The Necessity of/and Challenges to International Project Financing of Hydropower Projects in Nepal

Anjan Neupane

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Abstract: Although development of 40,000 MWs of hydropower plants in Nepal is said to be feasible from an engineering/economic perspective, from a financing through Nepalese banks perspective, it is impossible. Loans from international banks are needed to finance hydropower projects in Nepal as local banks do not have capacity to support large projects. However, most international banks have not yet been interested as many Nepalese projects are not yet considered "bankable" from a project finance perspective. There are many challenges to financing hydropower projects as the financing requires the project itself to be free of risk from a legal and contractual viewpoint, thus making it worthy of being used as collateral on its own right. The only way forward is for the government to change its policies significantly to ensure the bankability of projects currently being developed by many independent power producers.

Key words: Project finance, hydro power financing, FDI

Introduction

It has been said time and again in popular discourse that Nepal has the theoretical capacity to produce 83,000 MWs of hydro-power, whereas from a practical engineering/economic perspective only around 35,000 MWs to 40,000 MWs are feasible (Jha, 2010). Politicians frequently talk about producing 10,000 MW in ten years. However, from a current day financing perspective these figures are very unrealistic.

The reality is that the combined core capital of all Nepalese commercial banks stands at USD 907 million with approximately US$10 billion in deposits (NRB, 2012). According to Nepal Rastra Bank (NRB) Unified Directive No. 3/069, banks are only allowed to have 50% exposure of core capital in hydropower projects. Because of this, all Nepali banks combined can lend roughly US$450 million in a given loan maturation period to hydropower projects. Assuming that the average construction cost per megawatt of hydroelectricity is US$ 1.8 Million (Pradhan 2008), that means Nepali banks can only finance up to a maximum of 250 MW of hydropower projects in a period of 8-10 years (usual loan maturation period). However, in practice many banks have lent far less than this amount to hydropower projects because of they lack expertise and maintain poorly devised risk diversification strategies. The actual local bank financed independent power producers (IPPs) hydropower projects, excluding Nepal Electricity Authority (NEA and NEA affiliated projects, stands at a mere 154 MWs (IPPAN 2012).

Meanwhile, generation licenses of more than 1,800 MWs and survey licenses for approximately 12,000 MWs have already been granted by Department of Electricity Development (DoED). NEA has signed power purchase agreements (PPA) with new projects totalling 860 MW, all of which are yet to achieve financial closure and start construction. Only 63 MW have been constructed (as of this writing) by local IPPs (excluding Bhotekoshi, Khimti, and Chilime projects) and another 91 MW of projects (excluding Upper Tamakoshi) are in the construction stage (IPPAN 2012). Conclusion: There is clearly not enough capital in Nepal to successfully finance and build more than 250MW of projects. Therefore, it is prerequisite that IPPs who are aiming to build the other remaining 11,750MWs should start looking for international banks to finance their projects. However, most international banks are not currently interested in Nepal. Many potential lenders have shown interest and then backed out after preliminary studies. They do not consider hydropower projects in Nepal as "bankable" from a project finance perspective. This article will discuss project finance and how better financing for IPP projects in Nepal can be made more attractive and "bankable" for international investors.

Why project finance?

Project finance is a structured financing of a specific economic entity - Project Company - for which the lender considers cash flows as the primary source of loan reimbursement and where the assets of the company represent the only collateral (Gatti, 2008). For example, if a hydropower project is being constructed with a loan for which there is no additional collateral (e.g., lands, shareholders guarantees, parent company guarantees), only the project and its assets (such as revenue-producing contracts, the PPA, the engineering procurement and construction contract (EPC), and the project licenses) should constitute the collateral for the banks. The debt terms are not based on the sponsor/shareholder's credit support or on the value of the physical assets of the project. Rather, the project performance, both technical and economic, is the nucleus of project finance (Hoffman 2001). Project finance is a very popular technique of financing projects all over the world: in fact, most public-private partnership projects (PPPs) and a majority of power

projects in the world are financed using this method (Gatti 2008).

Project finance has several advantages such as non-resource/limited recourse of debt, off balance sheet treatment, highly leveraged structure, risk diversification, and shareholder collateral-free lending. But there are also disadvantages. Project finance deals are very complex with risk documentation running to thousands of pages. There is increased risk for lenders, interest rates are higher than with direct collateral loans, and the fees for documentation and project assessment are high as project financing requires highly skilled manpower. In addition, project financing requires increased lender supervision, loan contract terms are very strict, lender reporting requirements are burdensome, and insurance costs are high (Hoffman 2011).

Irrespective of these disadvantages, project financing is used for various reasons - most importantly the lack of adequate traditional sources of collateral. For example, it can cost up to US$180 Million to construct a project of 100 MW capacity. This means, assuming a 70:30 debt-equity ratio, the project will require around US$126 Million (~ NR 10 billion equivalent) as loans. Can it be expected that the shareholders of the project provide the bank with land worth that amount to finance the project? No Nepalese group of shareholders or promoters are likely to own that much collateral. Therefore, the project in question should have assets worthy of being used as collateral in its own right. In other words, the project itself should be "bankable" and stand as collateral itself as future revenue.

Key requirements for a bankable project

Essentially, for a project to be bankable the project company and the bank should be legally "risk free". All the foreseeable project risks should be allocated to parties other than the project company and the lenders. For example, *inter alia,* the construction delay risk should be taken by the construction contractor through a turnkey EPC contract. The risk of not being able to sell the produced electricity should be borne by the power purchaser (NEA) for the during of the PPA on a take or pay basis. The project should have a clean and irrevocable licence to produce electricity. The natural force majeure risks of landslide, flood, earthquake should be assumed by a reputable insurance company through its policies such as Construction Erection All Risks and Advanced Loss of Profits Insurance. Currency risk (for financing in any other currency than Nepali Rupees) should be assumed by a hedging counter-party through a currency swap contract or through other parties such as the power purchaser or the government. The Operation and Maintenance Contractor should take on the operating risk. Political force majeure risk such as change in law, nationalization and war should be assumed by the government.

Type of Project Risk	Body, Institution or Group Responsible for Bearing Risk
Construction delay	Construction contractor through EPC contract
Unable to sell the produced electricity	Power purchaser (e.g., NEA) on a take or pay basis
Natural force majeure (e.g., landslide, flood)	Available insurance policy (e.g., Construction Erection All Risks)
Currency depreciation	Hedging counter-party through swap contract or power purchaser or government
Operating (e.g., equipment failure, lack of labor)	Operation and maintenance contractor
Political force majeure (e.g., war, changes in law)	The national government

Once all these risks are managed by allocating them contractually, the project becomes "bankable" or capable of being used as collateral in its own right (Dewar 2011). As all such risks are allocated by contracts, the role of qualified project finance lawyers is very important in developing bankable projects.

To explain again in layman terms - if a reputable construction contractor agrees to construct the proposed project for a fixed price within a fixed period of time (through EPC contract) and a reputable and creditworthy company contracts to take or pay for the electricity produced (though the PPA), and all other risks are allocated through insurance and other contracts, the project then becomes "bankable". Banks will be willing to loan the required sum for the project after the sponsor/shareholders inject their committed equity up front without needing additional collateral other than the project itself.

Do Nepali hydropower project meet "bankability" requirements of international banks?

Most hydropower projects in Nepal currently in the development stage generally do not meet bankability requirements of international banks. Coupled with significant financing constrains of the local banks (explained above) IPPs have been currently unable to achieve financial closure and begin construction.

Projects in Nepal are not bankable because they appear particularly weak against four types of risk: currency risk, power purchasing risk, political force majeure risk, and regulatory risk. We discuss them in detail below:

Currency Risk

Currency risk is one of the most important risks that has to be managed in a project. If the lender provides US dollars and the PPA pays out in Nepali rupees, exchange rate fluctuations will have to be managed through a currency swap contract. Or, both the loan and the PPA earnings conducted in the same currency (Dewar 2011). Presently in Nepal, this is not the case and is a major barrier to acquiring financing from

international banks.

After the Khimti and Bhotekoshi projects, the NEA has been unwilling to enter into PPAs in US dollars. It costs around 10-15% to hedge Nepali rupee currency risk in the international market, which makes most projects financially unviable. Therefore, the only alternative is for the Nepal Electricity Authority in the terms of the PPA to assume the currency risk sufficient for the debt repayment period (10-12 years). Unless the NEA makes changes in this regard, Nepal can never utilize its hydropower potential through IPPs and most project developers will not be able to construct hydropower projects.

Power Purchase Risk

The PPA is often the foundation of a power project's bankability. The rate or tariff paid for the energy must be sufficient to cover both the fixed costs (e.g., debt service) and the variable costs such as operation and maintenance expenses. With the revenue stream established, lenders wish to ensure that the PPA remains effective for the entire debt repayment period and does not contain any loopholes or escape routes (Dewar 2011). The power purchaser under the PPA must also be creditworthy.

However, there are two fundamental problems with the NEA's existing PPA format. First, it is not well drafted and contains many loopholes. It seems to have a "take or pay" system. However, this system can easily be avoided by using other excuses and loopholes available in the contract. This is not considered "bankable" by international standards. The same problem plagues the interconnection agreements. Secondly, NEA itself operates at a loss, and is considered uncreditworthy. Accordingly, most international banks will not consider PPA signed by NEA to be bankable. These problems can be solved by having a construction a solid PPA template (with no loopholes) and by having the Government of Nepal guarantee that it will pay the PPA rate if the NEA defaults.

Political Force Majeure and Change in Law Risk

Various polices are available to insure investors against natural force majeure circumstances such as earthquake and floods that may damage the project in construction and post-construction phases (Dewar 2011). However, insurance is not currently available in Nepal for political force majeure events such as nationalization of private property, war, and changes in law that may impact the project.

Currently, nationalization is restricted by section 29 of the Electricity Act 1992 (2049 BS), and article 19 of the Interim Constitution of Nepal 2007 (2063 BS) states that private property will not be nationalized without paying compensation that will be determined by law. However, these statements are not enough to satisfy most international banks as laws passed by parliament are always subject to change by future parliaments.

Therefore, an agreement such as a Project Development Agreement (PDA, also called "concession agreements") should be required for the government to take such risks. However, in the current draft made public by the DoED, the document does not go far enough to assumed such risks adequately and places too much additional and unnecessary burdens on the IPPs. Unless this changes, we will not see significant international financing activity in hydropower projects.

Regulatory Risk

There are also various regulatory risks under the Electricity Act and Electricity Regulations that need to be addressed. Firstly, the Electricity Tariff Fixation Commission can fix a maximum tariff for electricity producers, too. This potential is related to the change-in-law risk and frightens away many IPPs who do not want to find themselves in an unprofitable situation. Secondly, the current Electricity Acts will be replaced by a new regime, thus adding another layer of risk and uncertainty to project financing.

Conclusion

The private sector in Nepal is severely constrained by the financing capacity of the local banks. Therefore, international financing is required to develop hydro-project. Attracting international financing requires that Nepal adhere to international banking standards. This is a must for an IPPs to succeed. The use of project finance techniques and meeting the bankability criteria is the only alternative.

Although the government claims that it wishes the private sector to take the lead in electricity generation, several current Nepalese policies prevent this from happening:

1. NEA's policy of not undertaking the PPA in a bankable format and in US dollars until the debt repayment period;
2. The lack of creditworthiness of NEA;
3. The lack of a bankable Power Development Agreement.

If these policy changes are not made, despite the many licenses granted and the cheap talk of building 10,000 MW in ten years, that dream will never be realised. If these matters remain unaddressed, it can also be predicted that most IPPs holding survey and generation licences will not be able to generate any electricity. Therefore, it is time that we become serious about discussing the technical financing aspects of hydropower and move toward becoming one of the most successful hydropower producing countries in the world.

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***Anjan Neupane**, LL.B. (Hons.) First Class (University of Aberdeen, UK), is a Consultant at Neupane Law Associates, and has significant experience and expertise in all legal aspects of developing and financing hydropower projects. He is advising and representing a*

number of leading power developers and international banks in Nepal.

Corresponding address: anjan@neupanelegal.com

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- Electricity Tariff Fixation Regulations, 2050
- Nepal Rastra Bank Unified Directives, 2069

CALENDER OF EVENTS - HYDRO POWER

26 - 27 August, 2013: Power Summit, Location: Kathmandu, Organizers: Independent Power Producers Association Nepal (IPPAN), E-mail: info@ippan.org.np; pdhungel@ippan.org.np; missu@ippan.org.np; udhhav@ippan.org.np;

28 - 29 August, 2013: Hydro Power Investment Meeting 2013, Location: Kathmandu, Organizers: Hydro Power Investment and Development Company, Website: info@hidcl.org.np

26 - 27 August, 2013: PEEE 2013 (1st Annual International Conference on Power, Energy and Electrical Engineering), Location: Singapore, Organizers: PEEE Conference Se Email: secretariat@elec-eng-conf.org, URL: elec-eng-conf.org

24 - 26 September, 2013: Hydro Vision Brazil São Paulo, Location: Brazil, Organizers: PennWell, US, Email: emilyg@pennwell.com URL: www.hydrovisionbrazil.com

Francis Turbine, Condition Monitoring & Maintenance Planning of the Francis Turbine Workshop in Ghana, This is a special training programme for Technical staff and Management in existing Power plants in Africa and developing Countries

PART 1 Online course: elearning.ich.no; 9th September - 22nd November 2013 PART 2, Workshop in Ghana, 2th November - 30th November 2013, URL: www.ich.no

07 - 09 October, 2013: International Conference and Exhibition, Promoting the Versatile Role of Hydro, Location: Innsbruck, Austria, Organizers: Aqua-Media International Email: mb@hydropower-dams.com, URL: www.hydropower-dams.com

07 - 11 October, 2013: The process of Social Impact Assessment, Location: Trondheim, Norway, Contact: Email: laura@ich.no, URL: www.ich.no

09 - 11 October, 2013: Power Turbines Europe 2013 Lisbon, Location: Portugal, Organizers: Eventful Power, Email: siobhanw@eventfulpower.com, URL: www.eventfulpower.com

28 - 30 November, 2013: Renexpo Hydro will take place as part of Renexpo Austria 2013, Location: Salzburg, Austria. The 5th International Small Hydropower Conference will take place on Friday 29 November. Contact: Franziska Klug, REECO Austria GmbH, Josef-Schwer-Gasse 9, 5020 Salzburg, Austria, Email: presse@reeco.eu, Website: www.renexpo-austria.at

09 - 11 January, 2014: ICAEE'14 (International Conference on Advances in Electrical Engineering), Location: Vellore, India, Organizers: VIT University
Email: icaee-vit@vit.ac.in URL: www.icaee-vit.in

04 - 15 February 2014: International Training Course on Small Hydropower Development Location: Roorkee E-mail: ahec@iitr.ernet.in , aheciitr@gmail.com

04 - 06 March, 2014: Hydro Vision Russia, Location: Moscow, Russia, Organizers: PennWell Publishing UK Ltd, Email: rlogan@pennwell.com URL: www.hydrovision-russia.com