectric Project. ii. To explore the meaning of an alternative scheme and its features. iii. To suggest an Alternative Source of Energy that can mitigate the energy crisis in a sustainable way.

Methodology of the Study

Method of Research: The study is primarily descriptive in nature that intends to describe the scenarios as they are.

Data Source: Data have been collected from the secondary source. For this purpose, Government websites as well as reports, articles, books published by Government agencies, and other organizations have been considered.

Analysis and interpretation

Objective 1: To review major Challenges posed by Tipaimukh Multipurpose Hydroelectric Project (TMHP): Findings: The major challenges emanating from TMHP are mainly fourfold:

Environment Damage: The construction of the mega dam is likely to affect the ecological balance, life and livelihood of the people living across- Tipaimukh, Keimei, Tamenglong, Churachandrapur and some areas of Mizoram. The dam shall submerge more than 300 square kilometres of forest in Tamenglong and Churachandrpur villages of Manipur and destroy nearly 10 million trees and 2700 bamboo columns. Forest provides water, food, medicinal plants, shelter and livelihood of the indigenous people and shapes their culture and tradition to a large extent Loss of forest, thus, amount to the loss of ecological biodiversity as well as livelihood and future of people. Moreover, dams constituted over the river reduces the amount of water in the downstream ecosystem .Fish habitat is largely affected by the scarcity of water and changes in the water bodies, mostly *beels*.

Displacement: Any measure for development leads to the misery of other people esp., mega projects like dams, highways etc lead to the development oriented displacement. The dam is likely to hamper 60,000 people in Manipur of two indigenous communities -the Zeliangrong and Hmar communities, and have negatively impact 40,000 people in Bangladesh.

High Disaster Risk: Disaster risk is calculated in terms of Hazard, vulnerability and capacity.
Disaster Risk (DR) = H* V/ C.
Hazard means any event or situation that has the potential for devastation. Vulnerability is the exposure to hazard, while capacity is the presence of facilities to cope up/ mitigate disaster risk. An increased capacity is likely to reduce DR by lowering vulnerability.

The TMHP falls in one of the six most seismically active regions of the world, a massive dam structure may lead to leak/ damage/ collapse of the dam at any time. The areas surrounding TMHP are highly vulnerable to any disaster arising out of an earthquake or any form of malfunctioning in the dam, which may lead to flash flood or submerge of entire area under water.

Water Dispute with Bangladesh: Barak river enters Bangladesh below the dam location. Tension goes on between India and Bangladesh over river water. In 2012 a sub group was formed between India and Bangladesh to make an Impact Study of the dam on environment, agriculture and fisheries of lower basins area. Thousands of fishermen and farmers are dependent on the river. In 2013, the TMHP was postponed for two years to allow Bangladesh conduct two more environment related studies[1].

Postponement of the Project: Although the Ministry of Environment and Forest has given clearance on the construction of the proposed TMHP dam, it is opposed by the major social stakeholders. The concern over environment degradation, and the right of the indigenous people to provide free, prior and informed consent in the utilization of community resources, displacement of many ethnic communities as well as Bangladesh's apprehensive attitude have resulted in massive opposition from civil society, ethnic population as well as social activists. As a result, TMHP has been a subject to repeated delays.

However, the paucity of the TMHP have largely affected the energy and economic status of the north east region and halted the process of development of Barak valley since TMHP had been one of the major sources that alone can meet the former's energy requirement..

Objective 2: To explore the meaning of an alternative scheme and its features. Findings: Meaning of Alternative Scheme for Development:

By an Alternative Scheme for Development is meant an Alternative Energy framework that is self-sufficient, not dependent on conventional sources and ensures sustainable development.

Alternative energy is an energy source that is used an alternative to non- renewable conventional energy sources like thermal power, hydral energy etc. which have got negative consequences on the environment. Alternative energy sources can be renewed and are thought to be "free" energy sources. The emission level of carbon in such energy is very low, compared to conventional energy sources. Some of the alternative energy sources are Wind Power, Solar Power, Tidal energy etc.

Basic feature of alternative source of energy are: i The most important characteristics of alternative energy sources are found to be renewable in nature. These are easily available unlike other most fossil fuels and don't have a finite supply. The most available and well-known types of alternative source of such energy are solar power and wind power. Both sun and wind energy continually harvested without exhausting the supply[4]. ii. Another important feature of alternative energy is that it supplies few or no carbon emissions and produces only few toxic by-products. This is why they are also known as the 'Clean Energy' iii. However alternate energy is still in its infancy in compared to other sources of energy. However different kind of pressure from the intellectual citizens as well as different organisation and climate summits is forcing nations to approach more towards alternative energy technologies. iv. Another basic feature of alternative energy is cheaper, affordable and can be accessed in areas which are still beyond the reach of conventional energy.

Objective 3: To suggest an Alternative Source of Energy that can mitigate the energy crisis in a sustainable way. Findings: Experts in non-conventional power sources suggest utilizing the non-conventional energy sources to solve the energy crisis of Barak valley. Though Assam is less blessed with wind power potential, hence it is the solar power energy that can be utilized to meet its power demand to some extent.

As per an estimate made by The Energy Research Institute (TERI) Assam has around 4.4 to 5.6 KWh of solar power potential per square metre per day, whereas, its wind power density is concentrated in three pockets --- in its western part, in Karbi Anglong and in parts of North Cachar Hills and Cachar, as per the study done the Chennai-based Centre for Wind Energy Technology. The number of clear days in Assam is estimated to be approximately within 240 to 260 per year. Use of solar power during the daytime will cut down use of conventional power from the grid and thereby assist in making power available to deprived areas including rural sectors. This will ultimately drastically reduce dependence on Assam State Electricity Board (ASEB)/ Assam Power Distribution Company Ltd (APDCL) grid power and make such setups self-reliant, said the experts.

The North Eastern Council has sanctioned some of the pilot projects based on solar and wind devices to harness the potential on experimental basis in different parts of the region. With respect to the Southern Assam- in Barak Valley, a few projects have been started on an experimental basis in the districts of Cachar and Karimganj. As for example, In October2012, 100KW solar power project has launched by NIT Silchar. The Rs 2.70 crore project-of which 90 percent amount sponsored by Central Government is the first of its kind in the North East and Barak Valley Division. It will not only electrify the entire campus of the Institute but also the neighbouring villages Madhutillah and Babutillah as well as illuminate the office of the Deputy Commissioner, Cachar .NIT Silchar is currently working on bio-gas plant for local development. Moreover, private sector investment is also being encouraged in the concerned area. Government is promoting the use of solar energy in the villages by distributing solar lamps to the persons under BPL category.

Recommendation

i. More research and study should be undertaken on solar energy and its effective implementation in Barak Valley. ii. There should be a Public-Private Partnership in setting up solar based power plants in the local area. iii. The use of solar energy as a substitute of hydroelectricity as well as LPG should be promoted by the Government. iv. Periodic workshops should be conducted for skill development in installation and maintenance of solar based instruments which can serve as a source of employment for the unemployed section.

Conclusion

In the wake of globalization and regional integration, the growth prospect of Barak valley should not be hindered by basic infrastructural challenges. The Tipaimukh Project has been kept under the state of suspension and its future is highly uncertain. So, it would be prudent to invest on an alternative source that can ensure sustainable development and instil self-reliance. Under the given geo-political and economic consideration, the most viable scheme for development is Solar Energy, which is eco-friendly, cheaper and abundant in availability.

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