

POWER SUMMIT '16

10,000 MW IN 10 YEARS

VOL 23, DECEMBER 2016

INDEPENDENT POWER PRODUCERS' ASSOCIATION, NEPAL

PRESIDENT'S MESSAGE

Dear colleagues, encouraging signs are now visible in the electricity sector, almost 2,500MW equivalent capacity has completed PPA with NEA and are in construction or pre-construction stages. Larger and larger projects are now able to close finance from domestic fund. Extraordinary difficulties must be matched with extraordinary effort. NEA is putting extraordinary effort on eradicating load shedding sending a positive signal to the wider world and Nepalese people.

Continuous effort of IPPAN in mobilizing stakeholders and arranging discussion forums, workshops and dialogue and Ministry of Energy's hard work has materialized in a declaration of 99 points "Energy Emergency Decade". This comprehensive document covers almost all facets of hydropower development. The most appreciable part of this document is that now it's ownership is carried from one government to another. The onus is now on the Ministry of Energy to implement it and the onus is on us to stay focused and regularly remind all stakeholders that there is a agreed plan.

IPPAN's Capacity & Consensus Building Workshops are flagship programs conducted in the hydropower -hub areas around the country. A total of four workshops are done and three more are planned. The program is widely appreciated by local journalist, local politicians and local administration as it provides comprehensive understanding of hydropower development. We have found that less and less disturbances are occurring in the project area where these programs were conducted.

IPPAN has planned an international level Power Summit on December 15-16, 2016 at Hyatt Hotel, Kathmandu. Government of Nepal, Ministry of Energy has consented to be the patron of the program. Majority of the development agencies, embassies, power developers, equipment supplier, relevant government authorities, CNI, FNCCI, NICCI, has shown great interest in participation. To our



Khadga B. Bisht- President, IPPAN

understanding, this will be the largest hydropower gathering in Nepal.

The basic objective of the Power Summit 2016 is to take up the government's 10,000 MW in 10 years' vision, disseminate it to the wider audience (investor, developer, policy maker and general mass) motivate the participants and affirm commitments of responsible agencies in implementing this vision.

IPPAN is preparing itself for a new leadership starting from January 2017, I strongly believe that, we will stay focused, we will take concern of each member, we will closely work with the government, international institutions and all the stakeholders for the greater benefit of the nation.

VISION OF IPPAN

To be the umbrella organization of IPPs that advocates for an investor-friendly environment for power development in Nepal.

MISSION OF IPPAN

- » Lobby for private sector friendly policies, regulations and their prompt and effective implementation.
- » Disseminate information through media, seminar, conferences to political parties, government, Officials, civil societies and the people.
- » Build capacity of IPPs and related stakeholders.
- » Develop linkages for regional co-operation in power Sector.

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IPPAN ACTIVITIES

Half day workshop on Energy Emergency and National Energy Policy



IPPAN started working on the energy security as the key theme as the fuel crisis started in Kathmandu and around the country as an aftermath of the blockade at Nepal-India Border, IPPAN requested Parliamentary Agriculture and Water Resources Committee for an opportunity to present the case of energy security and recommendation for a securer energy supply plan.

IPPAN in association with Niti Foundation, as a follow-up of the presentation made to the Parliamentary Agriculture and Water Resources Committee has organized a half day discussion workshop on Energy Emergency and National Energy Policy on 4th January, 2016 at Hotel Yak & Yeti. Honorable Energy Minister Mr. Top Bdr. Rayamajhi formally inaugurated the program as the Chief Guest with his remarks. Mr. Suman Prasad Sharma, Secretary, Ministry of Energy, NEA high-level officials along with IPPAN members were part of the program.

Mr. Khadga B. Bisht, IPPAN President presented a presentation on need of energy security and the declaration of the Energy Emergency. He also hinted on setting up a target to develop 10,000 MW of hydro-electricity in the workshop. IPPAN requested the Ministry of Energy to introduce single desk services by adopting fast track services in land acquisition, forest clearance including licensing issues. IPPAN also requested to come with the short, mid and long-term visions as well as action plans to address the problems of energy crises faced by the country. IPPAN President

emphasized to immediate start the construction of reservoir projects—Budhi Gandaki and Nalsingadh as per the company's model.

Professor, Dr. Amrit Man Nakarmi made a presentation on "Electricity Demand: A Total Energy Perspective." Dr. Nakarmi pointed out that per capita electricity consumption of Nepal is lower than that of the SAARC regions. Nepal's investment in the energy sector is one of the lowest in the region, standing at 0.3% of GDP compared to 16% in Bhutan and 3.4% in India. Only 2% of the total energy supply in the country is from the hydropower. A stakeholder survey showed that by 2050, the expected over 60% of the total fuel supply will eventually come from electricity. By this time, all major sectors including agriculture, commerce, industry, housing and transportation services are expected to be electrified. Although unlikely, based on an NEA forecast, if a scenario is developed based on the medium level economic growth and partial replacement of imported fuel and biomass energy, around 4500 MW capacity will be required domestically by 2020.

Energy Minister Mr. Top Bdr. Rayamajhi while addressing an interaction program said country will now focus on strengthening energy security, instead of bickering on small issues that have forced the people to reel under the problem of load shedding. A new nationalistic theme will be developed in reducing our dependence on imported fossil fuel by allowing the country to harness its hydropower potentials.

'Capacity & Consensus Building in Hydropower Projects': Training Workshops at Dailekh, Charikot-Dolakha, Bandipur-Tanahu and Nuwakot-Trisuli :

- March 26-27, Narayan Municipality, Dailekh
- July 2-3, Charikot, Dolakha
- August 13-14, Bandipur, Tanahu
- October 22-23, Nuwakot, Trisuli

The Royal Norwegian Embassy provided support for the "Capacity & Consensus Building in Hydropower Projects" where four workshops were completed in Dailekh, Charikot-Dolakha, Bandipur-Tanahu and Nuwakot-Trisuli. The two days' workshop at Dailekh was organized on 26-27 March, second one was in Charikot on 2-3 July and third one was at Bandipur, Tanahu on 13-14 August, 2016 and the fourth was held at Nuwakot, Trisuli on 22-23 October, 2016.

March 26-27, Narayan Municipality, Dailekh

The first workshop was organized in Dailekh on 26-27 March. The first day of the workshop centered on the Capacity & Consensus Building to educate the local journalists on the basic tenets of hydropower as well as empowering them to advocate and act in accordance with the removal of the probable barriers in hydropower project development.

A total of 36 participants including 15 journalists two Members of Parliament (MPs) from Dailekh (Mr. Ambar Bdr. Thapa - MP, Dailekh and Mr. Laxmi Prasad Pokharel - MP, Dailekh) and the rest were local politicians including one ex-member of Parliament. Journalists from Achham, Surkhet, Kalikot, and Jajarkot districts were also invited and participated in the program at Dailekh.

The President of IPPAN, Mr. Khadga B. Bisht gave a presentation on the basics of hydropower understanding energy conversion, type of project schemes, basics on hydrology understanding design discharge, head and energy values etc. The presentation also covered on regulatory framework as well as environmental aspects of developing a hydropower project.

Mr. Sachin Gautam, Journalist from Nayapatrik and Mr. Apar Neupane, consultant from Hydro power Project Financing gave a presentation on Hydropower Reporting.

The basic elements covered in the first day of the workshop were :

- Hydropower for Non-technical Person

- Reporting Hydropower
- Hydropower Project Financing

Second day was a more formalized program and Members of Parliament, Mr. Laxmi P. Pokharel along with Mr. Ambar Bdr. Thapa jointly inaugurated the program with their inaugural address. MPs from Dailekh district, Mr. Laxmi P. Pokharel and Mr. Ambar Bdr. Thapa, Mr. Prawin Raj Aryal, Deputy Director General, Department of Electricity Development (DoED), Chief District Officer (CDO), Local Development Officer (LDO), District Forest Officer (DFO), FNCCI Local Chapter, Local NGOs, local journalists along with local politicians from Nepali Congress, CPN-UML, UCPN- Maoist, RPP (Nepal), RPP Rastriya Janamorchha, Nepal, and others also participated in the program.

The second day program was divided into three sessions. The key note speakers were Mr. Prawin Raj Aryal, DDG, DoED, who made his presentation on the Government's plans and policies to reduce the loadshedding. Mr. Suryanath Upadhyay, Former Water Resource Secretary and Chief CIAA, gave his presentation on who has the rights over natural resources (ILO-169) and current federal structure of Nepal in the context of present Constitution.

Mr. Khadga B. Bisht and Mr. Bharat Mani Sharma, Environmentalist & EIA expert, had also made presentations on topics such as Energy and Economy in context of Nepal and Process of EIA & Public Hearing aspects.

Three main thematic sessions of the second day program were :

- Hydropower for Nepal
- Energy & Economy in context of Nepal
- Who has the Right Over Resources - (Understanding of ILO 169)
- Government's Plans and Policies for Project Implementation
- Government's Plans and Policies to reduce loadshedding
- Process of EIA and Public Hearing
- Consensus in Hydropower Development

A floor-discussion was held at the session 'Consensus in Hydropower Development' in which joint commitment similar to the national level was made by all the political parties in tandem. The participants also requested the developer to establish grievances over handling mechanism so as to address the issues of local discontent erstwhile they are committed to refrain from pad-locking, physically attacking personnel and also destroying project property.

July 2-3, Charikot, Dolakha

The second workshop was organized on 2-3 July at Charikot, Dolakha. There were total of 38 participants in the event including 27 journalists, two MPs from Dolakha (Mr. Pashupati Chaulagain and Mr. Parbat Gurung) and the local politicians / government officers. Journalists from Ramechhap and Sindhuli were also invited to attend the program.

The basic elements covered in the first day of the workshop was same as we did in Dailekh :

- Hydropower for Non-technical Person

- Reporting Hydropower
- Hydropower Project Financing

On the second day, program was inaugurated by the Honorable Minister of Culture, Tourism and Civil Aviation Mr. Ananda Prasad Pokharel who complemented with his inaugural address. MPs Mr. Pashupati Chaulagain and Mr. Parbat Gurung also addressed the program.

Mr. Prawin Raj Aryal, Deputy Director General, Department of Electricity Development (DoED), Chief District Officer (CDO), Local Development Officer (LDO), District Forest Officer (DFO), FNCCI Local Chapter, Local NGOs, local journalists along with the local politicians from Nepali Congress, CPN-UML, UCPN- Maoist, RPP (Nepal), RPP Rastriya Janamorchha, Nepal, and others also participated in the program.



Four main thematic sessions of the second day program were :

- Hydropower for Nepal
- Process of EIA and Public Hearing
- Project Mechanism on Expectation Management and Grievance Handling
- Consensus in Hydropower Development

August 13-14, Bandipur, Tanahu

The third workshop was organized on 13-14 August at Bandipur, Tanahu. The venue of the workshop was fixed at Bandipur in order to target the three adjoining districts: Tanahu, Gorkha and Lamjung. There were 64 participants in the event including 28 journalists, two MPs from Tanahu (Mr. Ramchandra Pokharel and Mr.

Tuk Raj Sigdel) and the rest were local level politicians and local government officers.

The basic elements covered in the first day of the workshop were :

- Hydropower for Non-technical Person
- Reporting Hydropower

Second day's program was a bit formalized one and was inaugurated by the Member of Parliament Mr. Tuk Raj Sigdel and complemented with his inaugural address.

Mr. Chiranjeebi Chataut, Joint Secretary, Ministry of Energy, Mr. Sital Babu Regmi, Former Secretary, Water Resources, Dr. Laxmi Prasad Devkota, Chairman of Bhudhi Gandaki Hydropower Development along with



Chief District Officer (CDO), Local Development Officer (LDO), District Forest Officer (DFO), FNCCI Local Chapter, Local NGOs, local journalists along with local political leaders from Nepali Congress, CPN-UML, UCPN- Maoist, RPP (Nepal), RPP Rastriya Janamorchha, Nepal, and others participated in the program.

Former Secretary Mr. Sital Babu Regmi made a presentation on Grand Ethiopian Renaissance Dam - GERD and mentioned that lessons needs to be learnt by Nepal from the Ethiopian Projects. Similarly Mr. Chiranjeebi Chataut, Joint Secretary, Ministry of Energy had made presentations on '10,000 MW in Ten Years' - How and When? Mr. Khadga B. Bisht, IPPAN President made two presentations on Energy and Economic context in Nepal and ILO-169. Similarly Dr. Subarna Das Shrestha also gave a presentation on Process of EIA, Public Hearing, and Corporate Social Responsibility of

Hydropower Developers for developing hydropower projects in Nepal.

Four main thematic sessions of the second day program were :

- Hydropower for Nepal
- Energy & Economy in context of Nepal
- Who has Right Over Resources - (Understanding of ILO 169)
- Grand Ethiopian Renaissance Dam - GERD- Lesson for Nepal
- Showcase Project : Budhi Gandaki HEP
- Government's Plans and Policies for Project Implementation
- 10,000 in Ten Years - When and How?
- Process of EIA and Public Hearing
- Consensus in Hydropower Development

October 22-23, Nuwakot, Trisuli

The fourth workshop was organized on 22-23 October at Nuwakot, Trisuli. A total of 86 participants including 30 journalists, one MP from Nuwakot (Mr. Jagadish Narshing KC) and rest were local level politicians

and local government officers from Nuwakot and Rasuwa districts. Ms Solveig Andresen, Counsellor (Environment, Energy and Economic Development) and Mr. Bibek Chapagain, Energy Advisor from Royal Norwegian Embassy also participated in the program.

The basic elements covered in the first day of the workshop were :

- Hydropower for Non-technical Person
- Reporting Hydropower
- Trisuli Power Plant Visit

Second day had a more formalized program pattern and it was inaugurated by the Member of Parliament, Mr. Jagadish Narshing KC which complemented with his inaugural address.

Mr. Chiranjeebi Chataut, Joint Secretary, Ministry of Energy, Former Water Resources Secretary Mr. Suryanath Upadhyay, Chief District Officer (CDO), Local Development Officer (LDO) along with Ms Solveig Andresen, Counsellor (Environment, Energy and Economic Development), Royal Norwegian Embassy, Nepal addressed the inaugural session. The government officials, local journalists and local political leaders from Nuwakot and

Rasuwa also were participants in the program.

Former Secretary Mr. Suryanath Upadhyay made a presentation on ILO-169, similarly Mr. Chiranjeebi Chataut, Joint Secretary, Ministry of Energy had also given a presentation on '10,000 MW in Ten Years' - How and When? Mr. Khadga B. Bisht, IPPAN President made a presentation on Energy and Economic context in Nepal while Mr. Bharat Mani Sharma, EIA Expert made a presentation on Process of EIA, Public Hearing, and Corporate Social Responsibility of Hydropower Developer for developing Hydropower projects.

Four main thematic sessions of the second day program were :

- Hydropower for Nepal
- Energy & Economy in context of Nepal
- Who has the Right Over Resources - (Understanding of ILO 169)
- Government's Plans and Policies for Project Implementation
- 10,000 MW in Ten Years - When and How?
- Process of EIA and Public Hearing
- Consensus in Hydropower Development



"IPPAN-IFC Training on "Good Practice for Aquatic Bio-diversity."

IPPAN together with IFC organized its third residential workshop on 'Good Practices for Aquatic Biodiversity Baseline Determination and Monitoring Protocols & Introduction to Environmental Flows' on 7-8 April, 2016 at Kurintar, Chitwan.

The objective of this workshop was to expose IPPAN members to good international practices as well as new state-of-the-art technologies to determine aquatic biodiversity baseline conditions and monitoring sample protocols, as well as the determination of key ecosystem services. The workshop had also provided a general overview on good international practices for the determination of eco-flows. There was also a field trip of rafting excursion to the Trishuli River to get hands-on experience on some of the proposed sampling methodologies.

Twenty-five participants from IPPAN participated in the residential training. The resource persons were David Gillette, USFS, Dan Shively, USFS, Jason Willey, ERM, Prof. Dr.

Subodh Sharma, Kathmandu University and Santosh Dulal, CMDN.

The course was focused on basic overview of Nepal's aquatic biodiversity, overview and examples of international good practices for aquatic baselines for hydropower, good practice aquatic survey methods for fish, good practice aquatic survey methods for invertebrates, novel approaches for aquatic surveys (eDNA, etc.), IFC PS 1&6: importance of good baselines and adequate metrics within the context of ESAs and basic concepts and good international practices for determination of E-Flows. At the last session a field trip of rafting excursion to the Trishuli River was carried out to get hands-on experience on water quality, fish, macro and micro invertebrate sampling techniques, as well as some processing methods (e.g. population density calculations, taxonomic identification, gender determination, basic weight and size measurements, among others.

Nepal – USA Hydropower Collaborative Tour

A high level Nepalese team was in Portland USA in a Nepal-USA Hydropower collaborative Tour from 11-17 July, 2016. The tour was focused on the learning about the development of hydropower, environmental management and basin planning of the US Pacific North-West. The team comprised of Honorable MP Gagan Thapa, Mr. Suman P. Sharma, Secretary, Ministry of Energy, Mr. Udaya Thakur, Mr. Dhan Bahadur Tamang, Secretary, WECS, Mr. Khadga Bahadur Bisht, President, IPPAN and other high level dignitaries from Nepal. The tour team had visited the dam, reservoir and power operating facilities along Colombia River and also get information on operating of plants and selling of electricity. The Colombia river basin alone produces over 38 GW of hydropower and provides navigation to four U.S. Pacific states.

IPPAN initiated an interaction with the Nepalese residing in Oregon and Pacific Northwest. IPPAN President made a keynote presentation on which Honorable Member of Parliament Gagan

Thapa, Mr. Suman Prasad Sharma Secretary Ministry of the Energy put their views on contemporary political status and hydropower development. The visiting team encouraged Nepalese residing in the US to invest in Nepal and keep their relationship with their origin.



Workshop on “River Basin Planning and Cascade Operating Agreement:”



IPPAN together with IFC organized its fourth residential workshop on ‘River Basin Planning and Cascade Operating Agreement’ on 28-29 July, 2016 at Nagarkot.

The objective of this workshop was to manage the

impact of upstream projects to the downstream projects if they are not properly coordinated right from the design phase to the operation phase. This workshop was also intended to develop an integrated water resources development planning system, river



modeling, cascade case study, water balance (water sector wise) and joint operation (HPPs) modeling, example of cascade operation agreements and potential changes to licensing regime to integrate river basin planning assumptions.

Thirty-five members from IPPAN participated in the residential training. The resource persons were Mr. Keshab Dhoj Adhikari, Joint Secretary, WECS, Mr. Jelle Beekma Consultant, ADB & WECS, Mr. Madhu P. Bhetwal, Deputy Director General, DoED, Johan B. Siqueland Knudsen, Multiconsult, Mr. Ashish Subedi, Mr. Wahid Shahriar, ICIMOD and Mr. Chris Grant, Multiconsult.

MEETINGS

IPPAN Press Meet to discuss on Progress made by Government on the Energy Emergency & Development Decade 2072, energy related issues to be addressed on upcoming budget issues and other issues.



Independent Power Producers' Association Nepal (IPPAN) on 24th May, 2016 organized a press meet to discuss on progress made by government on the Energy Emergency & Development decade-2072 and energy related issues to be addressed in an upcoming budget 2073.

Earlier this year in February, Ministry of Energy moved forward with an action plan on National Energy Crisis Prevention and Electricity Development Decade, 2016. This 99-steps strategy passed by the Cabinet provides

comprehensive steps to increase our electricity production to 10,000 MW in the next decade and IPPAN.

IPPAN requested the government to shorten the process of licensing by establishing the single-door approval mechanism for land acquisition, forest clearance and EIA/IEE approvals and implement the 99 points soon. IPPAN also requested NEA to extend RCOD of the under construction projects which were unable to conduct regular works during the border blockade due to shortage of construction materials

and petroleum products. In the same press meet, IPPAN asked government for the effective implementation of VAT subsidy, incentive programs to be addressed on upcoming budget 2073. The budgets of past year had announced a lump sum grant of Rs. 5 million per MW of electricity to those producers who generate and connect electricity to national grid within FY 2022/23. But the developers, who met all the criteria, have not received any such incentives so far.

Meeting with Power Trade, NEA

IPPAN Delegation Team led by IPPAN President, Mr. Khadga B. Bisht met Mr. Prabal Adhikary, Director, Power Trade Department, NEA to discuss on effect of recent blockade to the under construction projects. NEA had agreed to provide an extension of 138 days to under construction projects that were affected by the recent blockade. However, projects have suffered for long even after the end of the border-blockade.

For the extension of 138 days, each under construction projects has to submit the letter to IPPAN and IPPAN will recommend to NEA for extension of 138 days for them which were affected due to the blockade.

Meeting with Energy Secretary : Minister of Energy

IPPAN delegation team led by President Mr. Khadga B. Bisht met Energy Secretary Mr. Suman P. Sharma on 4th August, 2016 along with executive committee members and IPPAN members.

At the meeting, IPPAN urged secretary to adopt needful measures for becoming self-sufficient on energy by implementing the National Energy Development Decade-2072.

IPPAN also requested the Secretary to implement the single desk services by adopting fast track services in land acquisition, forest clearance and license issues and also requested to implement the past decision made by Government of Nepal on lump sum grant of Rs. 5 million per MW of electricity to those producers who generate and connect electricity to national grid



within FY 2022/23 and to regularize the posted PPA rate payment process to those projects that were already commissioned till end of Chaitra 2072.

Responding to the issues raised by IPPAN team, Secretary reiterated

that Ministry of Energy is determined to work seriously with IPPAN on hydropower projects in most effective manner since it will stimulate the whole economy and Ministry of Energy is also working on the each 99- points and result will be seen after a few months.

Meeting with New Energy Secretary Mr. Anup Kumar Upadhyay :



IPPAN delegation team met with new energy Secretary, Mr. Anup Kumar Upadhyay on 30 Sept, 2016. Vice-President Mr. Shailendra Guragain congratulated the new secretary and presented a book. IPPAN Vice-President requested the new Secretary to implement the Energy Emergency Plan and Development Decade-2072 which is a good document made by Ministry of Energy and also requested to implement the past decision committed by Government of Nepal, such as lump sum grant of Rs. 5 million per MW of electricity to those producers who generate and connect electricity to national grid within FY 2022/23 and posted PPA rate.

Meeting with New Energy Minister Mr. Janardan Sharma

IPPAN delegation team with other energy experts met with Honorable Energy Minister, Mr. Janardan Sharma on 21 August, 2016 at the Ministry of Energy. President Mr. Khadga B. Bisht congratulated the new minister on his appointment and presented the Hydropower Book, published by IPPAN. During the meeting, IPPAN President requested the Minister to implement the Energy Emergency Plan and Development Decade- 2072 which is a good document made by Ministry of Energy and also requested to implement the past decision committed by Government of Nepal, such as lump sum grant of Rs. 5 million per MW of electricity to those producers who generate and connect electricity to national grid within FY 2022/23 and posted PPA rate.

Other energy experts Dr. Dwarika Nath Dhungel, Dr. Hari Pandit and NEA's officials along with IPPAN Executive Committee Members & Members were present during the above meeting.



FRIDAY FORUM

"Sustainable Energy for All and the Private Sector."

Mr. Suman Basnet

Sustainable Energy Coordinator (a UNDP consulting position)

There has been a number of global multi-stakeholder initiatives to promote sustainable energy. An initiative

started by the UN Secretary General in 2011 is the Sustainable Energy for All initiative (SE4ALL) which has three interlinked objectives of achieving universal energy access, doubling the share of renewable energy and doubling the rate of energy efficiency improvement by 2030. The initiative strongly believes

that these ambitious objectives can only be met through meaningful collaboration between the government, private sector and civil society. Nepal joined this initiative in late 2012 with the National Planning Commission as the focal agency. UNDP has been providing technical assistance since the beginning.

"Multi-Stakeholder (Community) Mediation."

Ms. Preeti Thapa

A peace builder and US - trained lawyer

The main objective of the presentation was to provide in-depth exposure to the concepts and applications of facilitated mediation; strength and weakness of mediation; and the procedures for administering multi-stakeholder cases.

Hydropower projects are often considered as highly sensitive in nature and in some cases are at times over politicized presumed to be lack of awareness among the political parties, local authorities and local population in general. Once the project starts the mobilization work, locals from the vicinity of the project area come forth demanding several benefits ranging from employment as well as to declaring their village as project affected area conspicuously a complete disregard to the already concluded environmental impact assessment study which clearly marks the project affected area and mitigation measures.

Community mediation is one of The Asia Foundation's (TAF) longest-standing and most successful programs in Nepal. Currently operational in 484 locations of 19 districts, the program has received over 30,000 applications for mediation, has a resolution rate of nearly 85 percent, and around 7,000 trained mediators providing services. The high resolution rates in TAF's



community mediation program is an indicator of effectiveness and has also positively impacted the program's visibility and reputation, leading to requests from the neighboring district and Village Development Committees (VDC) representatives that the program be expanded into their localities as well. In the past few

years, there has been a significant increase in disputes related to social justice, identity, environment, natural resources, and development. To address these issues TAF has developed approaches and training material to extend the scope of mediation services to complex multi-stakeholder/multi-issue disputes.

UPCOMING PROGRAM

Power Summit 2016

Independent Power Producers' Association, Nepal (IPPAN) is hosting Power Summit 2016 in Kathmandu on December 15-16, 2016 under the patronage of the Government of Nepal, Ministry of Energy.

Government of Nepal has placed hydropower as the key element of energy security for the nation and has come with a vision of developing 10,000 MW in 10 years. We at Independent Power Producers' Association; are the main agency continuously working with the energy ministry, with the parliamentary Agricultural and Water Resources Committee, with the political parties and with other stakeholders in persuading the government to come up with a ten years' hydropower development action plan.

We believe that, the 99 points program approved by the cabinet on February 18, 2016 covers very important and pertinent issues of hydropower. It covers issues such as regulatory reform, institutional strengthening, tariff determination for storage project & peaking projects, a new load demand forecast, developing mechanism for foreign currency based



PPA and promotion of foreign direct investment in hydropower. Similarly, the document covers such item as faster delivery of services and reduce the redundancy in the approval system.

Less has happened since the document was announced although we are positive on some of the reform on approval process. Now it is the time to critically examine the implementation and work with the government so that, the government follows the document rigorously and deliver on the promises explicitly written in the document and developers also comply to it.

The basic objective of the PS16 is to take up the government's 10,000 MW in 10 years' vision, disseminate it to the wider audience (investor, developer, policy maker and general mass) motivate the participants and affirm commitments of responsible agencies in implementing this vision.

Training Workshop on 'Disaster Preparedness & Management :

Independent Power Producers' Association, Nepal (IPPAN) together with International Centre for Hydropower (ICH) is going to organize a one and half day mini workshop and four days' residential International Training Course on "Disaster Preparedness and Management" on March 2017.

The main objective of this course is to learn about disasters, consideration on designing resilient structures, early warning systems, methods and procedures for emergency response etc. Disaster preparedness course will consider measures taken to prepare for and reduce the effects of disasters. That is, to predict as far as practicable and—where possible—prevent them, mitigate their impact on vulnerable populations and respond to and effectively cope with their consequences.

Capacity & Consensus Building Program :

Independent Power Producers' Association, Nepal (IPPAN) with support from Royal Norwegian Embassy and Niti Foundation had organized a series of regional workshops on 'Capacity and Consensus Building on Hydropower.'

The workshop was highly appreciated for capacity building by the local journalists, local politicians, Parliamentarian Members, local authority and also assured their support and commitment to assist hydropower project construction. The workshop also creates a communicative platform between the local level and the project developer. Next workshops will be held at Sankhuwasabha, Ilam and Dadelhdura.

NEWS FROM MEMBERS

Upper Marshyangdi 'A' resumes generation



Upper Marshyangdi 'A' Hydropower Project has resumed power generation after remaining shut for a month for maintenance. The project started commercial operation from September-end but due to some technical problems generation was halted.

Energy Minister Mr. Janardan Sharma had announced the commencement of commercial operation at a special programme organised in Kathmandu,

while Parliament Member Mr. Bhisma Nath Adhikari had inaugurated the plant amid a ceremony at the project site in Bhulbhule, Lamjung.

Upper Marshyangdi 'A' is the first hydropower project built with foreign direct investment. A joint-venture of China's Sino Hydro which holds 90 percent stake in the project while Sagarmatha Power Company holds 10 percent stake in the project. It's a run-of-the-river



project and it was started in 2012. The construction of the project was badly affected by Gorkha earthquakes and border blockade.

The 50 MW project has two turbines, each generating 25 MW of electricity. The powerhouse is located at Bhulbhule-3

and a 6.5-km-long tunnel has been constructed to deliver water to the powerhouse from the dam site located at Bhulbhule-5.

Due to the absence of the transmission lines, only 25 MW of the power generated can be evacuated into the national grid.

Upper Mai Hydroelectric Project in generation



Upper Mai Hydroelectric Project (9.98 MW) developed by Panchakanya Mai Hydropower Limited has started generation and is now connected to NEA National Grid on June 7, 2016 after successful testing and commissioning of the plant. It's a run-of-the-river plant, with a discharge of 3.14 m³/s and a gross head of 380 m. The plant will evacuate 55.92 GWh of energy every year.

Upper Mai is also working on another cascade project with installed capacity 6.1 MW. The Project is located in Ilam district, expected completion by February 2017. This project is financed through 25% equity from Panchakanya Group and 75% bank loan from a consortium of 5 Banks: Nabil Bank (Leading), Everest Bank, Global IME Bank, Nepal Bank and NMB Bank. The project will offer IPO to locals and general public in the near future.

PMHL is currently in the process of offering the project's 10% share to locals and 15% to the general public through an initial public offering in the near future. To this effect, N. C. M. Merchant Banking and Nabil Investment Banking Limited has been appointed as Issue & Sales Manager through a mutual contract.

United Modi Hydropower Ltd. will start to float IPO

United Modi Hydropower Ltd., the developer of Lower Modi-1 (10 MW in operation) and Lower Modi-2 (10.5 MW) hydropower projects, have started issuing equity shares to general public. In the first phase, 11,50,000 units of equity shares @ Rs. 100 each has been floated to the locals of Parbat District, the district where the projects are located. After allotment to the locals, the company will issue 17,25,000 equity shares to the general public.

ICRA Nepal Ltd. has issued "ICRA NP IPO Grade 3" for the proposed IPO. NIBL Capital Ltd. is the Issuing Manager for the IPOs. The proceeds of the IPO shall be used as the equity for the development of the Lower Modi-2 Hydropower Project. The IEE, PPA and the Connection Agreement of this project has been completed while the final design and financial closure are in progress. The project is scheduled to be completed mid 2019.

Solu-Dudhkoshi Hydro achieves financial closure

A consortium of 11 commercial banks, led by Nepal Investment Bank Ltd., has signed Loan Facilities Agreement with Solu (Dudhkoshi) Hydroelectric Project on 4th August, 2016. The project with installed capacity of 86 MW is promoted by Hydro Venture Limited which is 100% subsidiary of Sahas Urja Limited.

The project is a run-of-river (RoR) type located about 130 kms. southeast of Kathmandu. The headworks of the project (Elev. 1260 masl) is proposed at Tinla and Kagel Village Development Committees (VDCs) of Solukhumbu district in Eastern Nepal and the powerhouse (Elev. 647 masl) will be located at Maikubesi Village of Panchan VDC of the same district. The Project has an installed capacity of 86 MW and with an annual energy production capacity of 520.82 GWh.

PHOTO GALLERY



Meeting with Energy Secretary Minister of Energy



Meeting with Former Finance Minister



Trishuli Plant visit, Nuwakot



Meeting with New Energy Minister Mr. Janardan Sharma



Press Meet on Power Summit 2016



Bonneville Dam in Colombia river was built in 1983



Capacity & Consensus Building Program, Nuwakot



IPPAN Press Meet



C & C Program, Charikot



Good Practice for Aquatic Bio-diversity



Informal discussion with Former Energy Minister



IPPAN Friday Forum



IFC IPPAN Workshop on Biodiversity

LIST OF IPPAN MEMBERS

CORPORATE MEMBERS

S.No.	Name of Company	Tel/Fax
1	Bhote Koshi Power Co. Pvt. Ltd.	4270027/ 4273516
2	Butwal Power Co. Ltd.	4784026/ 4780994
3	Himal Power Limited	5521864/ 5536411
4	Himtal Hydropower Company Pvt. Ltd.	5260259/5260773
5	Lamjung Electricity Devt. Company Ltd.	4232748/ 4232749
6	Molnia Power Ltd	515707/515848
7	Sanima Hydropower Ltd.	4446442/4441277
8	Annapurna Renewable Energy (P) Ltd.	4414519
9	Khudi Hydropower Ltd.	2053003
10	Himalayan Hydropower Pvt. Ltd	4112091
11	Rairang Hydropower Devt. Co. Ltd.	5111015/5111016
12	Panchakanya Mai Hydropower Ltd.	5010078/5010080
13	Manang Trade Links (P) Ltd.	4441131
14	Balephi Hydropower Company Ltd.	4224074/4266133
15	IDS Energy Pvt. Ltd	4169116/4238496
16	PAN Himalaya Energy Pvt. Ltd.	4244352/4225685
17	Pashupati Energy Dev. Co. (P) Ltd.	4429956/4436325
18	Tundi Power Co. Pvt. Ltd.	5184273/5555574
19	Muktishree Pvt. Ltd.	4785839/4785838
20	Cemat Power Dev. Co (P) Ltd.	5539891/5539792
21	Ru Ru Jalbidhyut Pariyojana Pvt. Ltd.	4419393/4419394
22	Radhi Bidyut Company Ltd.	4232748/4232750
23	Upper Maiwa Hydropower Pvt. Ltd.	4033750/4033755
24	Upper Madi 0 Hydro Pvt. Ltd.	4033750/4033755
25	Super Khudi Hydropower Pvt. Ltd.	4033750/4033755
26	Unique Hydel Co. (P.) Ltd.	4033750/4033755
27	Shikhar Hydropower Co. Pvt. Ltd.	4033750/4033755
28	Ankhu Hydropower (P) Ltd.	4033750/4033755
29	Annapurna Group (P) Ltd.	4229222
30	Grid Nepal Company Pvt. Ltd.	4442049/4436585
31	Welcome Energy Devt. Co. (P) Ltd.	4783532
32	Nepal Hydro Developer Pvt. Ltd.	4441131/4441973
33	Dordi Khola Jalabidhyut Co. Ltd.	4232749/ 4232748
34	Himalayan Power Partner Pvt. Ltd.	4002801
35	Naulo Nepal Hydroelectric Pvt. Ltd.	4428299/4428299
36	Numbur Himalaya Hydropower Pvt. Ltd.	4225009/4248695
37	Global Hydropower Associate Pvt. Ltd.	4268589/4248695
38	Nasa Hydropower Pvt. Ltd.	4244352/4225685
39	Rara Hydropower Devt. Co. Pvt. Ltd.	4033016
40	Sanima Mai Hydropower Ltd.	4446442/4441277
41	Tara Energy Pvt. Ltd.	5555707/5555701
42	Nimrung Hydropower Co. Pvt. Ltd.	4102651
43	River Falls Power Ltd.	4223608/4373020
44	Ngadi Group Power Limited	4238159
45	Baishno Devi Hydropower Co. Pvt. Ltd.	4228816
46	Synergy Power Development Pvt. Ltd.	4440433
47	Energy Engineering Pvt. Ltd.	4478225
48	Upper Mai Hydro Devt. Pvt. Ltd.	5010631/5522869
49	GMR Upper Karnali Hydropower Ltd.	5260259/5260518
50	Lower Arun Hydro Electric Pvt. Ltd.	4247237
51	Sinohydro-Sagarmatha Power Co. (P) Ltd.	4376664/4378378
52	Essel - Clean Solu Hydropower Pvt. Ltd.	4423286/4260266
53	Chirkhwa Hydropower Pvt. Ltd.	4033016
54	Mailun Khola Hydropower Co. Pvt. Ltd.	4432372/4419703
55	Liberty Energy Company Ltd.	4238241/4226946
56	Sikles Hydropower Pvt. Ltd.	061-523557/061-523593
57	Hira Ratna Hydropower Pvt. Ltd.	4424619/4226330

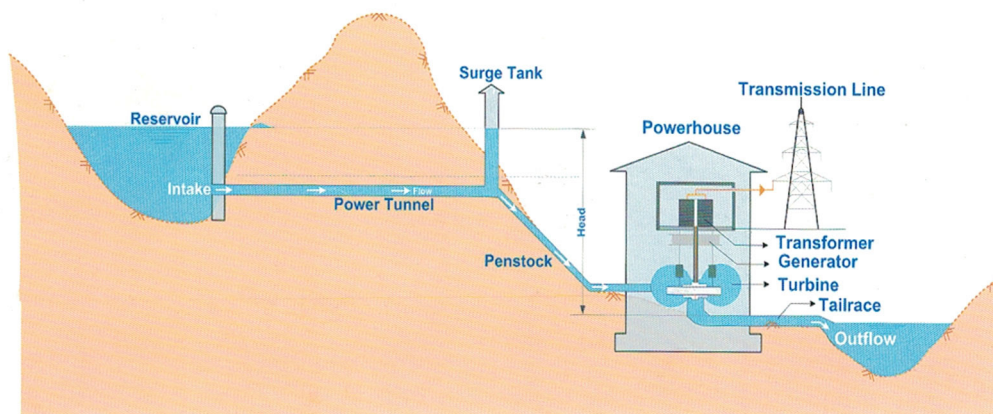
S.No.	Name of Company	Tel/Fax
58	Ambeshwor Engineering Hydropower Pvt. Ltd.	5000075/5000300
59	Alliance Power Nepal (P) Ltd.	4233318
60	Jumdi Hydropower (P) Ltd.	9841447281
61	Mount Kailash Energy Company Pvt. Ltd.	4387869/4350870
62	Daraudi Kalika Hydro P. Ltd.	4439152/4439155
63	C.E.D.B. Hydro Fund Ltd.	4251080/4260266
64	Nepal Water & Energy Development Company	4412257/4412557
65	Kalanga Hydro Pvt. Ltd.	5551546/5552905
66	Eastern Hydropower (Pvt.) Ltd.	5550587
67	Sanvi Energy Pvt. Ltd.	4415513
68	Dovan Hydropower Pvt. Ltd.	6214401
69	Triyog Energy and Development Pvt. Ltd.	5528571
70	United Modi Hydropower (P) Ltd	4770886/4770884
71	Bhairabkunda Hydropower Pvt. Ltd.	4420108/ 4418139
72	Tamor Sanima Energy Pvt. Ltd.	4415022
73	Panchthar Power Co. Pvt. Ltd.	5251003/5251004
74	Idi Hydropower Company Pvt. Ltd.	9851018118
75	Ankhu Khola Jalvidhyut Co. Ltd.	4429789
76	Sunrise Hydropower Pvt. Ltd.	91-11-47624100
77	Consortium Power Developers Pvt. Ltd.	4462856/4462856
78	Chhyangdi Hydropower Pvt. Ltd.	4424925/ 4259582
79	Salankhu Khola Hydro Power Pvt. Ltd.	4390240/4390239
80	Trade Link Global Pvt. Ltd.	4244408
81	Puwa Khola One Hydropower Pvt. Ltd.	4102710
82	Madi Power Pvt. Ltd.	4437305/4417372
83	Hydro Venture Pvt. Ltd.	4419182/4422756
84	Terathum Power Company (P) Ltd.	4240661
85	Peoples Hydropower Co-operative Ltd.	4781891/4785671
86	Bindhyabasini Hydropower Development Co. Pvt. Ltd.	4781891/4785671
87	Jhyamolongma Hydropower Devt. Co. Pvt. Ltd.	5520254/5012027
88	Hydro Empire Pvt. Ltd	4154879
89	Sayapatri Hydropower Pvt. Ltd.	4464508/4464509
90	Molung Hydropower Co. Pvt. Ltd.	4670518/4670442
91	Shiva Shree Hydropower (P) Ltd.	4222042/42221288
92	Shuvam Power Limited	4238159/4373020
93	Pokhari Hydropower Company Pvt. Ltd.	4438203
94	Blue Energy Pvt. Ltd.	4233516/4233514
95	Super Mai Hydropower Pvt. Ltd.	9818785021
96	Barun Hydropower Company Ltd.	4226590
97	Union Hydropower Pvt. Ltd.	5525406/5525406
98	Madhya Midim Jalabidhyut Co. Pvt. Ltd.	4241291
99	Garjang Upatyaka Hydropower Ltd.	4481377
100	Peoples' Hydropower Co. Pvt. Ltd.	4785923
101	Himalaya Urja Bikas Co. Ltd.	4111853/673/674
102	Upper Solu Hydro Electric Co. Pvt. Ltd.	4442557/4430194
103	Siuri Nyadi Power Pvt. Ltd.	4238159/4373020
104	Gorakshya Hydropower Co. Pvt. Ltd.	4225281
105	Singati Hydro Energy Pvt. Ltd.	4437155/4437156
106	Pashupati Environmental Power Co. Pvt. Ltd.	4380505
107	Dudhkoshi Power Company Pvt. Ltd.	4469270/4491475
108	Lohore Khola Hydropower Company Pvt. Ltd.	4468749/4468118
109	Jal Shakti Hydro Company Pvt. Ltd.	4219730/4225281
110	Kabeli Energy Ltd.	4785735
111	Bhujung Hydropower Pvt. Ltd.	4480564
112	Sagarmatha Jalbidhyut Company Pvt. Ltd.	4105087
113	Barahi Hydropower Public Ltd.	5532678
114	Mountain Hydro Nepal Ltd.	4672442
115	Ghalemdi Hydro Limited	4362520

ASSOCIATE MEMBERS

S.No.	Name of Company	Tel / Fax
116	Shangrila Energy Ltd.	4431545/ 4439267
117	NMB Bank Limited	4246160
118	Klen Tech Pvt. Ltd.	4218888/ 4430396
119	STATKRAFT HOLDING SINGAPORE PTE. LTD.	5521864/ 5536411
120	Nepal Hydro & Electric Ltd.	4785136/ 4781851
121	ICTC Pvt. Ltd	4434895/ 4434937
122	Himal Hydro & General Construction Ltd.	5000478/5000477
123	Hydro Solutions Pvt. Ltd.	4033751/4033755
124	Jyoti Bikash Bank Ltd.	4168605/4442192
125	Nabil Bank Ltd.	4227181/4226905
126	Himalayan General Insurance Co. Ltd.	4231788/4241517
127	Standard Chartered Bank Nepal Ltd.	4782333/ 4780762
128	Bank of Asia Nepal Ltd.	4263212
129	Sanima Bank Ltd.	4428979/4428969
130	Sunrise Bank Ltd.	4004560/4422475
131	Nepal Investment Bank Ltd.	4225273/4245688
132	ACE Development Bank Ltd.	4441110/4445554
133	Feedback Ventures Nepal Ltd.	4169104/4169106
134	Qiankang Allonward Hydro-Equipment Co. Pvt. Ltd.	4228816/4223570
135	Structo Nepal (P) Ltd.	5521192 /5542118

S.No.	Name of Company	Tel / Fax
136	Siddhartha Bank Ltd.	4442919/4442921
137	Laxmi Bank Ltd.	4444684/4444640
138	Grand Bank Nepal Ltd.	4168605/4168609
139	K-water (Korean Water Resources Corporation)	4442117
140	Jade Consult Pvt. Ltd.	4247237/4232171
141	Mahavir Shree International Pvt. Ltd.	4110860/4110855
142	GCE Group Pvt. Ltd.	4222202
143	Ghatal Trading & Suppliers Pvt. Ltd.	4467461
144	NRNA NCC Russia	7255093999
145	Jin Long Hydropower Equipments Co. Pvt. Ltd.	5013037
146	Chongqing Savan Electromechanical Equipment Co. Ltd.	4620235
147	Pioneer Law Associates	4221340/4261000
148	Global IME Bank Ltd.	4002507/4441502
149	NRN Investment Limited	4002638/4002639
150	Dolma Advisor Pvt. Ltd.	4431376
151	Neupane Law Associates	4101631
152	Hydro Magus Pvt. Ltd.	9808953879
153	ACME Technotrade Concern	5552413
154	ChainLink Engineering Private Limited	16636267

Schematic layout of a typical hydroelectric power plant.



Mathematically, electric power generated by Q (m^3/sec) amount of water falling under gravity through height H (m) is given as

$$\text{Power (Watts)} = \eta \times \rho \times Q \times g \times H$$

Where,

Q = Flow of water per unit time (Litre/sec or Cubic Metre/sec)

η = Overall efficiency of the system, generally between 70% - 85%

ρ = Density of water, 1000 kg/m^3

g = Acceleration due to gravity, 9.81 m/sec^2



INDEPENDENT POWER PRODUCERS' ASSOCIATION, NEPAL (IPPAN)

PO Box: 20010, Heritage Plaza II, Kamaladi, Kathmandu, Nepal

Tel: +977-1-4169175 | Fax: +977-1-4169175

Email: info@ippan.org.np