

Source: The Rising Nepal; 5 June 2016

Construction of Madhyakhola Hydro Power Project gaining speed

The construction of the Madhyakhola Hydro Power Project with 15.1 megawatt capacity is gaining speed after stalling under the impact of the undeclared blockade of transit points at southern border.

The project which started in mid February of 2015 has now started digging tunnels after purchasing land from the locals.

The project launched by Himal Hydro Construction Company is currently working at completing works at dam area and power house, Project Chief, Hari Devkota said. The project has completed 400 metres of tunnel of the total of 800 metres.

The Rs 2.8 billion project has a major share of industrialist Binod Chauhdary with investment from Prime Bank among other Banks and Financial Institutes (BFIs).

Source: The Himalayan Times; 5 June 2016

Energy independence through inter- dependence

Pradeep Gangol

Though energy independence is ideally sought and wished by all countries, it is not possible, when viewed from a commercial point of view.

From a business point of view, we are better off buying our energy from whomever can produce it relatively most efficiently. Sometimes that will be from domestic source, but sometimes not.

Trading energy in this way will bring lower prices, and, furthermore, diversifying supply brings greater energy security and stability. Energy independence, therefore, should not be a policy goal; energy interdependence actually makes us better off.

Let us take the example of power trade between USA and Canada. Canada imports energy from USA during off peak period to meet partly the base load, when energy demand in Canada is not high. It stores water in the reservoirs scattered all over Canada during day time. The off peak energy imported from USA and generated from thermal plants is relatively cheaper. When there is peak time in the evening, that is, energy demand in USA is high; Canada exports energy to USA, releasing the stored water from reservoirs for power generation. The power tariff rate for peak energy is always high, compared to the tariff of off peak period. Thus, both countries stand to gain from such a win- win type of deal.

Similar types of power trade are possible between Nepal and India. Both countries stand to gain from the power trade. One study has shown that power trade between Nepal and India has the potential to support the early development of Nepal's untapped hydro potential.

For this, storage for hydropower projects should be developed to add generation flexibility in the grid. Similarly, Pondage with Run- of River (PROR) hydropower projects should be developed to ensure generation flexibility within a day.

Nepal made mistakes in the past, by not introducing differential power tariff (power tariff for peak and off peak tariff). Had it introduced differential tariff long time ago, as demanded by the Independent Power Producers' Association, Nepal (IPPAN), the energy crisis would not have been so serious, as it is now. Power companies should therefore be encouraged to build PROR projects, to utilise optimally Nepal's water resources.

It seems that Nepal will remain a net exporter from 2017 onwards; however it will need to import electricity during certain time periods of the day. Export earnings from electricity trade will have a positive impact on the economy of Nepal. Higher exports lead to expansion of the power sector of Nepal and also leads to capital injection into Nepal's economy leading to higher investments in other sectors as well as increasing the consumption demand through higher income generation.

In the next few years, Nepal is likely to produce surplus electricity during monsoon, thanks to under construction mega hydropower projects. Nepal has recently officially proposed that India establish an ' energy- bank' in a bid to resolve the energy crisis seen in the country during winter season. According to the proposal, Nepal will export its surplus electricity to India during monsoon and import power during crisis in winter. A historic Power Trade Agreement between Nepal and India inked in 2014 has paved the way for establishing an energy bank.

Though, Indo- Nepal relations are probably at its lowest ebb, relations between close neighbours like Nepal and India cannot remain so for long time. If India acts with magnanimity, foresightedness, statesmanship and empathy appropriate to its size and power, it would mean a qualitative improvement in Indo- Nepal relationship, setting a good example of energy independence through interdependence and transforming the economic scenario of both countries.

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Source: The Kathmandu Post; 5 June 2016

Energy and synergy

The Budhi Gandaki project can be given a boost with water from the Trishuli River

- RAJU SHRESTHA, BIDUR GAUTAM & DHARAM RAJ SHARMA

The proposed Budhi Gandaki Hydropower Project located in Gorkha and Dhading districts in central Nepal has been touted as the solution to the current energy crisis. Its powerhouse will generate a whopping 1,200 MW of electricity that should make the dreaded load-shedding a thing of the past. The dam of the storage-type project will be 263 metres high, which will make it one of the tallest in the world.

Budhi Gandaki also has a high price tag of \$2.5 billion, which means the power purchase agreement (PPA) rate will have to be more than \$0.14 per kilowatt hour (kWh) for the project to be financially feasible. The detailed project report (DPR) has not been reviewed by a third party, and this may raise questions about the reliability of the design. Experts, politicians and economists all think that Budhi Gandaki should be built with domestic funding, but it is highly unlikely that any institution will bankroll a project that does not provide attractive returns. Because of the potential technological and financial challenges, it is necessary to look for an alternative approach to boost its financial attractiveness and reduce risks. A wise decision would be to utilise the current DPR and add a few features involving a nominal cost increment to produce significantly more electricity. Budhi Gandaki can be made more attractive by channelling water from the nearby Trishuli River to its reservoir. Water from the Trishuli can be impounded at the headworks of the existing Trishuli Hydroelectric Project and evacuated to the Ankhu River at the tailrace of the existing Ankhu Hydroelectric Project through a 26-km-long tunnel. There are a number of ways to implement the project.

Option 1

This option can be designed at 1,500 MW by adding another 300 MW to the proposed 1,200 MW project to generate 5,980 GWh annually with an additional investment of \$500 million. If enough investment is available, the Trishuli Diversion can be built at one go. The Trishuli Diversion project will not require additional loans or capital as it can be built with the revenue generated from the proposed 1,200 MW project.

Option 2

Instead of the planned 263-metre-high dam, a smaller 203-metre-high dam can be built with an uplifting provision. The project can have an installed capacity of 600MW and produce 2,020 GWh annually. The project would cost around \$1.9 billion which is around 25 percent less than the cost of the original 1,200 MW project. A smaller project means smaller construction time (six years as opposed to seven to eight years), less complexity and smaller possibility of time overruns.

In the second phase, the power generation can be almost doubled by installing a 600 MW electromechanical (EM) and adding water from the Trishuli River. This phase can be designed at 1,200 MW by adding 600 MW to generate over 4,300 GWh annually with an additional investment of less than \$860 million. In the third phase, the height of the dam will be raised to 263 metres and the EM equipment will be upgraded to match the raised height. By injecting another \$850 million, the total installed capacity of the project can be hiked to 1,800 MW and the project will produce 6,900 GWh annually.

Financing options

Both the options would require more than \$3 billion, and accomplishing the financial closure of such a huge investment will not be easy. The government can consider different financing

options like public ownership development and public private partnership (PPP). Under public ownership development, financing will be by multilateral agencies. The project can be funded by international financial institutions such as the World Bank and Asian Development Bank. Another option is buyer's credit loan agreement, which means the project could be made under an EPC contract and the contractor arranges 75-85 percent of the financing with the government providing the rest.

Under the PPP model, financing will come from the public and private sectors. A maximum of 20-25 percent of the project cost can be brought through equity participation of the government and the general public. Likewise, loans can be taken from the Employees Provident Fund and Citizen Investment Trust. The project can only be developed under the PPP model if public investors can get a good return on their investment.

In order to make the project attractive to potential investors, the PPA rate has to be very high or the government should support the project by providing tax and royalty rebates, subsidised loans and other incentives. With the Trishuli Diversion, the project's financial internal rate of return (FIRR) is over 10.7 percent, so investments can be attracted from public investors without any difficulty. If the government can arrange a soft loan and provide a royalty rebate, the project will become more feasible; and it can be built and implemented in the same way as Upper Tamakoshi. There would be no dearth of investment for good projects with good returns.

Shrestha and Gautam are engineers; Sharma is a chartered accountant

Source: The Rising Nepal/ The Kathmandu Post; 6 June 2016

Employees of Indrawati III hydel project take to the streets, putting forth demands

Employees of the Indrawati III Hydropower Project of the National Hydropower Company Limited have taken to the streets to protest the cut on their allowance they were enjoying for the past seven years. They have demanded that their salary and allowances should be revised in line with the recent increment in salary of government employees.

Their other demands include promotion of permanent employees of the hydropower by one level, timely implementation of the grade-increment system, setting up of gratuity and voluntary retirement fund and management of accommodation to those employees from outside the workplace district.

District secretary of the project Sagar Khadka said that they were scheduled to padlock the central office of the project in Kathmandu today as their demands were ignored. RSS

Source: The Himalayan Times; 7 June 2016

Joint agreement on West Seti project likely to be signed in a month

Once pact is sealed, an SPV, with 75pc stake of CWEI and 25pc of NEA, will be formed

CWE Investment (CWEI) Corporation, the Chinese developer of the 750-megawatt West Seti Hydroelectric Project, has expressed interest to conclude a crucial agreement with Nepal Electricity Authority (NEA) within a month to expedite the process of forming a special purpose vehicle (SPV) to build the project.

“We have received a letter from the Chinese company stating that it wants to conclude the joint development agreement (JDA) with NEA within a month,” Khagendra Prasad Rijal, deputy spokesperson at Investment Board Nepal (IBN), told *The Himalayan Times*.

Another source told *THT* that senior officials of CWEI, a subsidiary of China’s Three Gorges Corporation, are visiting Nepal within a month to wrap up the deal.

Once the pact is sealed, an SPV, with 75 per cent stake of CWEI and 25 per cent stake of NEA, will be formed. This SPV will oversee implementation of West Seti Hydroelectric Project being built in the far western part of the country.

Although CWEI is all set to enter into the pact, an NEA official privy to the issue said a few outstanding issues need to be settled before signing the agreement.

First is the issue of equity.

Before signing the JDA, NEA must agree to acquire 25 per cent stake in the project.

The Cabinet has already extended green signal to NEA to purchase the shares. But NEA’s management still has not forwarded the proposal to the board, a board member said on condition of anonymity.

Unless the NEA board of directors endorses the decision, NEA cannot invest in the project.

NEA management has been delaying the process of forwarding the proposal to the board, as it is seeking assurance from the government or the Chinese developer to arrange credit required to purchase the stake, citing the utility company does not have enough funds to purchase shares on its own.

Earlier, it was said that CWEI had agreed to talk to the Chinese government to mobilise loan for NEA. But a source said only ‘companies that are 100 per cent owned by Chinese are eligible for Chinese government loan’.

Another outstanding issue is that of the pre-construction expenses. Since IBN endorsed CWEI’s proposal to invest in the West Seti project in April 2015, the Chinese developer has started conducting geological tests and studies to locate sites where dam and power house could be built. This means Chinese company has already started spending money on the project.

Once NEA becomes an equity partner, CWEI will ask NEA to bear 25 per cent of the expenses incurred by it so far.

“But since expenses made by CWEI are not in line with the Procurement Act of the country, NEA is not comfortable about shouldering these costs because of fear that corruption watchdog may hold it liable for spending money without adhering to Nepal’s legal provisions,” a source said, adding, “These issues need to be settled before the joint development agreement is signed.”

Also, discussions on construction of transmission line, which the government has agreed to build, and rehabilitation and resettlement plan, which the government has agreed to execute on behalf of the project developer, will be held during the proposed meeting between CWEI and NEA after a month.

West Seti project was handed over by the government to CWEI in February 2012.

Around 2,500 hectares of land, of which 30 per cent is private, needs to be acquired in Doti, Dadeldhura and Baitadi districts to build the project. Around 3,000 households also need to be relocated while developing the project.

Source: The Himalayan Times; 8 June 2016

MoE to use local financial resources to build hydro projects

The Ministry of Energy (MoE) will soon start building hydroelectric projects of up to 25 megawatts throughout the country by setting up independent companies in which the government, local residents, community organisations and cooperatives will be equity partners. The MoE is taking this initiative in line with its programme titled 'Electricity to People through People's Investment'.

"We received approval from the Ministry of Finance to set up the first model company yesterday. We will soon finalise a project and roll it out," MoE Deputy Spokesperson Gokarna Raj Pantha told *The Himalayan Times*.

The concept of roping in local residents and bodies to develop hydroelectric projects was introduced to make productive use of financial resources available at the local level.

"This will ultimately help in electrification process, generate jobs at the local level, raise people's income and uplift living standard of local people," Pantha said. "This concept will also instil a sense of ownership among locals in projects being built in their locality."

To kickstart the programme, the MoE is mulling over building 13.5MW Maiwa Khola Hydroelectric Project in Taplejung. The Department of Electricity Development (DoED) has already conducted feasibility study of the project.

Although the Energy Ministry was also planning to build 12.25MW Madi Khola Hydroelectric Project in Rolpa at the time when the concept was first floated, it is now being said Nepal Army has shown interest to develop this project.

The MoE is also eyeing to build 15MW Chepe, 25MW Sankhuwakhola and 5MW Dotigad projects under this model. Also, projects of one to 25 MW that the private sector has failed to build for a long time are likely to be rolled out under this model.

The MoE has proposed formation of a six-member committee under the DoED director general to identify projects, conduct their feasibility studies, monitor implementation and coordinate with concerned authorities and bodies to facilitate implementation.

As per the plan, independent companies will be established to build each of the hydroelectric projects. These projects will be built with debt-equity ratio of 70:30.

This means 70 per cent of the fund required to build the project will be in the form of loans. This credit will be mobilised equally through financial institutions and the government.

The remaining 30 per cent of the fund required to build the project will be obtained from investors, which includes different ministries, the DoED, Nepal Electricity Authority (NEA), Hydroelectricity Investment and Development Company, district development committees, municipalities, village development committees, local cooperatives, district chapters of private sector umbrella bodies, community and consumer rights organisations, and local residents.

"As the company repays its debt, equity portion of shareholders will increase proportionately," Pantha said, adding, "The government intends to control over 50 per cent stake in each of the projects."

To ensure there is no problem in evacuation of electricity generated by these projects, the MoE will instruct NEA to extend transmission lines to sites where hydroelectric plants are located. Also, access ways will be built by concerned Road Division Office or District Technical Office, the MoE said.

Source: The Kathmandu Post; 8 June 2016

Work gains momentum after dispute settlement

Tanahu hydro project

PRAKASH BARAL

Work on the 140MW Tanahu Hydropower Project has gathered momentum after a dispute over the project's consultant was resolved.

"Construction of infrastructure, except for the main tunnel and power house, is moving ahead smoothly," said Bidur Adhikari, site in-charge of the project. "It is necessary to develop storage-type projects to end load-shedding throughout the year."

An 87m motorable bridge has been constructed over the Seti River to carry out initial works.

Contractor Rasuwa Construction built the bridge with an investment of Rs110 million.

Contract to build an access road from Chapaghat, Damauli to dam site and powerhouse has also been awarded. A 4km black-topped and 2km gravelled road will be constructed for the purpose.

Sima and Brothers Kashyap JV has bagged the contract of constructing the road from Chapaghat to Seti bridge, while Ashish Machhapuchhre Parajuli JV has taken the responsibility of constructing the road from Seti bridge to powerhouse through Jhaputar.

Auxiliary works are being carried out at full speed so that the contractor could start works right after being appointed, said Adhikari.

Asian Development Bank, Japan International Development Agency, European Investment Bank and Nepal government are investing in the project that is estimated to cost Rs54.25 billion. The initial decision of then Energy Minister Radha Gyawali to scrap the consultant appointment process had raised question over the future of the project.

After nearly a year-long row over the issue, a Prime Minister-level intervention ensured the consultant—the joint venture between Germany's Lahmeyer International and Canada's Manitoba Hydro—could work.

Tanahun Hydropower Limited, the developer of project, aims at completing the project within the next five years.

As per the preparatory works, the project has distributed compensation for 150 ropanies of land acquired at the dam site and entry gate area. Compensation payment for land to be inundated by the dam will be started this fiscal year, according to the project. The project is expected to inundate 18km from Kahun Shivapur to Bhimad.

Locals have expressed happiness about the project. "We are hopeful it would boost businesses here," said Keshav Bahadur Thapa from Kahun Shivapur.

The locals have been given training for carrying out income generating activities such as fishery.

Source: The Himalayan Times; 9 June 2016

Hydro project returns locals' documents after nine years

Ikadigaad Micro Hydro Project returned the landownership and citizenship certificates of locals after nine years. The project had taken the documents to avail of bank loan for power generation. The loan was cleared after nine years.

The hydro-power mortgaged the certificates as collateral to withdraw the loan on November 20, 2007. The certificates were on the verge of being auctioned as the project had failed to clear Rs 8 lakh loan maintained with Agriculture Development Bank.

The total loan including the principle amount and the cumulative interest had reached Rs 1.67 million. The bank waived 80 per cent of interest and the project cleared the bank loan.

Min Bahadur Singh, project chairperson said the loan was cleared as the Constituency Development Fund offered Rs 10 lakh and locals contributed Rs 1,000 per household.

Local Kritam Bahadur Singh said he was elated after his landownership and citizenship certificates were returned almost after a decade.

"We succeeded in electrifying our locality by mortgaging our certificates first and now we have got our documents back after clearing the loan. I am extremely glad," said another local Sarbjit Shahi.

As many as 300 households have directly benefited from the 30KW hydro project.

Source: The Kathmandu Post; 10 June 2016

Arun-3 hydro stymied by ceiling on land acquisition

BIBEK SUBEDI

SJVN Arun-3 Power Development Company, the developer of the 900 MW Arun-3 Hydropower Project, has not been able to acquire adequate land for the project as the Ministry of Land Reform and Management (MoLRM) has not lifted the land ceiling set for the company.

The developer's attempt to acquire around 1,000 ropanis of private land has been stymied as the acquisition of more than 75 ropanis requires the Cabinet's approval. The power development company had applied to the MoLRM to lift the ceiling more than a month ago.

However, delays by the ministry to obtain the Cabinet's okay has stalled the land acquisition process.

"Such bureaucratic delays are seriously affecting our work," said Hari Ram Subedi, resident representative of SJVN. "This will ultimately push back the completion date of the project." He added that once the land acquisition was done, the developer would immediately start the construction work.

Local residents who will be displaced by the proposed Arun III hydropower project have agreed on a resettlement action plan proposed by the company and signed an agreement some three months ago, but bureaucratic delays have slowed the project's progress.

On February 25, a tripartite agreement was signed by Investment Board Nepal (IBN), SJVN and locals of Sankhuwasabha district where the project will be developed.

The chief district officer was supposed to issue a land acquisition notice within two weeks after the resettlement agreement was signed. But, according to the existing Land Act, a company cannot acquire more than 75 ropanis of the land without the Cabinet's go-ahead.

The MoLRM said that it would be taking the issue to the Cabinet very soon. "We are planning to take the decision to the Cabinet within a week," said Nagendra Jha, spokesperson for the ministry.

In November 2014, the board and SJVN signed a project development agreement (PDA) for the Arun-3 hydropower project. As per the agreement, SJVN will complete the construction of the plant and start energy generation by 2020.

According to IBN, Nepal will receive Rs348 billion over 25 years from the project. SJVN will provide 21.9 percent of the energy generated free of cost, which is worth Rs155 billion, plus another Rs107 billion in royalties.

As per the PDA, the Indian company will allot shares worth Rs1.6 billion to locals, 50 percent of which will be issued within two years of the project's launch. The rest of the shares will be issued at a later date at a premium.

