The Northeast: Strategic Implications of the Soft Power of the Energy Storehouse of India

Major General Vijay Ranade (Retd)[@]

Abstract

The Northeast holds a treasure trove of natural energy sources in terms of hydel power and wind power and, to a lesser extent, solar power. It also has myriad other natural resources such as coal, tea, timber etc. None can be successfully processed to generate income and employment without power. In addition, the large hydel resources also generate enough power to export to the neighbouring countries and thus give strength to India's 'Act East' Policy. To tap and exploit the full potential of the power sector in the region, we need a multi-pronged approach broken down into achievable phases which encompasses all the sectors of infrastructure, industry, financial outlay, and, importantly, aspirations of the region. Development of the hydro energy sector and especially the renewable power source will integrate the region not only with the national grid but also with South-East Asian countries. The abundance of hydro energy gives us an opportunity to look outwards. The article recommends the actions that must be taken and the road map for development of the power potential of the Northeast. This will also bring prosperity, douse the myriad militant movements, and integrate the region with the rest of the country.

[@]**Major General Vijay Ranade (Retd)** was commissioned into Regiment of Artillery in 1984. He is an alumnus of the Defence Services Staff College, and Higher Command courses. He commanded a Field Regiment, a sector of Assam Rifles in Eastern Sector and a Mountain Division in Northern Sector. He retired from National Security Guards as Inspector General (Operations). Presently he is the Director of Army Institute of Management, Kolkata. He has published articles on national strategic issues with the USI and CLAWS.

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Introduction

The enigma called the North Eastern Region (NER) is shrouded in mystery and very seldom discussed or debated on a national platform. However, the region is a powerhouse that is not being tapped. The region, hidden in the mist, is subjected to lopsided reporting of some atrocities/militancy related news or maybe floods, but seldom as a major source of power and raw materials. The region is porous, neglected, and side-lined, and remains a security challenge to the authorities. The geography of NER and geological mapping reveals that the area is rich in the energy sector with potential to export to the neighbouring countries, thereby giving a fillip to the Look East policy and enhancing the participation of the neighbours namely, Bangladesh, Myanmar, Bhutan, and Nepal in mutual benefits to a larger extent.

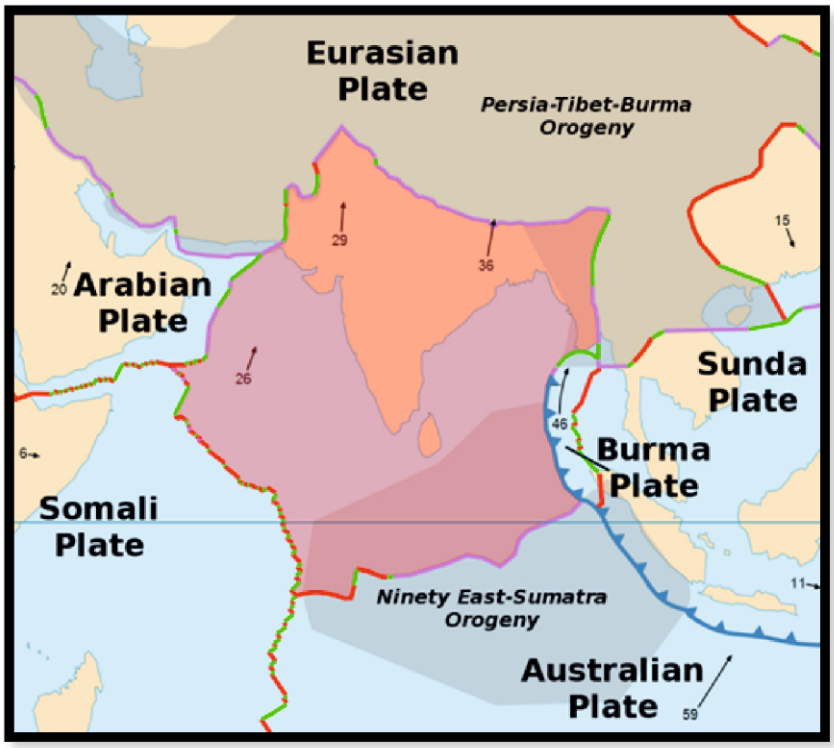
We need to look outwards and not restrict ourselves to the needs of the region locally. The latent soft power of the region needs to be exploited. The basic renewable energy development policy in the region should be participatory and inclusive and should be designed based on local resource availability and the need of the people. There is a need to strategise the energy issue into a cogent strategic plan and have a renewable energy plan and policy. Development of the hydro energy sector, which is a prime renewable power source, will integrate the region not only with the national grid but also with South-East Asian countries. The abundance of hydro energy here gives us an opportunity to look outwards. The big dams v/s small dams debate will continue. Both have equal advantages and disadvantages. The geological and ecological effects of both have the same ramifications. Detailed studies, therefore, must precede the implementation of these projects.

Geography and Geology of the Region

The region has varied geography which includes high mountains in the north and valleys washed by mighty river systems, i.e., Brahmaputra flowing in from China originating near Mansarovar, and the Barak. The weather is conducive with plenty of potential for tapping solar energy. The total area of the NER is about 8 % of the national area. The NER can be physiographically categorised into the Eastern Himalayas, Northeast Hills (Patkai-Naga Hills and Lushai Hills), Plateau of Meghalaya, and the Brahmaputra-Barak Valley Plains.

Seismic Map

The NER sits on an earthquake-prone zone caused by active fault planes formed by the convergence of three tectonic plates viz. India Plate, Eurasian Plate, and Burma Plate.



India Plate (source: Wikimedia Commons)

The 1950 Assam-Tibet earthquake is still the largest in India. Keeping the earthquake probability in view, geologists work out the worst scenario for dam failures taking into consideration the slope dynamics which is an important aspect during the pre-construction phase. Hence, exaggerated fears about the impact of dams have to be curtailed and genuine fears catered for through adequate safeguards in construction. The same dynamic applies to dam construction anywhere. Based on the distribution of epicentres, fault plane solutions, and geo-tectonic features, the NER can be divided into five seismotectonic zones. These are:

- Eastern Himalayan collision zone.
- Indo-Myanmar subduction zone.

- Syntaxis zone of Himalayan arc and Burmese arc (Mishmi Hills).
- Plate boundary zone of the Shillong Plateau and Assam Valley.
- Bengal Basin and Plate Boundary Zone of Tripura Mizoram fold belt.[1]

River Systems

The abundance of rivers and streams in NER is overwhelming. There are two major rivers, Brahmaputra and Barak, which have been joined by the tributaries in abundance — small and big. The Brahmaputra-Barak River system, which dominates this landmass, has the capability to generate huge amount of hydropower not only for this region but also for the rest of the country. With the proper management of this river system, the intensity of floods can be controlled. Moreover, with the generation of potential hydroelectricity, the regional development of Northeast India would be accelerated.[2]

Renewable Energy Sources. The NER holds a treasure trove of natural energy sources in terms of solar and wind power. However, these are untapped and unexplored ventures. The abundance of the power potential in these sectors is encouraging and can add to the overall power generation capacity of the region. Renewable energy is the future that can augment the existing fossil fuel resources and needs to be tapped.

Hydel Power and Potential

The NER is blessed with the huge hydro potential of about 58,971 MW, out of which 1,727 MW (about 2.92%) has so far been harnessed as of 01 July 2020. The mountain river system with its tributaries and perennial flow lends itself to power. Additional 2300 MW of hydropower is under construction. The balance of about 93.17% is yet to be exploited. The contribution of NEEPCO in the hydro installed capacity of NER is 1,225 MW i.e., about 70.93%.[3] In 2003, the Ministry of Power launched a hydro initiative of 50,000 MW, with a major focus on the Northeast. In January 2007, the "Pasighat Proclamation on Power" was adopted at the Northeast Council's Sectoral Summit on the Power Sector, identifying the region's "hydropower potential" as a priority area with regard to India's energy security.[4]

Hydropower: Advantages

The advantages that hydropower has are:

- Hydropower is sustainable and free from pollution and inflation.
- It's a cost-effective venture in long term and has multiple benefits like power, irrigation, flood control, etc.
- The power generation can be controlled and varied as per the demand.
- It is environment friendly, has zero carbon emission, and has no toxic by-products.
- It enhances the socio-ecological and economic development of the people.

Hydropower: Challenges

Hydropower has many challenges which affect the lives of the people and the flora & fauna of the area. The ecological changes which happen affect the very lives of the people. The socio-cultural impact, the agricultural economy, the fisheries all have a devastating effect if the project is not planned in detail and with suitable countermeasures and compensation.

Local & Social Impact. Power projects have a direct effect on the arable lands as these get submerged in the catchment area. Some of the areas which are likely to be affected have a cultural and religious connection with the locals and tribes, who oppose vehemently. This is nothing new as the protests for the Sardar Sarovar Dam on the Narmada and many such projects have demonstrated. In Sikkim, the Lepcha tribe is opposing the construction on Dzongu, a sacred site. Tipaimukh hydroelectric dam in Manipur also stands to cause loss to the sacred spots and half of the fertile hills of the Zeliangrong Nagas, the inhabitants. The hydropower-driven development paradigm coupled with a disregard for traditional institutions and community opinion seems to have prepared the ground for conflicts.[5] This must be catered for.

Ecological & Environmental Issues. Brahmaputra valley is a storehouse of rich animal life and marine life and also exotic plant life which thrives in the river systems of the east. The food chain

in the region is dependent on the water flow and advantages of the water. The very existence of life, water is the elixir for the people of the region or the lands in the lower riparian regions. Downstream impact concerns raised in the Northeast include loss of fisheries; changes in beel (wetland) ecology in the flood plains; impacts on agriculture on the chapories (riverine islands and tracts); impacts on various other livelihoods due to blockage of rivers by dams (e.g. driftwood collection, sand and gravel mining); increased flood vulnerability due to massive boulder extraction from river beds for dam construction and sudden water releases from reservoirs in the monsoons; and lastly, dam safety and associated risks in this geologically fragile and seismically active region.[6]

Ecological impact, coupled with the fragility of the Himalayas, causes concerns over these projects. North-Eastern India ranks among the top 25 global biodiversity hotspots in the world, with 106 globally threatened species. It has several human communities and indigenous animal and plant species and with unique features. This diversity has given them an opportunity to co-exists and create a unique socio-cultural, agro-ecological, and land-holding systems. High biological diversity is often related to the forest cover of a region. Most of the North-Eastern states have more than 60% of their geographical area under forest cover.[7]

Collateral Challenges

Security Situation. The security situation is unstable with splinter militant groups still operating in the states. Nagaland, Assam, and Manipur do have mid-level active militancy. The situation is not very conducive to any kind of sustainable development. The militant groups do not allow the developmental packages and projects to go through for fear of losing their credibility, thus holding up the projects for want of any political solution acceptable to them. Over a period of time, their ideological aim has gone on the back burner and militancy has degenerated to a money making concern.

Lack of Infrastructure. The region, although a cauldron of natural resources and wealth, has very negligible development compared to the rest of the country. The lack of infrastructure, road connectivity, communication, and any viable industry make it unviable for any hydel power project to come up as both are interrelated. No power leads to no industry, and vice versa. Demand is low locally, due to less industrial demand, while present power

generation suffices the domestic household and industrial requirement.

Water Wars. Water, which is often discussed as 'tomorrow's weapon', may be used extensively by the Chinese as the mighty Brahmaputra flows from Mansarovar Lake, firstly as the Tsangpo and then the Brahmaputra, and finally Meghna in Bangladesh. The flow of water will depend on the upper riparian state controlling the flow. The hydro projects would be water starved during winters while would have excess water during the monsoon, both situations being unacceptable to lower riparian states of India and Bangladesh. The recent announcement by the Chinese to construct a dam on the Tsangpo, north of Arunachal Pradesh, has created ripples among the authorities as China would redirect the water northwards to its water deficient areasand thereby starving areas of the lower riparian states of water. Within days of India announcing plans to assert its right on the Indus Water Treaty with Pakistan, China said it was building a dam on a tributary of the Yarlung Zangbo, as the Brahmaputra is known in Tibet. India believes Chinese projects on the Tibetan plateau threaten the flow into Indian dams, canals and irrigation systems which can turn water into a political and strategic weapon to be wielded in war, or during peace.

Technical Constraints

The hydro projects apart from having geo-ecological-demographical constraints also have technical constraints. The projects do have design problems that should conform to the site dynamics and geographical and ecological data. The transmission of the power to National Grid will have its own loss of power and is counterproductive to the cost required to install these transmission lines and the power shared, and that too through the sensitive Siliguri corridor. Transmission loss due to load factor is a serious problem of power grids. When the distance between demand area and supply area is minimised only then transmission loss can be less. The power consumption rate of the North-Eastern states is lower than the national average; the annual per capita consumption in the region is 119 kilowatts/hours where the national average is 390 kilowatt/hours. If the rate of village electrification and industrialisation processes were to be increased, then only would the proper utilisation of hydropower in this region would be

possible.[8] The transmission lines or the overall Eastern grid should be divided into two sub-grids – the West-Eastern sub-grid and the Rest of the Eastern sub-grid. Then West-Eastern sub-grid contributes to the national grid while the rest of the eastern grid looks after the domestic needs and international needs. This will reduce transmission losses to a greater extent and reduce our vulnerability to the Siliguri corridor.

Strategic Potential

With adequate power, new industrial and economic zones will spring up. The NER, which is key to the 'Look East' venture, will become an attractive region to invest for homegrown industrial houses as well as foreign investments. Power development in the region is likely to attract the foreign investments, notwithstanding the security angle. NER can become a bridge to the regional alliances namely BIMSTEC, ASEAN, SAARC, and more importantly, the IOR. Myanmar and Bangladesh, being the immediate neighbours, should be engaged in power diplomacy. To achieve this, we need to use the power as a force multiplier in a multi-pronged approach which should encompass managing the internal security situation, development of infrastructure, etc., simultaneously in a phased manner to balance the monetary constraints and other peripheral issues. A well thought out strategy to harness the full potential of the hydropower should be thought of not in terms of megawatts only, but as leverage of bilateral relations and cooperation, and a strong counter to the hegemony of China in the NER and beyond.

Multi-pronged Approach

The overall strategy should be to launch a multi-pronged approach encompassing all the connected aspects which will complement the effort of harnessing the hydropower to its fullest potential.

Infrastructure Development. This should be the focus of the Ministry of Development of North East (MDoNER) encompassing the development of industry, opening up Special Economic Zone (SEZs), and more importantly, tourism which has immense potential. This requires communications, and surface communications to be developed in the far eastern regions of Arunachal Pradesh, Nagaland, Manipur, and Mizoram, creating opportunities and a conducive environment to progress. The final

aim is to provide power to the industrial areas here and in turn create a demand. The region is rich in petroproducts, raw materials, handicrafts, silk, and bamboo trade. The development in this region will integrate NER with the rest of India. It will throw up opportunities to set up industries, and an option for us to encourage trade with neighbours with lesser lines of communication. It will also have a direct effect on the general populace in increasing their per capita income.

Security. A long battle has been fought and to a greater degree, we have achieved a certain level of normalcy, however, certain issues need to be ironed out. Infra development and easing of security situation will go side by side.

Mapping of Hydel Projects. As we have seen these power projects have side effects on ecology and environmental issues, therefore, we need to study the geological dynamics and geographical constraints and collect maximum data on these for us to plan these projects in a way to minimise the damage. The projects should be a mix of smaller / micro hydel projects to cater for maybe district level requirements and larger ones for commercial and industrial use. These should be built in the area with the least damage to human settlements/ecology and environment. We should space these projects in location and time to cover the entire NER and harness the max power potential in the next 7 to 10 years' time. Connected with construction is extension and transmission of the finished product i.e., power to the national grid and export to Bangladesh and Myanmar. The construction of transmission lines should commence simultaneously to space out the budgetary constraints.

Connectivity. The region is short of viable connectivity to attract business houses or even tourists and both are related to economy. A concentrated effort by the concerned ministry / National Highways Authority of India (NHAI) / Railways to develop the connectivity to the state is required. Related to this aspect is the simultaneous development of the economy. The inauguration of a railway line to Manipur recently is a welcome step.

Way Ahead

Multi-pronged Strategy. There is a need to layout a multi-pronged approach dealing with all the sectors simultaneously. The

development of the hydro sector requires other sectors like infrastructure, communications, and industry to compliments its growth. It requires a multi-pronged approach. This will reduce the burden on the budget and, yet, ensure all-around progress and development which will complement each discipline as they come up.

Phased Approach. The strategy should be broken down into phases in all the spheres like infra development, connectivity, communication network, and development of industry and renewable projects. The following phase lines could be considered:

- Phase I - Period up to 2030.
- Phase II – Period up to 2040.
- Phase III – Consolidation Phase.

Phase I will primarily be looking at capacity development in these spheres while Phase II should be aimed at international outreach and Phase III to emphasise on consolidating the gains and reorienting the gains of previous phases. Phase III is primarily a consolidation phase where a relook on the projects is done and take some corrective or augmenting measures.

Exclusive Eastern Grid. A step towards bifurcating the Eastern grid into two sub-grids West Eastern Grid and Rest of the Eastern grid, focussing on connectivity with national grids through West Eastern sub-grid, primarily to reduce transmission losses and over-dependency on Siliguri corridor, while the rest of the eastern grid looks after the domestic needs and international consumption. The surplus power should be fed into national grid via the West Eastern grid.

Renewable Energy. Though still nascent in development, these must be given adequate encouragement by the government to develop. The solar and wind power generation will augment the Eastern grid. The phased approach should include the projects in the states to develop rooftop solar projects and local wind turbines to handle the local area grid.

State-wise Approach. During the phases, each state can be identified to excel in one particular energy sector to cater to the needs of the region. Assam or Arunachal can develop hydel power while Manipur can concentrate on solar power. These projects will

be spaced out in location and time so as to reduce the ecological and geological issues.

Conclusion

The NER holds great potential in the power sector, especially in the renewable energy sector, in particular hydro power. Protagonists and antagonists will go at length to debate the apparent outcomes of these hydropower projects. While these projects will have a major effect on the flora & fauna of the region affecting the ecology and also affect the demography. However, in spite of this, the benefits are so great that that the power sector needs to be tapped to its fullest potential. The power sector is the key engine to sustainable industrial development which in turn triggers the employment and increase in per capita income of the people of the region. The soft power imbued will bring positive engagements in the border areas of Myanmar and Bangladesh. Taking steps to educate the people on the benefits of the power projects needs to be handled on a war footing and detailed studies need to be undertaken to minimise the ecological effects. The resettlement and rehabilitation policy needs a relook keeping the cultural canvas in mind. The power potential has a strategic angle that needs to be harnessed as a strike force in the quest of Look East / Act East and more importantly 'Integrate East'. This equation needs to be addressed in formulating any road map for peace and development of the North East.

Endnotes

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