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Bhutan's fast flowing rivers, deep gradients, huge gorges and sparse population make the country ideal for harnessing hydro power potential at a very low cost with minimum displacement of human settlements and related rehabilitation issues.

It has been pointed out that these very advantages have been major barriers for development of other sectors in Bhutan's economy. There is also the feeling from prudent economists that there is too much reliance carrying "high risk" associated with a single project and a single buyer.

But to me, going by the current relationship between Bhutan and India and the excellent guidance given both by Gyalpo 4 and the present King, there is no risk at all and as someone had said, the need of the hour for Bhutan is to nurture a sustained national commitment to *achieving . . . a national goal of developing hydro power resources as soon as they can, as much as they can and as harmlessly as they can.*

It is very interesting to see the ongoing debate in Bhutan on hydro power development and some of the bold and fearless opinions on the question of hydro power development, environmental impact and the overweening dependence of hydro power in the country's economy.

But there is a lesson for India too. In planning, funding or executing a project, India should take care to see that Bhutan is involved at every stage from the project report to final execution of the project and the mistakes made in Nepal should not be repeated in Bhutan again.

The Chamkerchu Project:

The Chamkerchu project is a run of the river scheme located in upper Kheng in Zhemgang and has been in the pipe line for the last ten years. Surprisingly the project is yet to begin.

It was in this connection that one environmentalist Yeshe Dorji started a campaign against the project on the ground that at least one of the river systems in Bhutan should be left un dammed. This created a public debate on the project's economic and environmental impact and Yeshe Dorji had already collected over 480 signatures in his petition opposing the dam.

Of the ten most economically viable projects in the country, the Chamkerchu project is one and it is claimed that being a 'run of the river' project, the environmental impact will be minimal. Prime Minister Tobgay in rejecting the petition said that the objection came a decade late and also argued that the economic opportunities and benefits outweigh the environmental impact of the project.

As a dutiful citizen, Yeshe Dorji has discontinued his campaign to have at least a minimum of 500 signatures for the petition though he was almost there. But some points he made in respect of hydro power projects in Bhutan are worth considering, particularly by India who perhaps could on account of being the sole buyer and major financier over step its limits and dominate in the agreements that are being signed on these projects.

Yeshe Dorji has flagged three major points and all of them need proper scrutiny.

1. Bhutan should engage professional lawyers to study the agreements prior to signing. He cited the examples of Punatsangchu I and II where he feels that Bhutan could have done better.
2. The clauses in the agreement should protect the interests of Bhutanese community and local manufacturing industries. (Hydro power itself will not produce jobs, but private industries and other economic pursuits could use the power to generate jobs)
3. In future, detailed project reports (DPRs) should be cross checked professionally.

These points are reasonable and India should not take Bhutan for granted.

Snail's Pace of Hydro Power Projects:

As pointed out by Kuensel of September 12, 2015 Bhutan's economic fortune, energy security, national security and hydro power are inextricably linked. Bhutan has to rely on only hydro power where the potential is not only great but also could take advantage of its uniquely

advantageous position to develop a sustainable pace of hydro power development.

However, Bhutan's record in hydro power development has been poor. As their Economic Affairs Minister had pointed out, the "progress rate of hydro power projects is very poor and has been moving at a snail's pace."

The reasons could be many- some geological, some funding problems and some administrative- but the overall impression one gets is that the projects are taking too long a time and there are cost over runs on many projects. For example, the delay in the commissioning of the 1200 MW Punatsanchhu I project has come at the cost of slashing the 11th Plan target of augmenting the installed power capacity to 4546 MW.

An ambitious initiative was made to produce over 10,000 Mega Watts by 2020. At present (25 years) Bhutan has managed to produce about 1500 MW of installed hydro power. By 2021, it is expected that total production may not exceed 5000 MW that is half of the projected 10000MW by 2020.

This will include three major projects that are likely to come on stream (save some last minute glitches)- are 1200 MW Punatsangchhu I to be commissioned by 2019, 720 MW Mangdechhu by 2018 as also, Punatsangchhu II also by 2018.

Four Issues:

There are four issues which are flagged in Kuensel's report of September 14, 2015 and all the points are relevant and should be taken note of by India too. These are

* If one goes by the economic theory, there is a high risk associated with single product and single buyer. (Pointed out earlier). What follows is the observation from Kuensel itself is that the situation they are in with long term bilateral relationship that exists between Bhutan and India, that risk is substantially reduced.

* Without the mega projects like Tala that produces 1020MW, ambitious rural electrification schemes would not have happened. Despite geological surprises which are galore in young formations like those obtained in Bhutan, it should be conceded that the country has done fairly well.

* The third concern is whether the accelerated development is too large for Bhutan's economy that in turn raises questions about the absorptive capacity of the economy. While Kuensel talks about these projecting only 21 percent of the projected GDP by 2019, what is left unsaid is that the power needs of neighbouring India that are rising. Advanced technology now available ensures that there will only be minimum transmission losses.

* The last issue flagged is what is termed as a "Dutch Disease" - the likelihood of stagnation of non power tradable sectors in the economy. With the boom in hydro power export, the non power tradable sectors particularly the Industrial sector are likely to grow and not stagnate as is feared.

Conclusion:

Overall, Bhutan has done reasonably well to the extent it can with all its constraints in developing the only major resource available though more attention will be needed in expediting the projects. Here India could help and help in a big way. Bhutan's prosperity is India's also.

If Norway could be a success story where its industrialisation has been driven by hydro power, there is no reason why Bhutan cannot also emulate the Norwegians.

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