Minutes of First Stakeholder Meeting in Damauli

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Project: Upper Seti Storage Hydroelectric Project
Venue: Hotel Malla, Lainchaur, Kathmandu, Nepal
Date: June 7, 2006
Time: 9:15 hrs

The first stakeholders' consultation meeting on the proposed upper Seti storage hydroelectric project under the upgrading feasibility study initiated by the JICA study team was held on 7nd June 2006 in Kathmandu. The meeting was attended by about 60 people representing from different sectoral ministries, donor agencies, non-government organizations, members of parliament, and professionals from project area and people from different walks of life (*Annex 1*).

Mr. Satish Chandra Devkota, Economist, Environment and Social Studies Department of Nepal Electricity Authority was the Master of Ceremony. Mr. Devkota invited following guests to take their seat in the dais.

Mr. Bhoj Raj Regmi, General Manager, Engineering Services, NEA (Chairperson)
Mr. Ramchandra Poudel, Member of Parliament, Tanahun (Chief Guest)
Mr. Govinda Raj Joshi, Member of Parliament, Tanahun (Guest)
Mr. Tuk Raj Sigdel, Memebr of Parliament, Tanahun (Guest)
Mr. Amar Raj Kaini, Former Memebr of Parliament, Tanahun (Guest)
Mr. Uttar Kumar Shrestha, Acting Managing Director, NEA
Mr.Shiv Chandra Jha, Director, Environment and Social Studies Department, NEA
Mr. Yoshimasa Ishii, JICA Study Team, Team Leader

The meeting was chaired by Mr. Bhoj Raj Regmi, General Manager, Engineering Services, Nepal Electricity Authority and the chief guest was Mr. Ram Chandra Poudel former Deputy Prime Minister and the Member of Parliament, Tanahun. The meeting proceeded with dissemination of project information and findings of the past studies including environmental impact assessment study conducted by Nepal Electricity Authority and the proposed activities under the upgrading feasibility study to be conducted by the JICA study team followed by deliberations from high dignitaries, open floor discussions, questions and answers with clarification.

Brief account of the deliberation by key persons from the dais is presented below:

Mr. Uttar Kumar Shrestha, Acting Managing Director, Nepal Electricity Authority, is his welcome remarks briefed on the present hydropower generation capacity and informed that 80 percent of the total electricity generation is from hydropower project in Nepal. He highlighted the presently

available electricity quantity and compared with the demand and load shedding situation in the country. Mr. Shrestha pointed that the decrease in the power generation during the dry seasons from run-of-the-river power projects has compelled NEA to think and develop a storage type hydropower project, which could augment the short of supply of electricity during the dry seasons of the year. He also mentioned that after Kulekhani no other hydropower projects are of storage types in Nepal. In this context, the proposed upper Seti storage hydroelectric project seemed to be attractive one. In the year 2001 NEA identified the project and conducted a feasibility study. Based on the study findings, Government of Nepal requested Government of Japan to provide assistance for developing the project in the year 2004. The Government of Japan kindly consent the request of Government of Nepal and initiated upgrading feasibility study of the project through the mobilization JICA study team. He informed that the upgrading feasibility study will be completed by mid of 2007 and hoped that the project will be commissioned in due course of time. Mr. Shrestha is his remarks also pointed out that NEA is very desirous to expand the power distribution by increasing power generation capacity in the country. He advised the study team to incorporate the suggestions made by stakeholders in their study which in his opinion will help to develop a technically feasible, cost effective and socially and environmentally sound project.

Mrs. Annu Rajbhandari, Environmental Engineer, Environment and Social Studies Department, Nepal Electricity Authority presented salient features of the project and environment impact assessment study findings based on the study conducted by Nepal Electricity Authority during the feasibility study phase in 2001. She highlighted on the study area, EIA process adopted, basis of classification of project areas for environmental impact identification and assessment and significant environmental impacts both positive and negative ones to be emerged by the implementation of the project. She categorically briefed on impacts with regard to physical, biological and social, economic and cultural environments and also mentioned on the proposed mitigation measures to minimize and/or to eliminate the environmental impacts. Mrs. Rajbhandari also pointed out on the environmental management plan recommended for implementation by the study during the presentation of the study findings. She assured that the study conducted by NEA in the year 2001 is in compliance with Environmental Protection Act 2053 and corresponding regulations. However she further emphasized on the need for additional in-depth studies with regard to the impacts due to impoundment especially in critically areas and settlements around the reservoir area. Presentation of Annu Rajbhandari is annexed as *Annex 2.*

Mr. Yoshimasa Ishii, JICA Study Team, Team Leader and *Ms. Toshiko Shimada*, Sociologist, JICA Study Team jointly presented the overview of the JICA study and described on the scope of work, objectives and the proposed time period to conduct the upgrading feasibility study of the proposed hydroelectric project. The presenters described on the type of hydroelectric project viz. impoundment and the run-of-the-river type and mentioned on the relative advantages amongst different type of

hydroelectric projects.

During the deliberation Mr. Ishii mentioned on the study conducted by NEA in the year 2001 and the request made by the Government of Nepal to the Government of Japan to carry out upgrading feasibility study. Following the request of Government of Nepal, Government of Japan under the technical assistance of JICA initiated upgrading feasibility study through the mobilization of the study team in 2004. During the study period three numbers of stakeholders' meeting at the local and central levels each shall be conducted by NEA. Mr. Ishii pointed that the objective of the present study is to assess and evaluate the project options in terms of environmental, technical, economic and financial aspects and come up with the best project alternative for implementation. He mentioned that the JICA study will accomplish the study in three different stages with the activities to be undertaken under each of the stages. Three different stages of study include preliminary study stage, detailed investigation stage and upgrading feasibility study stage. Mr. Ishii also mentioned the time period required for the study and the stages to be followed before the initiation of implementation activities under the project. He informed that the present study is scheduled to complete by mid 2007.

Ms. Shimada focused her presentation on the JICA guidelines for environmental and social considerations and provisions of the JICA guidelines. She also briefly mentioned on the objectives, principles and procedures to be adopted for carrying out the studies for the proposed project. Presentations of both experts of the study team are annexed as *Annex 3.*

Mr. Murasire, Project Engineer, JICA Study Team, described on four different alternatives of the project layout considered during the study. The alternatives mainly vary with different configuration of power house, intake structures, penstock, tunnel, tailrace and switchyard. As per the proposition third alternative consists of two options with one option each for the remaining ones. He mentioned that the findings of geological, environmental and hydrological studies will be the basis of comparison to decide the best option project layout. Presentation of Mr. Murasire is annexed as *Annex 4.*

Mr. Jack Procer, Environmentalist and *Ms. Toshiko Shimada*, Sociologist, JICA Study Team presented on details of investigations to be carried out with regard to the natural environment and social environment under the upgrading feasibility of the upper Seti storage hydroelectric project. Both the presenters presented on methodologies of study to be adopted during the accomplishment of the assignment.

Mr. Jack Prosser briefed that the investigation will focus on aspects that help to predict impacts on reservoir water quality, aquatic ecology and fisheries, vegetation and forestry, wildlife resources, topography and land use due to reservoir, downstream impacts of reservoir operations and white-water rafting operations. He also mentioned that the present study includes watershed

management as well. Mr. Procer said that an environmental management and monitoring plan will also be formulated and recommended for implementation. Meanwhile he also mentioned that study will cover initial environmental examination level study on transmission line for a stretch of Damauli to Bharatpur. In addition the study will include a comparative assessment of environmental and social impacts for different alternatives considered during the design of the project.

Ms. Shimada presenting study methodology with regard to social and environmental investigations, mentioned that areas to focus during the period of study include involuntary resettlement, social and cultural aspects, downstream impacts due to release of water and impacts on vulnerable groups. During the period social environmental investigations on transmission line will also be carried out to the extent as mentioned under the natural environment investigations. An environmental management plan will be framed and recommended for implementation. As of the natural environmental investigations, social aspects study will also include a comparative assessment for different alternatives.

Mr. Amar Raj Kaini, Former Member of Parliament, Tanahun, highlighted on the national hydropower generation potential and generated capacity till present. He mentioned on the need to provide electricity facility to the rural inhabitants, which is not being covered yet. Mr. Kaini reiterated on the fact that after the restoration of democracy in 1990, the government provided high priority in infrastructure sector and made significant progress in this regard. But due to political obstruction in the recent years the pace of development was slowed down. In the recent changed context, he was of the opinion that the pace of infrastructure development will again get momentum. Hydropower projects will impart both positive and negative environmental impacts. But the positive environmental impacts will overweigh the negative ones. He suggested the study team to find a combination of project components in such a way that the negative environmental impacts will be kept at minimum level simultaneously by maximizing the positive ones. He further suggested to workout a realistic plan which will not lead for cost and time over run of the project. He assured to provide full support for the implementation of the project. Lastly, Mr. Kaini thanked the organizer for inviting and providing him an opportunity to say few words about the project.

Mr. Tuk Raj Sigdel, Member of Parliament, Tanahun in his deliberation also pointed to the national hydropower generation potential and the generated capacity till date. He cited the electricity load shedding situation and pointed on the importance of early implementation of the proposed project. He said that the feasibility study phase of project preparation is very vital and the study team is required to com up with a realistic plan which emerges minimum degree of variation during the period of implementation of the project. He reiterated to the need of rural electrification and to provide electricity facility to the people residing in rural settlements of the district. Past experience shows that the locals have not been benefited to the extent that could have been provided by the project. He also

suggested interacting with the local people and getting feedback in order to address their concerns and feelings. He also asked the study team to take into account on grazing land, agricultural land and the relocated people and make provision for alternative mitigation measures. Mr. Sigdel pointed on the potential impacts of GLOF, and earthquake to the dam structure and siltation problem in the reservoir also. He also assured full support for the implementation of the project and thanked the organizer for inviting and providing an opportunity to put his ideas and views with regard to project implementation.

Mr. Govinda Raj Joshi, Member of Parliament, Tanahun, expressing his views mentioned that the common people do not understand the feasibility study and other project preparation activities. However they understand project operation in totality. He also highlighted the total power generation potentiality in the country and the present situation of total power generation. Owing to the national power generation capacity, ever increasing electricity demand and uncovered rural area with the facility he commented that the proposed project development will be highly useful in the sector. He emphasized on the need to maximize the benefit to the local people by the project. Mr. Joshi cited examples of the past and on-going hydroelectric projects especially Kaligandaki-A and middle Marsyangdi with cost and time overrun scenarios and requested the study team to conduct detailed study, which ensures minimum and/or no variations during implementation in the proposed project. During the deliberation Mr. Joshi questioned that why we have not been able to generate electricity at low price adopting cheaper alternative means. He also suggested to draw the real benefit to the local people. These are the areas which in his opinion needs further discussion and requested the team to do so during the period of study. Study findings should prove that the alternative chosen is the best and realistic amongst the alternatives considered. He reiterated that the distribution of revenue should not be limited to the paper only. The distributed revenue should be used for meeting the demands of local people. Mr. Joshi also mentioned that only completion of the project will not fulfill our problem. We need to think for equitable distribution as well. The major thrust of the study needs to be laid on formulating a cheap project, which provides maximum benefit to the local people. Mr. Joshi requested the study team and NEA to develop a model project and assured to support on his behalf as a resident and representative of Tanahun. He also thanked the organizer for inviting in the meeting and providing him an opportunity to say something during the meeting.

Ms. Neera Shrestha, Pradhan, Representative from WWF, Kathmandu Office, raised some environmental concerns with regard to project development and operation. As presented before, it's a category A-type dam under the JICA environment guideline. It is denoted that the environmental impacts will not be limited to only socio economic impacts but also the project will impart impacts on biodiversity. The study team is requested to take account seriously on biodiversity especially on fish species and other biodiversity related matters during the study period. She also pointed that WWF is not against development however she opined that both development and environmental concern

should be taken hand-in- hand. She emphasized on the need of implementation of mitigation measures also. She also mentioned to the need to use revenue on environmental management. She expressed best wishes for the successful implementation of the project.

Dr. Jagadish Chandra Pokharel, sharing his experiences, pointed that we the professionals are very good in collecting data and information however we normally do not emphasize on analysis part seriously. He suggested the study team to be equally serious on analysis and interpretation on impacts envisioned due to the implementation of the project. He cited examples on settlement and associated factors with it. Again he requested to review the lessons learned from the past project and incorporate the ones that have been really been fruitful. He emphasized the need for timely compensation to the project affected families and those people who lose their occupation. Dr. Pokharel also suggested the study team to read the audit reports of earlier EIAs that may help to develop realistic EIA report in this project. Focusing of the reservoir area he mentioned that due to fragile geological conditions bank erosion will be significant. He pointed out that Bhimad area seems to be more vulnerable and needs to be addressed especially. He also mentioned to the need of mitigation measures to minimize impacts on migratory fishes as well. Dr. Pokharel also mentioned that the area is very rich in culture. Especially Magar and Bote ethnic groups are very rich culturally and he requested the study team to provide sufficient time to deal in detail in such issues and come up with pragmatic measures in order to minimize the degree of environmental impacts. Dr. Pokharel suggested the study team to treat issues related to children and old aged people separately. He also reiterated to keep the cost at the minimum level as possible. He thanked NEA and JICA study team for inviting him in the meeting and providing an opportunity to express his ideas and views in the meeting. Dr. Pokharel expressed good wishes for successful implementation of the project.

Mr. Satish Chandra Devkota with the permission of the chairperson opened the floor for discussion.

Mr. Reshmi Raj Dhital, Fishery Expert, Fishery Development Office, Balaju, Kathmandu, doubted on the number of fish species reported in the report is low. In his opinion fish species should be more than 32 in numbers and he said that the number of species varies with the change in season. He requested to conduct studies seriously and also pointed to the need of in-depth study as the river stretch belongs to the fish gene-bank. He reiterated that fish hatchery simply will not be enough and he pointed to make provision of regular outlet for fishes in the river.

Mr. Shiva Dhaudel, Representative Ministry of Agriculture and Cooperatives, put his concern on the additional environmental issues raised under the present studies and incorporation of them in the previous EIA study report that is about to get approval from MOEST. He also pointed out that the discussions could have been more fruitful presenting the issues raised by the local stakeholders during the local level consultation meeting by the organizer.

Following the discussion, Mr. Satish Chandra Devkota, master of ceremony with the permission of the chairperson requested to Mrs. Rajbhandari and the members of JICA study team for clarification in issues raised by the participants.

Mrs. Annu Rajbhandari clarified that environmental impact assessment study conducted by NEA is in accordance with the provision of Environmental Protection Act 2053 and corresponding regulation whereas the present study is being undertaken under the provisions of the JICA guidelines. She assured that the comments made on the draft EIA report submitted to MOEST for approval will be incorporated as per the requirements.

Dr. Toran Sharma, Team Leader, Local Consulting Team clarified issues raised with regard to fisheries and relocation of affected households and assured to consider issues raised by the participants during the period of study.

Ms. Toshiko Shimada Sociologist, JICA study team, presented a summary of issues raised at Damauli consultation meeting. She appreciated the issues raised by the participants and assured them to consider during the study.

After clarification on issues raised by the participants, Mr. Devkota invited the chief guest for his deliberation.

Mr. Ram Chandra Poudel, the Chief Guest, Member of Parliament, started his deliberation offering thanks to the organizer for inviting him and providing him an opportunity to say something with regard to the proposed project. Mr. Poudel, in his remarks mentioned that after the political change in the country the situation has changed and everyone needs to be changed. He requested to control the cost on unnecessary items and keep the project cost to the minimum extent. He also assured that there will be no unnecessary demand with the contractor from the local stakeholders during construction period. He pointed that the cost on construction of luxurious residences and procurement of vehicles can be substantially reduced. He further stressed that the quarter could be rented out in stead of constructing for a short period of time.

He said that the proposed dam site is very appropriate for hydropower generation as it is very narrowed with sparse settlements and less agricultural land area. Bhimad Bazaar is the only densely populated area in the project vicinity and needs protection. Mr. Poudel requested the donor to focus study that support to generate hydroelectricity at cheaper rate. During his deliberation he also pointed out the problems of local people that need to consider during the study. For fish protection and development he suggested using Phewa Lake and Madi River. But he cautioned that the destructive

fishing (explosives and electric shocks) needs to control for sustaining fishes in natural water bodies.

Mr. Poudel suggested to maintain transparency and communication with the people and requested the proponent to regularly interact and disseminate study findings and other project related matters to the stakeholders. Any deficiency in transparency and communication, the people will take action to the defaulters. He assured that after the successful completion project personnel will be felicitated nationally as well as locally. He welcomed the donor in their area and assured full support on behalf of the local stakeholders. Mr. Poudel suggested make provision for free flow of vehicular traffic from dam site in order to provide facility of transport and to mitigate effects envisioned due to the inundation of trail bridges presently located at different locations due to impoundment. Lastly he expressed best wishes for the successful implementation of the project and the participants of the meeting.

Mr. Shiva Chandra Jha, Chief Environment and Social Studies Department, Nepal Electricity Authority delivered the vote of thanks to all participants including the chief guest, Members of Parliament, former Member of Parliament, representatives of donor agencies, government agencies, non-government agencies and participants. He informed that the stakeholder meeting is the first and will be followed by two more meetings each at local and central levels in the future. He also thanked for the active participation of the participants and hoped to be continued in the days to come during the project preparation and implementation phases of project development.

Mr. Bhoj Raj Regmi, the Chairperson, General Manager, Engineering Services, Nepal Electricity Authority in his concluding remarks briefed the project background and the need of the project in the present context. Mr. Regmi informed that the upgrading feasibility study of the project will be completed by early next year. He briefly mentioned on the type of the project and the volume of storage reservoir. He described on the type of artificial reservoir and storage capacity. He told that the proposed storage hydropower project is after Kulekhani project which was also built with the assistance of JICA. The total storage capacity of the reservoir will be of 331 million m^3 which greater than the capacity of Kulekhani reservoir (70 million m^3). Mr. Regmi informed that the EIA study report is already submitted to the Ministry of Environment, Science and Technology for approval and is in a process of approval.

Mr. Regmi during his deliberation informed the participants that the JICA study team will prepare the upgrading feasibility study of the project and is scheduled to complete by mid of 2007. He informed that two more consultation meetings each at the field and central level will be conducted during the study period. He expressed the view that the discussions are very useful and assured that the issues raised here in the meeting will be considered by the study team. Mr. Regmi thanked and expressed his gratitude to all the participants for their participation and cooperation extended in the meeting and

hoped the same level of cooperation in days to come. Lastly he extended his sincere gratitude to JICA for providing assistance to conduct upgrading feasibility study of the proposed project.

List of Invited Institutions/Persons of First Stakeholder Meeting

in Kathmandu

List of Invited Institutions/Persons of First Stakeholder Meeting in Kathmandu

S.No.	Name	Address	Number of Participants
1	Ministry of Environment Science and Technology	Singa Durbar	1
2	Ministry of Water Resource	Singa Durbar	1
3	Department of Electricity Development	Anamnagar	1
4	Ministry of Forest and Soil Conservation	Singa Durbar	1
5	Ministry of Agriculture	Singa Durbar	1
6	Ministry of Land Reform	Babarmahal	1
7	Ministry of Women and Social Welfare	Lainchour	1
8	Fisheries Development Directoriate	Balaju	1
9	IUCN	Bakhundol, Lalitpur, Nepal	1
10	Nepal Forum of Environmental Journalist	Thapathali	1
11	Embassy of Japan	Panipokhari, Kathmandu	0
12	JICA	Pulchok, Lalitpur, Nepal	2
13	JBIC	Mr. Krishna Manandhar, Local Representative, JBIC, Kathmandu. Phone No: 98510-42147 (M), 4422667 ®	0
14	ADB	Kamaladi, Kathmandu, Nepal	1
15	The World Bank	Durbar Marga, Kathmandu, Nepal	1
16	Engineering Association of Nepal	Pulchok	1
17	EIA Association of Nepal	SchEMS	1
18	NGO Federation	Buddha Nagar	1
19	Local NGO Representative	Tanahu	1
20	Water Nepal (Ajay Dixit)	Patan	1
21	NAST	Sadhabato	1
22	Radio Sagarmatha	Babarmahal	1
23	The Kathmandu Post	Tinkune	1
24	The Himalaya Times		1
25	The Raising Nepal	New Road	1
26	IMAGE Channel	Singa Durbar	2
27	Kantipur TV	Tinkune	2
28	JICA Study Team		5
29	NESS Consult		5
30	Project Office		5
31	NEA-ESSD		5
32	Planning NEA		1
33	NORAD	Bakhundol, Lalitpur, Nepal	1
34	KfW	New Baneshwor, Kathmandu	0
35	ICIMOD	Sadhabato, Lalitpur, Nepal	1
36	WWF	Maharajung, Kathmandu	1
37	Winrock International	Bakhundol, Lalitpur, Nepal	1
38	Members of the Parliament from Tanahaun District		3
39	Jagidish Chandra Pokhrel	Kupondel Nepal	1
40	Amar Raj Kaini	Former Member of Parlyament from Tanah	1
41	Ram Chandra Pokhrel	FormerChairman of Tanahaun DDC	1
42	Shyam Bahadur Shrestha	General Manager, NEA	1
43	Shyambhu Prasad Upadhaya	General Manager, NEA	1
44	Balaram Shrestha	General Manager, NEA	1
45	Dipak Upadhayay	Deputi Managing Director, NEA	1
46	Ram Prasad Adhikari	Deputi Managing Director, NEA	1
47	Uttar Kumar Shrestha	Acting Managing Director, NEA	1
48	NEA Directors		9
49	NEA Managers		3
50	NEA-Trade Unions		4
51	Mr. Y. Ozaki	JICA Expert for NEA	1
Total Number of Participants			**82**

Participants Registered in the First Stakeholder Meeting

at Kathmandu, June 7, 2006

Participants Registered in the First Stakeholder Meeting at Kathmandu, June 7, 2006

S.NO	Name	Address	Organization	Occupation	Phone No.	Age	Sex
1	Govinda Raj Joshi	Tanahu	M.P	M.P	4419578		M
2	Lok Man Maikey	NEA	NEA	NEA	4246013	57	M
3	Umesh Rauniyar	Koteshwor	The Rising Nepal	Journalist	9841269563	25	M
4	J.N. Pokharel	MOWCSW	MOWCSW	Government service	4219064	50	M
5	Dhruba Upreti		NEA	Assistant Manager	4227398	45	M
6	J.M.Pradhan	NEA Sys Planing	NEA	Director	4228212	55	M
7	Mrigendra Shrestha	NEA	NEA	NEA	4355836	54	M
8	Shyam Bhandari	NEAEU	NEA	Adm. Office	4228212		M
9	S.P. Upadhpyay	NEA Gen	NEA	occupation	4226370	57	M
10	Kanji Usni	JICA	JICA	Advisor		36	M
11	Harak S. Dhami	Shantinagar	NEA	Research	9841224612	33	M
12	Prabin K. Dhungel	NEA/Planning	Corporate Planning	Engineer	4220449	30	M
13	Ram K. Sharma	NESS	NESS	Socio-economist			M
14	Madan Koirala	NESS	NESS	Ecologist	4244989	49	M
15	Tuka Raj Sigdel	Tanahu	M.P	Social worker	5544083	49	M
16	Dr. Jagadish C. Pokhrel	Tanahu	DRMN	Env. Planning	5521663		M
17	H.K Shrestha	NEA	NEA		4225473	47	M
18	S.S. Rajbhandari	NEA	NEA,SRCL	Engineer	4376860	50	M
19	S.K. Pradhan	NEA	NEA, REDTP	Project coordinator(Director)	482573	55	M
20	R.K. Sharma	NEA	NEA				M
21	V.B.Singh	NEA	NEA/PDD	Chief	4370432	54	M
22	Ganesh Pd. Neupane	Samakhusi	NEA	Job	4231845	35	M
23	Satis Chandra Devkota	NEA-ESSD	NEA	job	4226730	34	M
24	Rajeshwor Sulpy	NEA-PTD	NEA	Service	4228128	49	M
25	Dr. Jivendra Jha	NEA	NEA	Service	4227039	55	M
26	Kumar K.C	Lazimpat	Image Channel	Cameraman	4433141	21	M
27	Shankar R. Pandey		KFW	Rep.	5523228		M
28	Radhesh M. Pradhananga	NEA	NEA	Engineer	4248851	53	M
29	Ram Chandra Poudel		M.P	M.P			M
30	Rajan Baral	FIT Nepal	FIT Nepal	Engineer	2030399	24	M
31	Sunil Dhoubadel		Ministry of Agriculture	Agri-economist	4226050	32	M
32	B.R Regmi	NEA	NEA				M
33	Jagadish	TAnahu			4361644		M
34	Akio Kunahara	JICA Study Team	JICA Study team	Engineer		31	M
35	Jack Prosser	JICA Study Team	JICA Study team	Environmentalist		67	M
36	Toshiko Shimada	JICA Study Team	JICA Study team	Social Development		35	F
37	Sourab Rana	KTM Panipokhari,	JICA Nepal	Program Officer	5552711	36	M
38	Amar Raj Kaini	KTM Panipokhari,	NC(D)	Central C. Member	4452119	56	M
39	Rabindra C	NEA Env. Dept	NEA	Dep Manager	4226730	39	M
40	Thakur Raj Pandey	NEA	NEA	Director	4445642	55	M
41	Shiv Chandra Jha	NEA, ESSD	NEA	Engineer	4226730	53	M
42	R.P. Adhikari	NEA	NEA	DMD	4264779	57	M
43	Y. Ozaki	NEA	JICA Expert		4229648	54	M
44	Shahid Parwez	ADB, KTM	ADB	Economist	4227779	32	M
45	Hari Krisna s	union Democratic	NEA	Service	9841303422	39	M
46	Bikash Sangraula	Kathmandu	The Kathmandu Post	Journalist	4480100	28	M
47	Anu Rajbhandari	NEA	NEA	Engineer	9851033933	44	F
48	Neera S. Pradhan	WWF, Baluwatar	WWF	Fresh Water Officer	4434820	35	F
49	Resham Raj Dhital	Directorate of Fisher	Govt. of Nepal	Chief Prog.	4350662	54	M
50	Shreesti Shakya	Lazimpat	Image Channel	Reporter	4412283	24	F
51	Birendra K. Pathak	NEA,KTM	NEA	Director	4225321	48	M
52	Hiroshi Murasige	JICA Study Team	JICA Study team	Engineer		46	M
53	Hironobu Nishimiya	JICA Study Team	JICA Study team	Engineer		40	M
54	Yoshimasa Ishii	JICA Study Team	JICA Study team	Engineer		53	M
55	T. Sharma	NESS	NESS	Env. Manager	4244989	52	M
56	Arjun Paudel	NESS	NESS	Environmentalist			M

Program Schedule of First Stakeholder Meeting in Kathmandu

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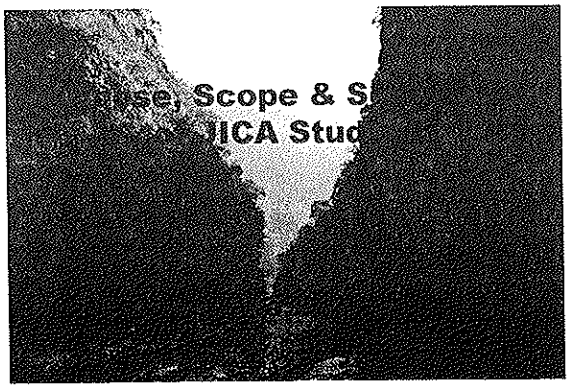
- ✧ Chairperson: Managing Director, NEA
- ✧ Master of Ceremony: Mr. Satis Chandra Devkota (NEA staff member)

No.	Time	Hrs	Events	Presenters
	8:30-9:00	0:30	Registration /Tea	
1	9:00-9:15	0:15	Opening address & Background of the Project	NEA
2	9:15-9:30	0:15	Review of EIA conducted by NEA	NEA
3	9:30-9:45	0:15	Overview of the JICA Study (Upgrading Feasibility Study)	JICA Study Team
4	9:45-10:05	0:20	Project Layout under the JICA Study	JICA Study Team
5	10:05-10:25	0:20	EIA Scoping and issues under the JICA Study	JICA Study Team
6	10:25-11:05	0:40	Comments from MOWR, MoEST, MoFSC, DoED and donor agencies	—
7	11:05-12:05	1:00	Discussion	—
8	12:05-12:20	0:15	Vote of thanks	NEA
9	12:20-12:30	0:10	Closing remarks	NEA
10	12:30-13:30	1:00	Lunch	

Presentation Material in Kathmandu

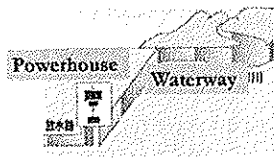


se, Scope & S
JICA Stud

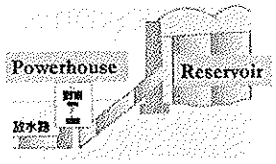
Type of Hydropower Plant

- Need Storage Hydropower Plant for Stable Power Supply in Dry Season
- In Dry Season, Run-off-River Type Hydropower Plants Decrease Generation Capacity

Type of Hydropower Plant



Run-off-River Type



Storage Type

NEA & JICA Study

NEA: Feasibility Study in July 2001
Upgrading F/S in July 2004

Nepalese Gov. —Request→ Japanese Gov.
Technical Assistance by JICA

Stakeholder Meeting: 3 times by NEA with assistance of JICA Team

Purpose of Study

Regarding Upper Seti Hydroelectric Project

- Formulate the optimum plan
- Assess its environmental, technical, economical and financial viabilities

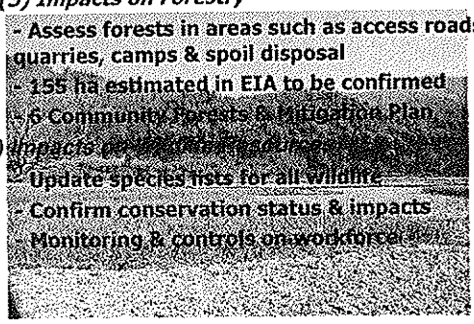
Scope of Study

JICA Study consists the three stage

- Preliminary Study Stage
- Detailed Investigation Stage
- Upgrading Feasibility Design Stage

Forestry & Wildlife

(3) Impacts on Forestry



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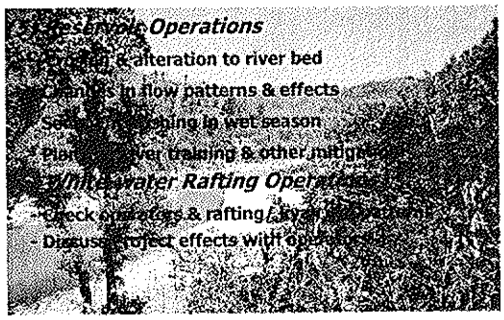
Downstream Impacts



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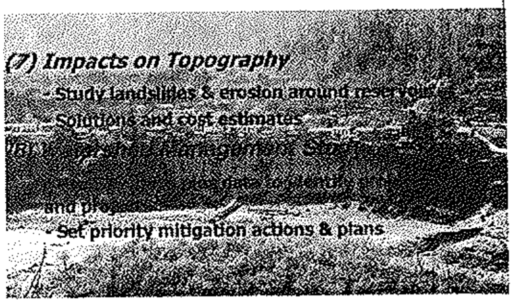
Impacts on Topography & Watershed Management Study



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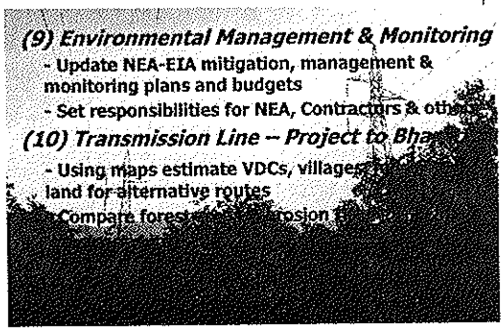
EMMP & Transmission Line



10

Compare Alternatives- JICA

(11) Comparison of Environmental and Social Impacts of Project Alternatives

- Compare Without Project & Thermal Options
- Compare 5 Alternative layouts via Table as to effects on local natural & social environments
- Emphasize any reservoir erosion and operational period problems eg backwater effects
- Try to minimize & mitigate problems

11

Social Impacts to be assessed under the JICA Study

12

Possibly Affected Household

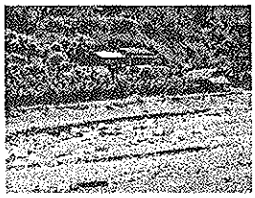
NEA EIA based on field survey in 2001

- 45 houses in Bhimad, Chhan, Jamunem Majhkot, Ranipokahri will be relocated, and 917 ha of land will be acquired.

JICA Study in 2006 will investigate

✓How many and which households will be affected?

✓How much the land will be acquired?



JICA Study in 2006 will prepare

✓The framework of **Resettlement Action Plan including mitigation measures**

Possible Loss of Arable Land

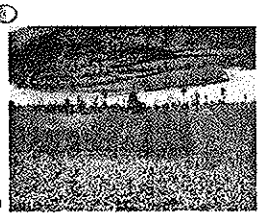
NEA EIA based on field survey in 2001

- 162 ha of arable land will be affected.
- The total lost crop production per annum will be 769 tones.

JICA Study in 2006 will investigate

✓How much arable land will be affected?

✓How much crop production will be lost?



JICA Study in 2006 will prepare

✓The framework of **Resettlement Action Plan including mitigation measures**

Possible Loss of Livelihood of Fishermen

NEA EIA based on field survey in 2001

- The livelihood and income of farmers/fishermen families, namely Bhote and Kami living around the riverside villages will be affected.

JICA Study in 2006 will investigate

✓How many fishermen families will be affected?

✓How much the livelihood of fishermen families will be lost?

JICA Study in 2006 will prepare

✓The framework of **Social Action Plan including mitigation measures**

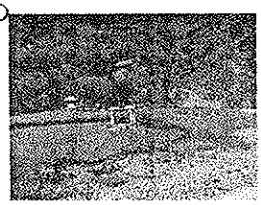
Possibly Affected Religious, Historical and Archeological Sites

NEA EIA based on field survey in 2001

- One small temple on the right bank of Seti River near Bhimad bazzar and three cremation site will be inundated.

JICA Study in 2006 will investigate

✓How much temples and cremation sites will be affected?



JICA Study in 2006 will prepare

✓The framework of **Social Action Plan including mitigation measures**

Possibly Affected Infrastructure

NEA EIA based on field survey in 2001

- Four suspension bridges in Jamune and Chan VDC will be submerged.
- Access tracks to the main highway will be affected.

JICA Study in 2006 will investigate

✓What types of infrastructure will be affected?

✓How many infrastructure will be affected?

JICA Study in 2006 will prepare

✓The framework of **Social Action Plan including mitigation measures**

Construction Impact and Vulnerable Groups

NEA EIA based on field survey in 2001

- HIV/AIDS and other infectious disease are possible impacts of the construction with the influx of workers
- New opportunities may be found in the influx of workers.

JICA Study in 2006 will investigate

✓What will the influx of a large number of workers adversely bring about? (e.g. spread of infectious disease, trafficking, child labors,etc)

✓What type of opportunities will be created?

JICA Study in 2006 will prepare

✓The framework of **Social Action Plan including mitigation measures**

Scope of Study

Preliminary Study Stage

1. Review of existing data & information
2. Preparation of plan on detailed field survey by JICA Team to supplement NEA's investigations

Scope of JICA Study

- Detailed Investigation Stage

1. Field investigations by JICA Team (Mapping, Geology & Environment)
2. Data analysis on investigation results
3. Environmental impact assessment

Scope of JICA Study

- Upgrading Feasibility Design Stage

1. Optimization of development scheme and layout
2. Upgrading feasibility design
3. Project cost estimation
4. Economic & financial analysis
5. Conclusions & Recommendations Including justification of the Project & environmental mitigation measures.

Schedule of Study

Study: started in February 2005
completed in June 2007

Present progress:
Started field investigations by JICA Study Team
(Detailed investigation Stage)

Project Stage:
JICA Study ➡ Detailed Design ➡ Bidding ➡ Construction ➡ Operation

JICA Guidelines for Environmental and Social Considerations

Objectives

- Encourage **the recipient governments** to take appropriate considerations of environmental and social factors
- Incorporate the appropriate environmental and social considerations into **JICA's cooperation** such as *Development Studies, Technical Cooperation Projects, Preliminary Studies of Grant Aid Projects*

JICA Guidelines for Environmental and Social Considerations

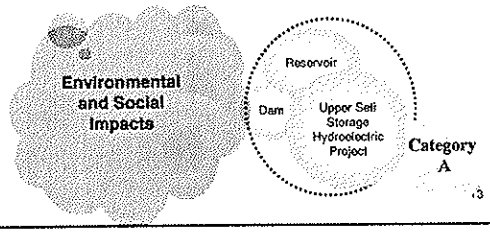
Key Principles

- Consider a **wide range** of environmental and social impacts
- Address environmental and social factors at **early stage** of projects
- Ensure **accountability** and **transparency**
- Involve **stakeholders**
- Disclose **information on environmental and social considerations**

JICA Guidelines for Environmental and Social Considerations

Category A project

- **Dam and Reservoir Projects in the Hydropower** Sector are given "Category A" status.
- Category A projects are likely to have **significant adverse impacts on the environment and society.**



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JICA Guidelines for Environmental and Social Considerations

Category A

Procedures

1. Prepare draft **EIA scoping**
2. Consult with **local stakeholders regarding draft EIA scoping**
3. Incorporate the feedback into draft EIA scoping and conduct **EIA-level environmental and social studies**
4. Consult with **local stakeholders regarding the results of studies**
5. Incorporate the feedback into the results of studies and prepare the **draft final report**
6. Consult with **local stakeholders regarding the draft final report**
7. Incorporate the feedback and prepare the **final report**
8. Disclose the **final report**

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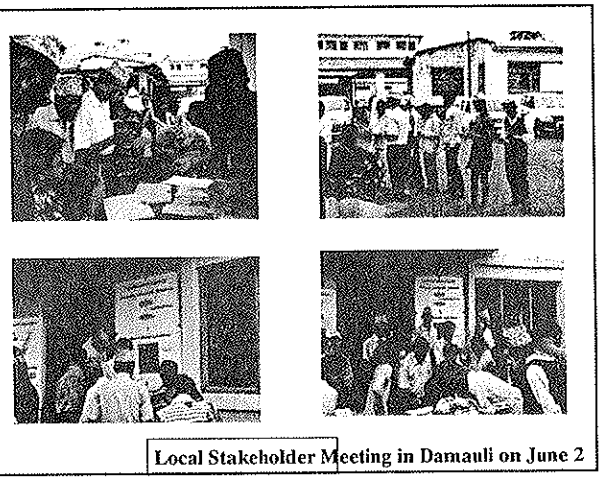
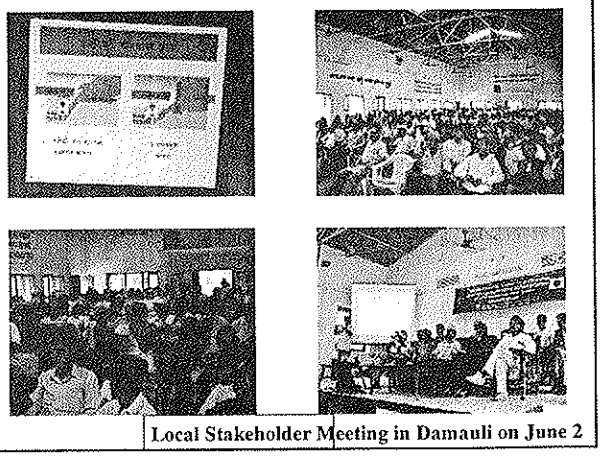
Overview of Stakeholder Meetings

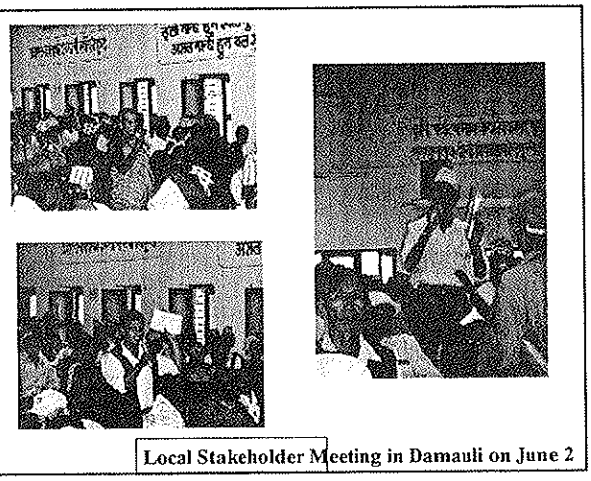
	Tentative Schedule	Venue	Prospective Participants (Number of Participants)		Tentative Main Agenda
①	June-2 Jesth 19	Damauli	Local People Local government Line agencies NGOs/CBOs	(200	•Background, objective, scope and schedule of the Study •Project Layout •JICA guidelines for environmental and social consideration •EIA scoping and issues
	June 7 Jesth 24	Kathmandu	Central government Intellectuals Donor agencies	(50)	
②	November	Damauli	Local People Local government Line agencies NGOs/CBOs	(200	•Necessity of the Project •Examination of alternatives •Layout and scale of the Project •Natural and social environment assessment •Environment management and resettlement plan
	November 2006	Kathmandu	Central government Intellectuals Donor agencies	(50)	
③	February 2007	Damauli	Local People Local government Line agencies NGOs/CBOs	(200	•Preliminary design •Implementation schedule •Project cost and economic analysis •Environmental management and monitoring plans •Resettlement plans •Compensation for the land acquisition
	February 2007	Kathmandu	Central government Intellectuals Donor agencies	(50)	



Local Stakeholder Meeting in Damauli on June 2



Local Stakeholder Meeting in Damauli on June 2

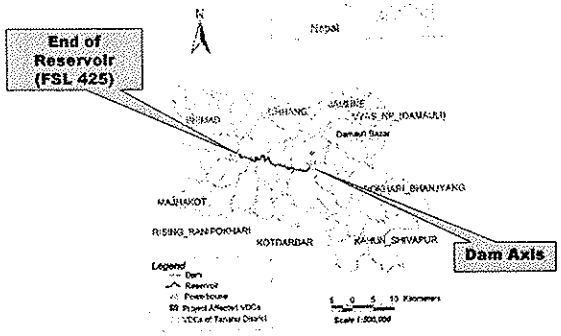


Local Stakeholder Meeting in Damauli on June 2

Lay-Out Study

PROJECT LOCATION

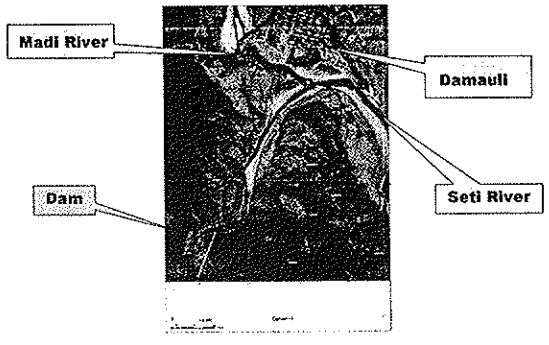
Reservoir Area



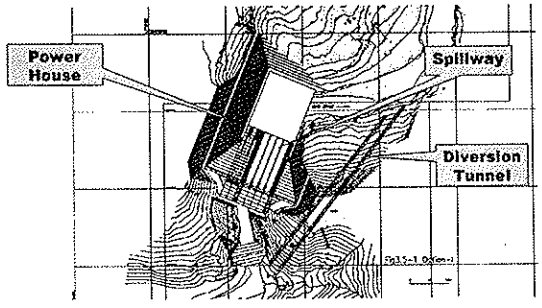
Keys of Layout Options

- **Option-I : P/S embeded in Dam**
- **Option-II : Dam and Waterway with Underground type P/H**
- **Option-III a : Same as Op-II. Tailrace location is more downstream.**
- **Option-III b : Another waterway route from Op-III a.**
- **Option-IV : P/H is located left embankment**

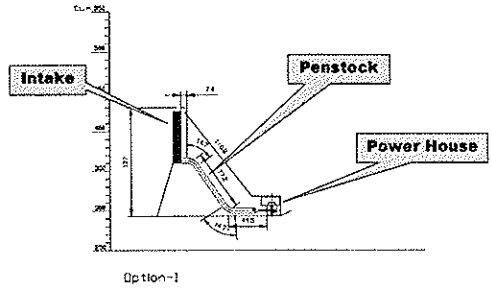
Option-I Birds' eye-View



Option-I General Plan



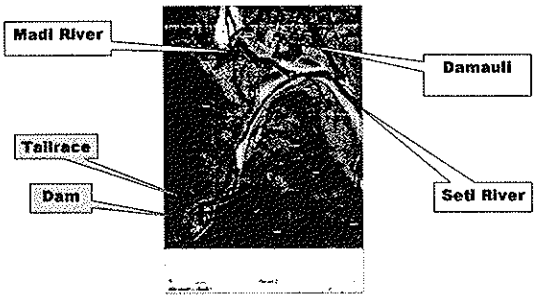
Option-I Vertical Section



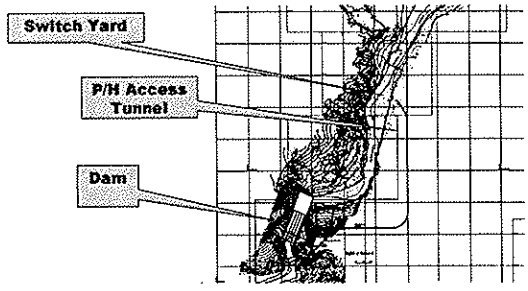
Dam-site from Upstream

Same as Other Options

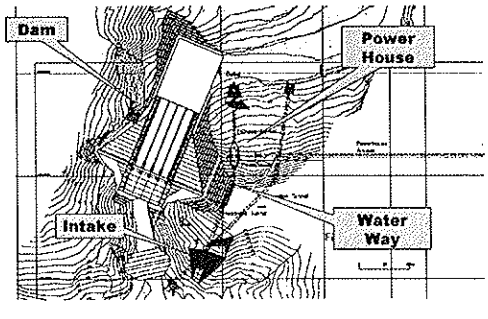
Option-II Birds' eye-View



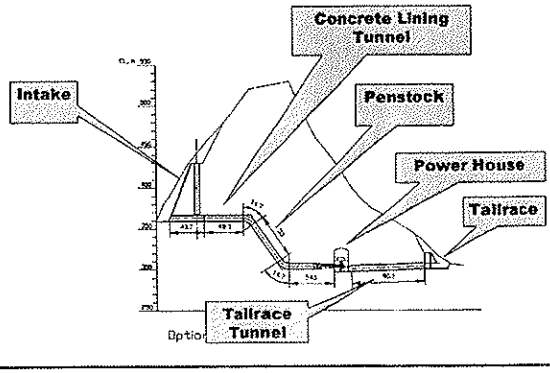
Option-II General Plan



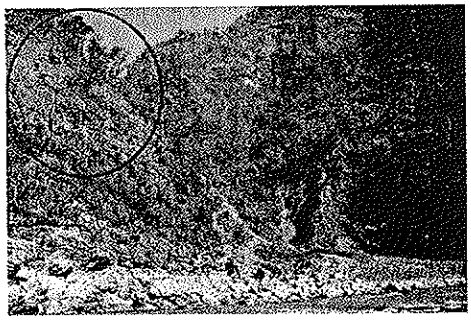
Option-II General Plan 2



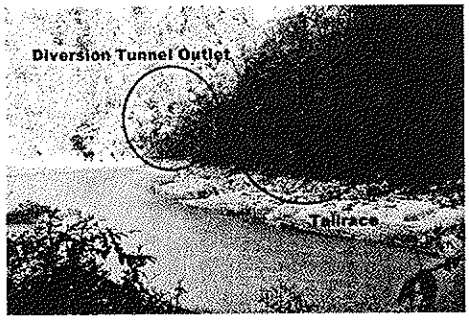
Option -II Vertical Section



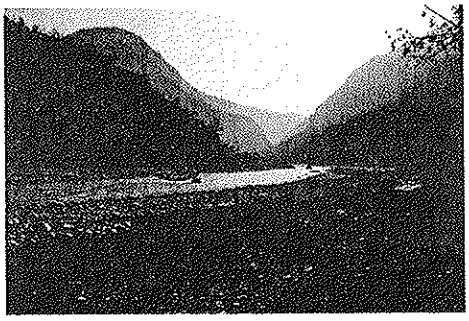
Intake site (Intake of Option-II)



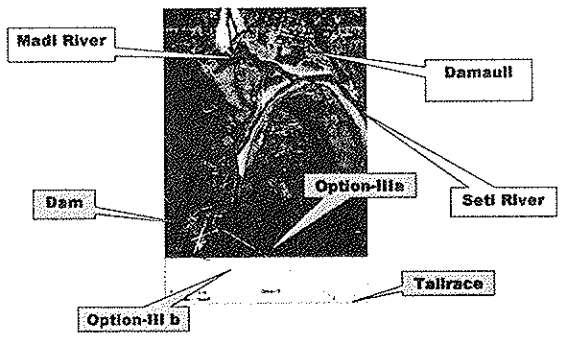
Tailrace Site Area



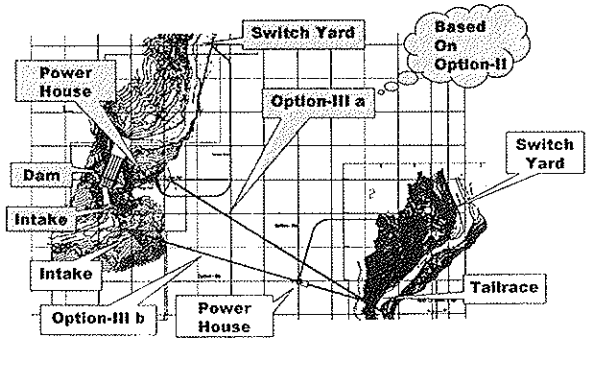
Proposed site for Switchyard and Access tunnel entrance



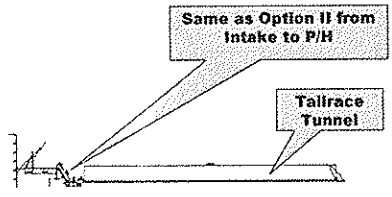
Option-III Birds' eye-View



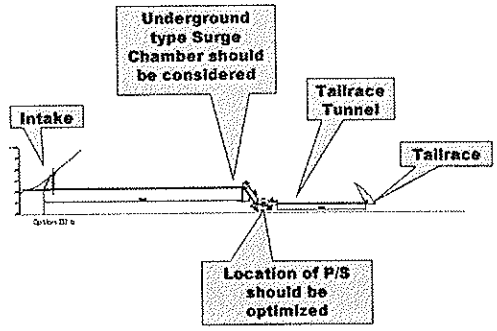
Option-III General Plan



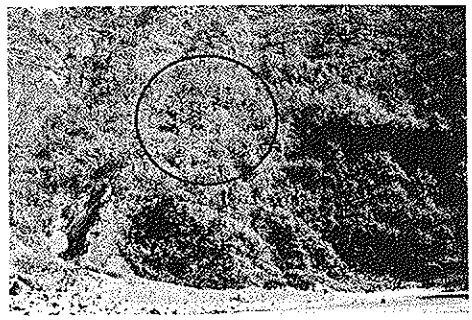
Option-III a Vertical Section



Option-III b Vertical Section

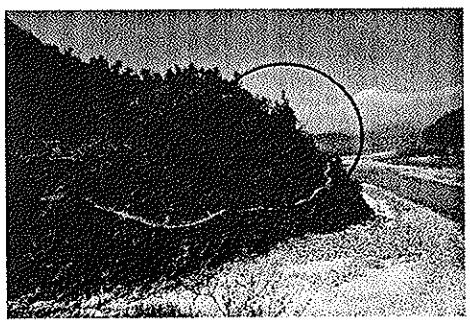


Intake site for Option-III b

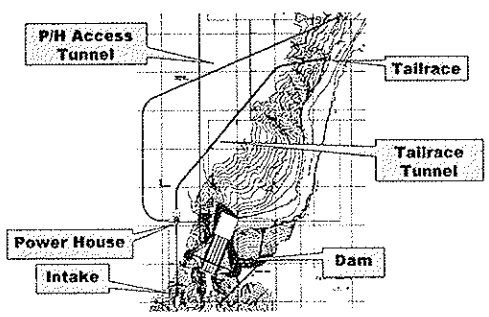


Tailrace Site for Option III b

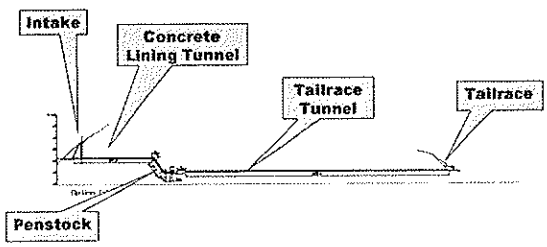
Switch Yard and Access Tunnel Entrance Site for Option III b



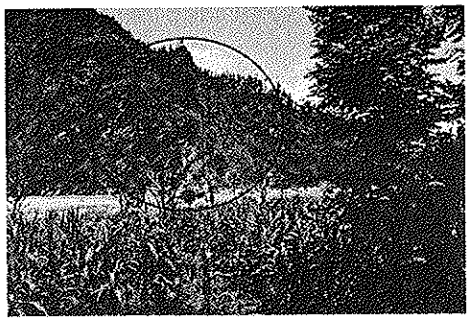
Option-IV General Plan



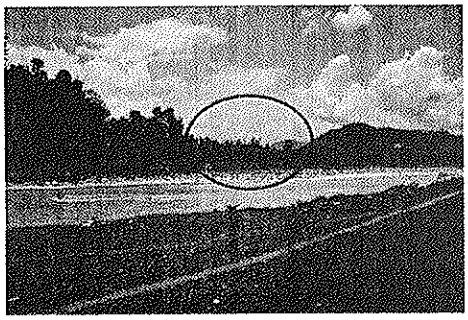
Option-IV Vertical Section



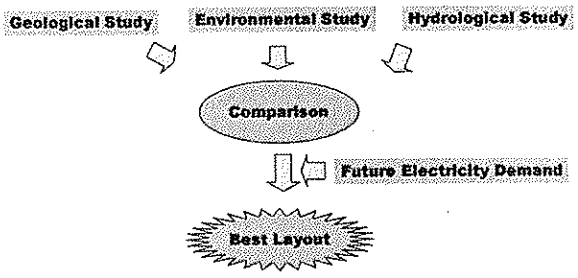
Option-IV Tailrace Site



Option-IV Switch Yard Site



How to decide Layout?



Natural Environmental Investigations

— Draft EIA Scoping under the JICA Study —

GIS Survey & Maps

Watershed and Reservoir Areas

Item	Watershed Area	Reservoir & Works Area - Detailed
Uses of GIS	· Assess conditions of watershed · Basis of watershed management plan · Basis of environmental management & monitoring plans	· Assess forestry and habitats · Assess resource conditions on reservoir margins · Social impact assessments of different reservoir levels · Assessing land losses by land use · Target areas for resettlement sites and prepare basic plans
Coverage area	1,502 km²	150 km² (3 km x 40 km)
Map scale	1:25,000	1:5,000
Satellite images	ASTER	QuickBird
Other maps	· Existing 1:25,000 topographical maps · Geology and soil maps · Forestry & vegetation/ forest maps · Rivers, lakes and stream maps · Land use maps · Erosion hazard maps · Transport infrastructure maps	Cadastral maps
GIS data layers to use analyses	Land use, 20 m contour lines, barren lands, land slides & collapses, glaciers	Land use, 5 m contour lines, rivers and streams, houses, suspension bridges, roads and tracks, other infrastructures & products
GIS data layers other information	Administrative boundaries, villages, roads, rivers lakes, soil classification	Cadastral data, VDC and ward boundaries, local roads rivers & stream names, villages and other location names existing and proposed infrastructure including project

Examples of Images

Example of Air Photo

1:25,000 Watershed Map

Natural Environment Investigations

- Based on existing EIA Report, discussions with NEA counterparts and JICA Scoping for Supplementary Environmental Surveys will include :

(1) Impacts on Reservoir Water Quality

- **Collect existing water quality data**
- **Additional sampling in rainy season (August) and dry season (October) at four (4) locations**
- **Study effects on groundwater in reservoir area**
- **Vollenweider Model (or other) for dilution**
- **Compare existing and projected water quality**

Natural Environment Investigations

(2) Impacts on Aquatic Ecology and Fisheries

- Review of existing EIA
- Additional sampling in rainy season (August) and dry season (October) in reservoir area and upstream and downstream
- Re-evaluate benthic organisms & crustacean fauna
- Assess local fishermen's present use & future options
- Collect data from KGA Project & Begnas Fisheries Research Station (BFRS)
- Revise plans for reservoir fisheries based on catch & transfer, hatchery, nursery, catch, storage, culture, and institutional strengthening including local Bhote, Kami, Kumar etc

Possible [illegible]

Natural Environment Investigations

(3)Impacts on Vegetation and Forestry

- **Confirm existing data and distribution of forests**
- **Assess vegetation and forest types in ancillary areas such as access roads, borrow and quarry areas, tailrace outlet, NEA and Contractor camps and spoil disposal areas**
- **Confirm status & extent of [illegible] including 155 ha of forest area estimated in EIA**
- **Confirm status & owners of 6 Community Forests**
- **Revise estimates of forest losses and mitigation plans, including salvage of forest resources and non-timber forest products (NTFP)**
- **Document mitigation for protection of forests**

Natural Environment Investigations

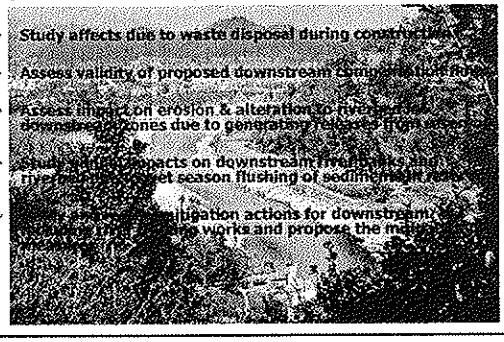
(4) Impacts on Wildlife Resources

- Undertake research & investigations into riverine species such as birds, amphibians, reptiles & mammals (e.g. otters)
- Update the wildlife descriptions of existing EIA
- Evaluate associated terrestrial wildlife habitats
- Potential impacts of the Project confirming species and extent of impacts, giving due recognition to their conservation & protected status – CITES & IUCN Redlist
- Revise and document appropriate mitigation and monitoring plans for all wildlife resources
- Emphasize control measures needed for Contractor's employees to protect wildlife resources

Natural Environment Investigations

(5) Downstream Impacts of Reservoir Operations

- Study affects due to waste disposal during construction
- Assess validity of proposed downstream
- Assess impact on erosion & alteration to riverine downstream zones due to generation releases from
- Study water impacts on downstream fresh
- Assess mitigation actions for downstream works and propose the



Natural Environment Investigations

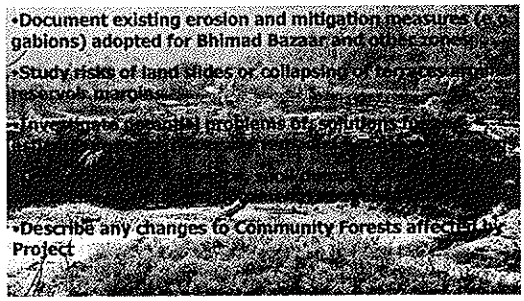
(6) White-water Rafting Operations

- **Confirm the exact number of operators and patterns for affected sector of Seti River**
- **Specify differences in use of Seti River downstream of Damauli to Devighat and any use of Project area**
- **Inform the operators for the proposed stakeholders meetings**
- **Discuss any mitigation measures with Nepal River Conservation Trust (NRCT), which is the "white-water rafting organization" and others**

Natural Environment Investigations

(7) Impacts on Topography & Land Use due to Reservoir

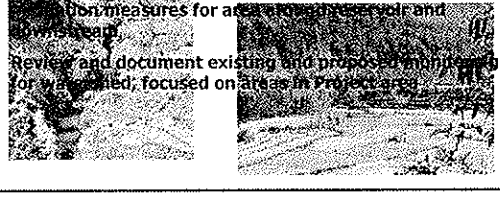
- Document existing erosion and mitigation measures (e.g. gabions) adopted for Bhimad Bazaar and other zones
- Study risks of land slides or collapsing of terraces and hillside margins
- Investigate potential problems of solutions
- Describe any changes to Community Forests affected by Project



Natural Environment Investigations

(8) Watershed Management Study

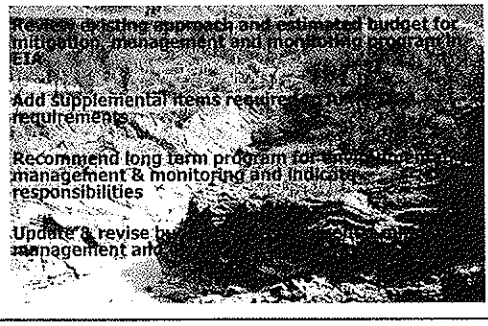
- Investigate overall features of the Seti River watershed using GIS maps and other data (e.g. Annapurna Conservation Area)
- Identify ecologically sensitive area and prioritize these
- Investigate and document appropriate protection and mitigation measures for areas around reservoir and downstream
- Review and document existing and proposed watershed management for watershed, focused on areas in Project area



Natural Environment Investigations

(9) Environmental Management & Monitoring

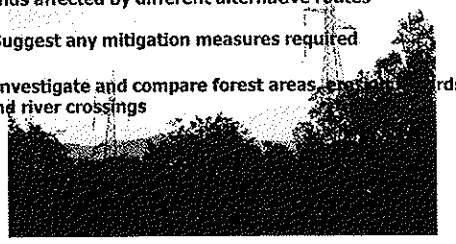
- Review existing approach and estimated budget for mitigation, management and monitoring programs in EIA
- Add supplemental items required to meet requirements
- Recommend long term program for environmental management & monitoring and indicate responsibilities
- Update & revise budget for environmental management and



Natural Environment Investigations

(10) Transmission Line -Initial Environmental Evaluation

- Estimate numbers of VDCs, villages, households and lands affected by different alternative routes
- Suggest any mitigation measures required
- Investigate and compare forest areas, [illegible]rds and river crossings



Natural Environment Investigations

(11) JICA Guidelines – Comparison of Environmental & Social Impacts of Alternatives

- Examine the "Without the Project" and the "Thermal Option"
- Compare five (5) alternatives of layout and comment on preferred alternative
- Compare main natural environmental effects
- Compare numbers of affected households with various options and related main social effects
- Review and highlight all social impacts of reservoir erosion and any "backwater effects"

Social and Environmental Investigations

—Draft EIA Scoping under the JICA Study—

1

Social Environmental Investigations

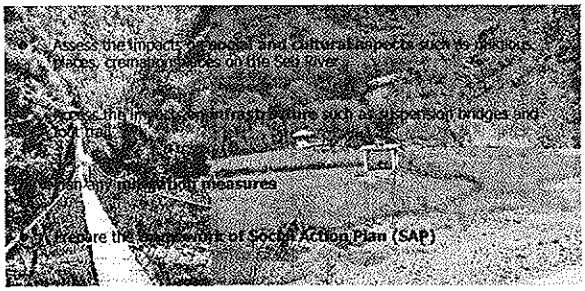
1 Involuntary resettlement

- Estimate **Affected Persons (AP)** in detail by using GIS data based on 1/5000 scale digitized map
- Undertake field surveys regarding the **socioeconomic status of AP**
- Study **compensation for resettlement effects** including specification of houses, assets, area of land, infrastructure and livelihood
- Suggest **candidate resettlement areas** based on GIS study and field surveys
- Refer to **ADB policy on Involuntary Resettlement and other relevant cases of resettlement** in Hydro Electric projects and other projects of Nepal
- Prepare the **framework of Resettlement Action Plan (RAP)'s program** in accordance with JICA guidelines

2

Social Environmental Investigations

2 Impacts on Social and Cultural Aspects



- Assess the impacts on social and cultural aspects such as religious places, cremation places on the Seti river
- Propose the improvement measures such as suspension bridges and footpaths
- Propose any mitigation measures
- Prepare the framework of Social Action Plan (SAP)

3

Social Environmental Investigations

3 Impacts on Vulnerable Groups

- Assess the adverse impacts of construction with the influx of workers on **vulnerable groups - Dalits, ethnic minorities, women and children.** The adverse impacts include girls trafficking/prostitution, child exploitation, communicable disease and so on.
- Assess the **new opportunities** such as new employment and business opportunities
- Plan **mitigation actions** for these vulnerable groups
- Prepare the **Social Action Plan (SAP)** considering the necessary requirements of such an Ethnic Minorities Development Plan (EMDP)

4

Social Environmental Investigations

4 Downstream Impacts due to Release of the Water

- Assess the impacts of **the downstream area due to discharges** during peaking operations of power generation
- Confirm **any impacts on the Damauli Municipality population** living near the Seti River bank
- Confirm the **impacts on the white-water rafting and kayaking business**
- Suggest the **mitigation measures** such as a siren warning system, fencing, or appropriate community action programs, if required

5

Social Environmental Investigations

5 Transmission Line Route

- Undertake **Initial Environmental Examination**
- Estimate **numbers of VDCs, households and lands** affected by different alternative routes
- Suggest any **mitigation measures** required

6

Social Environmental Investigations

Framework Environmental Management Plan (EMP)

- Summarize **the natural and social environmental impacts** of the Project based on the review of existing EIA and the findings of the Study
- Revise **mitigation and enhancement measures** for natural and social environmental impacts including estimated budget
- Revise and update **the environmental monitoring plan** on natural and social environmental impacts
- Clarify **the roles and responsibility of proposed "Upper Seti Environment Unit"** to implement the environment management plan
- Prepare **the framework of the Environmental Management Plan (EMP)** including updates of the Project

Social Environmental Investigations

Comparison of Social Impacts of Alternatives

- Examine **the Without Project** and **the Thermal Power Generation Option**
- Compare **five alternatives of layout and scale of operations, full supply levels** and comment on **preferred alternative**
- Compare **numbers of affected households with various options and related main social effects**
- Review and highlight **all social impacts of reservoir erosion and back water effects**

Thank you very much!

Minutes of First Stakeholder Meeting in Kathmandu

Minutes of First Stakeholder Meeting in Kathmandu

Project: Upper Seti Storage Hydroelectric Project
Venue: Hotel Malla, Lainchaur, Kathmandu, Nepal
Date: June 7, 2006
Time: 9:15 hrs

The first stakeholders' consultation meeting on the proposed upper Seti storage hydroelectric project under the upgrading feasibility study initiated by the JICA study team was held on 7nd June 2006 in Kathmandu. The meeting was attended by about 60 people representing from different sectoral ministries, donor agencies, non-government organizations, members of parliament, and professionals from project area and people from different walks of life (*Annex 1*).

Mr. Satish Chandra Devkota, Economist, Environment and Social Studies Department of Nepal Electricity Authority was the Master of Ceremony. Mr. Devkota invited following guests to take their seat in the dais.

Mr. Bhoj Raj Regmi, General Manager, Engineering Services, NEA (Chairperson)
Mr. Ramchandra Poudel, Member of Parliament, Tanahun (Chief Guest)
Mr. Govinda Raj Joshi, Member of Parliament, Tanahun (Guest)
Mr. Tuk Raj Sigdel, Memebr of Parliament, Tanahun (Guest)
Mr. Amar Raj Kaini, Former Memebr of Parliament, Tanahun (Guest)
Mr. Uttar Kumar Shrestha, Acting Managing Director, NEA
Mr.Shiv Chandra Jha, Director, Environment and Social Studies Department, NEA
Mr. Yoshimasa Ishii, JICA Study Team, Team Leader

The meeting was chaired by Mr. Bhoj Raj Regmi, General Manager, Engineering Services, Nepal Electricity Authority and the chief guest was Mr. Ram Chandra Poudel former Deputy Prime Minister and the Member of Parliament, Tanahun. The meeting proceeded with dissemination of project information and findings of the past studies including environmental impact assessment study conducted by Nepal Electricity Authority and the proposed activities under the upgrading feasibility study to be conducted by the JICA study team followed by deliberations from high dignitaries, open floor discussions, questions and answers with clarification.

Brief account of the deliberation by key persons from the dais is presented below:

Mr. Uttar Kumar Shrestha, Acting Managing Director, Nepal Electricity Authority, is his welcome remarks briefed on the present hydropower generation capacity and informed that 80 percent of the total electricity generation is from hydropower project in Nepal. He highlighted the presently available electricity quantity and compared with the demand and load shedding situation in the country. Mr. Shrestha pointed that the decrease in the power generation during the dry seasons from run-of-the-river power projects has compelled NEA to think and develop a storage type hydropower project, which could augment the short of supply of electricity during the dry seasons of the year. He also

mentioned that after Kulekhani no other hydropower projects are of storage types in Nepal. In this context, the proposed upper Seti storage hydroelectric project seemed to be attractive one. In the year 2001 NEA identified the project and conducted a feasibility study. Based on the study findings, Government of Nepal requested Government of Japan to provide assistance for developing the project in the year 2004. The Government of Japan kindly consent the request of Government of Nepal and initiated upgrading feasibility study of the project through the mobilization JICA study team. He informed that the upgrading feasibility study will be completed by mid of 2007 and hoped that the project will be commissioned in due course of time. Mr. Shrestha is his remarks also pointed out that NEA is very desirous to expand the power distribution by increasing power generation capacity in the country. He advised the study team to incorporate the suggestions made by stakeholders in their study which in his opinion will help to develop a technically feasible, cost effective and socially and environmentally sound project.

Mrs. Annu Rajbhandari, Environmental Engineer, Environment and Social Studies Department, Nepal Electricity Authority presented salient features of the project and environment impact assessment study findings based on the study conducted by Nepal Electricity Authority during the feasibility study phase in 2001. She highlighted on the study area, EIA process adopted, basis of classification of project areas for environmental impact identification and assessment and significant environmental impacts both positive and negative ones to be emerged by the implementation of the project. She categorically briefed on impacts with regard to physical, biological and social, economic and cultural environments and also mentioned on the proposed mitigation measures to minimize and/or to eliminate the environmental impacts. Mrs. Rajbhandari also pointed out on the environmental management plan recommended for implementation by the study during the presentation of the study findings. She assured that the study conducted by NEA in the year 2001 is in compliance with Environmental Protection Act 2053 and corresponding regulations. However she further emphasized on the need for additional in-depth studies with regard to the impacts due to impoundment especially in critically areas and settlements around the reservoir area. Presentation of Annu Rajbhandari is annexed as *Annex 2.*

Mr. Yoshimasa Ishii, JICA Study Team, Team Leader and *Ms. Toshiko Shimada*, Sociologist, JICA Study Team jointly presented the overview of the JICA study and described on the scope of work, objectives and the proposed time period to conduct the upgrading feasibility study of the proposed hydroelectric project. The presenters described on the type of hydroelectric project viz. impoundment and the run-of-the-river type and mentioned on the relative advantages amongst different type of hydroelectric projects.

During the deliberation Mr. Ishii mentioned on the study conducted by NEA in the year 2001 and the request made by the Government of Nepal to the Government of Japan to carry out upgrading feasibility study. Following the request of Government of Nepal, Government of Japan under the technical assistance of JICA initiated upgrading feasibility study through the mobilization of the study team in 2004. During the study period three numbers of stakeholders' meeting at the local and central levels each shall be

conducted by NEA. Mr. Ishii pointed that the objective of the present study is to assess and evaluate the project options in terms of environmental, technical, economic and financial aspects and come up with the best project alternative for implementation. He mentioned that the JICA study will accomplish the study in three different stages with the activities to be undertaken under each of the stages. Three different stages of study include preliminary study stage, detailed investigation stage and upgrading feasibility study stage. Mr. Ishii also mentioned the time period required for the study and the stages to be followed before the initiation of implementation activities under the project. He informed that the present study is scheduled to complete by mid 2007.

Ms. Shimada focused her presentation on the JICA guidelines for environmental and social considerations and provisions of the JICA guidelines. She also briefly mentioned on the objectives, principles and procedures to be adopted for carrying out the studies for the proposed project. Presentations of both experts of the study team are annexed as *Annex 3.*

Mr. Murasire, Project Engineer, JICA Study Team, described on four different alternatives of the project layout considered during the study. The alternatives mainly vary with different configuration of power house, intake structures, penstock, tunnel, tailrace and switchyard. As per the proposition third alternative consists of two options with one option each for the remaining ones. He mentioned that the findings of geological, environmental and hydrological studies will be the basis of comparison to decide the best option project layout. Presentation of Mr. Murasire is annexed as *Annex 4.*

Mr. Jack Procer, Environmentalist and *Ms. Toshiko Shimada*, Sociologist, JICA Study Team presented on details of investigations to be carried out with regard to the natural environment and social environment under the upgrading feasibility of the upper Seti storage hydroelectric project. Both the presenters presented on methodologies of study to be adopted during the accomplishment of the assignment.

Mr. Jack Prosser briefed that the investigation will focus on aspects that help to predict impacts on reservoir water quality, aquatic ecology and fisheries, vegetation and forestry, wildlife resources, topography and land use due to reservoir, downstream impacts of reservoir operations and white-water rafting operations. He also mentioned that the present study includes watershed management as well. Mr. Procer said that an environmental management and monitoring plan will also be formulated and recommended for implementation. Meanwhile he also mentioned that study will cover initial environmental examination level study on transmission line for a stretch of Damauli to Bharatpur. In addition the study will include a comparative assessment of environmental and social impacts for different alternatives considered during the design of the project.

Ms. Shimada presenting study methodology with regard to social and environmental investigations, mentioned that areas to focus during the period of study include involuntary resettlement, social and cultural aspects, downstream impacts due to release of water and impacts on vulnerable groups. During the period social environmental

investigations on transmission line will also be carried out to the extent as mentioned under the natural environment investigations. An environmental management plan will be framed and recommended for implementation. As of the natural environmental investigations, social aspects study will also include a comparative assessment for different alternatives.

Mr. Amar Raj Kaini, Former Member of Parliament, Tanahun, highlighted on the national hydropower generation potential and generated capacity till present. He mentioned on the need to provide electricity facility to the rural inhabitants, which is not being covered yet. Mr. Kaini reiterated on the fact that after the restoration of democracy in 1990, the government provided high priority in infrastructure sector and made significant progress in this regard. But due to political obstruction in the recent years the pace of development was slowed down. In the recent changed context, he was of the opinion that the pace of infrastructure development will again get momentum. Hydropower projects will impart both positive and negative environmental impacts. But the positive environmental impacts will overweigh the negative ones. He suggested the study team to find a combination of project components in such a way that the negative environmental impacts will be kept at minimum level simultaneously by maximizing the positive ones. He further suggested to workout a realistic plan which will not lead for cost and time over run of the project. He assured to provide full support for the implementation of the project. Lastly, Mr. Kaini thanked the organizer for inviting and providing him an opportunity to say few words about the project.

Mr. Tuk Raj Sigdel, Member of Parliament, Tanahun in his deliberation also pointed to the national hydropower generation potential and the generated capacity till date. He cited the electricity load shedding situation and pointed on the importance of early implementation of the proposed project. He said that the feasibility study phase of project preparation is very vital and the study team is required to com up with a realistic plan which emerges minimum degree of variation during the period of implementation of the project. He reiterated to the need of rural electrification and to provide electricity facility to the people residing in rural settlements of the district. Past experience shows that the locals have not been benefited to the extent that could have been provided by the project. He also suggested interacting with the local people and getting feedback in order to address their concerns and feelings. He also asked the study team to take into account on grazing land, agricultural land and the relocated people and make provision for alternative mitigation measures. Mr. Sigdel pointed on the potential impacts of GLOF, and earthquake to the dam structure and siltation problem in the reservoir also. He also assured full support for the implementation of the project and thanked the organizer for inviting and providing an opportunity to put his ideas and views with regard to project implementation.

Mr. Govinda Raj Joshi, Member of Parliament, Tanahun, expressing his views mentioned that the common people do not understand the feasibility study and other project preparation activities. However they understand project operation in totality. He also highlighted the total power generation potentiality in the country and the present situation of total power generation. Owing to the national power generation capacity, ever

increasing electricity demand and uncovered rural area with the facility he commented that the proposed project development will be highly useful in the sector. He emphasized on the need to maximize the benefit to the local people by the project. Mr. Joshi cited examples of the past and on-going hydroelectric projects especially Kaligandaki-A and middle Marsyangdi with cost and time overrun scenarios and requested the study team to conduct detailed study, which ensures minimum and/or no variations during implementation in the proposed project. During the deliberation Mr. Joshi questioned that why we have not been able to generate electricity at low price adopting cheaper alternative means. He also suggested to draw the real benefit to the local people. These are the areas which in his opinion needs further discussion and requested the team to do so during the period of study. Study findings should prove that the alternative chosen is the best and realistic amongst the alternatives considered. He reiterated that the distribution of revenue should not be limited to the paper only. The distributed revenue should be used for meeting the demands of local people. Mr. Joshi also mentioned that only completion of the project will not fulfill our problem. We need to think for equitable distribution as well. The major thrust of the study needs to be laid on formulating a cheap project, which provides maximum benefit to the local people. Mr. Joshi requested the study team and NEA to develop a model project and assured to support on his behalf as a resident and representative of Tanahun. He also thanked the organizer for inviting in the meeting and providing him an opportunity to say something during the meeting.

Ms. Neera Shrestha, Pradhan, Representative from WWF, Kathmandu Office, raised some environmental concerns with regard to project development and operation. As presented before, it's a category A-type dam under the JICA environment guideline. It is denoted that the environmental impacts will not be limited to only socio economic impacts but also the project will impart impacts on biodiversity. The study team is requested to take account seriously on biodiversity especially on fish species and other biodiversity related matters during the study period. She also pointed that WWF is not against development however she opined that both development and environmental concern should be taken hand-in- hand. She emphasized on the need of implementation of mitigation measures also. She also mentioned to the need to use revenue on environmental management. She expressed best wishes for the successful implementation of the project.

Dr. Jagadish Chandra Pokharel, sharing his experiences, pointed that we the professionals are very good in collecting data and information however we normally do not emphasize on analysis part seriously. He suggested the study team to be equally serious on analysis and interpretation on impacts envisioned due to the implementation of the project. He cited examples on settlement and associated factors with it. Again he requested to review the lessons learned from the past project and incorporate the ones that have been really been fruitful. He emphasized the need for timely compensation to the project affected families and those people who lose their occupation. Dr. Pokharel also suggested the study team to read the audit reports of earlier EIAs that may help to develop realistic EIA report in this project. Focusing of the reservoir area he mentioned that due to fragile geological conditions bank erosion will be significant. He pointed out that Bhimad area seems to be more vulnerable and needs to be addressed especially. He

also mentioned to the need of mitigation measures to minimize impacts on migratory fishes as well. Dr. Pokharel also mentioned that the area is very rich in culture. Especially Magar and Bote ethnic groups are very rich culturally and he requested the study team to provide sufficient time to deal in detail in such issues and come up with pragmatic measures in order to minimize the degree of environmental impacts. Dr. Pokharel suggested the study team to treat issues related to children and old aged people separately. He also reiterated to keep the cost at the minimum level as possible. He thanked NEA and JICA study team for inviting him in the meeting and providing an opportunity to express his ideas and views in the meeting. Dr. Pokharel expressed good wishes for successful implementation of the project.

Mr. Satish Chandra Devkota with the permission of the chairperson opened the floor for discussion.

Mr. Reshmi Raj Dhital, Fishery Expert, Fishery Development Office, Balaju, Kathmandu, doubted on the number of fish species reported in the report is low. In his opinion fish species should be more than 32 in numbers and he said that the number of species varies with the change in season. He requested to conduct studies seriously and also pointed to the need of in-depth study as the river stretch belongs to the fish gene-bank. He reiterated that fish hatchery simply will not be enough and he pointed to make provision of regular outlet for fishes in the river.

Mr. Shiva Dhaudel, Representative Ministry of Agriculture and Cooperatives, put his concern on the additional environmental issues raised under the present studies and incorporation of them in the previous EIA study report that is about to get approval from MOEST. He also pointed out that the discussions could have been more fruitful presenting the issues raised by the local stakeholders during the local level consultation meeting by the organizer.

Following the discussion, Mr. Satish Chandra Devkota, master of ceremony with the permission of the chairperson requested to Mrs. Rajbhandari and the members of JICA study team for clarification in issues raised by the participants.

Mrs. Annu Rajbhandari clarified that environmental impact assessment study conducted by NEA is in accordance with the provision of Environmental Protection Act 2053 and corresponding regulation whereas the present study is being undertaken under the provisions of the JICA guidelines. She assured that the comments made on the draft EIA report submitted to MOEST for approval will be incorporated as per the requirements.

Dr. Toran Sharma, Team Leader, Local Consulting Team clarified issues raised with regard to fisheries and relocation of affected households and assured to consider issues raised by the participants during the period of study.

Ms. Toshiko Shimada Sociologist, JICA study team, presented a summary of issues raised at Damauli consultation meeting. She appreciated the issues raised by the participants and assured them to consider during the study.

After clarification on issues raised by the participants, Mr. Devkota invited the chief guest for his deliberation.

Mr. Ram Chandra Poudel, the Chief Guest, Member of Parliament, started his deliberation offering thanks to the organizer for inviting him and providing him an opportunity to say something with regard to the proposed project. Mr. Poudel, in his remarks mentioned that after the political change in the country the situation has changed and everyone needs to be changed. He requested to control the cost on unnecessary items and keep the project cost to the minimum extent. He also assured that there will be no unnecessary demand with the contractor from the local stakeholders during construction period. He pointed that the cost on construction of luxurious residences and procurement of vehicles can be substantially reduced. He further stressed that the quarter could be rented out in stead of constructing for a short period of time.

He said that the proposed dam site is very appropriate for hydropower generation as it is very narrowed with sparse settlements and less agricultural land area. Bhimad Bazaar is the only densely populated area in the project vicinity and needs protection. Mr. Poudel requested the donor to focus study that support to generate hydroelectricity at cheaper rate. During his deliberation he also pointed out the problems of local people that need to consider during the study. For fish protection and development he suggested using Phewa Lake and Madi River. But he cautioned that the destructive fishing (explosives and electric shocks) needs to control for sustaining fishes in natural water bodies.

Mr. Poudel suggested to maintain transparency and communication with the people and requested the proponent to regularly interact and disseminate study findings and other project related matters to the stakeholders. Any deficiency in transparency and communication, the people will take action to the defaulters. He assured that after the successful completion project personnel will be felicitated nationally as well as locally. He welcomed the donor in their area and assured full support on behalf of the local stakeholders. Mr. Poudel suggested make provision for free flow of vehicular traffic from dam site in order to provide facility of transport and to mitigate effects envisioned due to the inundation of trail bridges presently located at different locations due to impoundment. Lastly he expressed best wishes for the successful implementation of the project and the participants of the meeting.

Mr. Shiva Chandra Jha, Chief Environment and Social Studies Department, Nepal Electricity Authority delivered the vote of thanks to all participants including the chief guest, Members of Parliament, former Member of Parliament, representatives of donor agencies, government agencies, non-government agencies and participants. He informed that the stakeholder meeting is the first and will be followed by two more meetings each at local and central levels in the future. He also thanked for the active participation of the participants and hoped to be continued in the days to come during the project preparation and implementation phases of project development.

Mr. Bhoj Raj Regmi, the Chairperson, General Manager, Engineering Services, Nepal Electricity Authority in his concluding remarks briefed the project background and the need of the project in the present context. Mr. Regmi informed that the upgrading feasibility study of the project will be completed by early next year. He briefly mentioned on the type of the project and the volume of storage reservoir. He described on the type of artificial reservoir and storage capacity. He told that the proposed storage hydropower project is after Kulekhani project which was also built with the assistance of JICA. The total storage capacity of the reservoir will be of 331 million m^3 which greater than the capacity of Kulekhani reservoir (70 million m^3). Mr. Regmi informed that the EIA study report is already submitted to the Ministry of Environment, Science and Technology for approval and is in a process of approval.

Mr. Regmi during his deliberation informed the participants that the JICA study team will prepare the upgrading feasibility study of the project and is scheduled to complete by mid of 2007. He informed that two more consultation meetings each at the field and central level will be conducted during the study period. He expressed the view that the discussions are very useful and assured that the issues raised here in the meeting will be considered by the study team. Mr. Regmi thanked and expressed his gratitude to all the participants for their participation and cooperation extended in the meeting and hoped the same level of cooperation in days to come. Lastly he extended his sincere gratitude to JICA for providing assistance to conduct upgrading feasibility study of the proposed project.

Media Coverage of First Stakeholder Meeting

Media Coverage of First Stakeholder Meeting

Published in the national newspaper "The Rising Nepal" 8th June 2006 (English)

The Rising Nepal

THE FIRST AND THE FOREMOST

NATIONAL DAILY

Kathmandu • June 8, 2006 • Jestha 25, 2063 • Nepal Sambat 1126 Tachhalathwo Dwadashi • Thursday

No. 6

Experts discuss upgrading of Upper-Seti hydro project

By Our Correspondent

KATHMANDU, June 7: First stakeholder meeting for upgrading feasibility study of the Upper Seti (Damauli) Storage Hydroelectric Project was jointly organised by Nepal Electricity Authority (NEA) and Japan International Cooperation Agency (JICA) Wednesday.

NEA conducted studies on storage type hydropower projects and identified Upper Seti (Damauli) Storage Hydroelectric Project as a potential one. The Government of Nepal requested the Government of Japan to implement an upgraded feasibility study under the technical assistance of JICA.

Recognising the 122 MW capacity in Seti River situated in Tanahun district of western development region, Upgrading Feasibility Study was conducted in the year 2005. The estimated cost of the project was $ 215.13 million.

The Government of Nepal is implementing rural electrification and hydroelectric development projects by using its abundant water resource in the Tenth Plan (2002-2007) to support poverty reduction. Present total installed capacity in Nepal is 614 MW as of July 2005.

Hydropower's share is 90 percent of the total installed capacity, which is 99 percent of annually generated energy. Power demand in the country has been growing approximately at a rate of 8 per cent per annum in the recent ten-year period (1995-2005).

The run-off-river (ROR) type hydropower plants dominate Nepal's hydro capacity. Since the ROR type hydropower plants can only marginally regulate river discharge for power generation, Nepal has been suffering from shortage of power in the dry season. Hence, NEA has considered that it is necessary to develop storage type of hydropower plants which can seasonally regulate river discharge for generation in the period.

The study aims at formulating the optimum plan for development and assessing the technical economical and financial, and environmental viabilities of the project. The study, which was commenced in February, 2005, is to be completed by June 2007.

The NEA including a one-day Public Haring in Damauli on January 2004 conducted an Environmental Impact Assessment (EIA) for the Project. The EIA report has been formally issued and is in the process of review by Ministry of Water Resources (MOWR). After review by MOWR, it will be submitted to the Ministry of Environment, Science and Technology (MOEST) for its approval. This approval is expected to be within 2006 which will complete the formal EIA process for Nepal.

Survey works are presently underway by a NEA consultant on the Project's 220 KV, 45 km transmission line from Damauli to Bharatpur. Initial Environmental Examination will be conducted by the JICA study team. Environmental and Social Studies Department of NEA from late 2006 to early 2007 will carry out a full-scale EIA.

According to the impact assessment on physical environment- the project will permanently acquire total area of 917 ha out of which 162 ha is agriculture land and 230 ha is forest. Peaking discharge will substantially change the natural daily flows from 141 m³/s for six hours in dry season to no flow during remaining hours of the day. The fluctuation of the reservoir water levels of up to 55 m will create increase the existing risk of stability and shoreline erosion (vulnerable areas are Bhimad Bazaar, Risin Patan and Jaruwapani).

Similarly impact assessment on biological environment- site clearing activities at the projects site and creation of reservoir will result in the loss of 460 ha of vegetation consisting 230 ha of forest and 230 ha of shrubland and graybeard areas. Out of 230.5 ha of inundated forestland, 25 ha of good riverian Khair forest, 18 ha Terminalia forest, 40 ha open mixed forest, 142 ha deciduous riverian forest and 5.5 ha sisoo plantation.

Altogether 28 ha of six-community forest will be inundated. Thirty two species of fish found in the Seti River will be affected by the project construction. Compensation flow of 2.4 m³/s will have to be released downstream of the dam during non-peak hours for the survival of aquatic ecosystem.

Likewise impact assessment on socio-economic and cultural environment- the primary adverse environment impact will be from the relocation of 45 households, which will have to be resettled. Approximately 162 ha of agricultural land will be inundated which will lead to loss of crop production, which amounts to 770 tons per year. This will affect another 324 households.

The beneficial impact of the project is- job creation, opening the area to market forces and goods mobility. There are also provisions of electrical power for modernization of industry and services and provision of the revenue benefits as per prevailing market price. Ten- percent share in revenue benefits goes to the respective district.

Speaking at the meeting, Ram Chandra Poudel, former deputy Prime Minister said that as a local resident he would support such a model project but in the changed political context NEA should also change its methodology to work.

"It is shameful for us that living in a county like Nepal which is rich in water but still we are paying high rate for electricity," said Poudel.

He further said that the project must be completed in time and within the allocated budget, unnecessary flow of money and corruption must be checked. He said we must learn from our bitter past before starting the project.

Govinda Rajwoshi MP and leader of Nepali Congress, said that the project is different than the previous one but mistakes should not be repeated like in the past. He added that the project must provide the benefit to the local people and must compensate the affected people directly and also do the work for uplifting their socio-economic condition.

Dr. Jagadish Chandra Pokherel, former vice chairman of National Planning Commission said that being a local resident he welcomes the project.

"We are good at collecting data but we fail to analyse them to suit our convenience," said Dr. Pokherel.

"Not learning from our past lapses is our greatest weakness." He said that we should think of resettling the affected people as a unit, as a dynamic organ. He also added that the environmental aspects should also be taken under consideration.

Published in the national newspaper "The Kathmandu Post" 8th June 2006 (English)

NEPAL'S LARGEST-SELLING ENGLISH DAILY Vol: XIV, No. 110 Kathmandu Thursday, June 8, 2006 (Jestha-25, 2063) Nepal Sambat 1126

THE KATHMANDU POST

Printed simultaneously in Kathmandu, Biratnagar and Bharatpur

JICA conducts U-Seti feasibility study

KATHMANDU, June 7 (PR)- A team of Japan International Cooperation Agency (JICA) has conducted an upgrading feasibility study of the proposed 122 megawatt Upper Seti project.

In a project stakeholder meeting that took place in Kathmandu Wednesday, the JICA team proposed preliminary layout and design options for the project that will be located in Tanahun district.

Addressing the meet, Shiva Chandra Jha, director of NEA's Environment and Social Study Department, said the government of Japan has indicated support for the project. Similarly, Uttar Kumar Shrestha, acting managing director of Nepal Electricity (NEA) said that Upper Seti is one of the most attractive projects in the 10 feasible projects selected by NEA.

While the JICA team proposed two design options for the project - run of river or storage - NEA has been pushing for the latter as there is only one storage project, Kulekhani, in the country, which was also built under Japanese grant.

The estimated cost of Upper Seti is 215 million dollars. If things go smoothly, construction work should start in 2008 and will take four years to complete.

Experts however pointed out that the project will have a lot of environmental impacts, including inundation of large swathes of land and affect on over 30 species of fish.