



Energy Cooperation in South Asia: Examining BBIN as an Alternate Model for Energy Security

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Abstract:

Energy is one of the most important sources for each and every country for the development in this modern era. Every country needs a huge amount of energy for growth and to implement modern technologies to make their population's life standard better than before. On the other hand, energy consumption in all countries is rapidly increasing day by day. Transboundary energy cooperation has been identified as one of the potential areas for the BBIN countries to work together. For more than two decades, there have been discussions and dialogues, both at the political and technical level, in the South Asia Association for Regional Cooperation (SAARC) to promote regional energy cooperation. But no real progress has been made in this regard. It is now becoming increasingly evident that cooperation at the subregional level among willing partners can prove to be more effective. Subregional cooperation can generate quick gains and build confidence, which can eventually be transformed into cooperation at the broader regional level. In the present day, many South Asian countries are facing an energy consumption problem. In recent years, these countries tried to solve their energy problems individually, but it would be more effective for them to come together and solve their problems jointly. For this reason, Bangladesh, Bhutan, India, and Nepal (BBIN) can be an alternative to build a strong regional relationship and by engaging in many projects regarding their development. It is in this backdrop that BBIN countries have been engaged in energy cooperation discussions since 2001. This paper analyses the current status and future prospects of BBIN energy cooperation for the benefit of this model for this region. This paper is organized into four sections. A brief description of the energy scenario in South Asia. This is followed by a review of the BBIN and its benefits as an alternate model for energy cooperation. A brief overview of challenges against energy cooperation for the implications of this BBIN Model. The paper concludes with a discussion on policy recommendations for energy cooperation among the BBIN countries with a short conclusion and futuristic scenario.

Keywords: Energy Security Spectrum, South Asia, BBIN, Alternate Model for Energy Cooperation

1. Introduction:

South Asian region is the connected and energy demanding region of the world, with the lowest power consumption on a per capita basis. Due to rapid economic growth and urbanization, the South Asian region faces enormous challenges to its energy security. Their pursuit of energy security is constrained by multiple factors and they have evolved energy security strategies that range from cooperation to conflict. South Asian countries face a range of energy security challenges. First, there is a severe supply-demand mismatch since countries in the region import a significant proportion of their energy resources, most notably, oil and gas. Second, the supply chain is vulnerable to extreme hydrological conditions, political risk in transit countries, and their self-reliance should electricity not be used for cooking and heating (especially in Bangladesh, India etc.). Fourth, rapid economic growth and urbanization in the region have strained supply and created environmental issues. Fifth, unlike most other countries, these countries experience increasingly frequent electricity shortages and blackouts. The pursuit of regional cooperation in the South Asian Association for Regional Cooperation (SAARC) has been made more complex with the change in international security scenario. The process of regional cooperation in the energy sector began in January 2000 with the establishment of a Technical Committee on Energy. The Council of Ministers while recognizing the importance of focused attention for this vital area, approved creation of a specialized Working Group on Energy in January 2004¹. Diplomacy and politics have prevailed in the execution of regional energy infrastructure project; Turkmenistan-Afghanistan-Pakistan-India (TAPI)² has provide a way to release the tension with cooperation and security and betterment of each country's relations with one another. It seems that regional energy cooperation will remain elusive if pursued through conventional state-led interstate projects and through SAARC. This scheme between four of SAARC's South Asian nations was formally endorsed in September 2010 with the drafting of the SAARC Agreement on a BBIN Motor Vehicle Agreement for the Regulation of Passenger and Cargo Vehicular Traffic. With the failure of regional neighbours to develop a functional energy cooperation model in SAARC, the BBIN nations in the 21st century have commenced to focus on an alternative regional cooperation umbrella; rather than focusing on political and diplomatic initiatives, which is called sub-regional cooperation. Sub-regional cooperation is a new approach to integration below the regional framework and seeks to bypass impediments and obstacles in bilateral and multilateral engagement within a broader regional framework. The BBIN nations have sought to address key energy security and sustainability issues that have hitherto been largely ignored or

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neglected. Given the increasing environmental degradation and national-level security threats arising from energy security issues, the BBIN nations have realized the seriousness of the issue and the impact that inadequate instruments of cooperation can have.

2. Energy Security Spectrum of South Asia

In comparison to other regional groupings around the globe, South Asia has had a very modest and mostly fruitless experience of region-wide energy cooperation ventures led by the public sector. Lack of energy resources, including energy carriers and electricity, has been viewed as an important challenge to economic progress in South Asia. The situation has become more complex due to the limited success rate of nation-states in isolating this sector from the comprehensive political equation and building common viewpoints and shared ventures for the healthier national benefit.

Traditionally, most of the inter-state energy resources transfer and sharing are under the aegis of bilateral agreements between countries, involving two specific energy projects: one supplying and another consuming, wherein the latter case is a de-facto import. Simultaneously, private sectors, particularly energy companies, are involved in cross-border energy investment and transfer, but they largely work under the supportive framework of the respective state government without establishing an all-encompassing mutual understanding and benefits among nations. The particular nature of energy projects and its nearly always a case-to-case basis approach for these engagements has resulted in segmented and issue-specific energy cooperation in the region. South Asian countries are facing the critical challenge of energy shortages in order to achieve their economic and social development targets. Energy demand in South Asia has seen significant growth over the past few decades. According to the World Bank, energy demand in the region has increased by over 50% since 2000, driven by factors such as population growth and industrial expansion. Countries like Bangladesh, Bhutan, India, Nepal, and Sri Lanka have experienced an average annual electricity demand growth of over 5% during this period, with projections indicating that demand could more than double by 2050.³ According to the estimates of the Asian Development Bank (ADB), 41% of the population in South Asia has no access to electricity.⁴ In one of the fastest growing regions of the world, it is paradoxical that the power sector in South Asia is faced with serious problems, issues of capacity, and commercial viability.

Table : Sectoral Energy Intensities in South Asian Countries

S.N.	Country	Unit	Year	Industry	Transport	Commercial	Agriculture	Power
1	Bangladesh	kgoe/\$1,000 ^a	2000	210	207	7	45	4,215
			2016	216	233	9	59	4,926
2	Bhutan	kgoe/\$1,000 ^b	2005	588	941	188	56	145
			2014	743	998	148	104	14
3	India	kgoe/\$1,000 ^c	2000	854	901	40	188	8,526
			2016	661	508	25	230	7,915
4	Nepal	kgoe/\$1,000 ^d	2000	446	648	40	41	469
			2016	765	1,192	60	72	635
5	Sri Lanka	kgoe/\$1,000 ^e	2000	412	1,046	31	120	2,075
			2016	250	541	25	38	1,543

kgoe = kilogram of oil equivalent.

a 2005–2006 prices.

b 2000 prices.

c 2004–2005 prices.

d 2000–2001 prices.

e 2002 prices.

Source: Shrestha, R. M., Limbu, T. R., Pradhan, B. B., Paudel, A., & Karki, P. (2021, December). Energy efficiency in South Asia: Opportunities for energy sector transformation. ADB, Retrieved from <https://www.adb.org/sites/default/files/publication/761251/energy-efficiency-south-asia-opportunities.pdf> Most countries in the region are transitioning from agrarian to industrial economies. It is expected that major changes in the pattern of energy demand, significant increases in per capita consumption, and higher levels of investment are inevitable. The hard reality, however, is that many South Asian countries are facing a deterioration in energy supply and are having to cope with shortfalls, which are imposing severe constraints on economic activity. For various reasons, there has been a continuous decline in the energy trade balances of most of the countries in the region. This has serious implications for the process of economic growth, which is so vital for poverty reduction and improvement in the quality of life for the people of South Asia. The direct effect of energy shortages on industrial production is a major headache for policymakers. It is evident that many industries are operating at a level which is much below the installed capacity and are, in some cases, finding it difficult to survive. There is bound to be an adverse impact on employment generation and given the predominant role of industry in the development process, this will be a setback for poverty alleviation. The decline in the capacity of industries to operate, the growing frequency of load shedding, and the shortage of electricity in urban areas are phenomena that are now almost universal in South Asia. This has adversely affected the quality of life, urban productivity, and has forced many people to revert to the use of traditional forms of energy for cooking and heating. The situation in rural areas is even worse, since there are many villages which are still without access to modern forms of energy. All this needs to be reversed, and there is a need for a new initiative to revitalize the entire power sector in South Asia.

3. Overview of BBIN (Bangladesh, Bhutan, India, Nepal) Initiative

The Bangladesh, Bhutan, India, and Nepal (BBIN) initiative, particularly the BBIN Motor Vehicle Agreement (MVA)⁵, signed in 2015, aims to facilitate the seamless movement of passenger, personal, and cargo vehicles across these countries, promoting economic cooperation and regional connectivity. Comprehensively BBIN is an integrated and interconnected economic bloc comprising of four South Asian countries – Bangladesh, Bhutan, India, and Nepal, for fruitful cooperation in the areas of 14 agreed-upon sectors. The motor behind the formation of this framework can be traced as a sub-regional formation among South Asian nations. India taking the initiative for the formation of a sub-regional framework with willing and eager nations to increase greater economic cooperation and development in their respective priority areas. The first big steps visually and it materializing into an agreement came with the formation of the BBIN MVA (Motor Vehicle Agreement) which have a totally new realm in the people to people and industry to industry contact.



Source: <https://auto.economicstimes.indiatimes.com/news/industry/india-bdesh-bhutan-and-nepal-hold-meeting-on-motor-vehicles-agreement/90084964>

The BBIN energy cooperation involves the countries that came together since 2014 to foster mutual help in overcoming their existing weaknesses in ensuring energy access of various forms related to the sustainable development processes. Bangladesh, Bhutan, India, and Nepal want to cooperate in the field of energy with a dual purpose: first, to use the excess, unutilized or stranded energy for mutual benefits amongst themselves. Second, they have agreed to cooperate for much-needed energy sustainability for the whole sub-region under the very same concept of low-carbon and sustainable access to resources availed from Mother Nature. As the BBIN energy cooperation is still in its infancy, it is important to have a retrospective look at the background which served as the genesis of this cooperation amongst the South Asian countries. Eyeing the future, the strategic importance and economic value of the BBIN bloc may well see them restrict themselves from seeking enhanced regional or international cooperation in these sectors as it could well impede on the relative gains and benefits in their own areas. Except for Nepal, the demand for energy, particularly electricity, is increasing in the BBIN area. In alignment with the region's vision to reduce dependency on hydel power, India is increasing coal-based power to meet the surge in energy demand. Though the overall demand for coal is unknown, in 2018 alone, this region utilized 12,496 TWh of energy, with 65 percent of renewable energy, mostly hydel power. The area generates 1.5 percent of world energy production. The power generated split is 39 percent, 24 percent hydro, and 18 percent renewable energy. Fossil fuels generate only 14 percent, 9 percent coal.⁶ The Asia energy sector has outpaced the energy production and consumption trends above the world average. World energy sector is growing at 10 percent, contraction energy by 1.4 percent, while the Asian energy sector has registered 24.8 percent, 15.1 percent respectively in production.⁷ All these figures indicate that vast reservoirs of energy resources are present in the BBIN region, which can prove to be a potential model to attempt research for energy cooperation. The BBIN region holds 4 percent of the world's proven coal reserves, which account for 1,000 million tonnes.⁸ Regarding hydel energy resources, Nepal and Bhutan are the first and fifth countries in the world to have the highest per capita hydel power resource. Nepal's hydropower potential is substantial, with estimates ranging from 72,000 MW to 83,000 MW, focusing primarily on 10 major river basins and their sub-basins.⁹ Bhutan, with an installed capacity of 1,488 MW, sells more than 90 percent of the electricity to India through a 3,195 km open access transmission line.¹⁰ Coal dominates India's energy consumption matrix, accounting for 56% of primary energy consumption. Coal also plays a crucial role in the generation of electricity accounting for 76% in the country. India has one of the largest proven coal reserves in the world.¹¹ All these figures provides an efficiency model of this particular region which it not sufficient for fulfil the needs without a mutual cooperation.

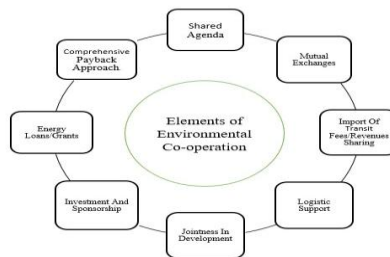
4. Benefits of BBIN as an Alternate Model

This model tries to focus on regional 'spokes and hubs' where energy could be traded with the region through active participation of all the countries. This revolves around the concept where India is termed as the 'regional hub', due to its geographic location and resources. Other member countries firstly trade energy resources with India, and then the surplus is again traded with other neighbouring countries. This model develops a strong production sharing strategy where all member countries get together to assess the comparative advantage in the different sources of energy that are available within the region. This may vary from cheap labour, vast hydropower potentials, or even the presence of renewable energy resources. Essentially, both of these methods mean that trade of energy within the region will primarily depend on the energy comparative advantage between the countries. In this context, BBIN is a more realistic model as it gradually develops energy trade in the region and does not force energy exchanges where there are constraints. Energy trade in the region starts in the global energy market and it is the most efficient method to satisfy regional energy demands. Till date, SAPTA, SAFTA, and the Indus Basin Treaty, all of these reflect the conventional thinking of cooperation with sequential development, where India gets energy to fuel its fast-developing economy when it has surplus which needs to be exported to other neighbouring countries. But in reality, there is no surplus energy, and it is a constraining factor in the energy trade within the SAARC region. However, this has been a bone of contention between the member states due to adverse effects of such projects in the upper riparian country. The lower riparian countries feel that the upper riparian country will gain too much from these projects and with the possibility of resultant ecological imbalance and environmental hazard, there have been disputes with regards to the construction of these projects. With the cooperation of lower riparian countries, it is possible to

mitigate their apprehensions and lead the way for sustainable development in the region through cooperation for energy at large. The precise nature and functional compartment of BBIN is not unproblematic. The very strength of the prospectus - its sub-regional character - poses some stringent challenges. These are mainly on two counts. Firstly, BBIN being a sub-regional scheme is highly likely to be perceived by the extra-regional countries such as China as a rebellious and seceding move challenging its increasing dominance in that particular geographical frame of South Asia. Any move by the BBIN countries to make the regional institution relevant in turn may prompt the cooperating countries for the process through overt or covert means. The leaders of the member countries later showed their pleasure in the form of investment and new initiatives. Secondly, needs of energy mutual dependency will be intense to any proposal that could unite for regional benefits, such as cost effectiveness and mobilisation of resources. It can be more genuine concern as all the four countries. The very fact that the proposal of the BBIN grew out of three agreements between pairs of countries (all in 1977) for motor vehicle agreements providing privileges to enable vehicles to move freely across the borders of the contracting countries, the Motor Vehicles Agreement (MVA) and the Coastal Shipping Agreement between Sri Lanka and India and the MVA between Bangladesh and India, it is categorically clear that these countries seem to derive certain dividable sub-regional benefits which seem unattainable at the regional forum due to competitive politics of other countries.

5. Benefits of BBIN for Energy Cooperation

Improved regional energy security Nations of the region expect that energy cooperation will bring about energy security through the assurance of adequate and reliable supply of energy. Energy security can be reinforced by increased regional cooperation in developing and managing energy resources in the region to reduce potential loss from regional conflicts, promote joint exploration and development of common energy resources, and enable cross-border investment in energy resource development. Eight main categories have been identified as the contributing elements of energy cooperation among states. These are (1) Shared agenda; (2) mutual exchanges; (3) import of transit fees/revenues sharing; (4) logistic support ; (5) jointness in development projects ; (6) investment and sponsorship; (7) energy loans/grants; and (8) comprehensive payback approach.



BBIN can help to achieve all three factors, improving the energy security in the region. Since the regulation and development of energy resources in this region has largely been done by respective national agencies, there are very few common energy resources. Measures to augment their availability and use through joint ventures, investment promotion, appropriate pricing, energy conservation, coal and power technology exchanges, and use of renewable sources are possible only if there is cooperation among these nations to do so. Most of these measures require long-term policy and planning initiatives which BBIN execution in different sectors can foster. Large projects occupy a prominent place in the potential generation capacity of the BBIN region. Any investments and agreements or MoUs between any member countries are easier with proper policy framework as envisaged in BBIN, since the transactions will be safeguarded and there is a dispute resolution mechanism if things do not go as planned. Promotion of sustainable development and re-emphasis of energy saving and renewable sources is a long-term beneficial factor with respect to global climate change and ecology. Energy ties through the exchange of power in various forms as envisaged in BBIN will contribute to an interdependent, peaceful, and prosperous South Asia through economic activity and improved quality of life. With the coordination of policies and measures to implement energy projects and exchange in various sectors, BBIN will definitely help in the modification of unfavourable regulatory policies and development in the energy sector and improve the potential GDP which is lost due to the prevalent status quo in a very large measure.

6. Challenges in Energy Cooperation

It is recognized that energy cooperation is a tool for beneficial diplomacy to solve regional problems; it is a candid strategy for economic and social development to protect peace and unity between countries of different political ideologies, health, degree of conflict, and existing dimensions of conflictual and cooperative relations. Developing transnational energy projects as a means of cooperation can build interdependence between the countries involved, thereby contributing to a political settlement. Challenges to regional cooperation are international, macro and micro in character. As international regions and energy are the need of every developing and underdeveloped nation. Unequal distribution of resources, disparity in technological advancement create imbalance which can only maintain by using rebalancing* as a tool.¹² For achieving the goal of energy cooperation, there are various hurdles which can/ may affect it. Some of them are discussed as follows:

6.1 Political Differences and Geopolitical Tensions

Energy cooperation of BBIN countries can also be broader than hydroelectricity. There is new thinking in Kolkata that each of these four closely placed countries - Bhutan, Bangladesh, Nepal, and India - could concentrate upon producing, transporting, and consuming "an energy" that is freely available to "each" of these four countries, that is hydel electric power. This has led Delhi to assume a more cooperative role with the north-eastern countries.

However, and rightly strategic and policy analysts argue that the "hydro- energy cooperation" assumes that there are identical or overlapping interests and techno-economic complementarities in its implementation. With a limited consumption base in the north-southern part, mostly in Bangladesh and Nepal, this is a sensitive issue. Strategically speaking, sharing of visible "resources" such as hydropower often becomes the first reason for conflict. Differences in national interests are very likely in the formation and enlargement of any alliance among these geopolitical giants of Asia, especially India and Bangladesh. It might be challenging for Nepal to remain politically and economically non-confrontational.

6.2 Technological and Infrastructural Challenges

The existing operational capacity of the transmission infrastructure to interconnect power grids of the neighbouring BBIN countries with India is not satisfactory for the big power trade. Only a few substations along the borders of Bangladesh, India, and Myanmar are operational for 6.5 GW, which is relatively low compared to their planned capacities. Another significant challenge is the weak interconnections with neighbouring countries. It is estimated that small market capacities and geographical disparities between the countries are some of the reasons for the low interconnection and electricity trade. It projects the need for 5.3 GW transmission capacity between Bangladesh and India by 2030.¹³ The transmission operates at a voltage of 400 kV and is also planned to step up to 800 kV for bulk power trading.¹⁴ For the Bhutan-Bangladesh-India-Nepal road map of the region, it is required to have five interconnections between the countries. In order to connect and integrate national markets, there should be continuous cross-border transmission lines to help in transferring the energy. However, Bangladesh shares borders with India and Myanmar but does not have an interconnected transmission line with Bhutan or Nepal. Apart from Bangladesh and India, there are no interconnected transmission lines among any of the BBIN countries. In the context of the regional situation, outside of the SAARC framework, there are a few power-sharing initiatives and participation of third countries such as the transmission of electricity from India to Nepal via Bangladesh. However, there are still some ideas of electricity purchases among adjacent countries. Therefore, the interconnected transmission lines should be multiplied, in the form of regional networks, to promote power-sharing and cooperation in the region.

6.3 Financial and Investment Challenges

A combination of financial and investment risks disfavours the financing of large scale infra projects in BBIN region. The fund management is primarily based on mutual cooperation or loan/ grants by financial agencies preferably WTO, ADB etc. If debt financing - a common approach in which the repayment capacity lies within and depends upon the future power sales of the resource- would be preferred may result as a major threat. Given the lengthy construction period with the political and technical uncertainties regarding the availability of energy, the sustainability of projects seems vague. The shortage of capital has aggravated further with regular financial crises in other similar projects run in other regions over the two decades. The joining of China to AIIB has rather been a constraint, especially to the Indian establishment and businesses, though the country joined the ADB and WB about half a century ago. Regarding investment, it is not just a simple equation based on the availability of surplus capital in the lender bank and borrower's capacity to pay off obligations, as factors like future benefits, project specifics, development dividend and impact of land acquisition and are taken into account as well. Moreover, there are other financial and investment constraints as well, which undermine the operative aspects of energy cooperation. It is most likely that in this intricate domain, with high risks due to large-scale infra project investments. Though, India-Bhutan energy partnership has the potential to benefit both the countries by enhancing energy security, strengthening their economies, generating employment, enhancing export earnings, and contributing to further development of industrial and financial capacities.¹⁵ But the Bhutanese model of energy cooperation will be more sustainable when Indian support both in the direct funding of projects and for the marketing of energy will be there. To make a project bankable, the initial investment of the project should be guaranteed, and this is feasible only with joint or group approval and support in planning, technology choice and necessary investment, bearing in mind future loss, if any. The banks rather have the tendency to wait and see that the project is successfully run by the first financial backers.

6.4 Environmental and Social Challenges

Energy cooperation projects always face local and cross-border environmental impacts. Some of the latest energy projects have the potential to cause local damage and directly affect local people. For instance, wind turbines and solar panels have already shown to affect ecosystems due to displacement in space and time. River valley dams and power transmission lines regularly force local inhabitants to be resettled. Natural gas pipelines along road construction have restricted biodiversity or caused habitat patches to disappear. Communities that are potentially affected by negative externalities outlined here are mostly poor and propertyless, therefore the consequences of the energy projects have a disproportionately large impact. Thus, energy projects are in need of social safeguard criteria. Environmental conservation, training, research, discussions, awareness and education, and cooperation for research are some of the sets of holistic long-term solutions to plan and put in place for ameliorating negative impacts. Furthermore, the emphasis on the local effects reminds officials to take into account sustainable and socially responsible energy project construction methods that concern the safeguarding of the fragile local environment and working conditions.

7. Recommendations for additional modelling of BBIN For Energy Cooperation

- On the lines of the proposed and agreed mechanism between Nepal and India, the BBIN countries should use the existing South Asian experience of dynamic monitoring and balancing short-term index energy. The ones that can be developed jointly could be pooled for optimized transmission. BBIN countries can upgrade it on a description similar to LDC and SLDC momentary.
- The critical energy trade from the countries at low frequency must be at least as strong in the recommendation while mutual energy interdependency among Bhutan, India, and Nepal.

- Importers and exporters can consider reliable funds and co-sponsors to start the projects in the first phase as agreed in the feasibility research report of the BBIN NTP grid-interconnections.
- The various potential PPP options for funding of BBIN NTP grid-interconnectivity projects can be developed and discussed until the project developer uses established incentives to earn a rate of return in an agreement (affordable financing terms).
- For developing sustainable and environmentally-friendly energy co-operation, the BBIN countries should conduct comprehensive research using digital data and satellite imagery on a real-time basis. They can also explore cooperation and documentation formats on various issues.
- The complementary nature of Renewable Energy (RE) between Nepal and India can yield substantial benefits. Wind data exchange and assessment among Nepal, India, and Bangladesh can be arranged with the assistance of investors and network operators.
- Technical cooperation for a feasibility structured research will be needed. Dialogue among the technical experts of the BBIN countries and financial discussions could be held to explore regional renewable energy financing.
- The concerned authorities of BBIN nations should acquire a better understanding of the existing policies on interconnecting energy exchange agreements and the status of the Liberalized Market Rules (LMS), Transmission System Agreements among the member nations. They should prepare a roadmap for signing mutual agreements.
- Assessment of the potential of power trading and prepare projects for demonstrating cross-border energy trade among the neighbouring BBIN countries. BBIN countries should take comprehensive approach to fulfil the shared objectives of interconnectedness.
- A futuristic approach with a proposed target (up to 2040 or as preferred) should be generated by member nations. For this goal, major drivers like energy balance, availability of resources and all should be included.
- An impact assessment should be done for the insurance of smooth conduct of initiatives as of zero hurdles from social and environmental sectors and reports should in easy public reach to gain confidence and support from general population.

8. Conclusion:

Similarly, an "energy mix" that combines energy supply from various sources and thereby reduces regional dependency on a single source or provider can also be subjected to the theory of constructivism by building common interests among member nations. The BBIN initiative will create an opportunity for the participating countries to share knowledge, expertise, and technological know-how and leverage each other's strengths to develop a sustainable energy market in the region. Energy security and regional stability can be achieved by maintaining energy infrastructures, minimizing environmental risk, and preserving institutional cooperation. In order for this theory to prove itself right, there is a need for commitment from the participating countries to set up an institutional mechanism to monitor the energy sector and decide on joint projects that can build interdependency. This would ultimately progress to a state of being too costly to sever the ties, which could also prevent potential conflict. The BBIN initiative is at its early stages and has enormous potential for interconnecting the subregion both socially and economically. If the member states are to indeed create a more cohesive South Asia by breaking away from the traditional realist mindset, then it is imperative that they all commit to the common goal of energy security for all member states and curtail the complex and at times hostile relations between them into a more interdependent and stable one. Times are different from previous attempts at energy cooperation in South Asia; this time it can work. The primary findings of the study state that energy cooperation, as an alternative model of BBIN, is facing challenges of diversification. These challenges arise from the fact that different countries have different developmental stakes, priorities, and strategies of development. This is further complicated by the involvement of major or minor sanctioning powers. The diversifications are also compounded by the diversity in the system of governance, institutional preferences, and political barriers. The cooperation can definitely go ahead on the pages of bilateral or trilateral agreements to resolve the challenges. Legal loopholes, leadership and institutional immaturity, issue linkage, or even political bargaining can resolve the challenges involved in institutional opposition, if any, arising from diversifications.

9. Summary of Key Findings and Future Prospects

The challenges which India has with each of her smaller neighbours are significant in terms of the difficulty of implementation of any collaborative project and the inevitable time-lag that will be created. Similarly, in the case of India-Bangladesh relations, opposition from regional powers to BBIN or BIMSTEC is unlikely to go away anytime soon. Nevertheless, the tool of trans-water Ethnos as a way of overcoming ideographs of the 'national' grids was found to be sufficiently convincing to suggest that opportunities to talk about energy are likely and that within these talks evidence-based opinions could be expressed about the merits of different pathways/obstacles to collaboration, and the anticipated mutual gains.

This study has explored a variety of sources to check the possibilities of inter-state energy cooperation in Bangladesh, Bhutan, India, and Nepal (BBIN) regions more specifically. It has further developed a model of energy cooperation to provide a constructive and persuasive theoretical alternative path for discussion and comparison. This model – using the criteria of long-term mutual economic gain, increased energy security, and a high likelihood of implementation – can potentially contribute towards dealing in a clear and evidence-based way with some extent of the security dilemma concerns and other structural obstacles that exist in these regions.

The future possibility suggests energy cooperation even in the domestic domain, as the P2P-Grid is weak. However, this possibility will definitely not ease the current tension among the partners. The main conclusion is that the alternative model of energy cooperation, out formally, can be highly affected by Focal Influences. The major reason is that different members have different preferences for design and are heavily interested in the implementation of the design arrangements. Challenging the legislator, caring project on a time frame, and implementation despite public hesitations are strategic interests which will definitely influence contradictory dynamics on planning and implementing grid expansion or new grids. Looking forward, it is possible to see a significant complement of the developing country concerns being successfully addressed. Given the interconnected nature of the SDGs, there are some real win-wins available in the energy sphere and new and much larger systems of cooperation may evolve.

Note:

- * Rebalancing is one of the five modern phenomena- Globalisation, Rebalancing, Multipolarity, Technology and Competitive Politics- which dominates modern international strategic relations.

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