

Source: Karobar; 14 Feb 2014

Bhutan to generate 11576 MW by 2020

KEDAR DAHAL

Bhutan, which is geographically much smaller and also has low hydropower potential than Nepal, aims to increase its installed capacity to 11576 MW within the next five years. Nepal will hardly generate 3000 MW by that time despite starting generation much before Bhutan. Nepal will have to still wait for a few decades to match that despite the experts putting our hydropower potential at around 300,000 MW. It is just 30,000 MW for Bhutan.

Bhutan aims to complete 10 big projects, which are currently under construction, in the next five years. The Bhutanese government provides 100 units of electricity free of cost to each of its 750,000 citizens. Bhutan had generated just 353 MW until 2000 MW. It has now increased that to 1610 MW. Installed capacity of Nepal is just 750 MW.

Projects with installed capacity of 180 MW to 4000 MW currently are being constructed in Bhutan. All these five projects will be completed within five years. Bhutan has even implemented the Hydro Mission 2020 for hydropower development. "Hydropower and tourism have been prioritized. We aim to make the country prosperous through development of these sectors," Bhutanese Prime Minister Tshering Tobgay states. He says the country aims to attract foreign investment after hydropower development and raise per capita income of Bhutanese people to US\$ 10,000. "Hydropower sector will contribute 60 percent to the total income of Bhutan after completion of these projects," he adds.

All the projects under construction have Indian investment. He reveals that hydropower development has been moved forward in a way to maximize use of resources for benefit of both the countries. He claims that installed capacity will be increased to 15000 MW by 2022. "We have been working to add 2000 MW every year," he says.

Punatsangchhu-1 will start to generate 1200 MW from this year. Construction of the project was started in 2008. Similarly, Mangdechhu HEP will start generating 720 MW from 2016. Punatsangchhu-2 (1000 MW) will be completed in 2019. Bunakha Reservoir Project will start generating 180 MW from 2016. Wangchu Reservoir Project (900 MW) will start generation from 2017. Chhamkarchu-1 will also start generating 670 MW from 2017. Kholonchu (486 MW) will also be completed in 2017. Omchhu Reservoir HEP (620 MW) will be finished in 2018.

Kuri Gongri (1800 MW) will be completed in 2019. Sunkosh Reservoir Project (4000 MW), the largest hydropower project of Bhutan, will be completed in 2020. Its construction was started in 2011.

Source: Karobar; 14 Feb 2014

Projects affected due to uncertainty about PPA in dollar

BABURAM KHADKA

KATHMANDU, Feb 14

Almost two dozen hydropower projects have been affected in lack of decision by the Public Accounts Committee (PAC) of the parliament on signing power purchase agreement (PPA) in US dollar.

The government has not been able to make policy about PPA with a sub-committee under the PAC not preparing report. The government is ready to sign PPA in dollar with promoters of hydropower projects to be developed with foreign investment and is waiting for instruction of the PAC. The PAC had formed a sub-committee under UCPN (Maoist) lawmaker Top Bahadur Rayamajhi to prepare report on dollar PPA in June following controversy about dollar PPA signed with around half a dozen projects earlier. But the sub-committee has yet to prepare the report. It is still uncertain as differences among the major political parties regarding contentious issues of the constitution have increased. Almost two dozen projects set to be developed with foreign investment have yet to move forward due to delay in policy formulation.

Coordinator of the sub-committee Rayamajhi says it will take another one month to prepare the dollar PPA report due to escalation of differences among the parties. "We will prepare the report and submit it after consensus on contentious issues. We have already completed discussions and interactions with stakeholders about dollar PPA. We have to only write the report," he reveals.

The PAC meeting has not been convened after UCPN (Maoist) boycotted the Constituent Assembly (CA). The sub-committee is also not working. UCPN (Maoist) lawmaker Janardan Sharma is chairman of the PAC. The working procedure on dollar PPA will be formulated after comprehensive discussion at the PAC after submission of the report by the sub-committee.

The Energy Ministry has also formed a committee under Joint Secretary Keshav Dhvaj Adhikari. "We have been holding discussions about dollar PPA. Formulation of the policy has been delayed in lack of the parliamentary report. The government is positive about the issue but is not for bypassing the parliament. The ministry had also prepared to formulate dollar PPA policy but we are now waiting for parliamentary report after the people's representatives showed interest for that," Energy Secretary Rajendra Kishore Chhetri says. The policy will take decision about the range of installed capacity of projects to sign PPA in dollar, the rate, validity period and other issues.

Nepal Rastra Bank (NRB) Governor Dr Yuba Raj Khatiwada has already advised to not sign PPA in dollar citing limited foreign currency reserves. The Nepal Electricity Authority (NEA) has not signed PPA in dollar after controversy about that signed with Khimti and Bhotekoshi projects. The NEA has signed dollar PPA with promoters of Khimti (60 MW), Bhotekoshi (36

MW), Upper Marsyangdi-1 (50 MW) and Lower Solu (82 MW). The NEA claims that it has been suffering loss due to the dollar PPA signed for Khimti and Bhotekoshi projects. The NEA is not for signing PPA until the government formulates policy. Managing Director (MD) Mukesh Raj Kafle says the NEA will think about PPA until after the ministry takes decision.

The NEA has already prepared a policy to sign PPA for projects of up to 100 MW at the same rate paving the way for signing PPA for projects of up to 100 MW. PPA for projects of up to 100 MW will be signed in Nepali currency. PPA for the bigger projects will be signed through mutual agreement of the NEA and promoters concerned.

Source: Karobar; 15 Feb 2015

Lessons on hydropower from Bhutan

Editorial

Hydropower development in Nepal has been a sweet dream for decades now. We do not know whether it is due to design or destiny but the issue of hydropower development has never risen above the level of big talks. Lack of capital is rued during the umpteenth seminars about hydropower development. But has hydropower development in Nepal not happened really due to lack of capital? It sadly is far from truth. Lack of willpower, attitude to not take leadership, weak leadership capacity and abuse of hydropower development as a political tool are the major reasons. Development of hydropower sector in Nepal will be possible if the politicians were to just stop using it as a political tool. There are strong protests every time foreign investors, especially the Indians, sign agreement for any hydropower project in Nepal. Nepal definitely should stress on projects for domestic consumption while developing projects but to say that the country's sovereignty will be compromised by selling electricity to India is just a political slogan.

Neither the hydropower developers nor the economists have been able to properly explain the income and opportunities construction of a project creates in the economy. Not just countries like Brazil and China but even the tiny South Asian kingdom of Bhutan has showed how construction of big hydropower projects contributes to the size of the overall economy. The current per capita income of Bhutan, according to the World Bank (WB), is US\$ 2,330 while that of Nepal with a far bigger economy is just US\$ 730. Bhutan, hence, is a country with medium income level while Nepal with low income level. While over 23 percent of Nepalis still are under the poverty line, the WB estimates that it is around just 12 percent in Bhutan. The economic growth rate of Bhutan was around 18 percent in 2009 and it was still a healthy 6.5 percent in the last year. Hydropower sector has been making significant contribution to the state's revenue in Bhutan. The kingdom itself has developed Gross National Happiness Index, apart from the traditional Human development Index, which stresses on maximization of happiness for the citizens from mobilization of alternative means apart from the traditional ones based on income. This, in other word, means development of an alternative approach for development of the country.

Per capita income of Bhutan was almost double of that of Nepal a decade ago and has now more than trebled. The secret behind that success is rapid hydropower development, and optimum use and export of the generated electricity. Bhutan is constructing hydropower projects with an aim of generating over 11000 MW in the next five years. Installed capacity of Nepal will hardly reach 3000 MW during that period even if all the under-construction projects were to be completed within scheduled time. Bhutan has not developed these projects due to its own capacity and rather has embraced Indian investment, and is constructing projects for the Indian market. The country further wants to raise per capita income to US\$ 10,000 by attracting foreign direct investment after generation of huge quantity of electricity even as we are only targeting US\$ 2,000 now.

We must broaden our thinking if we want to accelerate our economic growth. Our energy experts lament lack of market even if we were to generate electricity. Experience of Bhutan shows that our consumption can increase by up to seven times the currently projected demand if easy and reliable supply of energy were to be assured. We must not first install factories and look for energy to operate them, and instead focus on generating electricity first and then look for other opportunities.

Source: The Himalayan Times; 15 Feb 2015

FDI for Upper Kali Gandaki hydro project approved

The meeting of the Industrial Promotion Board led by Minister for Industry Mahesh Basnet, today, approved foreign direct investment (FDI) for Upper Kali Gandaki Hydel Project.

The 65-megawatt project located in Myagdi and Parbat districts of western Nepal which has already started the Environmental Impact Assessment has planned to finance 92 per cent of the project through FDI and remaining eight per cent through local investment following the approval of the board. Hong Kong-based Sinohydro Holding Ltd has partnered Trade Link Global in Nepal to develop the project.

Likewise, the meeting has also approved the proposal to raise capital submitted by Essel Clean Solu Hydropower Ltd. The 40-megawatt project has proposed to raise Rs 13 billion to expand its capacity.

Moreover, the meeting also approved the loan agreement amendment proposal submitted by Madi Power Ltd. It also gave a green signal to a proposal to raise capital and capacity of two breweries. Tanahun-based Avanish Distillery and Makwanpur-based United Breweries Nepal had submitted proposals to raise capital to expand capacity.

Source: The Rising Nepal; 17 Feb 2015

Construction work of Daraundi hydro Project intensifies

The construction of the dam of the Daraundi Hydropower Project at Muchchoktar in the district has been intensified and has completed 90 per cent so far.

The Kalika Hydro Construction Company, the contractor company of the project. The project has the capacity of generating 6.5 Watts power and the construction cost is one billion rupees.

The project is expected to be completed by coming June.

Source: The Kathmandu Post; 18 Feb 2015

Upper Karnali Hydropower Project sets off land rush

- PRAKASH ADHIKARI

People in [Dailekh](#) and adjoining districts have been rushing to purchase land in and around the proposed site of the Upper Karnali Hydropower Project in hopes of reaping hefty land compensations when the project is implemented.

Most of them have been buying real estate in the Dab area of [Dailekh](#) on speculation that the project will pay out large amounts for their property when it starts land acquisition to build the power plant.

Tilak Adhikari from Salkot, Surkhet recently bought 1.5 ropanis of land in Dab. “I purchased the land that cost Rs 500,000 in total with the expectation of getting employment, good compensation and shares in the project,” he said.

The 900 MW Upper Karnali Hydro Project has been luring many people after a project development agreement (PDA) was signed to construct the

plant. Among the speculators buying land here are people from Nepalgunj, Bardia and the Kathmandu valley.

Jeevan Thapa from Sattala, [Dailekh](#) has also purchased a ropani of land at the project construction site. Though Thapa is also one of residents in the affected village development committee, he has purchased land at the main construction site too.

People purchasing land here said they intended to carry out hotel business besides aiming to receive a good compensation amount for their land when it is acquired by the government. Some of these people are said to have abandoned their lands in the high altitude regions a few years back.

According to Thapa, the population density has surged in locations like Dab, Ramagaad and Paltada in particular as a result of migration. “As the area now has a high potential to offer good returns to the people here, the local people should also facilitate the construction of the project,” said Thapa, adding that even those who were against the hydro project had sold their lands at high prices.

Land prices have surged not only at the project construction site but also in the remote areas of Upper Karnali. According to the local people, many people have started migrating here with the expectation of getting jobs.

Rahaph, Bhairavsthan and Raniban of Achham district, Pokhari Kanda, Chhapre and Salkot of Surkhet district and Sattala, Singaudi, Lyantivindrasaini, Nepa, Naulekatuwal and Khadkawada of [Dailekh](#) district are the main affected remote areas.

The contractor of the project is slated to give 27 percent of the shares to the Nepal government while the country will also be receiving 12 percent (108 MW) of the energy produced free of cost. Similarly, the project is expected to provide jobs to more than 2,000 people and the government is projected to generate financial benefits of

Rs 300 billion.

The project will be acquiring 48.85 hectares of private land and 207.75 hectares of government-owned land. The project will affect an estimated 239 households while 46 households will have to be provided rehabilitation schemes. The construction of the project is targeted to be completed by 2021 and it is estimated to cost Rs 145 billion in total.

In 2008, the government and an Indian company GMR had signed a memorandum of understanding to construct the Upper Karnali project. Likewise, the project development agreement was signed on September 19.

GMR is said to be starting the construction in the next two years after managing a consortium to finance the project. The run-of-the-river hydropower project has one of the shortest tunnels running through a soft rocky mountain, and it has been claimed to be one of the cheapest hydroelectricity projects.

Source: The Kathmandu Post; 18 Feb 2015

Upper Trishuli nearly complete, but power line nowhere in sight

- *SANJEEV GIRI*

The Upper Trishuli 3A Hydropower Project could find itself in a fix with nowhere to send electricity to when it comes online as there has been little progress in the construction of a transmission line.

The 60 MW plant is expected to start generating energy within a year, and the Nepal Electricity Authority (NEA) says the construction of the transmission line hasn't even started. The proposed 220 kV overhead power line linking the powerhouse with the NEA's substation in Matatirtha will be 46 km long.

Problems like land acquisition, forest clearance and protest from locals over a number of issues have affected the commissioning of the transmission line project, according to the NEA. Along with the overhead power line, a 220 kV underground cable route about 1 km in length will also be built.

“Going by the pace of progress at the Trishuli 3A project, it is certain to be completed within the next one year. The powerhouse will be ready for energy evacuation by then,” said Mukesh Kafle, managing director of the NEA. “However, the completion of the project will have no big significance if the transmission line is not completed by that time.”

The NEA boss described the transmission line project as being one of the most problematic projects for the NEA. The state-owned power utility is constructing both the hydropower project and the transmission line.

Although the construction of the hydropower project was delayed by more than three years, the NEA failed to complete the transmission line which should have been erected much earlier as per the initial target for the project's completion.

The NEA extended the contract deadline for the construction of the project until June 30, 2016. Originally, the project was slated for completion by June 30, 2011.

“At a time when the country is going through a severe power crisis, the wastage of 60 MW of power will mean a huge misfortune,” said Kafle. “There will also be a commercial loss of millions of rupees for the state-owned power utility.”

The NEA is of the view that it can still complete the transmission line within one to one and a half years if the government provides the necessary support. “Support in terms of forest

clearance, playing a constructive role to narrow the differences at the local level and providing security to the project,” Kafle said.

The Upper Trishuli 3A project is a run-of-the-river hydropower project located in Nuwakot and Rasuwa districts. Its construction began in fiscal year 2010-11 and has been financed by a soft loan from China Exim Bank. The project is expected to improve the power supply in the [Kathmandu](#) valley.

Apart from this, two other projects, the 30 MW Chameliya and 14 MW Kulekhani III, are likely to be completed within a year.

Both the projects are being developed by the NEA. “If things move at the current pace and unforeseen situations do not arise, the projects will be ready within a year,” Kafle said.

Source: Karobar; 18 Feb 2015

Three Gorges confirms construction of West Seti

BABURAM KHADKA

China Three Gorges Corporation has made a formal decision to develop the 750 MW reservoir-based West Seti Hydropower Project. The recent board meeting of Three Gorges, the parent company of promoter CWE Investment Corporation, has passed the decision to develop the project. The CWE board two years ago had approved the memorandum of understanding (MOU) signed between the Investment Board (IB) and CWE to develop the project.

CWE will start formation of a Special Purpose Vehicle (SPV) in coordination with the IB and the Nepal Electricity Authority (NEA), and drilling. Three Gorges has developed and is operating 22500 MW reservoir-based Three Gorges Project, the largest hydropower project in the world. “Construction of the project has been ensured following the board decision by parent company Three Gorges. Formation of the SPV, drilling and other pre-construction works will start before the coming monsoon season,” Chief Executive Officer (CEO) of IB Radhesh Pantya says.

He reveals that CWE will do further drilling as Australian company Snowy Mountain Engineering Corporation (SMEC) did not drill adequately. He claims the recent Power Trade Agreement (PTA) signed by Nepal with India has further encouraged the Chinese investors even though the project will be developed for domestic consumption. The NEA will buy electricity generated by the project, and PTA with India means surplus energy can be exported. The locals will be provided up to 10 percent shares in the project that will have 65 percent shares of CWE and 25 percent of Nepal government, according to the MOU. The estimated cost of the project, according to Pantya, is Rs 148.70 billion excluding that for constructing transmission line. The preliminary study had put the cost of constructing transmission line at around Rs 40 billion.

There have been doubts about the project being pushed back by five years with government officials stating that electricity generated by the project will not be needed before 2025 even though CWE proposes to complete the project by the end of 2021. The project’s cost will rise with delay. The government has requested for soft loan from China for construction of the transmission line and equity investment the NEA must make on the project. China has yet to respond to the request.

Briefing about the progress of project under the IB during the meeting of the Development Committee under the parliament on Wednesday, Pantya said “Land acquisition, resettlement and construction of transmission line seem to be the major challenges for big projects. The proposed projects can be affected if these problems are not immediately addressed.” The government has not been able to amend resettlement policy, Land Acquisition Act and Environment Conservation Act in time. The government had made commitment to make legal arrangements by mid-November. Chairman of the parliamentary committee lawmaker Rabindra Adhikari said

there is lack of understanding between the Energy Ministry and the IB about West Seti. “Cooperation of all government bodies is needed to move West Seti forward. The committee is committed to providing the needed support as far as possible,” he added.

The project will be developed in build-own-operate-transfer (BOOT) model. CWE has already submitted financial and technical reports to the IB and both the reports have showed the project to be financially attractive. The estimated financial analysis of CWE states that the rate of PPA should be 5.40 cents during the rainy season and 9.50 cents during the dry season for the project to be financially lucrative. The CWE has concluded that the annual inflation should be three percent until 10 years, and loan period 18 years out of which six years have to be grace period for the project to be financially viable.

The feasibility study of the project has showed that 3.33 billion units of electricity can be generated annually. The project will be constructed in Doti, Dadeldhura and Bajhang districts of the far west region.

Source: Karobar; 19 Feb 2015

Tamakoshi dam to be completed in 6 months

DIL BAHADUR KC

Construction of dam of the 456 MW Upper Tamakoshi Hydropower Project will be completed within six months. Work on the left side of the dam, under headworks, has been completed and work on the right side is currently being done by diverting the course of river. The project, however, will only be completed in July, 2016 even though the dam will be completed in six months.

Work of foundation has already been completed two months after changing course of the river. Assistant Manager of the project Bimal Gurung says one-third of the dam is completed when foundation is finished. A 30-meter dam on the left side, intake, and 200-meter settling basin have been completed in the headworks. "It will be completed before the monsoon as only construction on the right side remains now. Work is being done on war footing to complete it in scheduled time. We have been working for 22 hours on a stretch to concretize it," he adds.

Work on 30 meters of dam out of the 60-meter long and 22-meter high dam in Lamabagar is currently being done by changing course of the river. A total of 177,000 cubic meter had to be concretized in headworks and 155,000 cubic meter of that has been completed. Headworks alone will require 50,000 tons of cement and 12,000 tons rods. More than half of the workers in headworks have been laid off with civil construction gradually completing. While over 1,000 workers used to work at headworks a year ago, there are less than 500 now.

Work on dam, intake, gate on desander, and design, installation, test and commissioning of stoplog under hydromechanical works are being done now with civil works nearing completion. Sino Hydro Corporation of China is doing civil works while Indian company Texmaco Rail and Engineering Limited is doing hydromechanical works.

Consultant fails in dam

Study by consultant Norconsult AS of Norway on construction of the dam on the right side has failed with a weak cliff with soil and sand in the middle being found during construction even though the study had said there were hard rocks in there.

The cliff has now become another problem. The project deeming that working as per the previous design will lead to risk of seepage of water through the hole in the cliff and can weaken the dam is preparing to address the issue now investing more time and capital. Gurung says additional study will be conducted even by hiring additional experts from abroad. Norconsult, that had even conducted detailed engineering study for the project, is also the consultant during the period of construction. Cement solution is being poured in the foundation as per its latest recommendation.

Design of headrace tunnel was also changed midway after weak rocks were found. The headrace tunnel, that was earlier constructed at a slope of eight percent, is now being constructed at a slope of 0.3 percent. Additional experts were brought even to study for the tunnel. The project's schedule was extended by six months due to the change of tunnel's design while project cost has also increased by around Rs 1 billion.