

DAM SANCTIONING PROCESS IN NEPAL

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Acronyms

ADB	-	Asian Development Bank
BOOT	-	Build, Own, Operate and Transfer
CBOs	-	Community Based Organizations
CEO	-	Chief Executive Officer
CPN-UML	-	Communist Party of Nepal - Unified Marxist and Leninist
CTGI	-	China Three Gorges International Corporation
CWC	-	Central Water Commission (India)
DANIDA	-	Danish International Development Agency
DDCs	-	District Development Committees
DfID	-	Department for International Development
DoED	-	Department of Electricity Development
DoF	-	Department of Forests
Dolr	-	Department of Irrigation
EA	-	Environmental Assessment
EIA	-	Environmental Impact Assessment
ESSD	-	Environmental and Social Studies Department
GEL	-	GMR Energy Limited
GIL	-	GMR Infrastructure Limited
GIZ	-	Deutsche Gesellschaft für Internationale
GTZ	-	German Technical Cooperation
GMR	-	Grandhi Mallikarjuna Rao Group
Gol	-	Government of India
GoN	-	Government of Nepal
GWh	-	Gigawatt Hour
HMG	-	His Majesty's Government
IBN	-	Investment Board Nepal
IDA	-	International Development Association
IEE	-	Initial Environmental Examination
IFC	-	International Finance Corporation
IFIs	-	International Financial Institutions
I/NGOs	-	I/Non-Government Organisations
IPP	-	Independent Power Producers
ITD	-	Italian-Thai Development Public Company Ltd
JBIC	-	Japan Bank for International Cooperation
JICA	-	Japan International Cooperation Agency
KM	-	Kilometer
KM2-	-	Kilometer square
KV	-	Kilovolt
KfW	-	Kreditanstalt für Wiederaufbau
KW	-	Kilowatt
MoE	-	Ministry of Energy
MoEST	-	Ministry of Environment, Science and Technology
MoFSC	-	Ministry of Forests and Soil Conservation
Molr	-	Ministry of Irrigation
MoU	-	Memorandum of Understanding
MoWR	-	Ministry of Water Resources
MW	-	Megawatt
NPC	-	National Planning Commission
NEA	-	Nepal Electricity Authority
NDF	-	Nordic Development Fund
NGOs	-	Non-Governmental Organizations
NORAD	-	Norwegian Agency for Development Cooperation
NRs	-	Nepalese Rupees
OPEC	-	Organization of the Petroleum Exporting Countries
PDA	-	Project Development Agreement
PPP	-	Public- Private Partnership
TOR	-	Terms of Reference
UNCITRAL	-	United Nations Commission on International Trade Law
USA	-	United States of America
USAID	-	U.S. Agency for International Development
USSR	-	Union of Soviet Socialist Republics
VAT	-	Value Added Tax
VDCs	-	Village Development Committees
WB	-	World Bank
WECS	-	Water and Energy Commission Secretariat

Introduction

Nepal is a highland country with two thirds of its land covered by hills and mountains¹. The gorges in the upper reaches of rivers have a steep gradient suitable for the construction of large hydropower projects. Many large dams (exceeding 15-meters in height), and hydropower projects have been built while many more mega dams are being planned to generate hydropower, as well as provide irrigation and flood mitigation. The perennial flowing waters and the terrain of Nepal has been viewed with interest by several national and international agencies. The common use of such natural endowments would be to generate hydroelectricity, irrigation, tourism revenues, meet drinking water needs, setup industry, as also develop navigation, which is crucial for the landlocked country (Upreti, 2006). Hydropower development and irrigation have been given priority by Nepal whereas its southern neighbor, India, has focused on flood control and irrigation. India's erstwhile Union Water Resources Minister Saifuddin Soz interviewed by BBC Nepali Service on 12 September 2008 said, "India's main interest in Nepal's water resource is flood control and irrigation. Those are our first and second priority. If we get hydroelectricity as by product, that will be a bonus for us" (Nepali Times, 2008).

For the past few decades, government agencies and other stakeholders in Nepal have viewed hydropower development as the ultimate engine for economic prosperity. It is believed that the available water resources is the only strategic resource with the potential to generate large scale economic benefits and turn Nepal into an Asian leopard (MOWR, 1996). There is a towering hope of prosperity but little clue on how to materialize the dream. There is a conflict of interest of different nations and different national and international institutions on how to use and manage Nepal's water resources. Different agreements, treaties and instruments between nations, and multilateral organizations are beginning to thwart the chances of sustainable growth in the sector.

Nepal has high potential of hydropower generation with specific runoff of 0.0446m³/s/km² (Gautam & Karki, 2004). The most widely quoted theoretical hydropower potential of Nepal is 83,000 MW, a figure based on the PhD thesis of Dr. Hari Man Shrestha titled "*Cadastre of potential water power resources of less studied high mountainous regions, with special reference to Nepal*" from Moscow Power Institute, then Union of Soviet Socialist Republics-USSR in 1966. Out of the identified 83,000 MW of hydropower potential, it is estimated that only 42,000 MW is feasible from a financial-technical perspective (*Hydropower Development Policy*, 2001). Government, NGOs, academics, and other stakeholder's repeatedly quote this figure without a much-needed updated research study several decades on. To make matters worse, it is believed that the figure did not have a strong academic basis when it was calculated. On continuous criticism and requests, the Government of Nepal finally allocated some funds in its annual budget to assess the hydropower potential with the use of more recent data and modeling tools. The study has been entrusted to SILT Consultants (P) Ltd., Kathmandu.

Existing energy situation

According to the annual report of Nepal Electricity Authority (NEA), 2014, the estimated annual peak power demand of the Integrated Nepal Power System (INPS) in fiscal year 2013-14 was 1,201 MW. The country has capacity to deliver 771 MW through National Transmission line (718.099 MW Hydro+53.410 MW Thermal) with acute shortage of 410 MW (DoED, 2015). Out of the total supplied, NEA hydro, NEA thermal, Independent Power Producers (IPP) hydro plus imports contributed 436.4 MW, 22 MW, 216.4 MW and 116.2 MW respectively. From a broader energy perspective, the total energy demand in 2013-14 was 5,909.96 GWh but only 4,631.51 GWh (78.4%) was supplied and the rest 1,278.45 GWh (21.6%) was covered through severe load shedding. Out of total energy supplied, 76.8% was contributed by domestic generation; 1.6% was imported from India. This shows that there is an increase in peak power demand of approximately 9.7% compared to the preceding fiscal year. Yet given the acute shortage of energy in the country, 3,447.58 GWh of energy was sold to India in 2013-14, which is 9.1% more than in 2012-13. There is a systemic loss in NEA due to theft, to the tune of 25% (Ghimire, 2011). In 2013-14, this reduced by 0.32% compared to previous year.

Theoretical Hydropower Potential in Nepal
(in 1000 MW)

Rivers Basin	Major river with catchments area above 1000 sq. km	Small river course with small catchments area	Total
Kosi	18.75	3.6	22.35
Gandaki	17.95	2.7	20.65
Karnali and Mahakali	32.68	3.5	36.18
Southern rivers	3.07	1.04	4.11
Total	72.45	10.84	83.29

Source: Lama, 2009; Shrestha, 1966; WECS, 2006

¹ <http://www.nepalinformation.com/geography.htm>

Roles of Government institutions for Hydropower development:

Ministry of Energy (MoE):

Nepal is known to be rich in water resources. However, the country does not have a dedicated Ministry for the sector. In 2009, during the premiership of Madhav Kumar, the Ministry of Water Resources split as Ministry of Energy and Ministry of Irrigation. Now responsibility has been given to Ministry of Energy for the overall development of hydropower development in Nepal. It holds the primary jurisdiction over the power sector. It has institutional arrangements at four levels (policy, operational, implementation, and regulation). The Ministry also provides the licenses for the production, transmission and distribution of hydropower projects in Nepal. Under the MoE, the Department of Electricity Development (DoED) is responsible for processing the applications.

Department of Electricity Development (DoED)

DoED is responsible for the implementation of overall policies related to electricity. It ensures transparency of the regulatory framework, and accommodates, promotes and facilitates the participation of the private sector by providing a 'One Window' service and license for power projects. The Department facilitates the national and international power producers for speedy development of electricity generation, transmission and distribution. It also studies and coordinates multipurpose project and provides suggestion and feedback as and when needed. In regard to environmental assessment, the Department examines and reviews the Term of Reference (TOR), Scoping, Initial Environmental Examination (IEE)/Environment Impact Assessment (EIA) and other associated reports. They also prepare comments and suggestions and send them to the Minister of Energy for further processing. DoED act as a secretariat of the Electricity Tariff Fixation Commission (MoEST, 2006).

Nepal Electricity Authority (NEA)

The major responsibility of NEA is to manage the generation, transmission and distribution of electricity in the country. NEA has formulated a short-term and long-term policy regarding demand and supply of electricity to the Government. It formulates plans and implements electricity generation, transmission and distribution. It also conducts research and provides technical advice related to generation, transmission and distribution of electricity. NEA has the Environmental and Social Studies Department (ESSD) within the Engineering Directorate, which is responsible for conducting IEE and EIAs including environmental monitoring of NEA projects.

Ministry of Irrigation (Molr)

The Ministry of Irrigation was formed in 2009 as the Ministry of Water Resources was split into two different entities. The Ministry of Irrigation is the main body responsible to plan and prepare policies regarding irrigation in Nepal. It also implements the plan and regulates the projects.

Department of Irrigation (Dolr)

The Department of Irrigation (Dolr) is the main department of the irrigation ministry that directly deals with macro issues of irrigation. The major objectives include planning, developing, maintaining, operating, managing and monitoring different irrigation and drainage projects. It also ensures environmental sustainability and social acceptability features of the programs. The Department aims to provide year round irrigation facility to farms.

Water and Energy Commission Secretariat (WECS)

WECS was established in 1981 as a permanent secretariat of Water and Energy Commission, which was established in 1975. The major objective of WECS is to assist ministers and Departments in the formulation of policies and planning of different projects in the water and energy sector.

Investment Board Nepal (IBN)

The Investment Board Nepal (IBN) is a government agency, which was established in 2011 through enactment of the Investment Board Nepal Act, 2011 to promote economic activities of Nepal. IBN promotes public private partnerships (PPPs), as well as domestic and foreign private investment to accelerate industrialization. Currently, it works in eight sectors (Hydropower, Agriculture, Airport, Health, Information Technology, Mining and Minerals, Road, Transport and Tourism). IBN provides a 'one window' service for investors to help them navigate the requirements for investing in Nepal by functioning as a central agency for investment promotion and facilitation. The Prime Minister of Nepal is chair of the Board, and the Chief Executive Officer (CEO), who is also IBN's member secretary, heads its office.

As per Article 3 of the IBN Act, 2011 there is provision for a Board Member. Under the Chairmanship of Prime minister there are nine members from different Ministries and government agencies. Ministry of Energy and Irrigation have been bypassed from the Board, and the Minister for Energy Minister is an invitee member. However, according to article 9 (i) of IBN Act, 2011, responsibility has been given to IBN to promote those hydropower projects with capacity exceeding 500 MW. Currently, INB is undertaking 900 MW Arun 3, 650 MW Tamakoshi 3, 600 MW Upper Marsyangdi, 900 MW Upper Karnali and 750 MW West Seti Hydro Power Project.

The Chief Executive Officer, one Senior Divisional Engineer, one Under Secretary and one Section Officer from Government oversee the activities of the IBN. Rest of the consultants, more than 30, are hired and supported by DfID. There is big question on the capacity of IBN staff and manpower to manage the affairs of these mega projects. IBN is closely working with DfID, The World Bank, Asia Foundation, USAID and JICA.

Ministry of Forests and Soil Conservation (MoFSC)

MoFSC is directly associated with environmental assessment of hydropower development projects along with other projects. It needs to review ToR and environmental assessment reports and send comments and feedbacks to other Ministries. The comments and feedback of MFSC play a vital role in granting license and project approvals.

Department of Forests (DoF)

DoF is one of the important departments in the Ministry of forest and social conservation associated with hydropower generation. The Department is responsible for conservation and protection of forests in Nepal. They play a vital role in the review of environmental assessment reports. The acceptance or rejection of the proposed project is influenced by the review and feedback of the department. It is also involved in various programs related to natural resource management. The Department has a countrywide network of institutions, and is responsible for the conservation, development and management of all categories of forests, except protected areas.

Ministry of Science, Technology and Environment (MoSTE)

In 2005, the Environment Division was merged with the then Ministry of Population and Environment (MoPE) to form the Ministry of Science, Technology and Environment. According to Allocation of Business Rules (2012), the roles of the MoSTE in relation to hydropower development is listed below:

- (a) Formulation, implementation, monitoring and evaluation of policy, plan and programs.
- (b) Study, research and survey.
- (c) Liaison and co-ordination with national and international organizations.
- (d) Monitoring and evaluation of the environment, science and technology related programs conducted by the governmental and non-governmental organizations.
- (e) Study, research and forecasting relating to hydrology and meteorology.
- (f) Control pollution, protection of environment and eco-balance.

The Environment Assessment Section of the ministry is responsible for processing all EIA and its associated reports for necessary decision (MoEST, 2006).

Legal instruments that guides and affects hydropower development

Constitution of Nepal, 2015

Nepal has promulgated the New Constitution with signatures of 90 percent of the Constituent Assembly (CA) II members on September 20, 2015. The Government has to amend 315 existing laws to implement the new constitution. The Ministry of Law, Justice and Parliamentary Affairs has begun work to enact 138 new laws and amend the 315 existing laws (The Himalayan Times, 2015).

The newly promulgated constitution of Nepal deals with the ratification, accession and acceptance or approval of treaties and agreements. The clause 279 (2) explicitly states that it needs the support of two thirds majority of total members in both houses of federal legislature to implement any treaties or agreement which lies under the subject of four categories, stated in sub-clause (a), (b), (c) and (d). The sub-clause (d) deals with natural resources, and the distribution of their uses, which directly affects the use of water resources for the development of hydroelectricity. But, the clause (2) further states that, if any treaties or agreements related to sub-clause (a) and (d) is ordinary in nature then such treaties or agreements can be made by simple majority of the members of the legislature. Clause 30 and 35 (4) of the new constitution guarantees clean environment as well as water and sanitation as a fundamental right. Clause 51 sub-clause (g) 1.2.3.4.5.6.7.8 and 9 talks about the conservation, management and use of natural resources policy as:

- (1) The State shall pursue a policy of conserving the natural resources available in the country by imbibing the norms of inter-generation judicious use of it and for the national interest. It shall also be about its sustainable use in an environmental friendly way. The policy shall ensure the fair distribution of the benefits generated by it by giving local people the priority and preferential rights.
- (2) The State shall pursue a policy of prioritizing national investments in water resources based on people's participation and making a multi-utility development of water resources.

- (3) The State shall pursue a policy of developing and producing renewable energy, ensuring cheap, easily available and dependable supply of energy, and making an appropriate use of it to meet the basic needs of the citizens.
- (4) Developing a sustainable and dependable irrigation system by controlling water-related natural disasters with the management of the river systems.
- (5) The State shall pursue a policy of making a sustainable use of biodiversity through the conservation and management of forests, fauna and flora, and by minimizing the negative impacts of industrialization and physical development by promoting public awareness on environmental cleanliness and protection.
- (6) The State shall pursue a policy of keeping necessary landmass as forest area in order to strike an environmental balance.
- (7) The State shall pursue a policy of adopting appropriate ways of minimizing or stopping negative effects on environment if it is there, or if there is a possibility of such an impact on nature, environment, or biodiversity.
- (8) The State shall formulate policies and enact laws on the basis of the principle of sustainable environment development based on pre-warning and pre-informed agreements regarding environmental protection.
- (9) The State shall formulate and pursue a policy of designing a pre-warning system, disaster preparedness, rescue, relief works and rehabilitation in order to minimize the risks of natural disasters.

Likewise, clause 250 of constitution guaranteed the provision to form 'National Natural Resources and Fiscal Commission', whereas clause 251 states the functions, duties and powers of National Natural Resources and Fiscal Commission. The functions, duties and powers of the National Natural Resources and Fiscal Commission shall be as follows: (a) Determine extensive grounds and measures, regarding the distribution of revenue from the federal consolidated fund to the federal, provincial and local level governments according to the constitution and law, (b) Making recommendations, according to law, on distribution of the equalization grants to provincial and local governments from the federal consolidated fund, (c) Conducting research and studies with regard to making a basis for distribution of conditional grants to provincial and local governments in compliance with national policy and program and standards, and the state of infrastructure there. (d) Determine extensive grounds and measures regarding the distribution of revenue between provincial and local governments from the provincial consolidated fund. (e) Making recommendations regarding the measures of reforms on responsibilities of expenditures and revenue generation for the federal, provincial and local governments. (f) Making recommendations about the internal loans the federal, provincial and local governments may take, by analyzing the macroeconomic indices. (g) Reviewing the bases of revenue distribution between the federal and provincial governments, and making recommendations for reform. (h) Determine base for computing the share of investment and return for federal, provincial and local government while exploiting natural resources, and make necessary recommendations. (i) Making recommendations about coordination and mitigation of disputes likely to arise regarding distribution of natural resources between the federation and province, between the provinces, between a province and local level entity, or between local level entities.

The National Natural Resources and Fiscal Commission shall make recommendations to the Nepal Government, by conducting necessary research into, with regards to environmental impact assessment linked to distribution of natural resources. Other matters including the functions, duties and powers of the National Natural Resources and Fiscal Commission, extensive basis for revenue distribution and natural resources exploitation, shall be as provided for by Federal law.

List of the Federal and Provincial Powers/Jurisdiction in New constitution

Schedule 5	
List of Federal Powers/Jurisdiction	
S.No.	Subjects
7.	Policies and criteria related protection and multi-dimensional use of water resources
8.	International and inter-provincial electricity transmission lines
10.	Central level mega projects for electricity, irrigation and other projects
17.	International treaties and agreements, extradition, mutual legal assistance and international border, international border river
Schedule 6	
List of Provincial Powers/Jurisdiction	
S.No.	Subjects
7.	Provincial level electricity, irrigation projects, drinking water, transport

19.	Management of national forest, water resources and ecology within the province
Schedule 7 List of Concurrent (federal and provincial) Powers/Jurisdiction	
S.No.	Subjects
13.	Province border rivers, waterways, environment protection, biodiversity
18.	Tourism, drinking water and sanitation
23.	Inter-provincial forest, wildlife, birds, mountains, national parks and water uses
Schedule 8 List of Powers/Jurisdiction for Local Level	
S.No.	Subjects
11.	Local roads, rural roads, agriculture roads, irrigation
19.	Drinking water, small electricity projects, alternative energy
21.	Conservation of Watershed, wetland, wildlife, mines and minerals
Schedule 9 List of concurrent Powers/Jurisdiction for Federation, Province and Local Level	
S.No.	Subjects
5.	Services like electricity, drinking water, irrigation
7.	Forest, wildlife, birds, water use, environment, ecology and biodiversity

Water Resources Act, 1992

The Water Resources Act, 1992 is a comprehensive legislation on water resources. It deals with the rational utilization, conservation, management and development of the water resources available in Nepal in the form of surface water, underground water or in whatsoever form. It aims at instating legal arrangements for determining beneficial uses of water resources, preventing environmental and other hazardous effects thereof and also for keeping water resources free from pollution. The Act states that the State is the owner of water resources of the country. No license is required for the usage of water resources for one's own drinking and other domestic use on an individual or collective basis, for irrigating one's own land on an individual or collective basis, for purpose of running water-mill or water-grinder as cottage industry, or use of a boat for personal local transportation, where the use, as prescribed, of the water resources confined to a land by the owner of such land.

Article 7 (1) of the act has also clearly prioritized the order to utilize water resources, where it follows, Drinking water and domestic users; Irrigation; Agricultural uses such as animal husbandry and fisheries; Hydroelectricity; Cottage Industry, industrial enterprises and mining uses; Navigation; Recreational uses; Other uses. It shows that water use for drinking water has been prioritized number one but there is high discussion on hydroelectricity alone, which stands in 4th priority of water utilization.

Land Acquisition Act, 1977

Land Acquisition Act, 1977 was promulgated to acquire land from individuals for the use of public purpose projects or institutional setup. There are certain procedures and methods for the acquisition of public land and adequate compensation is the major clause of the act. The act allows government to acquire land of any individual on providing enough compensation.

Hydropower Development Policy, 2001

The hydropower development policy, 2001 abolished incentives provided by any previous policy for development of hydropower. The emerging new concept of internal impacts, technological developments and possibility of exporting the hydropower energy to neighboring markets are the main features of the policy. Supplying energy to first rural, then urban and industrial areas was given priority. Furthermore, the policy contained important provisions such as creating fair, transparent, non-discriminatory internal and external market.

The policy contains some initial assessment on how to reduce potential risk in public-private efforts of producing energy. The concept of BOOT - build, operate, own and transfer - has been introduced in the policy. Another feature of the policy is to build multi-purpose infrastructure; for example, combining irrigation and drinking water supply in a cost efficient way. It ensures complete independence to production, transmission and distribution sectors in projects not exceeding 1 MW. If a small energy producer has to bear transmission cost then it would not be economically viable. These incentives could boost investment in the local market. In the case of export-

oriented trade, Government of Nepal (GoN) could use or purchase 10% of produced electricity. This condition again aims for reassuring those investors who are willing to trade energy with neighbouring countries.

The Policy has encouraged foreign investors to keep their costs effective in case of decreased costs to domestic materials and consultants. Unfortunately, in practice many cases are showing reverse picture after completion of projects. Despite its positive effects, it contains various controversial aspects in comparison to preceding policies where incentives have been removed, number of licences have been reduced, royalty payment has increased, income tax holidays have been abolished and hydropower projects are subject to the general corporate tax rate. Similarly, GoN introduced a new ordinance in 2006, subjecting hydropower projects above 3 MW to make VAT payment. It has resulted in a 13% escalation in investment level.

Irrigation Policy, 2003

Irrigation policy aims to develop effective irrigation system whilst ensuring sustainability of the environment, with a view to fulfill the requirements of the farmers to increase agriculture yield and production. The policy also aims to optimally develop irrigation services through cost effective investment in the irrigation development and extension programmes whilst ensuring they are sustainable from the technical, financial, institutional and environmental perspectives. The objective is to safeguard greater returns in the short run by meeting the water requirements of the farmers' field with the goal of increasing agriculture production. Lastly, the policy seeks to continue the Nepali farmer's tradition of constructing and managing irrigation systems as autonomous entities in the private sector by making it more stable and extensive.

Electricity Act, 1992

The Electricity Act, 1992 focuses on the management and development of the electricity sector. It deals with survey, generation, transmission and distribution of electricity and to standardize and safeguard electricity services. There is a provision of custom duties and sales tax on purchase of construction equipment, machines, tools and equipment required for repair and maintenance within the country. Similarly, it also incorporates the spare parts purchased for hydropower generation, transmission and distribution that are produced and sold by local industries. One per cent customs duties shall be levied for materials that are imported from out of the country. The act also talks about environment protection in section 24 of the Act. It states that the electricity generation, transmission and distribution shall be carried out without any adverse impacts on the environment.

Electricity Regulation, 1993

This Regulation was drafted by the government of Nepal using the authority assumed in Section 40 of the Electricity Act, 1992. The regulation has mentioned the provisions relating to the license for generation, transmission and distribution of hydroelectricity.

National Parks and Wildlife Conservation Act, 1973

This Act strictly prohibits any attempts to block or divert any river or stream flowing through a national park or reserve, or any other source of water, or use any harmful or explosive materials therein. It ensures that, up to thirty to fifty percent of the amounts earned by a national park, reserve or conservation area be utilized for community development in co-ordination with the local authorities.

Forest Act, 1993

The act empowers the government to grant any part of a national forest to the community users, or lease it for the purpose of meeting the raw materials required by industries. If there is no alternative than to use the forest area for the implementation of national priority plan, and if there shall be no adverse effect in the environment, then government may grant authority to the use of any part of forest land, no matter what category that forest belongs to. If there is any adverse effect to any person or community during implementation of the project, then government shall have to make proper arrangements.

National Environmental Impact Assessment Guidelines, 1993

The guidelines provide a general methodology for conducting an EIA study. It deals with; Project screening and initial environmental examination, Scoping for environmental impact assessment, Preparation of Terms of Reference for Environmental Impact Assessment, Environmental Impact Assessment report, Identification of environmental impact, Impact mitigation measures and Community participation. Community/Public participation has been given high priority and different possible ways and methods have been discussed in detail. The policy has also stated brief criteria in comparison to environment protection rule, 1997 regarding the requirement for IEE or EIA. The policy has stated that; rural electrification schemes and electricity generating schemes of less than 5 MW project needs to carryout IEE. Similarly, electricity-generating schemes exceeding 5 MW project need to carry out an EIA. Regardless of the provision of the guidelines; Budget Speech of Fiscal Year 2008-09 by the then Finance Minister, Dr. Baburam Bhattarai stated a contradictory provision that the legal provision of not requiring licenses for the production up to 1 MW hydro power projects was extended up to 3 MW. Similarly, the limit of present

exemption given on Environment Impact Assessment was increased to 50 MW from 10 MW (Budget Speech of Fiscal Year 2008-09, 2008).

Nepal government and World Bank's International Finance Corporation (IFC) signed an agreement where the IFC is providing grant assistance of US\$ 90 thousand to Ministry of Science, Technology and Environment of Nepal. The assistance is focused to reform existing EIA guidelines on hydropower, capacity building of government as well as private sector and develop regulatory mechanism for specific aspects of EIAs in adherence with international industry practices. The grant agreement was signed on 24th June 2015 in the presence of Nepal Resident Representative of International Finance Corporation.

Environment Protection Act, 1997

Environment Protection Act, 1997 is the principal legal framework for environment protection and pollution control. The Act states that proponent shall have to carry out Initial Environmental Examination (IEE) and/or Environmental Impact Assessment (EIA) of the prescribed proposal. The Act provides that no one shall implement or cause to be implemented a proposal without getting approval from the concerned agency or the Ministry. The Act requires submitting the proposal with IEE or EIA report for approval of the project before the implementation of the prescribed proposal and it will be approved with respective procedure. It also states that any person carrying out any act without getting a proposal approved may be punished with a fine up to one hundred thousand rupees or the prescribed authority may close down any such project activity immediately. The Act also empowers the Government to frame Rules including on IEE or EIA and environmental standards.

Environment Protection Rules, 1997

The environment protection rules, 1997 was amended in 1998 to provide detail processes with criteria for any project to carryout environmental impact. A project proponent is mandated to carry out either IEE or EIA based on the criteria listed.

Proposal requiring Initial environmental examination (IEE)	Proposal requiring environmental impact assessment (EIA)
<ol style="list-style-type: none"> 1. Constructions of electricity transmission lines ranging from 33 to 66 KV capacity 2. Rural electrification projects of 1 to 6 MW capacity 3. Electricity generation projects till 5MW capacity 4. Displacement of 25 to 100 persons from permanent residence due to water resources development activity 5. Control of river on more than 1 KM in length 	<ol style="list-style-type: none"> 1. Constructions of electricity transmission lines of more than 66 KV capacity 2. Rural electrification projects of more than 6 MW 3. Electricity generation projects above 5 MW 4. Electricity generation through diesel or heat for more than 1 MW 5. Displacement of more than 100 people from their permanent residence due to water resources development activity 6. Construction of multipurpose reservoirs. Inter-basin water transfer and use

Source: EPR, 1997

Guidelines for Study of Hydropower Projects, 2003

The guidelines for the study of hydropower projects 2003 was developed to bring uniformity in the study report of survey or development of hydropower generation, transmission and distribution by different developers. It is expected from the enforcement of the guideline that the quality, volume and depth of study of any developer will be in standard format to review. The guidelines would be referred as the National Guidelines for study of hydropower projects in Nepal. The overall objectives of these guidelines for study of hydropower projects are to establish and maintain a framework in the study of different phase of hydropower projects and establish uniformity in similar types of studies between project developers. It is also hoped that the guidelines will help to standardize the process of license application and processing. The guideline incorporates preliminary, pre-feasibility and feasibility phase of study. The detail formats of the reports for the study of different phase of the project is also given in the guideline (DOED, 2003).

Investment Board Act, 2011

It was promulgated to establish legal investment board to carter investment friendly environment through management and mobilization of Public-Private-Partnership (PPP) at national and international level and initiate the process of industrialization for the economic development of the country. The Board is chaired by a Prime Minister and run by a Chief Executive Officer (CEO). A key objective of the board is to identify priority sectors for investment and formulate policy for investment. It also selects projects for development and invites probable investors and grant them license after a procedure of evaluation, negotiation, and other criterion. The Board must monitor the project activities as per the agreement with project proponent. It must also play the role of catalyst to promote investment by arranging resources such as land for the project, and coordinate with various ministries,

government and local agencies. The Board, broadly focuses on nine sectors, and among them hydropower generation of and above 500 MW is quite ambitious task with their limited staff capacity. Any person who desires to invest in a specified project under the scope of investment board is required to pay a specific fee and submit an application along with investment proposal. The application is initially reviewed by the CEO, and only thereafter will the process of examination and assessment of financial, environmental, technical and social aspect be carried out, if application is found appropriate, within 7 working days. Similarly, an application is further evaluated and submitted to the board with the recommendation for approval or rejection within 30 days of receiving an application. The board informs an applicant about its decision within 7 days of tabling the recommendation from the office. The board can also negotiate with an applicant before a final decision, if found necessary. If application gets accepted, then the Board shall issue a license to implement the proposed project on receiving prescribed fee. However, if the project requires IEE or EIA, then the Board allows extra time to conduct such assessments. Project construction cannot start without obtaining environmental clearance, although the project proponent may receive license from the investment board. Any project, which commences without completing the necessary requirements, the Board has the right to step in and stop the construction or rescind the license and seize the property.

Foreign Investment and Technology Transfer Act, 1992

The Foreign Investment and Technology Transfer Act, 1992 promotes foreign investment and technology transfer for the economic development of a nation. The Act states that any foreign investment or technology transfer requires permission from respective departments. The act mentions a provision for foreign investors to repatriate the equivalent amount for the transfer of technology in the currency mentioned in agreement outside Nepal.

Regarding visa, a foreign national will be provided a non-tourist visa for a maximum period of six months to undertake any study or research relating to investments in Nepal. Similarly, an investor him/herself or his/her family or authorized representatives will be provided a business visa to stay in Nepal till the continuation of investment, if the investment amount is no less than one hundred thousand United States dollar or equivalent amount. The possible dispute between any business parties of foreign investor is expected to be settled through mutual consultation in the presence of department officials, but if it doesn't happen then it shall be settled by arbitration in accordance with the prevailing arbitration rules of the United Nations Commission on International Trade Law (UNCITRAL).

Licensing and agreement process

The licensing process for the Production, Transmission and Distribution of electricity is based on Electricity Act, 1992 and Electricity Regulation, 1993. Department of Electricity Development regulates the entire process. No person or institution is allowed to conduct survey, generation, transmission or distribution of electricity without obtaining a license. License requirement is waived for the capacity ranging from 100 to 1000 KW but before carrying out any activities, it should be informed to the prescribed officer in a format stated in Schedule 1 and Chapter 2, Section 3 of Electricity Regulations, 1993.

If a person, an institute or company desire to conduct a survey for generation, transmission or distribution of electricity, it is required they submit an application as per the format given in Schedule 2, 3, 4 respectively, addressed to the Secretary of Ministry of Energy through Department of Electricity Development (DoED), along with the economic, technical and environmental study report as mentioned in Chapter 2, section 4, 5, 6 respectively of Electricity Regulations, 1993. Similarly, if a person or institute desires to obtain a license for the production or transmission or distribution of electricity, they must submit an application in the format prescribed in Schedule 6, 7, 8 respectively of Electricity regulations, 1993 along with documents mentioned in Chapter 2, section 12, 13, 14.

The Secretary to the Minister of Energy through DoED reviews the Application. If it complies with the Electricity act and regulations, then a license for survey of electricity generation, transmission or distribution is granted in accordance with the format prescribed in Schedule 5 (A), 5(B) or 5 (C) of Electricity Regulations, 1993 within 30 days of receiving the application. In the case of production, transmission and generation of electricity, the application is reviewed, and a notice is published for public review. Any concerned person or institute can send their reaction regarding the adverse impact of the project at DoED within 35 days of publication of notice. The relevant concerns of the public are noted and stated in the license document. The license is then issued in the format prescribed in Schedule 9 (A), 9 (B), 9 (C) respectively within 120 days of receiving complete application.

License is issued on first come first service basis. In order to avoid duplicity, the government does not issue any license to other people or institutions to conduct survey of the same work in the same area for a specified time period mentioned in the license document. In any case, if a license holder wishes to sell or transfer the license obtained, they are required to obtain an approval from the prescribed officer. For the survey, the license holder under electricity regulations, 1993, should begin their physical work within three months of date of issue, whereas for the production, transmission or distribution they should begin work within one year from the date of obtaining the

license. They are required to keep the DoED informed of their activities and schedule. It is also mandated that the project proponents submit progress reports every six months until completion.

Section 34 and 35 of Electricity Act, 1992 has given discretionary right to the Government of Nepal, in spite of whatsoever provisions stated in the act, to generate or to develop electricity on its own. Similarly, the Government can also directly give authority to any person or corporate body for the generation, transmission or distribution of electricity, without complying any procedure stated in the act, by entering into a contract.

Hydropower Project License and License Renewal Fees Schedule-11 (Relating to Rule-24 and 25)			
(A) Survey of Electricity Generation			
S. No.	Installed Capacity (MW)	Per Year Total License Fees in NRs	Renewal Fees Per Year (NRs)
1.	Above 1 and up to 5	10,00,000	As per license fees
2.	Above 5 and up to 10	20,00,000	As per license fees
3.	Above 100 and up to 25	30,00,000	As per license fees
4.	Above 25 and up to 100	40,00,000	As per license fees
5.	Above 100 and up to 500	50,00,000	As per license fees
6.	Above 500	60,00,000	As per license fees
(B) Survey of Transmission and Distribution of Electricity			
S.No.	Installed Capacity (MW)	Per Year Total License Fees in NRs	Renewal Fees Per Year (NRs)
1.	Above 1 and up to 5	10,000	As per license fees
2.	Above 5 and up to 10	20,000	As per license fees
3.	Above 10 and up to 25	30,000	As per license fees
4.	Above 25 and up to 100	40,000	As per license fees
5.	Above 100 and up to 500	50,000	As per license fees
6.	Above 500	1,00,000	As per license fees
(C) Electricity Generation, Transmission and Distribution			
S. No.	Installed Capacity (MW)	License Fees (Electricity Generation) NRs	
1.	Above 1 and up to 5	5,00,000	
2.	Above 5 and up to 10	7,00,000	
3.	Above 10 and up to 25	10,00,000	
4.	Above 25 and up to 100	30,00,000	
5.	Above 100 and up to 500	40,00,000	
6.	Above 500	50,00,000	

Source: Nepal Gadget, 2012 October 1, Part 62, No. 27, Section 5

Environmental Assessment (EA)

Environmental conservation was never factored in to Nepal's development policies. However, article 30 of the newly adopted Nepalese Constitution, 2015 recognized the Right to a clean environment as a fundamental right. Article 30 (1) of the Constitution says each person shall have the right to live in a healthy and clean environment. Article 30 (2) states that the victim of environmental pollution and degradation shall have the right to be compensated by the polluter as provided for by law. However, article 30 (3) states that this is provided for only if this article is not be deemed to obstruct the making of required legal provisions to strike a balance between environment and development for the use of national development works.

Nepal has not adopted any legislation or administrative instructions addressing environmental impacts of development projects. In the planning history of Nepal, the sixth five year plan (1980-85) was the first plan to recognize environmental conservation considerations as a matter of policy (NPC, 1980). The Environmental Impact Study Project (EISP) was established under the Department of Soil Conservation in 1982 to develop necessary instruments for integration of EIA in infrastructure development projects (Bhatta & Khanal, 2010). The seventh five year plan was the first to consider the environment as distinct component in the planning process, and to stipulate the preparation of an environmental impact assessment (EIA) for all major development projects (NPC,

1985). The development of the national conservation Strategy (NCS) and its endorsement by His Majesty's Government of Nepal was also achieved during the Seventh Five Year plan period. The plans and programs formulated during Seventh Five year Plan were of much significance from an environmental conservation standpoint. Unfortunately, implementation of the environmental programs, such as the EIA policy stated in the Seventh Five-year plan, has not been realized to the extent previewed. It was only in Eighth five-year plan that anticipates the establishment of a national governance mechanism for EIA. It stipulates EIAs for all major development projects, particularly roads, hydropower industry, irrigation, housing, drinking water, and sewerage (NPC, 1992). The Eight five-year Plan makes it mandatory that EIAs be conducted at the stage of the feasibility study. The eighth plan period also made a contribution that is remarkable and notable in institutionalizing the EIA system in Nepal's development planning and administration. During this period, the government of Nepal adopted and implemented the National EIA Guidelines of 1993, GoN (1993). Two separate EIA guidelines for the forestry and industry sector were enforced in 1995 through administrative decisions. Additionally, continued preparation of the other sectorial EIA guidelines such as the mining sector, urban development sector, landfill sites 1995 and water resources, road and tourism sector in 1996 were underway. The detail stepping process of EIA along with weakness on steps are discussed below:

Steps

Project Screening

Project screening is the initial step of environmental assessment of any project. It determines the type of environmental assessment required for the respective project. The project with features listed in Schedule 1 of EPR, 1997 must carry out Initial Environmental Examination (IEE). Similarly, an Environmental Impact Assessment (EIA) must be prepared for projects whose impact matches with the listed features in Schedule 2. Apart from Schedule 2, projects may also require an EIA on the basis of project areas, as mentioned in Schedule 3, if not exempted by the prevailing law.

Initial Environmental Examination (IEE)

Review and approval of Terms of Reference (ToR)

The project developer prepares Terms of Reference (ToR) of IEE study based on the format mentioned in EPR, 1999. The report is submitted to the Department of Electricity Development (DoED). DoED sends the report with its review comments to Ministry of Energy (MOE). DoED also sends a copy of ToR to the Ministry of Forestry and Soil Conservation (MoFSC) and requests for their comments to be sent to the MoE. After examining and reviewing the reports along with comments sent by DoED and MoFSC, MoE approves or rejects the documents with or without any notes.

Review and approval of IEE Report

IEE report is prepared on successful acceptance of ToR based on the prevailing law and rules. The IEE report is submitted to DoED as per schedule 5 of EPR, 1997. DoED sends the report with its review comment to MoWR for approval. DoED also sends a copy of ToR to the Ministry of Forestry and Soil Conservation (MoFSC) and requests for their comments to be sent to the MoWR. MoFSC also sends its review report to MoWR after examination of the report. MoWR reviews the IEE report including comments and suggestions from other departments, after which it approves or rejects the documents with or without any notes.

Environmental Impact Assessment (EIA)

Scoping

Scoping is carried out after project screening during an EIA. The aim of the scoping exercise is to discover alternatives to the proposed activities of the project. During scoping exercise, the concerned stakeholders including government officials from various areas, national and international non-governmental organizations, local influential people and affected people must be involved. It should be an open exercise with wide public involvement.

Terms of reference (ToR)

Project proponent should publish a public notice in a national daily newspaper with deadline of 15 days, seeking public suggestions to incorporate in ToR and Scoping document. A team of experts carries out field visits in order to discuss the project with various stakeholders, including local affected people, representatives from International/Non-Government Organizations (I/NGOs), Community Based Organizations (CBOs), local political leaders and local government agencies. At least one public hearing needs to be conducted including the participation of project-affected people, along with the concerned government and non-government agencies. The ToR of EIA should be prepared based on the scoping exercise and it should be in the prescribed format presented in Schedule 4 of EPR, 1997.

The proponent must submit the scoping and ToR report either separately or together to the DoED. DoED then forwards the report to MoWR after review, including its comments. MoFSC also forwards the report to MoWR with its comments. MoWR studies the report along with comments from DoED and MoFSC and further forwards the document to MoEST with their comments and suggestions. MoEST reviews the report along with comments and suggestions from MoWR and convenes the Report Review Committee meeting. Based upon comments made by the Committee, MoEST approves the Scoping Report and ToR with or without note.

Environment Impact Assessment (EIA) report

The project proponent must prepare an environmental impact assessment (EIA) report after establishing the ToR. It should be prepared in the format prescribed in Schedule 5 of EPR, 1997. The report must be concise and should have addressed significant environmental issues. Ministry of Environment, Science and Technology (MoEST) must publish a notice in a national daily newspaper informing the general people and all other stakeholders about the EIA report and request for review and comments within 30 days from the publication of notice.

The proponent is required to submit an EIA report to DoED. DoED studies the report focusing chiefly on public participation during EIA process and recommendation from the concerned affected Village Development Committees (VDCs)/Municipalities. DoED further processes the report with its comments and suggestions to MoWR. MoFSC also sends the suggestions and comments on reviewing the report to MoWR. MoWR forwards the reports with their comments and suggestions to MoEST for the final approval. MoEST publishes a public notice in a national daily newspaper with a 30-day deadline to provide suggestions and comments on the report. MoEST sends the EIA report to various local government bodies, VDCs, Municipalities and District Development Committees (DDCs) offices, and public library such spaces, so that people can access the report for review. During that period, if the public provides valid comments on the report, MoEST may instruct the proponent to address them. MoEST convenes an EIA report to review committee meeting represented by MoWR, DoED, MoEST, MoFSC, University Library, Nepal Environmental Impact Assessment Association, other professional organizations and/or independent experts. The review committee studies the report along with comments and suggestions from all sources. Finally review committee makes suggestions to MoEST and MoEST approves the report within 60 days as per the law, provided that the report is of appropriate quality. In some instances, when the report is not found to have incorporated all the pertinent issues, or if the report is of inferior quality, the proponent is requested to revise the report and resubmit the final EIA report to the MoEST (Singh, n.d.).

EIA outflows

As per Khadka, Gorzula, & Malla (2000), in the project screening stage, the threshold of 1 MW to 5 MW for IEE and 5 MW for power generation capacity and 66 KV for transmission line for EIA is neither scientific nor practical. The hydropower projects with a capacity less than 5 MW or 1 MW, depending on the site may have greater adverse impacts than some larger capacity projects. It may seem that the project proponent is compelled to disseminate information to affected people by publishing the project notice in a daily newspaper. But the reality is that a newspaper never reaches the real project affected people, mostly living in remote and backward localities. Most of the feasible projects lie in remote places where newspaper circulation is nil or very limited, so local people are intentionally or unintentionally deprived of any prior intimation. In addition, the response regarding the proposed project should reach government authorities within specific days. It is not possible because most of the times, local people do not get first-hand information on time. If they get information, most of the time it is received outside the stipulated period. Thus, it is near to impossible for local people to respond to the authorities in time. There is no specific format and framework for the scoping document, so the document of projects is not uniform and focused. From the proponent's perspective, there is no specific deadline for the respective government authority to respond to a scoping report. As a result there is always a risk of misconduct during that time. There are no particular guidelines or criteria for the review of the scoping and TOR document, which creates potential for project bias. Also, the EIA report should incorporate multidisciplinary dimensions in a balanced manner. But the current practice is based on the composition of the study team and the background of the team leader, so such bias can and should be reduced.

Public Participation

Public participation, in a general sense, is the sharing of free and prior information regarding the project to all stakeholders. Mainly, the stakeholders should incorporate views of directly affected people of the project, be it indigenous, tribal and marginalized communities, women and other vulnerable groups as well as any other interested parties for that matter. It is not only about being a listener; rather, the people should actively participate in the meeting. This involves the exercise of freedom of speech and expression, meeting and assemblies, protests and demonstrations, and even negotiating rights and interests. The development activities are ultimately for the benefit of general people, so it is necessary to receive an endorsement for any such activities from public for implementation, beforehand. Only publicly endorsed projects can be termed as unbiased and sustainable. In publically accepted project, participation brings input of indigenous knowledge and skills to the table and most importantly, proponents get first-hand information about the project area, people and other possible unrecorded climatic and environmental variations. This helps minimize negative impacts and implement mitigation plans effectively. People develop ownership to the project, which ensures the proper functioning of activities in the project. Public participation does not happen in an abstract manner, but requires great amount of interest, patience and motivation in project proponents. In a sense, the quality of public participation most often determines the success or failure of the project.

Hydropower, be it dam-toe or run-of-river projects, directly and indirectly impact a large number of people. Thus, it is compulsory from the perspective of nature of the project as well as the law, rules and regulations of the country to actively inform concerned stakeholders about the project. The right to information is guaranteed by constitution and further promoted by various internationally recognized instruments. In Nepal, clause 27 of existing Constitution guarantees the right to information as a fundamental right. It states that *every citizen shall have the right to demand or receive information on any matter of his or her interest or of public interest. Provided that nothing shall be deemed to compel any person to provide information on any matter of which secrecy is to be maintained by law*(Constitution of Nepal, 2015). Similarly, consecutive acts, rules and guidelines ensure public participation in any project, including hydroelectricity generation.

Department of Electricity Development (DoED) publishes public notice to inform general people on receiving application to obtain license for production, transmission or distribution of electricity. Any person is allowed to put feedback on the effect of proposed project within 35 days of publishing public notice. The valid feedback or comment will be forwarded to project proponent for consideration stating in license itself (*Electricity Regulation, 1993*).

Clause 19 of the Universal Declaration of Human Rights, 1948 and International Covenant on Civil and Political Rights, 1966 are the major instruments, which protect an individual's right to information. These internationally accepted declarations further guarantee the right to hold opinions without interference, as well as the right to freedom of expression, including the freedom to seek, receive and impart information and ideas of all kinds. Principle 20 of the Stockholm Declaration promotes scientific research, free flow of up to date information, and transfer of experience (United Nations, 1972). *The Rio Declaration on Environment and Development*, (1992), under Principle 10 ensures the participation of all concerned citizens, at the relevant level. It further promotes the facilitation role of State to encourage public awareness and participation through wide circulation of information. The World Bank (2002) states that it promotes the dissemination of information on time to concerned stakeholders who are directly/indirectly affected by the project, not only operated by the bank but also executed with support from the Bank. It makes mention that the project/program executed with proper sharing of information operates better. The Bank further proposed that the EA report is made publicly available after the borrower makes the draft EA report accessible to project-affected groups and local NGOs. ADB (2011) recognizes the right of people to seek, receive, and impart information and ideas about the activities operated or assisted by ADB. They seek to provide clear information in a relevant and timely manner. The ADB believes that it is an opportunity for them to communicate with concerned stakeholders including affected people and get their input to enhance project design and implementation. All people under the policy shall equally access the information of ADB.

Environmental Assessment and Public Participation

Public participation is one of the key components of environmental assessment. The effectiveness of an assessment process is determined largely by public participation. National Environmental Impact Assessment Guidelines, 1993 focuses on public participation during project identification, feasibility and scoping; initial environmental examination; detailed environmental impact assessment study and monitoring, evaluation and auditing. The responsibility of ensuring public participation lies with the project proponent and other authorizing agencies. They must encourage public participation from the initial stage of project planning. The general public,

project proponent and implementers should jointly collect and assess the relevant information before making decisions to implement the project. Guidelines assert that the following individuals, groups and agencies must be involved in the public participation of EIA process:

Involvement requirement for environmental assessment

1. Local beneficiaries, target groups, users groups, affected groups, special interest groups
2. Relevant government and private sector agencies
3. Local leaders and academic groups
4. Relevant non-governmental organizations
5. Recognized experts

There are various methods for the public involvement during an environmental assessment process. The Guidelines illustrated some methods that may be used during different project stages to better involve the public.

Methods of public involvement

1. Community meetings and exchange of information
2. Inter-personal contact
3. Dialogue with users groups and local leaders
4. Questionnaires, interviews, surveys
5. Review of EIA report and monitoring/evaluation results by local community
6. Representatives of concerned organizations and local people

Major activities involved during EA

1. Field visits by an experts and consultation with stakeholders
2. Publish 15 days public notice in a national daily newspaper with information about the project and request for comments, suggestions and concerns from the local people and other concerned stakeholders
3. Display notice in public places at local village/district level about the project and request for comments, suggestions and concerns
4. Collect comments/concerns/suggestions and recommendations from affected people and concerned stakeholders

Challenges

The above policy and legal framework both at the national and international stage shows that the people affected by hydropower and other such infrastructure project have a right to access information and study the project documents. However, ensuring that the procedure is followed has become a major challenge. In the case of national provisions, they lack specific procedures for seeking and receiving information as well as the measures for punishing those who fail to comply with the laid down procedures. The issue of multilateral and bi-lateral provisions is complex; affected people and communities hardly know them. Practically, in majority of the cases, basic project documents and information are made public only after claims or complaints. In many cases, basic information is available after the key decisions about the project have already been finalized. Similarly, most of the project documents are published in English, which is an indirect barrier to the general public to understand the project and make their independent assessment. Text based information dissemination is widely used technique to share information, but the technique is highly criticized and referred to as ineffective, especially in a rural and remote setting. Depending on the type of information and education status of the targeted public, various other techniques like arts, graphics, drawing and other materials to convey the fundamental message of the projects need to be employed, rather than text-based foreign language documents. Thus, there is much scope for improvements, in spite of various policies, laws, and regulations regarding access to information.

DOED, 2001 states that an existing public involvement in hydropower projects is often ad hoc, top down, fragmented and insufficient, ranging somewhere between persuasion and consultation. Current law has made only two mandatory actions for public involvement, the public notice and public hearing. Similarly, existing acts and rules do not distinguish the word 'social', but define it within the overall concept of 'environment'— meaning the combined physical, biological, and socio-economic and cultural aspects. Public involvement in a genuine sense is an in-depth interaction between different stakeholders of the project. Interaction must begin early during the planning at the scoping phase, and the government and its agencies must make follow-up easier and more productive during the construction and operations phase. Sadly such interaction rarely occurs between the concerned stakeholders and project proponents in most of the projects.

Hydropower development in Nepal

The 500KW Pharping hydroelectric project was the first hydropower plant in Nepal, commissioned in 1911. In 1934, a 900 KW plant was installed at Sundarjal. Subsequently in 1942, Morang hydroelectric company installed a 1600 KW project at Chisang Khola in Morang district, Hydropower development in Nepal was implemented under various

models depending on the donor agency. The 1950-60s, 1970-80s and 1980-90s were the era of bilateralism, multilateralism, liberalization respectively, and privatization began in the 1990s (Pun, 2008). The hydropower plant constructed during 1970-1980s like Panauti (2.4 MW), Trishuli (18 MW), Gandak-Surajpura (15 MW) and Sunkoshi (10 MW) were on grant support by then USSR (Russia), India and China (WECS, 2010). Despite the early beginnings, Nepal has not been successful in sustainably and responsibly harnessing its potential in the hydropower sector. There was a change in the hydropower development cooperation after 1970s when bilateral and multilateral funding began. The major supporting countries and institutions in the energy sector were Japan (JICA+JBIC), Norway (NORAD), Denmark (DANIDA), Germany (GTZ now GIZ and KfW), USA (USAID). Similarly, the active multilateral donor agencies were The World Bank and Asian Development Bank (ADB).

The 60MW Kulekhani I was the first multilateral funded storage dam project, which was commissioned in 1988. The World Bank funded \$117.84m, while the Organization of the Petroleum Exporting Countries-OPEC, Kuwait Fund for Development, and Japan contributed \$120 million for the development of the project (Pandey, 1998). The DoED finalized the design of the 14.1 MW Devighat HEP in late 1970s and the then HMG was to invest in the project but the project was eventually handed to India's Central Water Commission (CWC). It was an opportunity to involve local expertise and resources but the issue of building local capacity took a back seat due to a donor-guided approach. The economic liberalization policy was introduced in Nepal after the political change in the 1990's. Nepal adopted liberalization and open market policies, which brought another twist in the hydropower development.

Nepal changed its law and regulation regarding foreign and private sector investment in the hydropower sector. National, international and multi-national private agencies began to compete to invest and develop hydropower in Nepal. Today, Chinese companies are also paying attention and are keen on assisting Nepal in harvesting its water resources. Working on various dam projects in Nepal, China is coming up with both technology and financial backing, where there are few domestic resources and leaders eager to exploit rich hydropower resources (Dharmadhikary, 2008).

The Arun III hydropower project was designed with an installed capacity of 402 MW with a goal to complete the project within 10 years. Later, the World Bank announced a reduced capacity of Arun III as a 201 MW project with the same planned investment. The site for hydro development was initially identified by JICA in 1985 as an attractive site during its Master Plan preparation of the Kosi Basin. The World Bank was the lead donor and other supporting donors were the Asian Development Bank, Japanese Overseas Economic Cooperation Fund and Germany's Kreditanstalt für Wiederaufbau (KfW). It was a highly controversial and debatable project of the 1990s. Ultimately, the World Bank dropped the project on August 3, 1995 due to public pressure and criticism from international communities.

The contributing financier of the project, ADB and JBIC transferred their financial assistance as loan to implement 144 MW Kali Gandaki 'A' hydroelectric projects (Gyawali, 2003; Shrestha & Bhandari, 2014). KfW put money in the 70 MW Middle Marshyandi Hydro project, while NORAD and Nordic Development Fund (NDF-Finland) supported the 60 MW Khimti Hydro power project. As a further development after long gap in hydropower development, in February 29, 2012, Government of Nepal signed an agreement with China Three Gorges International Corporation-CTGI (a subsidiary of China Three Gorges Corporation) for the 750 MW West Seti Hydropower and Transmission Project with an aim to complete the project by 2020.

Now, there is big controversy on 900 MW Upper Karnali Hydropower project. The then Ministry of Water Resources, and now Energy Ministry, had awarded the project to Indian private company GMR Group in build-own-operate-transfer (BOOT) model. GMR and Italian Thai Development Company Limited (ITD) of Italy have jointly invested in the project. Karnali project has been awarded to Indian private GMR Group. The run-of-the-river daily peaking project is located on the Karnali River, in the Surkhet, Dailekh and Achham districts in Mid-Western and Far-Western Region. On January 24, 2008, a Memorandum of Understanding (MoU) was signed between the Government of Nepal and the GMR-ITD Consortium, comprising of GMR Energy Limited (GEL) and GMR Infrastructure Limited (GIL)-both incorporated in India - and the Italian-Thai Development Public Company Limited (ITD). Initially the MoU was signed to generation 300 MW but in 2009 December 20 the project capacity was later upgraded to 900 MW.

On September 19, 2014 Project Development Agreement-PDA was signed between Investment Board Nepal-IBN, GMR Upper Karnali Hydropower Limited (the Generation Company), and Karnali Transmission Company Private Limited (the Transmission Company). World Bank-International Finance Corporation (IFC) also agreed to invest 10 percent share with GMR to develop the 900 MW Upper Karnali hydropower project. IFC agreed to lead fund raising for financial closure, including a total investment outlay of \$1.7 billion. Two writ petitions were filed in the

Supreme Court seeking annulment of the project development agreement signed between the Government of Nepal and GMR-Upper Karnali Hydropower Limited.² The petitioner raised the issues in writ petition and argued that the PDA was signed ignoring the constitutional provision of rectifying treaties on natural resources through parliament. Upper Karnali court case is still in pending in the Supreme Court.

Hydropower export and myth of getting rich

Hydropower has been viewed as the major engine of economic growth and prosperity of Nepal. It is often stated with little understanding that hydroelectricity development will result in the conservation of environment by substituting electricity for fuel-wood, and earning hydro-dollars by exporting electricity to neighboring countries, India and Bangladesh.

In 2008 Unified Communist Party of Nepal- Maoist led Government's finance Minister Dr. Baburam Bhattarai also kept harvest of water resources as a top priority in his ambitious budget. In 2008, he proposed a Rs. 12 billion and 690 million outlay for the power sector, an increase of 113 percent in comparison to the revised figures of the preceding fiscal year. The slogan "*In clean water lies Nepal's power*" was launched with the policy of utilizing the country's water resources for hydropower, irrigation and drinking water with the expectation of building a new Nepal. The main features of a budget was to generate hydropower capacity to the tune of 10,000 MW within 10 years, and irrigate the Terai lands with its vast valleys and fields in the hills through the diversion of major rivers (Budget Speech of Fiscal Year 2008-09, 2008).

Similarly, the current government has highly prioritized export based hydropower, which can be realized in the budget focus on the construction of the 650 MW Tamakoshi III and 600 MW Marsyangdi. The budget has allocated 45.72 billion for the production, transmission and distribution of hydroelectricity, which is a large chunk of budget expenditure. For the timely completion of the existing projects, the government of Nepal has arranged Rs. 2 billion for the Upper Tamakoshi Hydropower Project to be completed within the next 2 years.

The Government has focused on the development of several hydropower projects and issued separate budgets specifically allocated for different projects. (*Budget Speech of Fiscal Year 2015-16*, 2015). Similarly, Hydropower development policy, 2001 states that hydropower is an exportable commodity. Hydropower generation and selling electricity to the neighboring countries, India and Bangladesh has become the center of attraction for earning foreign currency. According to Dixit (2002), the idea of exporting hydroelectricity export is not a new idea. Rather it was considered first in the 19th century, when British India conceptualized the idea of hydropower generation in Nepal for the industrialization of northern India.

In 1966, Dr. Hari Man Shrestha estimated 83,000 MW as the hydropower potential of Nepal. The Government planned for export of energy to India. Similarly, B.G. Varghese, an Indian journalist emphasized on the importance of Nepal's electricity for prosperity of Northern India. The idea of hydropower export got more institutionalized, and as a result, the export oriented strategy was proposed by the then Ministry of Water Resources in 1981. According to the *Water Resources Strategy Nepal* (2002), it is planned that "*..the country will have a total hydropower capacity of 22,000 MW, including 15,000 MW for export, and more than 60% of all households will be provided with electricity...*" (p.xvii).

In October 2014, an agreement was signed between the governments of Nepal and India on Electric power trade, cross-border transmission interconnection and grid connectivity. The agreement was authorized at the secretarial level for the period of 25 years, with a provision of automatic renewal for 10 years. The agreement reads ... "*...the cooperation in cross-border power exchange and trading through enhanced transmission interconnections and grid connectivity...*" for mutual benefit. But hydropower and energy experts and other stakeholders are skeptical on the capability of Nepal to draw benefits from this agreement. It is stated that many hydropower projects are being developed in Nepal and the agreement makes a further case for India to get energy from Nepal, whereas Nepal is not getting the 150 MW of energy that was committed by India. There was a gentleman understanding between the two countries that India will double its energy export to Nepal, i.e. 300 MW, during Indian Prime Minister visit to Nepal. But NEA states that Nepal has not got the said amount of energy yet, and load shedding in Nepal is

² Two writ petitions have been filed at the Supreme Court seeking annulment of the Upper Karnali Project Development Agreement (PDA). In 24 September 2014 first writ was filed by Dambar Bahadur Rawal on behalf of 36 the residents of the project area. Second writ was filed by water activist Ratan Bhandari in 15 February 2015. The petitioners have claimed the PDA was against Nepal's interim constitution, existing Acts and rules and is not in the interest of Nepal and the Nepali people. Both writs are still pending in Supreme Court.

increasingly getting worse. R. S. Shrestha (2014) questions that, if power trade agreement could reduce the energy crisis, then why Electricity Trade Agreement of 1997 could not act?

Most importantly, it is not sure that Nepal would benefit on selling hydroelectricity at its utmost potential. The dilemma validates if we look at the Clause 'a' of Para '3' of letter dated February 12, 1996 exchanged between government of Nepal and India in relation to Mahakali treaty. The clause states that "... *net power benefit shall be assessed on the basis of, inter alia, saving in costs to the beneficiaries as compared with the relevant alternatives available...*" As per the response later dated September 11, 1996 of the then Prime Minister of Nepal to the leader of the then opposition party, Communist Party of Nepal - Unified Marxist and Leninist (CPN-UML), it is interpreted that the provision of relevant alternatives available means, cost of alternatives like Thermal plant, Gas turbine etc. But on the same provision, Iyer (2001) stated that "...two questions would arise: first, what in fact is the 'alternative', and secondly, should the tariff be the same as that of alternative cost? In regard to the first question, there are many possibilities (other hydro-electricity projects, thermal projects, gas based projects, etc.), and thermal generation need not be assumed to be the only alternative available..." (p.40).

Nepal is defined as a least developed country, so external assistance is necessary to exploit its natural resources, especially for the highly investment intensive hydropower sector. The Government of Nepal never got an independent opportunity to decide the use of its water resources. The decisions were highly influenced by donors and investing organizations. Also, decisions are guided by previous bi-lateral agreements, especially by India.³ India is also in need of energy and fresh water from Nepal, and when there is provision favorable to India regarding exploitation of water resources. It is clear that in return for its investments and support, India will demand energy and water for drinking and irrigation.

Similarly, the World Bank (2012) has tried to mislead Nepal to focus on export of hydropower for the economic benefit of the nation. They emphasized that upstream storage contributes very little on the flood control front. The report was highly criticized on ignoring the downstream benefits (irrigation and flood control). The National Planning Commission (NPC) of Nepal formed an 11-member taskforce under the leadership of Secretary of Ministry of Irrigation Ms Brinda Hada Bhattarai to study the report and make suggestions. On July 16, 2012 the study team presented its study report to the NPC stating that the report is against the national interest of Nepal ("World Bank's Reports on High Dams 'Against Nepal's Interest,'" 2012).

Another rumor that captured the public interest is if Nepal does not generate hydroelectricity for export to India than the Indian market for energy will be supplemented by hydropower development in Bhutan, or then India will develop Nuclear power and it will end the dream of Nepal earning foreign currency by selling hydroelectricity (Gyawali, 2010). In reality, the geo-location of Nepal and India is very different from Bhutan and India, and Bhutan can never provide the needs of India, i.e. flood control, irrigation and fresh water along with hydropower (Gyawali, 2010). So, we can say that it is a smart rumor to promote agreements with India. Thus, we can say that the idea of hydropower trade is not home grown, rather it is facilitated by donor agencies, investment needs and a neighbor demanding more than what can be generated, as the leading causes for Nepal to focus on large dams and energy export.

Getting rich on selling hydropower to a neighboring country is misleading. According to H. M. Shrestha (1997), the hydroelectricity generation in Nepal is expensive in comparison to production in India. Most importantly, India is the only client for Nepal's energy and although we target for Bangladeshi, the cooperation from Government of India (Gol) is must as Indian Territory will be needed for transmission, which is not easy to get without promoting the interest of India. Currently, SAARC framework agreement for energy cooperation (electricity) was signed between its member states and the head of every member state welcomed this. The agreement created a space for cross-border grid interconnections and sharing energy, and there are high hopes if Nepal is to dictate the energy tariff rate to India, or trade energy with Bangladesh. SAARC itself is inactive though and India always maintains high influence. Therefore, it will be difficult to successfully execute an agreement without fulfilling the

³ Article (4) of Letter of Exchange of 1950's Nepal-India Peace and Friendship Treaty clearly states that "If the Government of Nepal should decide to seek foreign assistance in regard to the development of the natural resources of, or of any industrial project in Nepal, the Government of Nepal shall give first preference to the Government or the nationals of India, as the case may be, provided that the terms offered by the Government of India or Indian nationals, as the case may be, are not less favourable to Nepal than the terms offered by any other Foreign Government or by other foreign nationals. Nothing in the foregoing provision shall apply to assistance that the Government of Nepal may seek from the United Nations Organisation or any of its specialized agencies. See, Bhasin, A.S. (2005). *Nepal-India, Nepal-China Relations, Documents 1947-2005, Vol. I, Geetika Publishers, New Delhi, 2005 p. 98*

vested interests of India. There is a provision in clause 17, which states that, "...any Member State may withdraw from this Agreement at any time after its entry into force..." and it is not a binding agreement. Thus, India can easily make Nepal sell its entire produced energy at a cheap tariff, or end the dream of hydropower export for earning foreign currency.

Until now energy has been sold to India at a very cheap rate and no one can believe if it is said that Bhutan is earning income on exporting electricity to India. Rather, it will be difficult for Bhutan to payback the loan that was taken from India for the commissioned and under construction projects (Shrestha, 1997). Thus, in such a condition, there is no guarantee that Nepal will get benefit by exporting electricity to its neighbors.

Conclusion

The sustainable harvest of potential natural resources is a must for the betterment of human lives. But the deteriorating lives of those who live in the catchment of the resources for the betterment of people living at a distance is gross injustice. It is true that Nepal has immense water resources from the perspective of drinkable water and hydropower potential in proportion to its population. But Nepal has yet been unsuccessful in using this resource endowment optimally. In the age of globalization and liberalization, international cooperation is a must, but it is only justified when the benefits are equitable. Various national and international actors, including neighbors India have been eyeing Nepal's water resources for different purposes; flood control, irrigation, hydropower, fresh water, and have slowly been initiating projects at different levels. However most of the efforts currently seems discriminatory to Nepal, the sovereign that must remain management control of the resource.

Nepal is economically under developed and has been facing political instability for a long time. Yet, incapability or an instable political scenario does not mean it must agree on lending pre-conditions and inequitable agreements with its neighbors or other funding agencies. Projects being built for exporting electricity from Nepal to India have prompted people to raise the issue of rights to their resources, and to challenge the export of water and energy resources when the country itself faces severe energy and electricity shortages. It is a myopic vision that makes the Nepalese highly dependent on fossil fuels for energy, and continues dreaming of exporting clean energy at a cheap tariff to India. If hydroelectricity is generated to its full capacity, Nepal should use that energy to replace the use of fossil fuel rather than exporting much of it to the neighboring country at a cheap rate. Nepal needs its energy to first and foremost meet its own requirements. The development of these sources should be through projects where Nepal has full authority. Thus, if equitable benefit is not possible for now, then it is highly beneficial for Nepal to promote small and medium scale hydropower development in less restrictive funding scenarios, versus large dam projects with strict conditions against national interest.

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