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Indo – Bhutan Hydro power trade: SDG 7 and Strategic Cost Management Perspective

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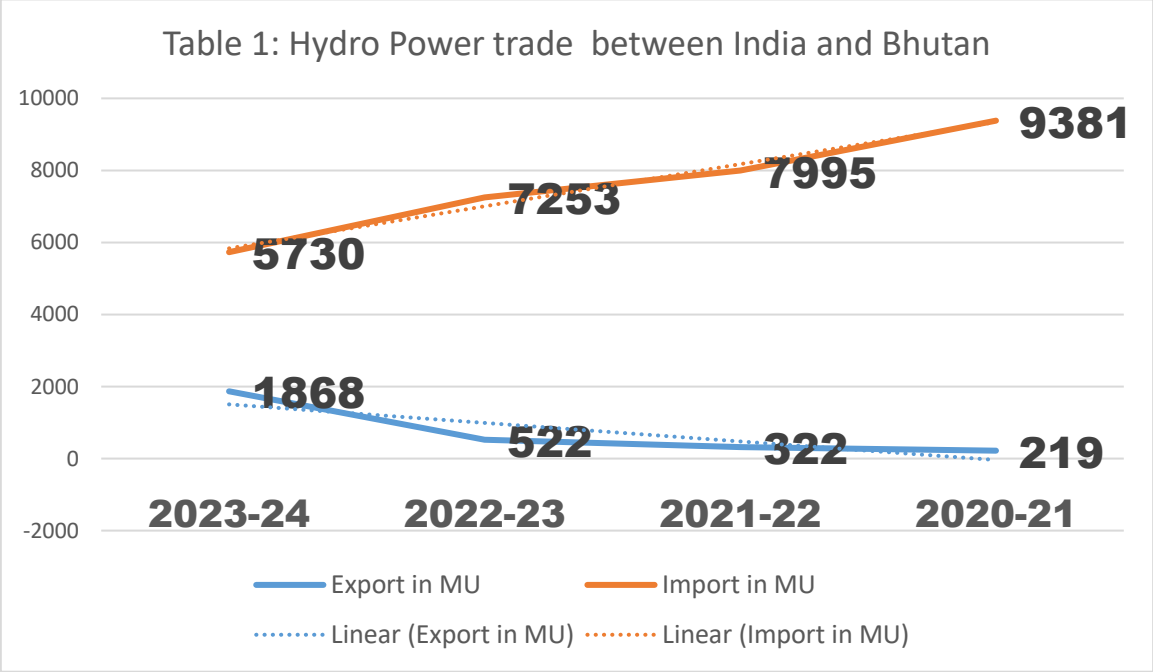
Abstract - India and Bhutan's regional cooperation and trade partnership is illustrious and test tested. The bilateral hydro – power trade is a mission to achieve SDG 7. This paper examines the volatility of Indo–Bhutan energy trade. It highlighting trends in exports, imports, capacity expansion, and carbon emission reduction from the perspective of finance professionals.

I. INTRODUCTION

Sustainable Development Goal 7 (SDG 7) clearly outlines the need to ensure affordable, reliable, and clean energy for all. To achieve this goal, transitioning from fossil-fuel–driven economies to renewable energy-based systems becomes imperative. India and Bhutan contribute to this by increasing the volume of hydro power trade and expanding power plant capacities. However, to create win – win situation careful financial planning and strategic execution are critical. Tools like trend analysis, situation forecasting, cost profit analysis help plan precisely. While, tools for setting benchmarks and finding deviation are useful in successful implementation.

Indo – Bhutan Hydro power trade dynamics

Bhutan's high mountains and abundant water resources gives it an apt edge in unleashing hydro – power potential. This geographical advantage enables large-scale hydropower generation. However, India has a big share in Bhutan's energy basket. It shares power generative resources, balances seasonal demand. Also, creates and manages surplus capacity. Thereby, improving energy efficiency, lowering costs and supporting the adoption of clean energy.



(Source of the data: Ministry of Power, Government of India. (2025). Annual report 2024–25)

Table 1 clearly shows that Bhutan is a net exporter of hydropower to India. The table further indicates that India is benefited with clean electricity to augment its domestic energy mix. But between 2020–21 and 2023–24, Bhutan's exports to India declined from 9,381 MU to 5,730 MU. This trend is due to surge in domestic demand. At the same time, India's electricity exports to Bhutan grew from 219 MU to

1,868 MU. It can be observed that the export to import ratio of Indo - Bhutan has grown from only 2.3% in 2023 to 32.6% in 2024, indicating reduced dependency and diversification of energy trade. It reflects deeper grid integration and a maturing two-way trade. It can be inferred that both nations are on the path of optimising supply, managing peak demand. Thereby, reflecting overall trade efficiency.

Indo – Bhutan marching ahead to achieve SDG 7

Achieving net-zero carbon emissions has gained traction worldwide. But India and Bhutan began pushing forth clean energy transition goal well aligned with SDG 7 long before renewable energy became a global buzzword.

Table 2: Capacity building and reduction in carbon emission.

Year	Projected Capacity (MW)	Minimum CO_2 emission reduced (in tons)
2025	10,000	9000
2030	14,000	12,600
2040	23,500	21,150

(Source of the data: Ministry of Power, Government of India. (2025). Annual report 2024–25)

Table 2 shows that with each Mega Watt of energy generated roughly 0.9 tons of carbon emission is reduced. It signals a steady shift towards green energy by 2040. This capacity building has to be done by putting in place robust financial management system. In this process, tools such as precise cash budgeting, standard and activity based costing can help enhance the overall efficiency of the projects undertaken.

II. CONCLUSION

India – Bhutan hydro power trade is on the pathway to achieve many ends. It has widened gross profit margin without disturbing the ecological balance. Thus, crafting profound results that can fit well into ESG and KPI metrics.

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