

POWER SUMMIT '13

Hastening pace of hydropower development

Committed to Making Nepal a
HYDROPOWERED COUNTRY

Prepared by:



Independent Power Producers'
Association, Nepal (IPPAN)



Beyond the Summit



Under the patronage of :



Government of Nepal
Ministry of Energy
&
Office of the Investment Board

Organized by:



Independent Power Producers'
Association, Nepal (IPPAN)



PTC India Limited



NRNA



Committed to
Making Nepal a
Hydropowered
Country





Excerpts from the address by Rt. Honorable President of Nepal Dr. Ram Baran Yadav to the Power Summit 2013 held in Kathmandu, Nepal on August 26, 2013

I would like to thank the organizers of the Power Summit 2013 for asking me to inaugurate this event that comes at a critical time in Nepal's development history. We need to transform the economy along with the politics of the country. Both need to happen and hydro power is a key sector we need to develop for a better Nepal.

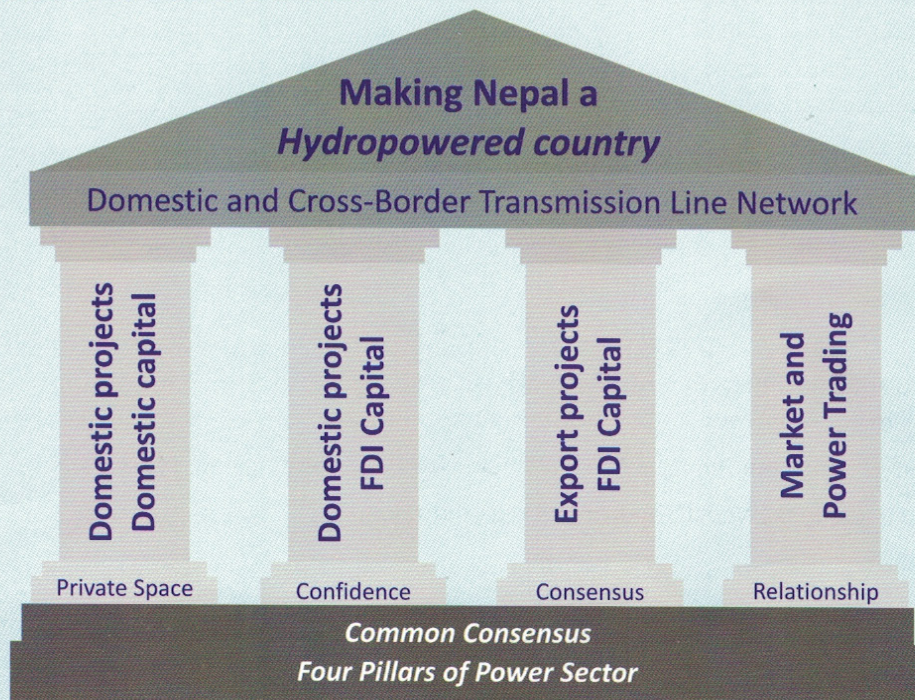
There is no doubt that the ability of Nepal to fully develop its hydro potential will depend on how we work with our neighbors. There is a need to build trust and understand each other's needs and aspirations. Hence we need to work with them to integrate our power markets for the mutual benefit of everyone in the neighborhood. This is the only way we can realize our aspirations and targets to develop the power sector.

Our energy development strategy should think of creative ways of tackling poverty while designing and implementing energy projects. The backward and forward linkages in the national economy are key issues that must be incorporated in the development of hydro power projects. Whether we consider the thousands of engineering graduates or the amount of cement we produce in Nepal, each sector must work together with the other.

We need innovations in bringing the cost of production of energy down. Engineering new ways of producing, distributing and managing the full life cycle of the energy is what we need. The demand side management and efficiency are areas we must put a lot more focus on as well. I understand that Nepal's per capita power consumption is very low. We must work altogether to raise the consumption tremendously. Jobs creation is also another key indicator we need to keep in mind. Again this is not just to generate power but for the productive and creative use for the overall economic development.

Clean energy is both an end in itself but also a means. Most Nepalis are still reliant on biomass energy. The urban life style has seen an exponential growth in the import of fossil fuel, greatly affecting our balance of payment and foreign currency reserves. We must use these as indicators to help us develop the power sector. We also need to think long term and together. We must stay on course to make Nepal a hydropowered country.

Power Summit 2013: Four Pillars



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Foreword

Power Summit 2013 was organized to hasten the pace of hydropower development by re-invigorating the enthusiasms that was in the sector post 2006 historical political changes. The summit has very successfully come to a close with a clear recommendations and firm commitment from policy makers, developers, financiers and experts to make Nepal a hydro-powered country.

On behalf of the organizers, I am grateful to the President of the Nepal for gracing the inaugural session of the summit. I also express my sincere appreciation to the Ministry of Energy and the office of the Investment Board for providing patronage to the summit. I like to thank developers, policy makers, government officials, international agencies and sector experts who have contributed for the success of this summit. IPPAN is proud to have taken the lead with PTC India Limited and Non-Resident Nepalese Association as our partner in organizing the summit.

But we all know that success will not be judged by efficacy of conducting twodays' meticulous event, but by an extra megawatt added in the system. We know that, no one is happy with the fact that only 180MW of power was added to the grid in the last seven years and we also know that no one is happy that in the coming winter we will be reeling under power cuts.

But we also know that, private sector has initiated construction of projects with a capacity of 360MW and NEA has a total capacity of 862MW under construction. Furthermore, there are 500MW equivalent of projects from private sector that have already concluded PPA and another 74 projects with generation licenses for an additional 3908MW. As of today survey licenses have been issued for 9021MW to 337 potential projects.

The Power Summit had set a stage where we had identified four pillars or critical elements of power sector for hastening the pace of hydropower development. The first pillar is the domestic projects developed through domestic capital, the second pillar is the domestic projects developed through foreign capital, the third pillar is the projects for export markets, and the fourth pillar is the development of power market and trading mechanism. We also mentioned that institutional framework for transmission system ownership as well as building the transmission infrastructure will be a cross-cutting issue for all these pillars.

We are delighted that, policy makers, developers, experts and bankers have given their deliberations, views and recommendations on these four critical elements. Hence, we have decided to build our action plans on each of these four pillars. We have recorded and summarized all the presentations, all the speeches and all the discussions and prepared this plan of action based on these deliberations. The key highlights and the way forward that were defined by the power summit 2013 were:

- ▣ Defining a clear space for private sector by acknowledging its role in the economy
- ▣ Harmonizing existing laws for speedy development of the projects in short term and regulatory reforms through enactment of new acts in a long term.
- ▣ Finalizing a bankable Project Development Agreement (PDA)
- ▣ Working with banks and financial institutions so as to adhere to international practice on project financing and work towards setting a currency risk mitigation mechanism for foreign currency based investments.
- ▣ Making modalities for the management of local expectations and educating the local people on hydropower projects as to secure plant, property and people.
- ▣ Helping political parties make hydropower vision so as to make these vision a part of party's election manifesto and a way of building political consensus on hydropower.
- ▣ Establishing an independent transmission company and channelize fund through this company for rapid expansion of national and cross border transmission lines
- ▣ Establishing a power trading company and umbrella power trade agreement with India
- ▣ Reducing dependency on imported fuel and reduce the share of bio-mass energy through rapid development of hydropower generation and increased end use.

I feel that Power Summit 2013 has been strong on substance rather than rhetoric and has raised confidence level of all independent power producers.

We are committing ourselves to increasing the electricity consumption per capita by five folds in the next decade. We know the obstacles and we also know what needs to be done. Henceforth, we need to make the clear action plans and implement them. For this we shall build trust and open lines of communication among all stakeholders.

Let me take this opportunity to thank our team at IPPAN that made the Power Summit 2013 possible.

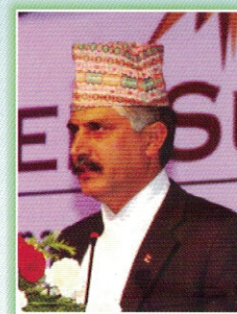
Let us not waste any more time to make Nepal a **hydropowered country**.



Dr. Subarna Das Shrestha
President, IPPAN

Mr. Shanker P. Koirala, Honorable Minister, Ministry of Finance

- Summit should be able to catalyze the hydropower development
- It is urgent to complete project on time to end power cuts
- There is a need to streamline energy policy for higher economic growth
- Private sector and FDI friendly policies for hydropower development are in place and are continuously evolving
- Government has recently doubled its budget allocation for hydropower development in general and allocated large budget in 2070 for expansion of transmission network



Mr. Uma Kant Jha, Honorable Minister, Ministry of Energy

- Nepal has no alternative to developing its hydropower resources for its economic growth
- Meticulous planning is needed from project identification to commissioning.
- Need to resolve policy problems and create a conducive investment environment
- GoN has initiated work towards harmonizing laws
- PPA with IPP will continue
- We need to look at remedies to the issue of wet season surplus power more creatively



Dr. Yuba Raj Khatiwada, Honorable Governor, Nepal Rastra Bank

- Nepalese banking sector is enhancing financing capacity, but their capacity is still limited; hence, foreign direct investment (FDI) is required to finance medium to large projects
- Prior to start of the project, currency risk sharing mechanism has to be determined
- It is essential to have a plan from foreign investor that how much investment shall be made and how much shall remain in the country
- NRB has given consent to multilaterals to issue Bond on local currency to finance infrastructure projects
- Considering the need of hydro projects, single obligor limit (SOL) has been increased
- Cap on interest rate on foreign currency loan is required
- Currency pegging with Indian rupees is an optimal solution and will remain unchanged



Mr. Biswa Prakash Pandit, Secretary, Ministry of Energy

- Need of a periodic update of river basin studies
- Classify projects according to their size and make strategy based on size
- Nepal needs to attract FDI, local capital is not adequate, and PPA currency shall be according to the investment, which Ministry of Energy is working on
- The MOE is currently working on the open market licensing project
- Will expedite domestic and cross boarder transmission line construction work
- A detailed plan is required before unbundling NEA
- Positive way forward of 19 point- all parties commitment
- Work with the ways to manage the 9 principles of hydropower development in the PDA



Dr. Krishna Chandra Paudel, Secretary, WECS

- Given that the country has gone through a decade-long insurgency and is currently in a political transition phase, maybe, the country is not doing all that bad, after all.
- We need to back each other and move ahead in unison.
- WECS must be strengthened to come up with both the long term strategy of hydropower and the energy need of nation.



Power Summit 2013 and beyond

Summit Views

Domestic Projects: Progress, Issues and Challenges - The Super Six Story

Out of the total installed capacity of 706 MW, IPPs contribute 31%. GoN under free competition asked for bid and awarded six projects to bidder proposing highest up-front cash payments now named super-six. The Super-Six projects Mewa, Maya, Solu, Lower Solu, Singati and Khare will contribute an additional 211 MW to the national supply once they are completed.

The major issues in the domestic projects in general and in Super Six Project in particular are 1) NEA's unwillingness to sign PPA 2) NEA's position of using old PPA tariff and not the one which was increased by 20% 3) Transmission lines not synchronized with project construction hydropower.

NEA views: These projects were put to bid under certain capacity; much lower than what they are optimized now by the developers; and also they were put to bid when the PPA tariff regime was old one and not the 20% increased tariff.



Mr. Sashisagar Rajbhandari



Mr. Kiran Malla

Developing Hydropower Projects in Nepal: Civil Construction Perspective

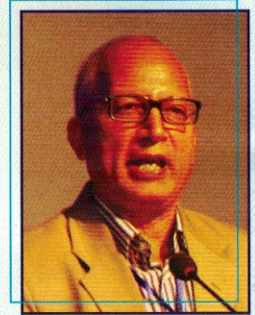
There are many Nepali civil construction companies capable of working with hydropower projects in all aspects of power sector such as civil works, Hydro-mechanical installation, Electro-mechanical installation, Physical hydraulic modeling, Transmission lines, Tunneling etc.

Local companies should be given priority by relaxation of pre-qualification criteria, and making local company a pre-requisite for joint venture partner for large projects. For medium projects, local contractors have proven their capacities and should be chosen.

NEA Electricity Demand Forecast:

NEA's demand forecast is a corporate forecast aimed at supporting the business plan. This forecast is very much dependent on NEA's own institutional strengths and is a risk-averse forecast as NEA cannot afford the cost of large real time deviations. However, a National demand forecast can have slightly different figures considering the electrification and industrialization plan prepared by NPC. But in the case of National Demand Forecast and contingent supply plan, it should be categorically mentioned as to who is going to bear the Market Risk if demand projections become unrealistic in real time.

It is often criticized that NEA's demand forecast is conservative; it looks into consumer demand and system demand. The demand forecasting is done on the basis of sales forecasts. Since there can be huge real time deviations and the cost of such deviations can be huge, NEA assumes low deviations on the variables (self-consumption, system losses, electricity prices, income, and number of new connections, exports, per capita consumption, and per capita GDP growth rate).



Mr. Sher Singh Bhat

Electricity Demand: A total energy perspective:

Per capita electricity consumption of Nepal (93kWh/capita) is the lowest in the SAARC region (530kWh/capita). Nepal's investment in the energy sector is also one of the lowest in the region, standing at 0.3% of GDP compared to 16% in Bhutan and 3.4% in India (2010). Only 2% of the total energy supply in the country is from hydropower.

If we look back 15 years into the energy consumption history of Nepal, kerosene was the cheapest fuel, followed by LPG and electricity was the most expensive one. However, today, electricity is the cheapest fuel in the country, followed by LPG; and kerosene stands as the most expensive one. Interestingly, 54% of the total household energy consumption is for cooking. Thus, there is a huge market for hydroelectricity if we can tap into the prospects.

A stakeholder survey shows that by 2050, they expect over 60% of the total fuel supply to come from electricity. By this time, all major sectors including agriculture, commercial, industrial, residential and transportation are expected to be electrified. Unlike NEA forecast, if a scenario is developed based on the medium level economic growth (5.6%) and partial replacement of imported fuel and biomass energy, around 4500MW of capacity will be required domestically by 2020.

There are a number of policy and institutional requirements that need to be dealt with if the expectations are to be met. Some of them are:

- Integrated energy sector policy
- Sub-sector policies and regulations need to be reviewed/ enacted
- Electricity Act and regulations need to be amended
- Unbundling of NEA is a must, separating transmission and distribution entities.
- Involvement of private sector in marketing petroleum products



Prof. Dr. Amrit Man Nakarmi

Systemic and Early Development of Hydro Project in Nepal: A case study

There are many difficulties for hydropower development in Nepal but most of those can be managed. Propaganda against the power development and negativity is harming the sector. Appropriate mechanisms and systems are being established but very slowly. Timely approval and permits is required. Government should focus on liberalization in import of construction materials and equipments, provide license for construction of SHP for construction power requirement, waiver of import duty on imports of construction materials and equipments and construction of transmission line/ power evacuation system at earliest.



Mr. Satish Sharma



Mr. Pavol Vajda

Financing of Export Projects through WB, IFC, Commercial Banks etc:

The main challenges for the hydropower projects are cost and time overruns. Almost 60% of the hydropower projects have cost overrun with an average overrun of over 50. Investors get fewer returns due to the cost and time overruns.

Projects that are optimal for the public sector is not always optimal for private development as in these project risks are too high and/or returns are low. Risks should be allocated to lower the overall cost. It is sometimes in the off-taker's interest to assume certain risks to lower the tariff.

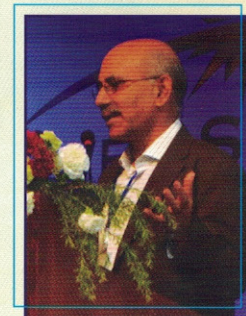
Due to high risk involved with hydro projects, in a global scale private sector's involvement on it is minimum. Neither the private investors such as IFC, World Bank, ADB nor the Government of Nepal could finance the huge investment in this sector but some serious developers are committed. Financial viability and acceptable risk allocation for hydro projects has always been a problem. Some changes on laws are essential. Cross border trade is critical for hydropower development in Nepal.

A Bankable Project Development Agreement:

The current PDA template is difficult to implement from the bank's perspective. It is essential to make the PDA template bankable. Harmonization on various laws, clarity on various issues, GoN guarantee on NEA obligation, institutional capacity enhancement, implementation of the agreement and coordination among various GoN establishments is essential. It is essential to manage currency risk for FDI and foreign currency financing.

Country specific barriers to Hydropower development are:

- Lack of political, legal, institutional and physical infrastructure
- Lack of coordination, transparency and accountability in government system
- Lack of harmonization of specific laws
- Problems with PPA and project financing
- Socio-environmental issues
- Seasonal fluctuations
- Recent NRB Directives for LIBOR+4% (maximum) for foreign currency financing



Mr. Bhart Raj Uprety

PDA and Harmonization of Laws: GON's Initiatives

Current PDA Issues:

- GoN protection for NEA payment obligation, foreign exchange, compensation on termination on political Force Majeure (FM), GoN approval and permits
- GoN buy-out on Company event of default or other FM events
- Hydrology risk
- Concession term
- Oversight mechanism
- Royalty: Electricity Act or Hydropower Development Policy
- Taxes: Income tax, VAT and import duty exemption, fees on registration of deeds
- Employee Bonus based on Electricity Act or Bonus Act
- CSR expenses from developer: What is the limit
- Single Vs double stage licensing
- Land Acquisition act not adequate for Rehabilitation and Resettlement issues of Project affected families
- Local share
- NRB single obligor limit

PDA process is a tedious process and requires support from all quarters. Legal hurdles are most difficult. Without removing them, negotiation and even signing of PDAs will lead us to nowhere. Currently, a taskforce is preparing an exhaustive list (and recommendations) for the amendments and another taskforce is working on guarantees.



Mr. Keshav Dhoj Adhikari

Electricity Demand Forecasts, Electricity Pricing and Tariff Regulation in India:

The legal framework in India follows the federal structure where there are separate and independent regulatory commissions at the Central and State level. Additionally, the state has the right to legislate electricity distribution. The policy and regulation of the sectors are separated as per the Electricity Act 2003.

According to the legal frameworks, the government is responsible for policies and its implementation whereas the regulatory commission overlooks regulation. These commissions are independent entities that develop and notify their regulations under the provisions of the EA 2003, the policy direction of the government and regulations by the Central regulatory Commissions. The orders and the interpretation of provision of the EA 2003 can only be challenged in the Supreme Court and High courts respectively. Similarly, the tariff for generation, distribution and transmission are set by the Central Electricity Regulatory Commission (CERC) that focuses Central government's plans on and the State Electricity Regulatory Commission (SERC) focused on state. Competitions should be enabled with the regulations on open access to inter-state transmission by the CERC and intra-state transmission for the SERC.

The Hydropower projects in India are exempted from tariff based bidding. Free supply of 12% to the state government and additional supply of 1% to the local population. A hydro project will allowed up to a maximum of 40% of the saleable energy. In order to ensure timely completion of these projects, delays of every 6 months on the date of commissioning would result in a reduction of merchant sales by 5%.



Mr. Vivek Mishra

Financing Projects with Domestic capital

From an entrepreneur's perspective there is a market; there are issues of equity constraints, infrastructure availability and so on. Traditional mechanism involves investment from the budget, provident funds, banks and insurance. Domestic resources are mostly overlooked but there is a significant domestic resource base. These resources are dispersed but can be made available for projects and institutions that are looking for long term investment opportunities.

There is a significant interest of public in equities as people are looking for attractive long term investment in equities with features like

- 1) Value appreciation and
- 2) Fewer entry and exit barriers

It is a challenge for hydro projects to find the right way to capitalize the domestic resources.



Mr. Deepak Rauniyar



Mr. Tenzi Sherpa

NRN Investment in Hydropower Projects: Opportunities and Issues

NRNA want to act as a catalyst in attracting and facilitating NRNs and foreign direct investments in Nepal. We have committed in employment generation, charity works, skills knowledge and innovation transfer. Hydropower investment is looked as secure investment with relatively low risk as the guaranteed prices have a huge demand (long term) potential and because of it being a prioritized sector the financing is easy and has low interest rates

NRN has formed an Investment Company in Nepal which already have around 785 investors, including 3 FDI and 4 local company subscribed for nearly Rs. 1bn investment.

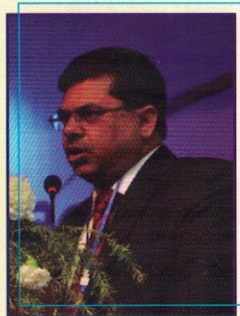
Some of the issues that needs to be addressed soon were Repatriation of NRN Foreign investment and Non issuance of NRN Card to foreign Spouses of NRN, Discrepancy in the definition of NRNs in NRN Ordinance 2062 and NRN Act 2064.

Raising capital for Hydropower Projects: Capital market in Nepal

Hydropower market basically needs transactions. Capital market can be a good basis for accessing finance. At present the market capitalization as of August 2013 has been NRs. 546 billion with its current market capitulation being 30.2% of GDP. Therefore, there are a lot of funds available for the hydropower sector from the Central Bank. One of the main problems with the development of hydropower is that we do not talk about the PRE-IPOs as there are virtually no organized markets or venture funds or private equity funds in the market which is very important for the growth of capital markets.



Mr. Deepesh Baidya



Mr. Anil Kumar Sinha

Pre-requisites for Financing Hydropower projects: Harmonization of laws

There are 15 Acts that are relevant to the hydro sector. Electricity Act did fulfill many of the needs of the investors and the public sector at the time of enactment. It was felt later that this is not sufficient for Nepal.

Hydropower Policy of 2058, Investment Policy and many other policies have also been studied and found that when governments change in Nepal, there is change in the way the laws are implemented.

We have two-stage licensing system, and there are uncertainties like scrapping of granted licenses. There should be a checklist that should be followed by any government, so that the checklist is still valid even when a government changes.

One good way of changing laws is that one single Act which can be passed to bring up changes in some 15 Acts.

At present we need to change laws by ordinances since there is no parliament, and then wait for them to be reviewed or changed into laws.

Experiences and Lessons from Hydropower Investment in Nepal

Sinohydro started working in Nepal from 1995 and till date finished 8 projects with the government and 2 projects are now under construction. The investment in Nepal for the Upper Marsyangdi (50 MW ongoing) was a total of USD 165.9 million with financial loans (70% loan + 30 % equity) (90% from Sinohydro and 10% from Sagarmatha Power Pvt. Ltd. Nepal). It faced certain issues regarding policies in terms of investment in hydropower projects there was a lack of preferential and privilege policy to absorb foreign investment and there also existed heavy tax burden. Meanwhile there is an absence of Standard PDA for domestic projects. The project faced infrastructure constraints like road condition and transmission line. Protests, strikes and social influences also created problem and insufficient supply of skilled labor, qualified materials and equipment supplier also created problems. Our recommendations include providing preferential policy provision on hydropower project investment like tax reduction on materials, equipments and such, facilitating custom clearance, work permit and license and providing favorable policies to foreign investors.

- Have a one stop service of hydropower project development
- Forge common standards and procedures concerning hydropower project investment
- Work out a master plan of national water resources and establish a master plan of power consumption
- Release instructive principles of land acquisition
- Right towards a river cascade development could be considered by GoN to competent foreign investors

In terms of financing it is important to promote cooperation with the Chinese Bank and establish extensive cooperation with the private sector operation Department of International Banks/Institutions in hydropower project investment in GMS and Nepal.



Mr. Yasing Zhang

Building Political Consensus for Hydropower Development

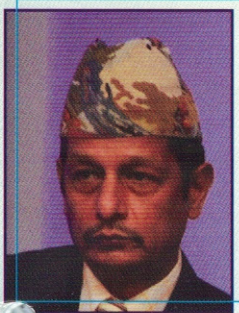
Governments are the political functionaries of economic power and therefore, they have a major role in handling any economic issues. GoN had put hydropower in its priority list long before the Five-year Plans came into existence. Thus, we can assume that political commitment to hydropower development has never really been an issue. It is actually the political mishaps that have posed threat to fulfilling the commitment.

All the major parties have signed a 19-point agreement committing that they would not create any kind of political hindrance to the hydropower projects.

One of the major challenges in the project facing difficulties dealing with the locals and their demands, government should play a proactive and a facilitating role in managing local expectations.



Mr. Gyanendra Lal Pradhan



Mr. DB Singh

Basin-wise Project Planning for Resource Optimization

There are 10 major river basins in Nepal and were studied more than two decades ago so periodic update in these studies is required.

WECS has also formulated a Water Resource Strategy that aims to enhance the domestic demand to 4000 MW, per capita consumption to 400 kWh and also make the sector export-oriented, all by 2027. There is also a National Water Plan prepared in 2005 to operationalize the output of Water Resources Strategy 2001.

Nine Principles of a Good Hydropower Agreement

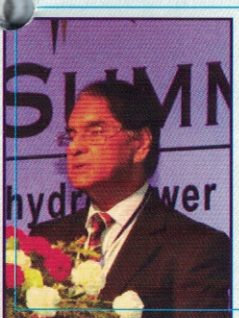
IBN is responsible to act as one window system for hydropower projects above 500 MW installed capacity and provides service for potential investors to navigate inside Nepal. IBN has set 9 principles that must be met by such partners. They are:

- Meet Nepal's electricity needs first
- Fair share of economic benefits to Nepal
- Ensure best use of river basins
- Return the hydro asset in good condition
- Transfer project risks to the party best able
- Ensure balance (regarding returns to both developers and resource owners)
- Ensure high sustainability, safety standards
- Industrial and Employment Benefits
- Model community benefits

With these principles in place, IBN strives to strike best deals from Nepal's perspective, while also offering ample opportunities to the other party to earn a healthy return.



Mr. Radhesh Pant



Mr. RV Shahi

Pre-Requisites: Regulatory Issues, import barriers, import tariff

Nepal needs to be convinced that there is a need and also a potential to export its hydropower. Export-oriented projects will generate revenue and will emerge as a sound support for economic growth. Additionally, there has been no big issue in terms of possibility of export.

Power trading and exchanging are two alternatives that Nepal has at the moment. Recently Government of India has brought electricity from "Restricted" to "Free" commodity list, and thus there is no duty. Government of Nepal now need reciprocate by declaring that there will be no export duty. Absence of clarity on this issue would affect the financial projections and viability of price of power for those who enter into PPA.

Payment Security Mechanism needs to be looked after for both export and domestic projects.

Pre-Requisites: Opening Electricity Markets, Power Trading Company in Nepal

In Nepal, hydropower development is marred by the perception that it is a zero sum game given the social, economic and political instability. There is also a disconnection between who bears the risk and who benefits from such projects.

Hydropower business is a long term commitment and a project can extend well over 50 years, including the operational phase. Therefore, there is a need to separate these development, construction and operation phases. These stages have different financing needs, require different expertise and need to apply different business models.

There is a need to segment the playing field and markets for each player. In the next phase, NEA needs to be developed as a manager of transmission and distributions, instead of giving it the monopoly to sell electricity. This will check the NEA activities to a great extent and will consequently be limited to just a facilitator in the business. Unbundling NEA is not a magic-wand in itself. It has a lot of implications that can negatively affect Nepal, if the process is not well-planned.



Mr. Bishal Thapa

Summit views: Panel discussion and plenary session

Panel Discussion: Meeting Nepal's Domestic Demand

Panelist: Prof. Dr. Amrit Man Nakarmi, Dr. Ram Manohar Shrestha, Dr. Rabin Shrestha, Mr. Tuk Prasad Paudel, Mr. Narendra Prajapati

Moderator: Mr. Anil Chitrakar

- Nepalese youths that are currently working in the gulf countries, if they return can it substantially increase electricity demand?
- Electricity demand is not the same as electricity consumption
- A proper and reliable supply of electricity creates demand
- Government increasing the budget for transmission development to NRs. 13 billion could directly affect the IPPs
- Buyers and sellers both should have equal access to the market, unlike the IPP selling to NEA and then NEA selling to the end user. Thus, developers should have direct access to the market. Monopsony buyer has been causing serious problems to the IPPs.
- Demand and supply should determine prices, hence there has to be a proper interaction between how much the buyers are willing to pay for a service and whether or not the sellers are supplying the electric at that price. Thus, free market mechanism is the only answer and yes, the prices will has to vary through two seasons.
- In order to realize the vision, we will need to produce 5000 MW. The same will depend on the level of economic growth that we can achieve.
- We need a clear National Energy Policy. We will be able to achieve our targets only after a clear policy is in place.

Panel Discussion: Nepal's Hydropower Development: Which direction? (Political Views)

Panelist: Mr. Pradip Nepal, Mr. Ratneshor Lal Kayastha, Mr. Kumar Pandey, Dr. Sandip Shah, Dr. Ram Saran Mahat, Mr. Harvinder Manocha, Mr. Kush K. Joshi

Moderator: Mr. Suman Basnet

- Hydropower development has always been one of the major focus areas of the political parties.
- Our objective should be no load shedding, energy sufficiency and export.
- Hydropower is definitely the future and way to prosperity for Nepal. Unfortunately, nothing much has been done yet.
- We are facing an annual trade deficit of over NRs. 400 billion. In such a situation, we should look forward to producing as much electricity as we can.
- When it comes to political consensus, the private sector has to recognize that the political parties are different because they have differing ideologies and therefore, it is just not possible to strike consensus on every issue.
- Hydroelectricity has and will always be on our election manifesto. We will use hydroelectricity for our prosperity. We have to use every drop of water to generate wealth.
- We lack clarity in vision, policy, strategy and implementation plan and these are must-haves if we want to make proper use of the water resources and the hydropower potential. Thus, we need to talk about it.
- There should be political consensus on the way forward, regarding hydropower and this issue will also add value to the Constituent Assembly election.
- Economic growth that this sector promises will require strong political commitment.
- Government of Nepal cannot handle all the large scale storage-type and multi-purpose projects. Thus, it needs to create avenues for the private sector to co-invest.
- There are a lot of issues that need to be settled when it comes to hydropower sector.
- All parties need to agree on a common minimum programme (CMP) on hydropower development.

- The government needs to decide its priority on how to spend its scarce resources: on health, education, food security, infrastructure or developing ROR projects.
- We also need to be clear on whether we treat hydroelectricity as a service or a commodity.
- Politicization of institutions needs to be discouraged. This will enable a strong policy and bureaucratic regime that will help in delivering the desired results in the hydropower sector.
- Private sector must be given due recognition. It should not feel crowded out due to unwillingness to enter into PPAs, softer financing of public sector projects, and a general lack of a level-playing field.

Plenary Session: Hastening the Pace of Hydropower Development in Nepal

Panelist: Mr. Suryanath Upadhyay, Ms. Pampha Bhusal, Dr. Subarna Das Shrestha, Mr. Gagan Thapa, Mr. Dipak Gyawali, Mr. Radhesh Panta, Mr. Rameshwore Khanal, Mr. Biswa Prakash Pandit, Mr. AB Giri, Mr. Gokarna Bistha

Moderator: Dr. Sandip Shah

- We need to enact the Electricity Act which was presented in the CA in 2008. In its current form it includes 142 amendments that were put forward by various political parties.
- There are three key stakeholders of the hydroelectricity sector in Nepal, viz. government, private sector and cooperatives.
- Domestic demand of electricity needs to be fulfilled before export to neighboring countries.
- Due to the seasonal imbalance of hydroelectric generation, a power trade regime needs to be established with the neighboring countries. Seasonal deficits and surpluses can be utilized for economic benefits of neighboring countries.
- NEA needs to be converted into Nepal Electricity Transmission. Generation and Distribution need to be privatized. Power Trade Company Nepal should be formed to enter into PPAs and trading mechanisms internally and externally.
- Government of Nepal needs to enter into a Power Trade Agreement with India for power export and import, and must facilitate internal and cross-border transmission line development strengthening to arrive at a robust electricity system.
- The Power Trade Agreement will need to be ratified by the Parliament.
- Government should enter into Project Development Agreements with project sponsors based on a fair share of benefits to Nepal and an acceptable level of returns to the sponsor. Such export-oriented PDAs need to get the blessing of the government and political parties.
- Government needs to come up with confidence-building measures (CBMs) for the hydropower sector.
- To resolve issues related to land acquisition, the government needs to come up with an ordinance to tackle the issue.
- Nepal should not sell its resources as no country has progressed selling its natural resources. And government should not do any agreement on electricity sales until there is a stable government.
- Not only NEA but the country has to be re-structured totally
- As the cost of doing business goes up, financing becomes less and less accessible. Therefore, Nepal should come up with innovative ways to cut down on costs and attract financing.
- Profit comes from efficiency and productivity. Regional integration by connecting Nepalese grid with India will be a pragmatic move.
- We should focus on how we can increase the demand for electricity and consequently, the per capita consumption.
- Hydropower is only a raw material and no country can look to develop sustainably by selling raw materials.
- There will be a lot of problems especially in terms of surplus in the coming years which the NEA alone cannot address. Nation has to come up with national perspective of electricity need, which helps formulation of planning of generation and transmission expansion.
- Overall political consensus needs to be in place to determine what Nepal wants to gain from its hydropower resources. Water issues need to be discussed on a separate dimension.

Successful and Not so successful



Successful

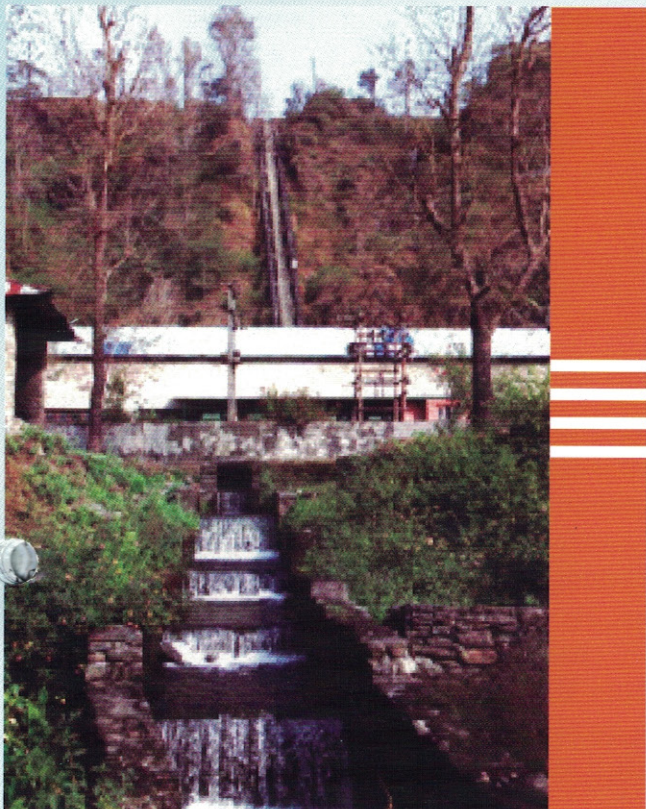
- IPP generation: 240 MW
- A full-fledged Power Trade Department at NEA
- PPA done in 4 years: 860 MW
 - Under Const.: 1200 MW
 - Different Phase of Development: 500 MW
- Investment Board Nepal established and started PDA negotiation
 - Upper Karnali: 900 MW
 - Upper Marsyangdi: 600 MW
 - Arun III: 900 MW
 - Tamakoshi III: 650 MW
- NRB regulation of having 12% priority sector bank loan to hydropower and Agricultural Sector
- Hydroelectricity Investment Development Company established
 - Financial closing of 42 MW project
 - Serious in storage type project financing
- GoN allocated large budget for power sector - transmission line
- GoN's Vision documents on hydropower (5000-25000 MW)



Not - So Successful

- Super-six project PPA not done
- Large export project PDA two years delayed
- Harmonization of law required - one window ineffective
- Electricity Bill 2065, pending for 5 years
- Nepal Electricity Regulatory Commission bill pending for 5 years
- Cross-border line delayed
- Power trading arrangement not existing
- Wheeling mechanism not in place
- Khimti-Dhalkebar line delayed by 4 years
- Extremely long political transition

Power Summit 2013 and beyond Summary of Summit 13



Hastening the Pace: 500 units per Capita

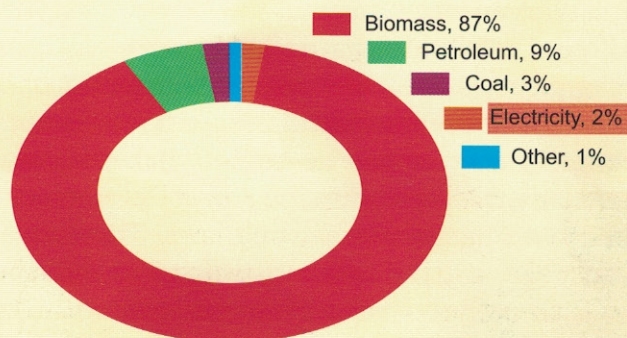
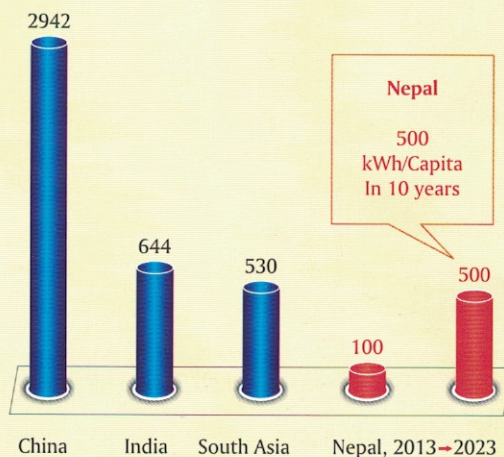
Nepal's electricity consumption is a mere 100 units per capita which is abysmally small compared to our neighbors China at 2942 and India at 644 units per capita. We should commit to increase it to 500 KWH per capita in coming decade. We shall make plans to use electricity for cooking, urban transport using electric cars, replacing kerosene for lighting, we must reduce share of bio-mass tremendously thus saving us from de-forestation.

In the last seven years only 180 MW has been added to the national grid. This rate is simply not acceptable if we are to change the quality of life of the average Nepali. Energy is the key input for economic development and hydropower is the key ingredient of distributional growth as resources are not given to any region in Nepal, they are from Far East to Far West; surprisingly; well distributed. The distributive economic growth will ensure lasting peace. Generation, transmission distribution and productive end-use have to expand at a much more rapid pace than we have experienced so far. Who does hydropower, public or private is a debate of the eighties and nineties. Experiences around the world have shown that, only private sector through a free market regime with a competent regulatory authority can take us to development and to 500 kWh.

Making Nepal a Hydropowered Country

Nepal deserves to become a hydropowered country, a country where all its domestic electricity needs are met and is capable of exporting electricity from hydropower. It seems a far fledged ambition, but does Nepal have any better alternative ? Or does Nepal have any choice at all?

Right now Nepal is becoming increasingly diesel powered country. As the fossil fuel price rise and currency inflation occurs, money spent only on imported fuel far outweighs money earned from all exports. Many young Nepalese working in scorching heat of oil exporting countries remit money to their families in Nepal. The government collects taxes and banks collect commissions, but ultimately the remittance goes back to the same countries. This vicious cycle has to be broken. Nepal's 80% of the energy need is fulfilled from biomass which is a non-commercial and non industrial energy. We need to change all these and increase contribution of hydropower by hastening the pace of hydropower development.



The Four Pillars

Power Summit 2013 opened the floor by highlighting four pillars namely 1) domestic Projects with Domestic Capital 2) domestic Projects with Foreign Capital 3) Export Projects with Foreign Capital and 4) Power Market. Domestic and Cross-border Transmission Line Network is a cross-cutting issue binding these pillars. Strong four pillars are in line with our purpose to make Nepal a hydro powered country. Although fulfilling the domestic demand is the foremost responsibility of government and all hydropower developers, none to these pillars mutually exclusive and pre-requisite for one another. All pillars has to be strengthened together to have an accelerated sectoral growth. Without any one pillar the dream of having a Nepal a hydropowered country, would simply not work.

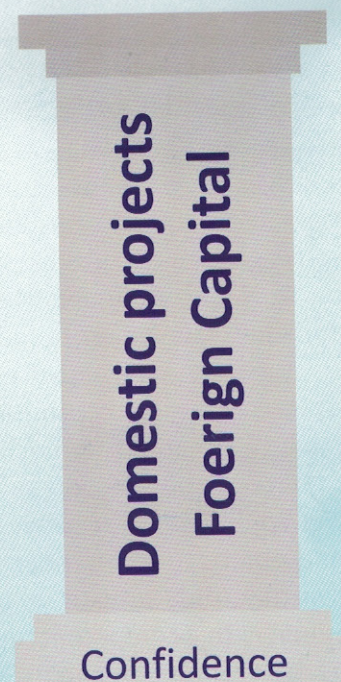


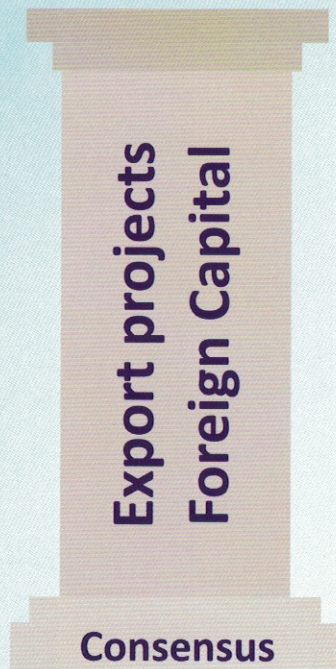
Pillar 1: Domestic Project Domestic Capital

Domestic projects are vital for meeting domestic demand and; as the domestic capital base is small, their projects are of relatively smaller sizes spread over the country; also provide distributive development across the country. Similarly, domestic capital is the life line of a country's internal economic strength and should be used prudently as much as possible. However, domestic projects with domestic capital are facing key challenge and that is to find the demand of energy generated from their project in the NEA's system. NEA is projecting post 2018 excess energy in monsoon months and is shying away from PPA, which is most important in order to bring additional installed capacity in the system. Similarly, non-recourse financing has been a challenge and IPPS are competing against soft-loan or concessionary loans that NEA is using to develop its project. Hence finding a fair regulatory regime is another important task. The domestic capital alone is inadequate to meet the demand and hence FDI is inevitable. Thus, sharing FOREX risk must be seriously considered. In this context, domestic capital mobilization and role of NRNs globally and building capital markets are some key considerations.

Pillar 2: Domestic Project Foreign Capital

It consists of those projects that are being built to meet domestic demands and have foreign investors, foreign debt & capital investments. The source of such fund could be both foreign investors, multilateral agencies such as the World Bank, Asian Development Bank and the International Finance Corporation; regional development banks, bilateral agencies or private banks and finance institutions all over the world who seek a fair return on investments. Here the key issues will be how to make these projects bankable. "There are issues related to the Power Development Agreements and the need to harmonize existing laws. There are issues of foreign currency PPAs and the ease with which profits can be repatriated. And there is an overall issue of predictability so that the foreign investor has confidence in the policy, laws, regulations and commitment.





Pillars 3: Export Project Foreign Capital

These are mostly large and complex projects built under foreign capital. These projects will put primary focus on supplying energy to Nepal but most of the energy generated will have to find market across India as the system and market in Nepal for a foreseeable future will not be able to absorb all energy. A bankable PDA, a stable government, good project security, and most of all strong political consensus on energy export are pre-requisites. These projects are of 30-35 years license period which is much less compared to over 100 years of their technical life, Issue of nationality and sovereignty should be totally separated with the power export. Managing local expectations as well as views on export is the main agenda of export based projects.

Pillar 4: Power Market and trading

The deregulation of electric supply industry has succeeded where the market and power trading has been efficient and transparent. Integration of northern-European system, regional grid in other parts of the world and cross regional trading has optimized the resource. The opportunity for Nepal is to integrate power system with that of India and make use of complementary nature of Indian power system with Nepali system. So as a first step Nepal should complete the first cross-border line and synchronize NEA system with Indian system and also establish a Nepali power trading company working as a power pool and enter into an umbrella power trade agreement with India. For this to happen, good working relationship and diplomacy will be required.



Transmission Network: the cross cutting issue

Transmission, grid connection, system operation is a cross-cutting theme for all four pillars. Time mismatch between power plant construction and transmission line construction, economic dispatch of plant, completing cross-border transmission lines and garnering of international fund for transmission line will only be expedited if there is a separate focused national company carrying transmission work. Experiences have shown that, construction of transmission lines through NEA takes much longer and are in discordant with IPP's plant construction. Many opinions, recommendations in the Power Summit 2013 were for having an independent power transmission company.

Power Summit 2013 and beyond Plan of Action



The Power Summit 2013 has paid off in terms of articulating a clear road map. The following are the major actions we are determined to follow up in order to hasten the pace of hydropower development in Nepal

Pillar 1: Domestic Project Domestic Capital



P1: Pillar 1 Action

P1¹: Immediate steps

- Deliver GoN Commitments in super-six projects
- Pursue 10m Rs. VAT subsidy
- Pursue removal of PES

P1²: Electricity demand forecast

An independent, reliable and all stakeholders demand forecast for Nepal that should be beyond NEA and considering import substitution for transportation, self-generation and transportation, and a long-term planned substitution of biomass energy.

P1³: Restructuring Electricity Sector

- Move away from single buyer model
- Introducing independent transmission company
- Pursue new electricity act and NERC Act

P2: Pillar 2 Action

P2¹: Immediate steps

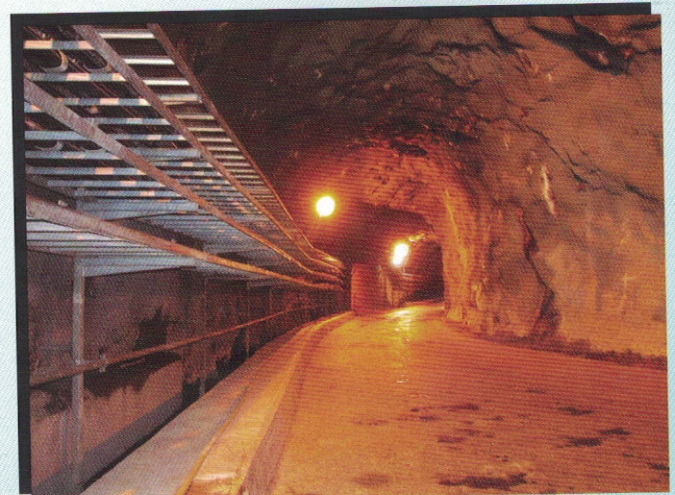
- Mechanism for currency risk management
- PPA currency based on project capital structure

P2²: Establish security mechanism of the project area

P2³: Complete PDA for projects

P2⁴: Introducing currency risk mitigation mechanism

Pillar 2: Domestic Project Foreign Capital



Pillar 3: Export based Project Foreign Capital



Lower Arun intake area

P3: Pillar 3 Action

P3¹: PDA conclusion

P3²: Consensus on export project

- Meet political leaders and make series of interaction
- Clear communication between central and local level (political)

Pillar 4: Power Market

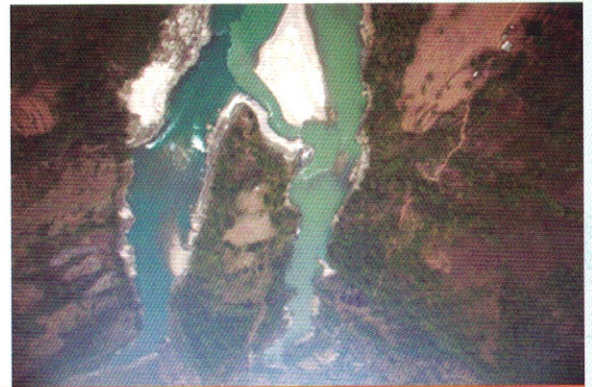
P4: Pillar 4 Action

P4¹: Power trading company establishment

P4²: Market mechanism development

- Third party sale in Nepal
- Sale of wet season energy
- Wheeling mechanism

P4³: Power trading umbrella agreement with India



Tribeni: Sunkoshi, Arun and Tamor meet here

Cross Cutting Issues



Siuchatar substation

Cross Cutting Issues

C¹: Harmonization of laws

C²: Transmission company

C³: Reciprocate export & import issues such as custom

Power Summit 2013 and beyond

Process for Action

1. A core group of “experts” will be formed to be led by IPPAN member and support groups from developers, utility managers and public opinion makers will be formed. This group will work to champion the vision of Nepal being a hydro powered country. IPPAN will be the secretariat to this group.
2. The Nepal Business Forum (NBF) has become an effective platform to build a true partnership between the public and private sectors. We need to build on past success. Engaging development partners who have helped Nepal for so long is key to success.
3. A wide public information campaign will be used and shall even look into how water related issues are taught at all levels of schools, colleges and universities.
4. Diplomacy to integrate the power markets of South Asia together with action for connecting many off grid system in Nepal.
5. Team to interact more often with political parties to keep everyone informed and also to pass on positive messages to the public as a process to build consensus in Nepal. Also a plan for journalist training.



APPRECIATION

We are truly thankful to the participants who contributed immensely by listening and participating in the constructive discussion that took place during the summit. Their valuable input in the discussions has enhanced our overall understanding of the core issues of hydropower development. The paper presenters and panelists must be thanked for their most valuable time and efforts they put into their presentations. We were very fortunate to have such diverse group of presentations in the numerous topics chosen over the two day Summit. We thank them for accepting to make their presentations and also abiding by the limits of time which we requested. The presentations were professionally prepared, submitted on time and were able to impart in depth knowledge in each of the discussions. The Chairs of each of the sessions and the rapporteurs did a remarkable job of conducting and recording the proceedings of the sessions.

IPPAN was honored by the presence of the Rt. Hon. President for taking time to inaugurate Power Summit 2013. Likewise the presence of Ambassadors of countries that have historically contributed to Nepal's development also is a clear signal from our development partners that their commitment to this sector will continue.

IPPAN is also grateful to the patrons of the Power Summit: Government of Nepal, Ministry of Energy, and Office of the Investment Board. IPPAN also acknowledges the support of its partners PTC India and NRNA who have joined hands in putting this summit together.

The Power Summit 2013, which was jointly organized by IPPAN, PTC India and NRNA during August 26-27, 2013, has concluded successfully. We hope that the presentations from the prominent presenters and panelist in the summit's sessions benefitted your participants too.

Thank you sponsors for making the Power Summit 2013 a successful event. Amongst the various inputs and efforts in organizing the event, financial resource is also a significant element to make things happen the way we envisaged. We at IPPAN express our gratitude to all the sponsors for your full hearted support for the event, without which the success would not have been even thought of.

As the planning process was unfolding, the preliminary budget, when finalized, was awestricken. However, as we started approaching the sponsors for the support, we got such a tremendous positive response that the event management committee in IPPAN was overwhelmingly inspired. We must mention here that the initial inspiration and morale boosting response was received from the Royal Norwegian Embassy in Nepal, who confirmed initial support whole heartedly. The Asian Development Bank support followed, and then the Lead Sponsorship from MoserBaer; and there was no stopping thereafter. The registration fee from all the participants helped cover a major part of the cost of the summit and we have worked to make sure it was worth every rupee for everyone. Finally here we are the event is successfully concluded with all your full-hearted support.

We hope to receive similar full hearted support in the future as well.

Thank you all once again.

IPPAN

Power Summit 2013 Team





In Kind:

