Minutes of Third Stakeholder Meeting in Damauli

Upgrading Feasibility Study of Upper Seti Storage Hydroelectric Project

Third Stakeholders Meeting

Time:	1.30 PM
Date :	May 4, 2007; Baishakh, 21, 2064
Venue:	Shree Shukla Lower Secondary School, Kahu Shivapur, Tanahu
Organized by:	Nepal Electricity Authority with the Assistance of Japan International Cooperation Agency
Master of Ceremony:	Mr. Satish Devkota, NEA

The stakeholder meeting was chaired by ***Mr Krishna Prashad Joshi***, *Head Master, Shree Shukla Lower Secondary School, Kahu Shivapur, Tanahu.* Other guests who took chair in the dias were:

1. Mr. Bishnu Bahadur Singh, Head, Project Development Department NEA
2. Mr. Rishikesh Sharma, Head, Managing Director Secretariat, NEA
3. Mr. Amar Bahadur Bishwakarma, Chairman, Shree Shukla Lower Secondary School Management Committee
4. Mr. Shree Jung Thapa, Social Worker, Beltar
5. Mr. Yoshimasamasa Ishii, Team Leader, JICA Study Team
6. Dr. Masaki, Member Environment Advisory council, JICA
7. Mr. Usuii, JICA, Thailand
8. Ms. Tokuda, JICA, Nepal
9. Mr. Saurav Rana, JICA, Nepal
10. Mrs. Lili Maya Thapa, President, Lali Guras Aama Samuha, Kahu Shivapur

Mr. Bishnu Bahadur Singh, Head, Project Development Department, NEA, welcomed the participants of the stakeholder meeting. He reiterated his thanks to the participating people that they have come from far of places despite the scorching heat of the summer.

Highlighting on the power situation in Nepal, he explained the types of electricity projects which are currently operational in Nepal. Nearly 99% of the electricity demand is sourced from the Run off the River Hydroelectric Projects. Power generation from such projects, he explained, varies depending upon the quantity of water in the river. As a result, such projects generate energy to their installed capacity during rainy season and as the water drops in the dry and summer season, only a fraction of the installed capacity could be generated. It is because of this; NEA is forced to cut power to its consumers in the dry and summer season.

The proposed project, he explained, being a reservoir project, could generate energy even during the dry season from the stored water in the reservoir and help NEA to supply energy to its consumer even during the dry season. It is for this reason NEA has undertaken the feasibility study of the project. JICA has helped us in the upgrading feasibility study of the

project and to identify the optimum plan for the project development. A congratulate the JICA team for undertaking the study team in specified time frame.

Hydropower projects could generate various types of environmental impacts. Many of them could be beneficial, while some could be adverse also. The JICA study team has studied the natural and social environmental impacts of the project. They have also come up with measures to mitigate the adverse impacts and enhance the positive impacts.

To day we are gathered here to share the findings of the JICA study team and get your concern and input on the study made by the JICA team. The highlights of the project and related natural and social environmental impacts and conceived mitigation measures and enhancement measures are given in the brochure, which is in your hand. The brochure also includes the answers of the frequently asked questions, which were shorted out from the questions raised during the first and second stakeholder meeting at Damauli and Kathmandu.

I once again welcome you all in this august gathering and humbly request you to put your concerns and suggestions to the study team. Your honest input will make the study and the project sound for smooth implementation and operation. We welcome your suggestions to make the study and project a success.

Dr. Toran Sharma, on behalf of the JICA study team presented the findings of the study. He explained the project background and various studies undertaken by the JICA study team to identify the optimum project plan. He further elaborated the salient features of the identified optimum project plan. Project layout features were explained in the layout maps and in the photographs of the project area particularly of the reservoir, and project facility sites, the dam and powerhouse locations.

The perceived natural and social impacts of the project were explained by Dr. Sharma with the help of the enlarged photographs of the project areas. For each of the identified impacts, he elaborated the nature of the impact, and proposed mitigation measures to avoid, and minimize the impacts. He detailed the policy of resettlement planning and the framework of resettlement planning and explained the proposed entitlement matrix for the affected persons/families/ and communities. The proposed Social Action Plan framework is explained at greater length for the rehabilitation of the affected people and communities.

After the presentation of Dr. Sharma, the forum was open for the questions, concerns, and suggestions from the stakeholders.

Mr. Sakti Lal Thapa – Ex-Chairman, Tanahu District Development Committee

We are happy that, Government of Japan through JICA is undertaking the project study work. We are rich in hydropower, but we are not able to utilize our resource. You have come to our house to organize the stakeholder meeting. We have a feeling that we are the real owner of the project and have a right to decide on the project. The southern part of Tanahu is remote and the people are poor. You have said that the project will provide job opportunity to the local people. We

believe that your words will be translated into practice during project implementation. We have limited skill, and the project has to utilize our skills during project construction and operation. We suggest that small civil works be contracted out to the local people than the outsiders.

Mr. Yam Bahadur Ale Magar, Pokhari Bhanjyang Ward No. 1

Nepal is a country rich in water resource. This area is also rich in many other biodiversity resources. The project should establish the rights of the people as per the provisions of ILO international agreement. The project should be renamed as Kanuh after the name of the Dam location in local Magar dialect. The project should give special consideration to the watershed management in the upstream and downstream area. The spoil disposal site should be developed as playground after the project construction. To maximize the employment of local people in the project, skill training programs should be launched at least six month before the project construction. The project should facilitate electricity transmission in the affected VDCs and the Tanahu district. Considerations on the development of ropeway tourism development, and a historical museum should be undertaken by the project.

Mrs Bishnu Maya Achami – Representative Aama Samuha (Mother Group)

We express our thanks to the JICA study team for explaining us about the project and its impacts. We request JICA to built a office structure for the Aama Samuha. As the project will affect our forest and grass land, alternatives to this effect has to be considered, because, we will be directly impacted by the loss. We women of the area are illiterate, we hope that the project will provide us skill training for the livelihood.

Mr. Ramesh Podel – Kahu Shivapur Ward No 7

The hydropower projects implemented in Nepal have in one or the other way cheated Nepali People. We are rich in hydropower, but we are paying high electricity tariff. I propose the project should give share to the local people and then only they will get the benefit of the project. I propose that the share should be allocated to project affected people, Project affected area people and the project affected district people. I think, the required money could be generated from the local people and we should not depend upon the donors or other private parties for project development.

M. Indra Bahadur Ale Magar – Kotdurbar, Ward No 6

The compensation fixation committee should also include representatives of affected people. We could not agree with the representation of the affected VDC chairman in the Compensation Fixation Committee. The skill training should not be conducted in the district headquarters, such trainings should be conducted at village level so that many people could take benefit of the training. For the development projects, you said that further discussions will be arranged, but when and how? We want to know how much of the electricity revenue

of the project comes to the district? Since we are the project affected district, we want that preference of electrification be given to this district first by the project. All able people of the project affected area should get jobs as to their skills, jobs should not be given to outsiders in the pretext that local people do not have skills. We are happy that the project is coming in this area. We are ready to help the project in the way we could do.

Mr. Upendra Ghimire – Jamune VDC

We expect that the project construction will benefit us. We are lucky that the project is coming here. Since 50% of the directly project affected area is forest, what is the alternative mitigation measures for the loss of our forest resource, we need further explanation as our livelihood is directly linked with the forest resources and its products. You said the resettlement will be done as per the Government Law. What do you mean by law? Our experience is that compensation as per law is very minimum. We know that the land valuation of Land Revenue Office is very low. We should get compensation at the replacement cost.

Dr Toran Sharma, on behalf of the JICA study team, replied to the different quarries of the stakeholders. He further detailed on the model of the skill training prior to the project, and conceived mechanism of incorporating local people in the project related jobs. Each of the items of the Social Action Plan framework including watershed management, agriculture development, women development, rural electrification, Health sanitation and education programs is explained in detail and how there programs will be implemented after discussions with the affected people and communities in the project cycle.

He explained the government of Nepal act provisions for resettlement and land acquisition. The procedures of land acquisition, formation of Compensation Fixation Committee, and the representation of local affected people in the committee proposed by the study team is detailed. He explained that the resettlement policy is to compensate on the land and property at the replacement cost and the valuation of Land Revenue Office will not be basis for compensation payments.

With regard to the loss of forest resources, Dr. Sharma explained that they will be compensated at a ratio of 1:25 plantation following the government policy, however, participation in the afforestation and conservation of planted trees from the local area is of utmost importance to regenerate the lost resources.

Mr. Rishikesh Sharma – Head, Managing Director Secretariat, NEA
Mr. Sharma thanked everybody present in the stakeholder meeting for the patience and active participation. He explained that the project belongs to local people and their active cooperation could only make the project a success. Renewed cooperation from the participants and the local people will be there in future also for the project implementation and operation. Thank you.

Mr. Krishna Prashad Joshi - Chairperson of the Stakeholder Meeting

I am happy that the stakeholder meeting is

conducted in our place. The project is our and if all of us cooperate, I am confident, the project will be implemented. It will not only benefit us but will also benefit the nation as a whole. I wish all success to the project. I want to thank the JICA Study team for their work. I now declare that the stakeholder meeting is adjourned. Thank you.

Upgrading Feasibility Study of Upper Seti Storage Hydroelectric Project

Third Stakeholders Meeting

Time:	10.30 AM
Date :	May 5, 2007; Baishakh, 22, 2064
Venue:	Shree Deep Joyti Primary School, Rising Ranipokhari, Tanahu
Organized by:	Nepal Electricity Authority with the Assistance of Japan International Cooperation Agency
Master of Ceremony:	Mr. Satish Devkota, NEA

The stakeholder meeting was chaired by ***Mr Doola Raj Shrestha***, *Chairperson, Shree Deep Joyti Primary School.* Other guests who took chair in the dais were:

11. Dr. Masaki, Member Environment Advisory council, JICA
12. Mr. Usui, JICA, Thailand
13. Ms. Tokuda, JICA, Nepal
14. Mr. Saurav Rana, JICA, Nepal
15. Mr. Yoshimasa Ishii, Team Leader, JICA Study Team
16. Mr. Shiva Chandra Jha – Head, Environmental and Social Studies Department, NEA
17. Mr. Bishnu Bahadur Singh, Head, Project Development Department NEA
18. Mr. Rishikesh Sharma, Head, Managing Director Secretariat, NEA
19. Mrs. Ishowri Pandey – Head Master, Shree Deep Joyti Primary School
20. Mr. Ram Chandra Gaire – Chairperson, Road Development Committee
21. Mr. Bhakti Prashad Gaire – Ex Ward Chairperson.

Mr. Shiva Chandra Jha - Head, Environmental and Social Studies Department, NEA

First of all I would like to welcome you in this stakeholder meeting. I am thankful to all of you who despite their work have come from long distances to participate in the meeting.

We have conducted public hearing meeting during the first EIA process. This is the third stakeholder meeting during the upgrading feasibility study. The objective of this stakeholder meeting is to discuss on the issues raised by the common people with regard to the project, project related impacts, and mitigation measures. To incorporate the concerns and issues of the local people, we have come to your place for this stakeholder meeting as suggested by you in the second stakeholder meeting. Let us now sit down together and discuss the issues that you think are most important. Let us identify the problems and also identify the solutions to resolve the issues. If we could do this I will consider the meeting was a success and we could take the right decision for project implementation and operation.

Dr. Toran Sharma, on behalf of the JICA study team presented the findings of the study. He explained the project background and various studies undertaken by the JICA study team to identify the optimum project plan. He further elaborated the salient features of the identified optimum project plan. Project layout features were explained in the layout maps and in the photographs of the project area particularly of the reservoir, and project facility sites, the dam and powerhouse locations.

The perceived natural and social impacts of the project were explained by Dr. Sharma with the help of the enlarged photographs of the project areas. For each of the identified impacts, he elaborated the nature of the impact, and proposed mitigation measures to avoid, and minimize the impacts. He detailed the policy of resettlement planning and the framework of resettlement planning and explained the proposed entitlement matrix for the affected persons/families/ and communities. The proposed Social Action Plan framework is explained at greater length for the rehabilitation of the affected people and communities.

After the presentation of Dr. Sharma, the forum was open for the questions, concerns, and suggestions from the stakeholders.

Mr. Budhi Ram Lamsal – Bhimad Ward No. 1, Chairman, Seti River Embankment Action Committee.

River Site is cutting the river banks every year. How high will be the water level at Bhimad area ? What are the measures taken by the project for the control of river cutting?

Mr. Biswa Prakash Sharma – Rising Patan, Rising Ranipokhari

The project should not affect the agricultural land. The affected land and property should be given adequate compensation. The road from Bhimad to Rising Patan should be upgraded. The project should provide job as per the skill of the people. Programs for health and education should be launched. A road should connect Bhimad – Damauli along Seti river. The cremation grounds should be built. A program for watershed management be implemented. All affected bridges should be built on the project cost.

Mr. Parashu Ram Gaire – Risng Patan

The playground used by our children at the bank of Seti River will be under the reservoir. We would want alternative for the playground to our children.

Mr. Kul Bahadur Rana – Wantan Khola, Rising Rani Pokhari Ward No 9

The reservoir effect on land and property is higher in the Rising Rani Pokhari. The entire settlement of Wantan Khola will be submerged. How compensation will be given to the affected people? Where these displaced people will be relocated. Will the compensated money be sufficient for land purchase and house construction? Will the project inundate the settlement of Tutuwa or not ?

Mr. Ram Saran Sharma Gaire, - Bhimad Ward No. 9

There are active landslides along Seti River and also along the tributary streams. How these landslides will be controlled? If there is no land erosion control, we will loose most of our property by the reservoir inundation and by the landslides of the tributary streams. What are the mitigation options for land slide control?

Mr. Bal Krishna Gaire, - Majkot

What will be the compensation to the affected land of the non-titleholders? Will they be compensated?

Mr. Ram Nath Subedi – Rising Ranipokhari, Rising Patan Ward No. 9

I first thank JICA study team for coming to our houses for collection of suggestions. All affected land with legal holdings and without legal holdings should be compensated. We have used this land for our livelihood. The government should give us legal title of the land that we are utilizing for our livelihood.

Iwould request that the project should built a road along the bank of the proposed reservoir area.

Mrs. Sarada Gaire, - Majhkot, Ward No 9

I wish the project a success. There are women in our village who have completed their diploma and degree courses. They should also be give job opportunities in the project according to their skill. Job should not be only for male members of the society. Even women are capable; job opportunities should also be given to the women.

Mr. Bishnu Bahadur Thapa – Rising Ranipokhari, Rising Patan

There are many educated people in our villages. They should nbe give job oppertunites in the construction works. We are far from the construction place, Damauli. If we get job we could take room in Damauli and work. We should not be left out from the project related jobs.

You said the lost land and property will be compensated. That is good, but is that money sufficient to buy land and construct house in other place? This should also be considered while evaluating the loss of land and property.

Mr. Ram Prashad Poudel – Rising Ranipokhari Ward No. 9

The reservoir will affect most of land and property and the infrastructures that connect us with the opposite bank of Seti River. Our children could not go to school once the suspension bridges are affected. What options and alternatives the project study team has visualized to mitigate such effects?

When the land is lost, how the farmer will make their living? Even the community forests are also affected how that will be compensated?

Mr. Bhoj Raj Gaire – Rising Ranipokhari, Rising Patan Ward No 9

The Buduwa Phat will be affected by the reservoir, what is compensation mechanism? The affected people should get compensation directly; there should be no intermediary like VDC and DDC.
Village community has given land of Seti to the Schools, which is being utilized by the school as playground. This land has no legal title, what will happen to these land's compensation?

We will be very happy, if a motorable road along Seti to Damauli is constructed by the project.

Mr. Raju Khanal – Male Bagar, Bhimad.

The Bhimad Bazar is currently under threat by the river cutting. We have constructed embankment structures annually. Now the project is coming, will this work be taken up by the project from this year?

People have stopped fertilizing the land close to Seti Bank with the assumption that this land will be under reservoir. The productivity of the land has declined. Now the project need to decide whether this project is coming or not?

Mr. Dharma Raj Khanal – Chhang Patan Ward No. 8

The River Seti is a wild river. It has been eroding its bank and will continue to do so. The land that will be submerged in the reservoir will be gone for ever. The project should consider conserving the remaining land above reservoir for protection against erosion and landslides.

Mrs. Ishowri Pandey – Head Master, Shree Deep Joyti Primary School

The educated women should be give jobs by the project as per their skills. The uneducated women should be considered by skill training by the project.

Mr. Ram Bahadur Lama – Majkot

The Malebagar will be affected or not ? How will the compensation given?

Mr. Tul Bahadur Thapa – Rising Ranipokhari, Rising Patan

The project should give special consideration to the agricultural field of the Geruwatar, Kundaletar and Bandarkuna. These lands belong to the Magar Communities, who are poor.

Mr. Tej Bahadur Thapa – Paltang, Rising Ranipokhari, Ward No. 7

Will the project affects the Rising Patan – Chautari village Road or not? The project is expected to affect the community forest, what will be the compensation? Seti river has eroded my land. I have the land certificate will I get compensation?

Rajendra Prashad Gaire – Rising, Rising Ranipokhari Ward No 9

The alternative of the Dablang playground should be considered? The affected people should get free electricity? What is the strategy to protect the Buduwa Phat?

Mr. Bal Krishna Ghimire – Member FECOFUN (Jamune VDC)

The project should conceive a long term environmental management plan to protect and conserve its environmental resources. Recently one more Community forest has been registered at Jamune VDC, which will be affected by the project. The name of the Community forest is Umachok Community Forest, Jamune VDC 5

Dr Toran Sharma, on behalf of the JICA study team, replied to the different quarries of the stakeholders. He further detailed on the model of the skill training prior to the project, and conceived mechanism of incorporating local people in the project related jobs. Each of the items of the Social Action Plan framework including watershed management, agriculture development, women development, rural electrification, Health sanitation and education programs is explained in detail and how there programs will be implemented after discussions with the affected people and communities in the project cycle.

He explained the government of Nepal act provisions for resettlement and land acquisition. The procedures of land acquisition, formation of Compensation Fixation Committee, and the representation of local affected people in the committee proposed by the study team is detailed. He explained that the resettlement policy is to compensate on the land and property at the replacement cost and the valuation of Land Revenue Office will not be basis for compensation payments. He reiterated that the resettlement policy even includes the non-titleholders for compensation to the lost assets

With regard to the loss of forest resources, Dr. Sharma explained that they will be compensated at a ratio of 1:25 plantation following the government policy, however, participation in the afforestation and conservation of planted trees from the local area is of utmost importance to regenerate the lost resources. A special package of compensation for the community forest equal to five year production loss is proposed.

He explained the plans for reservoir shore line erosion protection conceived by the project. He explained the affected areas by the reservoir once again in the enlarged photographs to satisfy the quarry of the people and make them understand which part of the land will actually affected by the reservoir.

Mr. Bishnu Bahadur Singh, Head, Project Development Department NEA
Mr Singh, presented vote of thanks to the participating people. He expressed his happiness for the active participation in the stakeholder meeting by the local people. He emphasized the

need of the Reservoir type project to stabilize the power system of Nepal. To initiate the project, he requested local people to pressurize the government for fast decision. He reiterated that the NEA will do all that is possible to minimize the impacts of the project on the natural and social environment. He requested to send their comments suggestion on the project even in future, and NEA will welcome these suggestions to make the project environmentally sound and feasible. Thank you.

Mr. Doola Raj Dhakal – Chairperson of the Stakeholder Meeting and Chairperson, Shree Deep Joyti Primary School.

We thank the organizers for keeping this stakeholder meeting in our school. We, local could understand the project and put our quarry and concern to the concerned authority. We want the project to come to our area. Our school is poor and has no resources; we hope that the project will help us build the school infrastructure. With this I adjourned the meeting. Thank you.

Upgrading Feasibility Study of Upper Seti Storage Hydroelectric Project

Third Stakeholders Meeting

Time:	10.30 AM
Date :	May 5, 2007; Baishakh, 23, 2064
Venue:	Santosh Hotel, Damauli, Tanahu
Organized by:	Nepal Electricity Authority with the Assistance of Japan International Cooperation Agency
Master of Ceremony:	Mr. Satish Devkota, NEA

The stakeholder meeting was chaired by ***Mr Bishnu Prashad Dhakal***, Local Development Officer, Tanahu. Other guests who took chair in the dais were:

22. Mr. Kashi Nath Marashini – Chief district Officer, Tanahu
23. Mr. Bhoj Raj Regmi – General Manager, Nepal Electricity Authority
24. Dr. Masaki, Member Environment Advisory council, JICA
25. Mr. Pravin Aryal – Under Secretary, Ministry of Water Resource
26. Mr. Ram Chandra Pokhrel – Social worker, Tanahu

Mr. Bhoj Raj Regmi – General Manager, Nepal Electricity Authority, in his opening address, welcomed all the representatives of political parties, government offices, NGOs and Journalists of Damauli in the stakeholder meeting. We have come again to present our findings and discuss with you on the proposed Upper Seti Hydroelectric Project. I am happy that Mr Bishnu Prashad Dhakal, as always have cooperated with us and have taken the seat of chairman on this august gathering. You all know, JICA study team is conducting the upgrading feasibility study of the project. The study is of the international standard. Before the involvement of JICA, NEA has conducted the feasibility study of the project. Present study is based on the NEA study and has added many aspects not covered by NEA study before. As per the JICA guideline, three stakeholders meeting is required during the study period. We have already accomplished two such stakeholders meeting at Damauli and Kathmandu and this is the third stakeholder meeting. This time we have divided the stakeholder meeting into two groups at local level targeting local level affected people and

communities at the project affected sites. We have completed such meetings at Beltar and Rising Patan. These meetings were attended by a large number of local people. This meeting here is targeted for the district level agencies. We have planned for a similar stakeholder meeting at Kathmandu targeting the central level agencies and people on 10th of May.

To attained this meeting representatives of JICA have come from Japan, Thailand, and Kathmandu. I welcome them. The JICA study team member will present the findings of the study.

Let me tell you that this project will be the highest dam project in Nepal after Kulekhaini Project. With the implementation of the project, certainly there will be some adverse impacts, but we have given maximum effort to avoid these impacts wherever possible. Unavoidable impacts will be mitigated though adequate measures which will be presented very shortly by the study team.

We are in dire need of reservoir type project to stabilize our distribution system. As you know all the impacts of the projects are not negative. There are a host of positive impacts of the project. You must have read in newspaper that with the Kulekhani and Kaligandaki projects, local people have benefited by the fish caging programs. The project also has boosted local tourism.

I agree that few people will be displaced by the hydropower projects. Our experience shows that the displaced people could be resettled through pragmatic and effective resettlement management.

I welcome your comments and suggestions to make the project environmentally sound and socially acceptable. Once this is agreeable to you, we will have to arrange project finance to initiate project construction. Within one and half months JICA study team will complete their final report on the upgrading feasibility study. Based on this report we will take next step for the project decision, which I think will be done by the end of this fiscal year.

I request all of you to give your comments and suggestions to improve the project planning from the environmental and social perspective. Once again I thank all of you and hope you will actively participate in this stakeholder meeting.

Mr. Yoshimasa Ishii, Team Leader, JICA Study Team presented the finding of the upgrading feasibility study. His presentation was divided into four topics as under:

1. Background & Outlines of Study
2. Findings
   2.1 Power Demand & Supply
   2.2 Characteristics of Project Site
   2.3 Contents of Study
3 Conclusions and Recommendations
4 Time-line of the Project

On behalf of the JICA Study Team, ***Dr. Toran Sharma*** presented the Natural Environmental Impacts and Mitigation Measures and Framework of Resettlement Plan and Social Action Plan.

After presentation of the JICA Study team, the floor was open for the stakeholders' comments and suggestions on various environmental and social issues of the project.

Mr. Nil Bahadur Thapa – Vice President, Nepali Congress, Tanahu

The project should not be stopped simply because of its impacts. However, project's impacts should be avoided and minimized. There are peoples who live on the natural resources such fish, wild vegetables, and other agro forestry products. How they will be impacted? Project mitigation should also consider them.

Compensation to the affected land will be given, but is that money sufficient to buy same amount of land? This also needs to be considered while deciding the land and property compensation. Land prices are not same throughout the project affected area. How this compensation evaluation will be done?

The project affects the suspension bridges foot trails and roads. These are the lifeline of the people. These infrastructures should be given maximum consideration and people should not be obstructed by the project.

How is this skill training will be given? This needs further elaboration. What has project thought about the people who live by selling grass and firewood in the project area?

Mr. Ramesh Sigdel – Representative Nepal Communist Party Maoist, Tanahu

Bhimad Bazar will be affected by the Project or not? How the embankment will be constructed to protect the risk areas.

What will happen if the dam collapses? How many settlements and population will be affected? How far the downstream effects will be realized?

Who will be compensated for the affected grass land, grazing land, and community forest areas?

What do you mean by grant compensation to the displaced people/community?

The project affected VDCs need unconditional rural electrification program

Mr. Ramchandra Upadyaya – Representative CPNUML, Tanahu

The EIA study need further detail studies. The project affected areas require further expansion covering VDCs upstream of reservoir. Locals are extracting gravels, boulders and sand from upstream areas of Bhimad. Alternatives to these activities should also be considered.

Mr. Chandra Mani Adhikari - District Health Office

Public health issues need further studies. Projects like this in Nepal are found to be associated with STD, HIV/AIDS and various communicable diseases. Extensive programs to mitigate these effects have to be considered.

Mr. Yek Bahadur Rana – Tanahu District Secretary, CPNUML, Tanahu

Sedimentation at the rate of 6500 tons/year/km^2 is potential to fill the reservoir. In the second stakeholder meeting the estimated project cost was less, why now it has gone high?. There are Bote communities in the area, what types of resettlement efforts will be made, if the Bote communities are displaced by the project?

Girl trafficking issues have been highlighted, even male trafficking is also a potential and need consideration by the project.

In the downstream areas, despite siren warning, if there is a loss of life, what are the provisions thought by the project?

Usually, in the development projects, the local people are not given job opportunities in the project in the pretext that they have no technical skills. To avoid such incidents, technical skill training to the local people should be given at least six months before the start of project construction works.

The project affected people should be given time bound loan on lower interest rate to rehabilitate them from the project effects.

Is this project is to be implemented by NEA and JAICA? This needs to be clarified.

What is the maximum and minimum flow of Seti River? What is the unit cost of electricity? How many workers will be involved in the project construction works on a daily basis during construction period?

Mr. Jaya Ram Bista – Hatchery Development Center Pokhara

The aquatic life study in the EIA is just a bird's eye study. Monitoring works on the fishery to understand their behaviors and ecology should be continued even after EIA study for better understanding of the Seti River Aquatic life. Is it possible to go for cage culture in Seti River as in Kulekhani and Kali Gandaki? This will be beneficial to the affected Bote community, if any.

Mr. Ramesh Poudel – Kahu Shivapur

Is water resource is the income earning source of Nepal? If it is, why it is only the property of NEA? We have to pay NRs 7.50 per unit to NEA, why we could not get share on our resources. Public share should be opened for investment in such projects and Nepali people should be given opportunity for investment. Certain percentage of the investment should be given to the local people.

Mr. Kedar Sigdel – District Assistant Secretary, CPNUML, Tanahu

What is the revenue share of the district from the project? After the implementation of the project, Tanahu should be given uninterrupted electricity and the entire district should be electrified.

Mrs Saraswati Adhikari – NGO Network, Tanahu

We are happy that the project is coming. The women are the group who are most impacted by the project, may it be adverse impact or positive impact. But I found very few women in this gathering. Women also have the right to yes or no on the project matter as they occupy 50% of the society. The women should also be given job opportunities in the project and it should not be limited to high up people and male members only.

Mr. Moti Kumar Shestha – Representative Nepali Congress

I have heard that some of the people have launched a campaign to stop the project. We are dead against this approach. The project has to be implemented here in Tanahu.

Mr. Ram Chandra Pokhrel – Ex Chairman, District Development Committee

Is this project going to be implemented or it is feasibility study only? There are number of foot trails connecting southern Tanahu with Damauli through Seti Gorge, which I think will be under the reservoir, if the project is implemented. What are the alternatives to these trails and tracks? I know there will be compensation, but people have to suffer, if they have to measure longer distances.

This part of the Seti gorge is diverse in biological terms. As elaborated by the study, there are few endangered species. The project should identify an alternative habitat for these creatures. The long distant migrant fishes, as pointed out by the study, are there in the Seti river. Have we placed gates for fish migration in the dam? If not what are the alternatives to protect them and their habitats?

I agree to the point raised by one of the colleague that there should be public share in the project.

Only because of the environmental and social impacts, the project should not be stopped. It should be implemented in the place identified by the feasibility study. However, to protect our impacted resources, we all must cooperate and identify an alternative arrangements.

Finally, I request NEA and JICA study team to plan the project in such a way that there are no contractual problems and cost appreciation as in other projects in Nepal during implementation. Let us make it a unique project which could be implemented and operated as per the costs estimates, without any labor and social problems.

Dr. Toran Sharma, on behalf of the JICA study team, addressed the issues and concerns raised by the members of stakeholder meeting. He elaborated the plan for habitat conservation and fish stocking provisions for the maintenance of the fish diversity of the long distant migrant fishes. The project affected infrastructures such as foot trails and suspension bridges will be installed in the close by area in the project cost as a part of social action plan. To facilitate maximum job opportunities to the affected people and local people, project required skill training will be provided before the construction works in the project area. He further elaborated the provisions of resettlement policy and resettlement framework, social action plan framework and watershed management programs to minimize the project impacts on social and physical environment. To minimize the risks of community health during

construction, health and sanitation programs provisions were elaborated by dr. Sharma, targeting the affected areas.

Mr. Shiva Chandra Jha - Head, Environmental and Social Studies Department, NEA

I would like to thank you all for giving your precious time. I also thank you for raising various issues and concerns on the project. This will help us design and plan the project incorporating your concerns and issues.

I also extend my thanks to JICA study team for making sincere effort for the study and for the preparation of standard project feasibility report. I expect that government of Nepal will take decision on the project in near future. Then we will start detailed design and study of the project. We want your cooperation in future. I would once again thank the participant members. Thank you.

Mr. Bishnu Dhakal – Chairperson of the Stakeholder Meeting and Local Development Officer, Tanahu.

This study made by JICA study team is still in primary phase, which after completion will be submitted to the government of Nepal. If the project is found to be environmentally, socially, and financially good, the government of Nepal will take decision for further study and implementation. We have heard that Government of Japan, Asian Development Bank and many other donors are interested in taking up the project. With the implementation of the project, we expect that the current load shedding situation will be over. Hence I request all political parties to show their commitment for the project implementation. The compensation of the losses and resettlement and rehabilitation of the people will be executed as per the legal provisions of the government of Nepal. The compensation fixation committee will decide upon the compensation of land and property after rigorous discussions with the locals, political party representatives and subject matter specialists. To days gathering gives me a feeling that the project will be a success. The District Development committee extends its thanks to every body concerned. With these words, I declare the meeting as adjourned. Thank you.

Reply to Comments and Issue Raised by Stakeholders

at Third Stakeholder Meeting in Beltar, Rising Patan, Damauli

Reply to Comments and Issues Raised by Stakeholders at Third Local Stakeholder Meeting in Beltar, Rising Patan, Damauli on May 4-6, 2007

S. N	Issue raised	Suggestions, Feedback, Comments and Questions raised by the Participants	Comments and Responses from Nepal Electricity Authority (NEA)
1	Decision for implementation of the Project	1) The decision whether or not the Project will be implemented should be made as soon as possible. 2) After the Upgrading Feasibility Study, will JICA implement the Project?	1) After the Upgrading Feasibility Study supported by JICA, the government of Nepal will make a final decision for the Project. 2) JICA is responsible for providing technical assistance to the Upgrading Feasibility Study alone. The government of Nepal will seek further assistance for the Project from donor agencies including the government of Japan.
2	Maximum benefit of the Project given to local people	1) Since the project site is located in Tanahu District, the first priority should be given to local people in Tanahu. 2) Some portion from NEA royalty should be handed over to Tanahu District.	1) Various types of Social Action Programs proposed by the Upgrading Feasibility Study will be implemented to rehabilitate and enhance the affected communities in affected VDCs/municipality of Tanahu District. 2) The hydropower policy requires that the licensee of a hydropower project pays royalty to the Government of Nepal through Ministry of Water Resources, 50 percent of which is deposited in the government's revenue account while the remaining 50 percent is made available to the district and development region mentioned below. This revenue will be distributed as per the rule 211 and schedule 26 of Local Self Governance Rule 2056 and first amendment 061. 38% of the royalty is distributed to the DDCs of affected development region as per the decision made by the officers of committee or the

			committee of DDC Chairman, and remaining 12% of the royalty is directly given to the DDC where the powerhouse is located. This budget can be used for development programs of the concerned district.
3	Compensation and resettlement	1) Adequate and timely compensation should be given to the affected persons.	1) The framework of Resettlement Plan (RP) was formulated under the Upgrading Feasibility Study. Based on this, the detailed RP will be prepared and consulted with affected persons and communities in advance of the implementation of the project.
		2) The representatives from the affected persons need to be member of Compensation Fixation Committee.	2) As per the Land Acquisition Act, a Compensation Fixation Committee (CFC) will be formed. Although this Act does not consider the representatives of affected persons as a member of CFC, NEA will recommend that they should be included in CFC in accordance with the previous practices of Kaligandaki A HEP and Middle Marsyangdi HEP.
		3) Affected persons should be compensated at replacement cost for all losses and damaged assets.	3) The compensation cost will be decided by CFC considering the market price to ensure improvement of the standard of living among the affected people, or at least restoring them to pre-project levels.
		4) Land without legal holding paper should also be compensated.	4) Land without legal holdings will be compensated as per the prevailing practices.
		5) Compensation should be paid to affected persons not through VDC.	5) Compensation will be directly provided to affected persons.
4	Employment opportunities	1) Local people, both men and women should be employed by the Project. If skilled labors are not available in the areas, the skill	1) Wherever possible local people will be employed on the basis of skill and qualification during the construction period. Skill

		training should be provided to them by the Project. 2) How many workers will be involved in the project construction works on a daily basis?	Enhancement and Employment Program will be carried out for local interested and eligible people from affected families and communities. Training will be provided to them focusing on enhancement of skills required for the project employment. 2) The number of workers is expected to be around 2500 to 3000 in the peak period. However, such information will be only available and disseminated during the detailed design study.
5	Electrification	1) Electricity facility should be given to affected people and local people in Tanahu District.	1) Regarding electrification in Tanahu District, the royalty earned from the Project can be utilized by District Development Committee. Only project affected areas can be electrified by the Project during the construction.
6	Road construction	1) Motorable roads should be built from Bhimad, Rising Patan to dam site, and Damauli.	1) With regard to the upgrade of affected stretches of road, further examination will be undertaken from technical and financial aspects in coordination with District Development Committee and the concerned VDCs during the detailed design study phase. In the project facility sites, the access road will be constructed and upgraded. Except for them, the construction of new roads outside the affected areas is out of the scope of the Project.
7	Suspension bridges	1) For inundated suspension bridges, the alternatives need to be arranged.	1) Submerged suspension bridges will be rerouted and replaced under the Social Action Plan.

8	Erosion and landslide	1) Some mitigation measures for the possible hazardous areas including Bhimad Bazaar should be provided by the Project.	1) The special protection measures against erosion will be taken for the cliff of Bhimad Bazaar. For other areas, wherever needed, the mitigation measures such as Community-based Watershed Management and plantation along the risk zones of reservoir areas will be carried out to protect them from erosion or land slides.
9	Community forests	1) The affected community forest and grazing lands need to be properly compensated. 2) Newly registered community forest in Jamune VDC needs to be compensated.	1) The forestry compensation will be provided based on the prevailing forest guideline, i.e., replacement of trees at 1:25. In addition, the fuel wood volumes and grazing lands for the affected community forests will be compensated. 2) During the detailed design study, the affected community forests will be finally delineated for compensation.
10	Fisheries	1) Mitigation measures for fisheries should be undertaken by incorporating the good practices from other hydropower projects such as Kaligandaki A and Kulekhani.	1) Similar hydropower projects' experiences have been reviewed and suitable mitigation measures have been incorporated in the Upgrading Feasibility Study. Fish hatchery development and/or expansion of existing facilities and stocking of fingerlings in the upstream and downstream zones will be undertaken as mitigation measures.
11	Assist for women in affected VDCs	1) Job opportunities, skill training and awareness raising program for avoiding girl trafficking should be given to the local women in affected VDCs.	1) Under the Social Action Plan, women development program including skill training and various awareness activities will be provided to women in affected VDCs/municipality.
12	Health program	1) More focus should be given to health education including prevention of communicable	1) Community/Public Health and Education Enhancement Program will be carried out as part of Social

		diseases.	Action Plan. It focuses on the improvement of public health, sanitation, water supply and health and education institutions/facilities. Various public awareness and health education will be also included.
13	Design of dam	1) Is there a possibility that a dam will collapse?	1) To make the dam safe and stable, flood discharges, sedimentation in the reservoir, earthquake motions for the dam design were studied and estimated, and those were incorporated into the dam design in the Upgrading Feasibility Study. The dam design will be continued more detailed at the detailed design stage.
		2) Is there a possibility that the reservoir areas will be filled with sediments?	2) Based on the estimate on sedimentation volume in the reservoir, sediment flushing is proposed through sediment flushing facilities installed in the dam, to avoid the reservoir from being filled with sediments. Thus, there is no possibility that the reservoir areas will be filled with sediments.

Advance Notification of Third Stakeholders Meeting in Damauli

8-1 Public notice published in the local newspaper "Nepal Samachar Patra" 7th May 2007 (Nepali).

माथिल्लो सेतीका लागि छलफल

तनहुँ (नेस)। चर्चामा रहेको पोखरेलले आयोजना जिल्लावासीको माथिल्लो सेती (दमौली) जलाशययुक्त ठूलो स्वर्णिम अवसर भएको र आयोजना जलविद्युत् आयोजना सञ्चालनका रोकिन नहुनेमा जोड दिनुभएको थियो। लागि बाटो खुलेको छ।

यस्ते धारणा नेपाली कांग्रेस, नेका आयो जनाको स्तरवृद्धि (प्र) नेकपा (एमाले) नेकपा (अपग्रेडिङ) सम्भाव्यता अध्ययन (माओवादी) जनमोर्चा नेपालका गरेको नेपाल विद्युत् प्राधिकरण स्थानीय नेता बुद्धिजीवीहरूको थियो। वातावरण तथा सामाजिक अध्ययन आयोजनाका प्राविधिकहरूले विभाग, प्राविधि सेवा, र जाइका नेपालले विगत केही सालदेखि ऊर्जाको अध्ययन टोलीले सरोकारवालासँग सङ्कट खेपिरहेको र यो समस्या आउँदा आइतबार दमौलीमा भएको अन्तरिम वर्षहरूको सुरुखायाममा विद्यमान बैठक (तेस्रो बैठक) मा आयोजना देखिएकाले, माथिल्लो सेतीको महत्त्व तनहुँका लागि उपलब्धिमूलक र बढ्न पुगेको धारणा राख्। फाइदाजनक भएको जनाउँदै वाँडे नै माथिल्लो सेती १ सय २८ सञ्चालन गर्न सुझाव दिए।

मेघावाट क्षमता रहेको प्राधिकरणले सरोकारवालाहरूको सुझावले जनाएको छ। यो आयोजना कुलेखानी आयोजना सञ्चालनको बाटो खुलेकोमा एक आयोजनाभन्दा करिब दुई गुणा नेपाल विद्युत् प्राधिकरण इन्जिनियर ठूलो हुनेछ। ऊर्जा सङ्कटको समस्या सेवाका महाप्रबन्धक भोजराज रेग्मी, समाधान गर्न र गरिबी निवारण गर्न जाइका अध्ययन टोलीका इसी, परामर्श प्रयत्नलाई मूर्त रूप दिन नेपाल दातृ संस्थाका प्रमुख डा. तोरण शर्मा, सरकारका दशौं पञ्चवर्षीय योजना नेपाल विद्युत् प्राधिकरण इन्जिनियर (२०५९-२०६४) मा देशको प्रचुर सेवाका निर्देशक शिवचन्द्र झा, जलस्रोत जलस्रोत उपयोग गर्ने उद्देश्यले मन्त्रालयका प्रवीण अधिकारीले खुसी जलविद्युत् योजनाहरूको निर्माण गर्न व्यक्त गर्दै सरोकारवालाबाट निरन्तर प्रस्ताव गरेको छ। माथिल्लो सेतीको सहयोगको अपेक्षा गरे। कार्यक्रममा निर्माणमा २४ अर्ब खर्च हुने जिविस तनहुँका पूर्वसभापति रामचन्द्र प्राधिकरणले जनाएको छ।

8-2 Public notice published in the local newspaper "Nepal Samachar Patra" 7th May 2007 (Nepali).

Meeting held for Upper Seti

Tanahun (NS). The Upper Seti (Damauli) Storage Hydroelectric Project has paved its way for implementation.

Upgrading feasibility study team, comprising of Environment and Social Studies Department, NEA and Japan International Cooperation Agency (JICA) on the third stakeholder meeting in Damauli suggested that the project implementation is beneficial to the Tanahu District

Bhoj Raj Regmi, Managing Director of Engineering Department of NEA, Ishi, Team Leader of JICA study team, Dr. Toran Sharma, consultant to JICA, Shiva Chandra Jha, head of the Environment and Social Studies Department NEA, and Pravin Aryal, representative of Ministry of Water Resources, expressed happiness that the project is potential for implementation and requested continuous support from the stakeholders in future. Mr. Ram Chandra Pokhrel, Ex-DDC chairman of Tanahu lamented that the project is a golden opportunity for the people of Tanahu district and stressed that the project should be continued. Similar opinions were expressed by the representatives of Nepali Congress, Nepali Congress (D), Nepal Communist Party (UML), Nepal Communist Party (Maoist), Jana Morcha Nepal, and other district intellectuals.

Project engineers, highlighting on the ongoing load shedding, expressed that the project has a special significance and importance in the demand and supply management of electricity power, particularly in the dry season in future.

The NEA, stated that the project will be of 128 MW installed capacity. The project is twice the capacity of Kulekhani project. In order to solve the problem of power shortage permanently and to support the poverty reduction efforts in Nepal, the Government of Nepal has proposed the various hydropower projects by using its abundant water resources in its Tenth Plan (2002-2007).The project estimated cost, according to NEA, is NRs. 24 Arab.

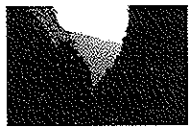
-Nepal Samachar Patra
2064-01-24

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

Upper Seti (Damauli) Storage Hydroelectric Project
3rd Stakeholder Meeting, May 10, 2007/ Baishak 27, 2064.
List of Invited Institutions/Persons

S.No.	Name	Address	Number of Participants
1	Ministry of Environment Science and Technology	Singha Durbar	1
2	Ministry of Water Resources	Singha Durbar	1
3	Department of Electricity Development	Singha Durbar	1
4	Ministry of Forest and Soil Conservation	Singha Durbar	1
5	Ministry of Agriculture	Singha Durbar	1
6	Ministry of Land Reform	Babarmahal	1
7	Fisheries Development Directoriate	Balaju	1
8	IUCN	Bakhundol	1
9	Nepal Forum of Environmental Journalist	Thapathali	1
10	Embassy of Japan	Panipokhari	1
11	JICA	Pulchok, Lalitpur	1
12	JBIC	Mr. Krishna Manandhar Local Representative, JBIC, Kathmandu	1
13	ADB	Kamaladi, Kathmandu	1
14	The World Bank	Durbar Marga	1
15	Engineering Association of Nepal	Pulchok	1
16	EIA Association of Nepal	SchEMS	1
17	NGO Federation	Buddha Nagar	1
18	Local NGO Representative	Tanahu	1
19	Water Nepal (Ajay Dixit)	Patan	1
20	Nepal Academy of Science & Technology	Satdobato, Lalitpur	1
21	Radio Sagarmatha	Sanepa, Lalitpur	1
22	The Kathmandu Post	Subidhanagr, Kathmandu	1
23	The Himalayan Times	Ananmnagar, Kathmandu	1
24	The Rising Nepal	Dharampath, Kathmandu	1
25	IMAGE Channel	Lazimpat, Kathmandu	1
26	Kantipur TV	Subidhanagr, Kathmandu	1
27	JICA Study Team		10
28	NESS Consult		5
29	Project Office		3
30	NEA-ESSD		8
31	Planning NEA		22
32	NORAD	Bakhundol, Lalitpur	1
33	KFW	Bakhundol, Lalitpur	1
34	ICIMOD	New Baneshwor	1
35	WWF	Maharjung, Kathmandu	1
36	Winrock International	Baneshwor, Kathmandu	1
37	National Planing Commission	Singa Durbar	1
38	Napal Toursim Board	Exhibation Road	1
39	Department of Gelogy	Lazimpat, Kathmandu	1
40	Federation of Indigenus People	Sanepa, Lalitpur	1
41	Nepal Communist Party (Maost)	Ananmnagar, Lalitpur	1
42	Nepal Communist Party (UML)	Balkhu, Kathmandu	1
43	Nepali Congress	Sanepa, Lalitpur	1
44	Nepali Congress (Democratic)	Bansbari, Kathmandu	1
45	Sadaabhana Party (Anandidevi)	Tripureshwor, Kathmandu	1
46	Nepal Peasant Party	Bhaktapur	1
47	Joint Peoples Movement of Nepal	Dharahara	1
48	Left Movement of Nepal	Dhobidhara	1
49	Ministry of Women and Social Welfare		1
50	Dr. Jagdish Chandra Pokhrel	N.P.C. Singha Durbar	1
51	H. Parlamentary Member Tuk Raj Sigdel		1
52	H. Parlamentary Member Govinda Raj Joshi		1
53	Ex. Parlamentary Member Amar Raj Kaini		1
54	Hon. Rama Kanta Gauro		1
55	Hon. Suresh Ale Magar		1
56	Hon. Sabitri Dura (Gurung)		1
Total Number of Participants			99

Presentation Material in Kathmandu



Major Findings of Upgrading Feasibility Study

JICA Study Team

Malla Hotel, Kathmandu
May 10 2007

Contents of Presentation

1. **Background & Outlines of Study**
2. **Findings**
   - 2.1 **Power Demand & Supply**
   - 2.2 **Characteristics of Project Site**
   - 2.3 **Contents of Study**
3. **Conclusions and Recommendations**
4. **Time-line of the Project**

2

1. Background (1)

- Power Supply
  - Hydropower shares 99 % in energy generated in Nepal
- Electrification: around 25 % in households
- Supply Balance
  - Annual maximum demand: recorded during dry season
    - Minimum monthly discharge: less than 10 % of maximum one
    - Countermeasures: power import, thermal power, & load shedding
- Load shedding
  - FY 2004/05 12 days, July 2005 to May 2006 137 dyas
- Affects of Shortage of Power
  - People's living & economic activities in the country

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1 Outlines of the Study (1)

- Chronology of Study
  - 2000: Identification and Feasibility Study of storage projects by NEA
  - 2001: F/S by NEA
  - 2004: Upgrading F/S by NEA
  - 2004: Preliminary study by JICA
  - Feb. 2005: Commencement of Upgrading F/S by Study Team
- Study Period: Feb. 2005 to Jun. 2007
- Purpose
  - Formulate the optimum plan
  - Assess its environmental, technical, economical and financial viabilities

4

1 Outlines of the Study (2)

Preminary Study Stage
1. Review of existing documents and data
2. Preparation of alternative layout
3. Preparation of investigation plan
4. Power Sector Survey

Detailed Investigation Stage
1. Investigation
   by Subcontracting
   by Study Team
2. Environmental assessment
3. Optimization of Development Plan

Fesbibility Design Stage
1. Design at F/S level
2. Preparation of construction plan
3. Project cost estimation
4. Economic & financial analysis

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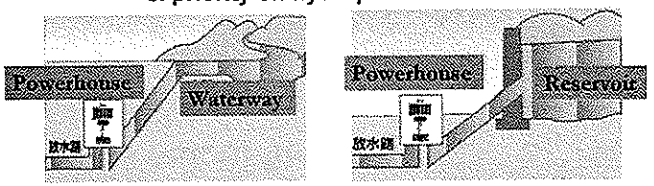
2.1 Power Demand & Supply (1)

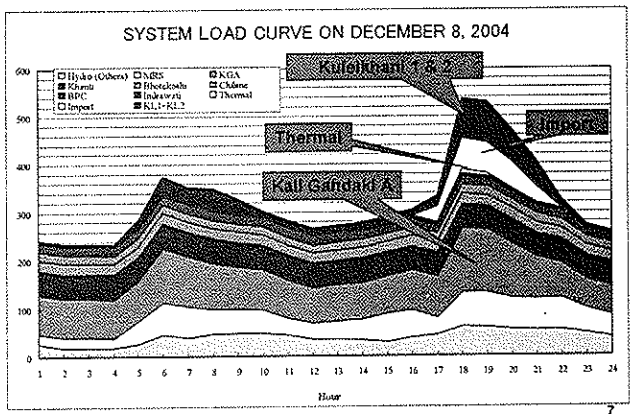
- Total Installed Capacity : 611 MW, Hydropower 90%
- Annual Energy: Hydropower 99%
- Peak demand sources: storage type: 92MW (15%)
  Thermal: a. expensive fuel cost
  b. procurement risks and foreign currency
  c. priority on hydropower



Run-off-River Type Storage Type

6

2.1 Power Demand & Supply (2)



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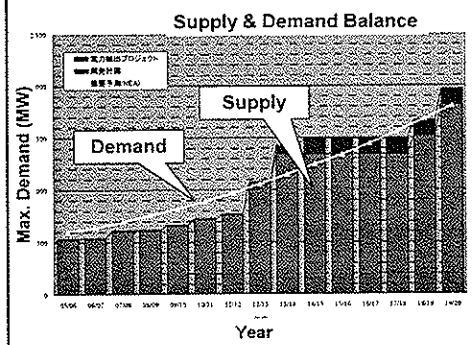
2.1 Power Demand & Supply (3)



- Annual Growth Rate:
  8 % in past 10 years
- Demand forecast:
  8 % per annum

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2.2 Characteristics of Project (1)

Main Features of the Project

1) Reservoir	
Full Supply Level	415.0 m
Gross Storage Volume	295.1 million m^3
Effective Storage Volume	167.0 million m^3
Reservoir Area	7.26 km^2
Reservoir Length	27.0 km
Drawdown Depth	27.8 m
Design Flood (PMF)	7,377 m^3/s
2) Dam	
Type	Concrete Gravity
Height x Length of Crest	140 m (H) x 170 m (L)

3) Powerhouse	
Type	Underground
Width x Height x Length	22 m (W) x 42 m (H) x 90 m (L)
Turbine Type	Vertical Francis
Number of Turbine	Two (2) nos.
4) Generation	
Effective Head	113.0 m
Maximum Discharge	127.4 m^3/s
Installed Capacity	64MW x 2
Annual Energy Production	475.2 GWh

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2.2 Characteristics of Project (2)

Characteristics of the Site

- Geology: Foundation of high dam
  Underground powerhouse
- Sedimentation:
  Annual sediment: 6,500 ton/year/km^2
- Environment: Storage project
  Category A in JICA Guidelines

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2.3 Study (Geology)

- **Result of geological investigation**

1) Geology around reservoir will be watertight
2) Rock foundation will have enough strength for 140-m high concrete gravity dam.
3) Rock around underground powerhouse will be hard.

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2.3 Study: Sedimentation

- Countermeasures for Sedimentation

1. Sediment flushing facilities in dam
2. Sediment flushing at the beginning of rainy season
3. Coating of turbines due to erosion by small particle of soil

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2.3 Study (Environment)

- Environmental Impact Assessment (EIA)

1. Review of NEA's EIA
2. Supplemental Environmental Survey
3. Supplemental EIA
4. Proposals on Mitigation Measures
5. Frame work of Resettlement Plan and Social Action Plan
6. Stakeholder Meeting

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2.3 Study (Stakeholder Meeting)

- Findings at 1st and 2nd Stakeholder Meetings

1st Meeting: 402 participants, 2nd Meeting: 574 participants

1) The proposed project is requisite and essential
2) The proposed project needs to provide the maximum benefits to the local society.
3) Due consideration should be given to the compensation and resettlement issues.
4) The alternative mode of transportation for inundated roads and affected suspension bridges should be considered.
5) The mitigation measures to protect Bhimad Bazaar and other necessary areas from erosion should be seriously considered.
6) The affected community forest and grazing lands need to be delineated and compensated.
7) Various development needs such as electricity facility, drinking water and schools should be considered and undertaken.

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2.3 Study (Optimization)

- Optimization of Development Plan

1. Preparation of 5 layouts for comparison
2. Estimate on environmental cost every 10m of Full Supply Level
3. Cost: Construction and O & M Costs of Project
4. Benefit: Construction and O & M Costs of Thermal Power Plant
5. Comparison of Benefit – Cost ratio

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2.3 Optimization Result

- Selected Plan

1. FSL: EL.415 m
2. Dam: Concrete gravity type
3. Installed Capacity: 128MW
4. Powerhouse: Underground type

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2.3 Study (Design, etc.)

- For the selected plan

1. Design at F/S level
2. Preparation of construction plan
3. Estimate project cost
4. Economic and financial evaluation
5. Proposal on further investigations

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2.3 Study (Construction Cost & Schedule)

Construction Cost

	Item	(Million US$)
1	Preparatory Works	2.24
2	Civil Works	192.93
3	Hydromechanical Eq.	16.63
4	Electromechanical Eq.	47.18
5	Transmission Lines	9.00
	Direct Cost	267.98
6	Environmental Cost	29.10
7	Admin. & Engineering Fee	18.76
8	Contingency	24.61
	Indirect Cost	72.47
9	Total	340.45

- Construction Period:

6 years including preparatory works

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2.3 Study: Economic Evaluation

- Economic Evaluation

1. Method: Comparison of Thermal Power Plant
2. Benefit (B): Construction and O&M Cost of Thermal Power Plant
3. Cost (C): Construction and O&M Cost of Project
4. Results: Confirmed more benefit than thermal power plant

Economically feasible

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2.3 Study: Financial Evaluation

- Financial Evaluation

1. Benefit: Electric tariff of NEA
2. Electric tariff: Assumed reasonable increase
3. NEA can get benefit from Project

Confirmed financially feasible

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2.3 Study: Others

Other Benefit from Project

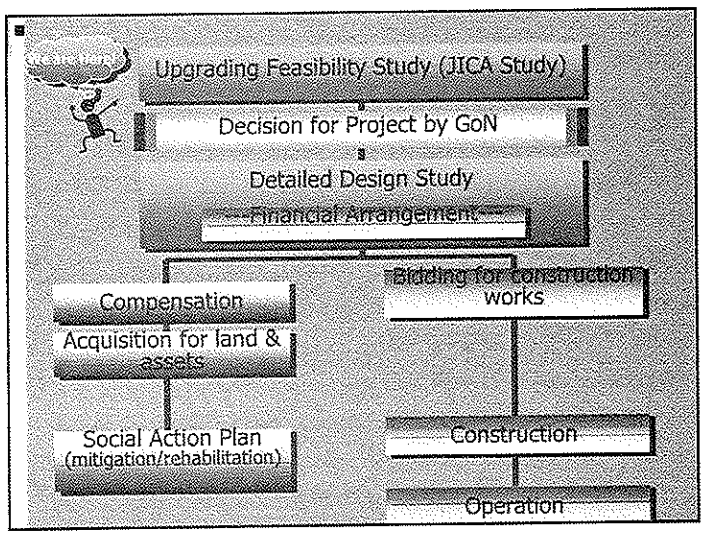
1. Make stable power frequency
2. Maintain power voltage in network
3. Reduce/replace operation hours of costly thermal power plants
4. Reinforce NEA's network by transmission

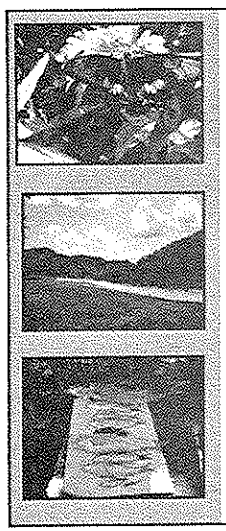
21

3 Conclusion & Recommendation

- Judged feasibility from technical, environmental, economical, and financial viewpoint
- Recommended to proceed to the next stage as new power sources

22





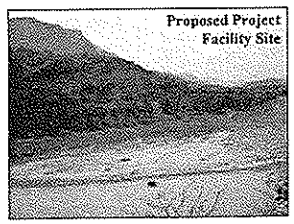
Natural Environmental Impacts and Mitigation Measures

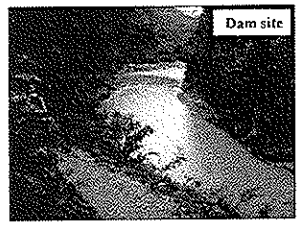
The Upgrading Feasibility Study on Upper Seti Storage Hydroelectric Project in Nepal

Malla Hotel, Kathmandu,
May 10 2007

1

Contents of presentation





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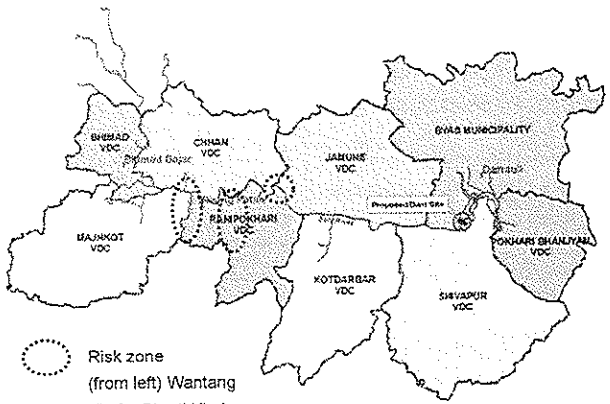
Proposed dam site and affected DVC



Risk zone
(from left) Wantang Khola, Phedi Khola, and Tittuwa

3

1. Impact and Mitigation for the physical environment

1.1 Impact and mitigation during the construction phase

Changes of land use:

SN	Land use	Affected area (ha)			
		Reservoir area (FSL: 415 m)	Project facility site	Risk Zone	Total
1	Cultivation	108.89	35.82	6.51	144.71
2	built up	1.34	0.25	0.11	1.59
Total cultivation / built up area		110.23	36.07	6.62	152.92
3.1	Grazing land	102.56	7.35	2.24	109.91
3.2	Shrubs	28.18	4.67	2.31	32.85
Total grazing land / shrub		130.74	12.02	4.55	147.31
3.3	Hill sal Forest	29.46	44.46	1.85	73.92
3.4	Khair / Sissoo Forest	52.62	0.00	0.06	52.62
3.5	Mixed Open Forest	271.81	24.24	0.00	296.05
Total Forest		353.89	68.70	1.91	424.50
4	Barren land	1.43	0.00	0.00	1.43
5	Escarpment	8.70	0.00	0.00	8.70
6	River	98.45	7.01	0.00	105.46
7	Sand	128.54	9.28	0.33	137.82
	Grand Total	831.98	133.08	13.42	978.47

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1.1 Impact and mitigation during the construction phase (continued)

Construction phase		
Items	Impact by the Project	Proposed Mitigation
1. Landuse & topography	1) Inundation of land and changes of existing land use 2) Excavations, drilling and blasting etc, are potential to generate new sets of land instabilities at tailrace area and dam site.	- To set the lower FSL (Proposed FSL: 415m + risk zone 10 m) based on the optimum balance between incurred losses and Project benefits. - To select the layout of facilities minimizing the impact of land use changes in the communities e.g. Beni Pokari & Shivapur.
2. Air Quality	Excavations, filing, construction vehicle movements, etc. will generate the dust which detriorate the air quality in the reservoir.	- To water on the road, dusty barren areas and spoil disposal areas. - To restrict on-site vehicle speed - To wash vehicles before leaving the site
3. Noise	Cut-and cover activities, excavation,transportation of the vehicles and other construction activities will generate more noise. Vibration also will be generated by drilling, brast activities, etc.	- To use and correct fitting of silencers, mufflers and acoustic shields - To take care in the replacement and orientation of noisy plants from sensitive receivers
4. Water quality	1) Poor facilities for sanitation in the construction area and camp site may cause the open defecation of solid waste in the river bed, which degrades the water quality. 2) Accidental spills or discharge of materials (oil, cement, etc.) can also degrades the water quality.	- To set up good water supply & sanitation facilities in the work camp - To set up the effective solid waste collection facilities in the camp - Discharge of batching plant, aggregate washing plants, etc. should be done just after appropriate treatment to the river.
5. Construction Spoils	Erosion may occur at the spoil bank constructed at the right bank of the river	- To construct dry stone gabion structure at the toe of the spoil bank - To construct a water collection system for the bank

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1.2 Impact and mitigation during the operation phase

Operation phase		
Items	Impact by the Project	Proposed Mitigation
1. Land use & Topography		
(1) Reservoir area / Reservoir Shoreline Failure	1) Risk of slope instability in the upper reservoir area 2) Risk of terrace breaks by toe cutting of the stream	-To complete protection embankment works with concrete blocks near the Bhimad Bazaar. - To condust land acquisition program to stabilize the erosion prone area in the 10m above from FSL and in the vicinity of Wantang Khola, Pedhi Khola and Tutuwa. - To plant trees and grasses in the erosion prone area along the tributaries of Seti river. - To formulate and implement Watershed Management Plan to reduce the erosion rate in the upstream of Seti river watershed
(2) Full Supply Level (FSL) / Environmental Flow	Sedimentation and backwater may occur if FSL is not appropriate to control them.	- Proposed FSL 415 m will effectively control any sedimentation. - In case of FSL 415 m, the sedimentation will not occur around Bhimad Bazaar. - Backwater effect after sedimentation is minor.
(3) Impact in the Downsteam of the Dam	High sediment deposit at the sediment flush operation and river scouring at the normal operation is supposed to occur immediately below the dam.	- To monitor the sedimentation patterns in 10km downstreams of the dam - The environmental flow 2.4 m3/s proposed by NEA is likely to be reasonable range to mitigate the impact of aquatic ecology in the downstream.

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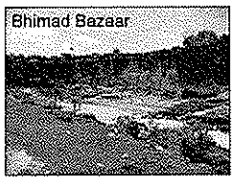
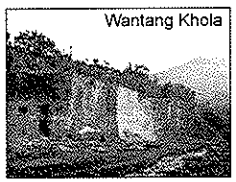
1.2 Impact and mitigation during the operation phase (continued)

Operation phase		
Items	Impact by the Project	Proposed Mitigation
2. Water Quality		
(1) Eutrophication of the Reservoir	1) The current phosphorous level in the reservoir is much higher than 0.03 mg/l. 2) Eutrophicaton possibly occurs by the inflow of phosphoruos expected to increase during the operation phase.	- To install the fraction fence (low cost and easy maintenences) - To install the aerator - To install vegetated floating inland - To input minerals - To conduct sediment flush operation once a year to prevent the nutrient from accumulating in the bottom of the reservoir
(2) Sediment Flush Operation	The operation may degrade the water quality in the downstream environment.	It needs to be examined sufficiently based on the past experience. Sediment flush operation should be carried out once a year to maintain the good water quality in the reservoir





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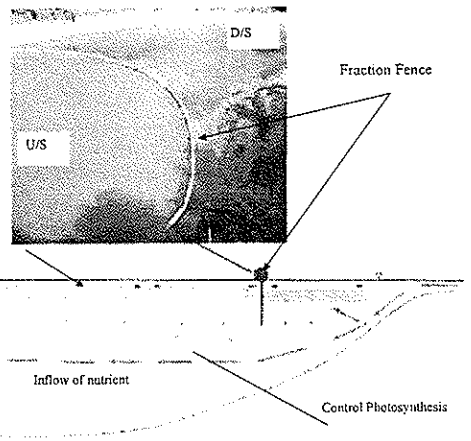
1.2 Impact and mitigation during the operation phase (continued)

Fraction fence:



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2. Impact and Mitigation for the biological environment

Items	Impact by the Project	Proposed Mitigation
1. Forest & Vegetation	1) Baseline: Among 209 plants found in the area, 3 species under GON, 6 species under CITES and 6 species under IUCN conservation categories. 2) In total, 422.58 ha of forests (excluding 1.91 ha of Risk zone) are affected. Among them, 296.05 ha (70%) is "hardwood mixed forest".	- To plant trees in the national and community forest following the Forest Department Regulation with rate of lost / plant trees to be 1:25 - To compensate for the fuel wood, timber and fodder in the affected community and private forest
2. Wildlife	1) Baseline: 16 species of mammals, 7 species of reptiles & amphibians, 3 species of birds found in the site are indicated as protected species under CITES Appendixes and IUCN Red Data List. 2) Impacts on habitat and lives of the mammals & reptiles in the project facility site & riverine area due to the construction works, establishment of workers camp and poaching (illegal hunting)	- To minimize the cutting of trees by selecting appropriate site layout and providing alternative energy e.g. kerosene for the workers camp - To restrict hunting and trapping of wildlives - To save endangered animals by a rescue operation using boats
3. Fish & Aquatic life	1) Baseline: None of the species are listed in CITES and IUCN red list among 36 species found in the site. 2) Impact of dam construction to the habitat of fish and aquatic lives 3) Barrier impacts by the dam to the migrating fish species (economically important), 4) Impact on the fish species structure in the down stream by sediment flushing and decline of water level	- Fish trapping & trucking, fish rock or ladder - Extension of fish hatchery in Kaligandaki A Project to supply fry to the river

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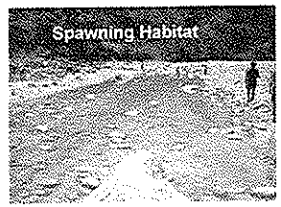
2. Impact and Mitigation for the biological environment (continued)

Some comments on the impact and mitigation for the biological environment

- Since similar habitat conditions are widely seen in the vicinity of the study area, it is considered that possibility of specific species extinction is little in the wider area including the project site.
- Further survey on the protected species and their habitat conditions should be conducted. If it is needed, the proper measures should be taken during the detailed design stage and/or construction stage.



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3. Cost for Mitigation and Monitoring

Construction phase

Environmental Impact	Mitigation Measures	Cost (NRs. Million)
1. Land instabilities & erosion	Bio-engineering of the cut batter slopes of the access roads (lump sum)	2.0
2. Air Quality	Suppression of dust by sprinkling	4.9
	Dust masks to workers	0.7
3. Water quality	Sanitation (toilet provisions)	4.5
	Solid waste management system	2.8
	Sedimentation tank	10.0
4. Construction Spoil Drainage	Dry gabion wall approximately 1,300m (1.5 m high and 1 m wide)	5.0
	Run off catch drainage of mountain slope	3.2
5. Accidental costs	Vibration effects	10.0
	Total	43.1

Operation phase

Environmental Impact	Mitigation Measures	Cost (NRs. Million)
1. Downstream impacts to community activities	Siren network along the Seti downstream tailrace (lump sum)	3.5
	Awareness training on the safety measures to downstream areas (lump sum)	0.3
	Total	3.8

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3. Cost for Mitigation and Monitoring (continued)

Watereshed management

Measure	Cost (NRs. Million)
1. Studies and planning	1.5
2. Bio-enginnering Measures for Soil Erosoin Control	25.0
3. Afforestation Programs in the watershed	15.0
4. River training works	25.0
5. Landslides Stabilisation Measures	10.0
6. Check dums in the tributary streams (draining to reservoir)	35.0
Total	111.5

Cost for monitoring changes of physical environment

Particulars	Cost (NRs. Million)
Construction phase	
1. Measurement of the indicators (air, water, noise, spoil, erosion, etc.)	5.32
2. Effect of the measurements for downstreams	3.80
Operation phase	
1. Measurement of the water quality fro twenty (20) years	3.00
2. Measurement of river bed sedimentation & erosion for twenty (20) years	2.00
Total	14.12

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3. Cost for Mitigation and Monitoring (continued)

Mitigation measures and cost for fisheries

Priticulars	Mitigation Measures	Cost (NRs. Million)
1. Financial & technical assistance to Kali Gandaki A hatchery	Assistance in adding the production, developing the facility and conducting the research for upstream & downstream stocking in Seti river	73.5
2. Release of fish	Annual release of puchased exotic carps to the reservoir	1.2
	Trial cage & aquaculture program	0.7
3. NEA Extension program	Extension program foe fisheries and mitigation to local fisherman	1.0
	Total	76.5

Monitoring costs - Construction & Operation phase

Monitoring items	Cost (NRS. Million)
Aquatic ecology survey in the 7 baseline stations twice a year for 5 years during construction phase, @ 0.1 million NRs/monitoring season, sub total for 5 years	1.0
Aquatic ecology survey in the 7 baseline stations after two years of project operation for 10 years, @ 0.15 million NRs/monitoring, sub total monitoring cost for 10 years	3.0
Total	4.013

Framework of Resettlement Plan and Social Action Plan

The Upgrading Feasibility Study on
Upper Seti Storage Hydroelectric Project

Malla Hotel, Kathmandu
May 10 2007

1

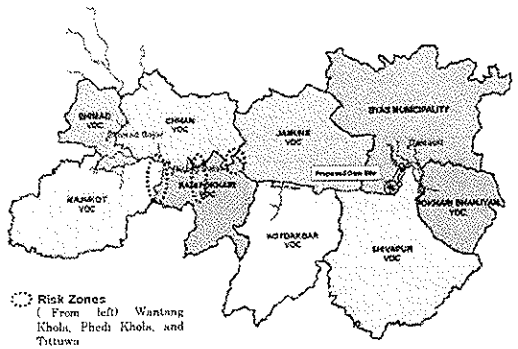
1 Identification of Affected Areas

Affected 7 VDCs & 1 Municipality

❶	Reservoir Areas (FSL 415+10m)	Bhimad, Chhang, Majkot, Rising Ranipokhari, Kotdurbar, Jamune, Kahun, Shivapur VDCs, Vyas Municipality
	Risk Zones (A 50 m horizontal distance from the edge of the cliff)	i)Wantang Khola (Majkot-Rising Ranipokhari), ii)Phedi Khola (Rising Ranipokhari), and iii) Tittuwa (Rising Ranipokhari)
❷	Project Facility Sites	Kahun Shivapur, Vyas Municipality
❸	Downstream Areas	Kahun Shivapur, Pokhari Bhanjyang, Keshavtar, Dharampani, Baidi, Chhipchiipe, Devghat, Deurali VDCs

2

1 Affected VDCs and Municipality



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2 Major Socio-Economic and Cultural Impacts

- Affected Cultivated Land ---------- 151.22 ha (FSL415 +10 m)
- Affected Built up Area ---------- 1.7 ha
- Affected Forest Land ---------- 424.5 ha
- Loss of Agricultural Production -------- 660.77 MT
- Number of Affected Private Structure- 313
- Number of Affected Community Structure- 7 (1 Ghat, 5 Resting place, 1 Temple)
- Number of Affected Private Land Owners- 838 hh
- Number of Affected Structure Owners- 110 hh (half of them living in the project facility sites)
- Number of Residential Structure Owners =Relocatee ---------- 86 hh (about one-third of them having non-legal title)

4

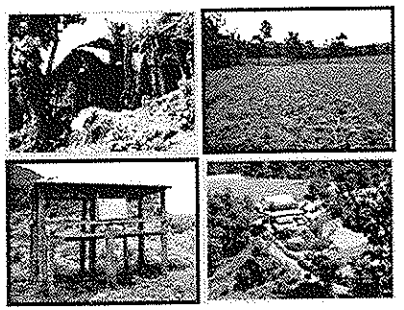
2. Major Socio-Economic and Cultural Impacts

FSL415 m

Affected Infrastructures --	2 stretches of Motorable roads, 6 suspension bridges, 20 foot trails, 1 irrigation cannels, 2 electric distribution line routes
Loss of Water Resources and Forest Resources -------	Giving negative impacts on those who are highly dependent on forest resources such as fodder and fuel wood and water resources in their daily lives
Inflow of a Large Number of Workers ----------	Giving significant stress to the local water supply system and existing public facilities, deteriorating the sanitation conditions and environment

5

Framework of Resettlement Plan



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3. Resettlement Policy Framework for the Project

- Land acquisition and involuntary resettlement shall be avoided where feasible or minimized to the extent possible.
- Where population displacement is unavoidable, individuals, households and community losing assets, livelihood and other resources shall be informed and consulted.
- Affected Persons(APs) shall be compensated at replacement cost for all losses and damaged assets. The absence of legal titles to lands, property and facilities shall not be a bar to compensation.
- APs shall be fully compensated and resettled before their houses are demolished and their land and facilities are acquired.

7

3. Resettlement Policy Framework for the Project

- A resettlement plan shall be prepared and consulted with APs in advance of the implementation of the project .
- The resettlement plan implementation shall be monitored.
- The resettlement shall be executed as part of the development project.
- After RP implementation, the economic and social conditions of the APs should be improved or at least maintained.

8

2. Entitle Matrix for Compensation/Rehabilitation

Types of APs	Type of Compensation/Rehabilitation									
	1	2	3	4	5	6	7	8	9	10
	Permanent loss of land at replacement cost	Loss of crops and natural resource	Loss of house and other structures at replacement cost	Loss of community facilities and resources	Loss of government property	Grant for disturbance compensation to displaced households	Grant of transportation allowance to displaced households/community structures	Grant of land plot	Loss of business	House rental allowance
Landowner	✔	✔								
Land tenant	✔	✔								
Structure owner			✔							
Business owner									✔	
Community		✔		✔			✔			
Government Agency		✔			✔					
Relocatees										
House & Lot owner	✔	✔	✔			✔	✔	✔	✔	✔
House owner tenant	✔	✔	✔			✔	✔	✔	✔	✔
Informal settler			✔			✔	✔	✔	✔	✔
House occupant						✔	✔	✔	✔	✔

3. Cost Estimation for Resettlement Plan

Summary	Million NRs
Cost Estimation for the Private Land	999.51
Cost Estimation for the Structures	33.972
Cost Estimates for Agriculture Production Equivalent to One Year Production	0.647
Other Rehabilitation Compensation to Relocatee	44.95
Transportation Allowance to affected Structure Owners Other than the Affected Residential Structure Owners	0.56
Monitoring for 10 years	1.80
Grand Total	1,081.4

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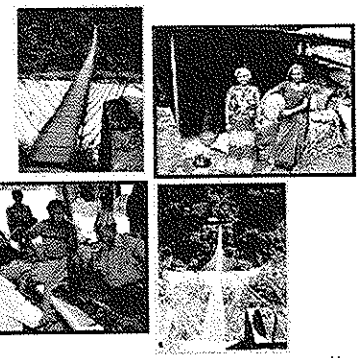
Proposed Social Action Plan



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4. Social Action Plan Framework for the Project

- Social Action Plan is designed to mitigate socio-economic impacts on the affected communities and affected persons, and rehabilitate the quality of life of these communities and persons.
- Social Action Plan includes a package of 8 social programs.

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]
8. [illegible]

2 Proposed Social Programs

1 Restoration of Project-Impacted Infrastructure Program

- ◆Target Groups: Affected local communities in which infrastructure will be affected.
- ◆Program Components: Affected infrastructure such as motorable roads, suspension bridges, and foot trails will be restored.

2 Affected Community's Initiative Support Program

- ◆Target Groups: Affected communities of the project-affected VDCs/municipality of the Reservoir area
- ◆Program Components: Some development funds will be allocated to each affected VDC to undertake programs as per local needs. The local affected VDCs are expected to contribute 25% of the estimated cost in cash or in kind for the selected program.

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2 Proposed Social Programs

3 Skill Enhancement & Employment Program

- ◆Target Groups: Local interested and eligible people from affected people and communities. The priority should be given to the poor, destitute and disadvantaged people.
- ◆Program Components: Training will be carried out focusing on enhancement of skills required for the project employment.

4 Agricultural Development Program

- ◆Target Groups: Affected persons and affected communities.
- ◆Program Components: It includes agricultural, horticultural and herbal and vegetable faming development by providing practical training and improved seeds or samplings.

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2 Proposed Social Programs

5 Community Public Health & Education Enhancement Program

- ◆Target Groups: One program is targeted near the construction sites. The other is targeted in the close vicinity of the reservoir affected VDCs.
- ◆Program Components: It focuses on the improvement of public health, sanitation, water supply, health and education institutions. Various public awareness and education activities such as environmental sanitation, HIV/AIDS, STI and other communicable diseases, and prevention, will be also undertaken.

6 Women Development Program

- ◆Target Groups: Women in the affected VDCs and municipality
- ◆Program Components: It includes income generation skills, education on HIV/AIDS, STI, family planning, and girl trafficking, and micro-credit funds.

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2 Proposed Social Programs

7 Community Based Watershed Management Program

- ◆Target Groups: Affected communities located close to the reservoir in affected VDCs and municipality.
- ◆Program Components: With the technical support of the watershed management experts in the detailed design phase, the program will be launched and managed by the affected communities.

8 Rural Electrification Program

- ◆Target Groups: Unconnected part of the affected VDCs and municipality.
- ◆Program Components: It is designed to meet the electricity connection needs of the local communities.

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Cost Estimation for Social Action Plan

Summary	Million NRs
Replacement of Affected Infrastructures by the Reservoir	85.5
Community's Initiative Support Program	52.13
Skill Enhancement and employment	10.14
Agricultural Development Programs	27.51
Community/Public Health and Education Enhancement Programs at the Project Construction sites	9.66
Community/Public Health and Education Enhancement Programs at the Reservoir affected VDCs	6.27
Women Development Program	13.03
Watershed Management Programs	12.31
Monitoring for 10 years	19.55
Grand Total	236.10

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Recommendations and Further Investigation at the Detailed Design Stage

- Update and finalize the affected land plots and land owners
- Conduct an inventory structure survey for areas such as Wantang Khola, Phedi Khola and Tittuwa as well as the Project Facility Sites
- Update the framework of Resettlement Plan and the Social Action Plan
- Incorporate the proposed mitigation and enhancement measures in Tender Documents and Contract Agreement

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Participants Registered in the Third Stakeholder Meeting

in Kathmandu

Participants Registered in the Third Stakeholders Meeting at Kathmandu, May 10, 2007

SN	Name	Caste	Address	Office / organization	Profession /Grade	Phone	Age	Sex
1	Surendra Pandey		K.K.P			4258338	45	Male
2	Dr. Mukesh Kumar Pandey		NEFEJ	NEFEJ	Service	5526893	50	Male
3	Radesh Man Pradhanang		SRCL/NEA	NEA	Service	4243227	54	Male
4	Jagdishwor M. Singh	Newar	NEA	NEA	Service	4212297	45	Male
5	Bhim Raj Kadariya	Bhramin	Public Ralation	NEA	Service	4225477	37	Male
6	Ritu Duwal	Newar	ESSD	NEA	Service	4226780	36	Female
7	K.R Bhatta	Bhramin	Chameliya HEP	NEA	Service	4482788	52	Male
8	Prem Rajbhandari		NEA, ESSD	NEA	Service	4378074	45	Female
9	Mathura Dangol	Newar	MOWR	Singh Durbar	Service	4211504	52	Male
10	Raja Rishi Kadel	Bhramin	NEA/ESSD	Employee	Service	491502	37	Male
11	Bhakta Bdr. Belayas	Chhetri	Doti	Nepali Congress (Dem	M.P	9.851E+09	59	Male
12	Birendra Kumar Pathak		NEA, Durbar Marg	NEA	Service	4227039	49	Male
13	Dr. Tej Kumar Shrestha	Newar	Zoology Res. T.U	T.U	Professor	4070748	57	Male
14	B.P Dhakal	Bhramin	Tanahu	DDC	GDOE	9.856E+09	45	Male
15	Raj Kumar K.C		TRN	TRN		9.841E+09		Male
16	D.P Bashyal	Bhramin	NEA, HEAD Office	NEA	Service	985101843	53	Male
17	Raju Manandhar	Newar	Anam Nagar	The Himalayan	Reporter	4771489	30	Male
18	Sanak Man	Newar	Kath	NWDD		4352787	41	Male
19	Resham Raj Dhital	Bhramin	Kath	Fisheries (Directorate)	Officer	4350662	55	Male
20	Shyam Shrestha		NEA	Director NEA	GM	4248101	55	Male
21	Sayako Tokuda		Pulchok	JICA	ARR	5552711	32	Female
22	Neera Pradhan		Thamel	MOFSC	HMG Service	4230832		Female
23	Ghana Shyam Sharma			CPN (JA Morcha)	G.S	4112241		Male
24	D.P Upadhaya		NEA	NEA	GM	4225852		Male
25	Shyam Bhandari		NEAEU	NEA	Vice Precident	9.851E+09	48	Male
26	Vishnu Bdr. Sigh		NEA	NEA	Dir/PPD	4370432		Male
27	Iswor Onta		Nepal Eng. Council	NEA	Chair	985100427	65	Male
28	Shiva Chandra Jha		Swyambhu	NEA	Engineer	4279217		Male
29	Shailendra Lal		Baneshwor	NEA	Employee	470151	51	Male
30	Thakur Raj Pandey		Bhaktapur	NEA	Service	4495642	56	Male
31	Janaki Sangraula		NEA-ESSD	NEA	Ast. Director	4431628	57	Female
32	C.B Bajracharya		NEA-ESSD	NEA	Director	422534	56	Male
33	R.B Shrestha		DMG	DMG	Geologist	4416679	52	Female
34	Arjun K. Kafle			NEA				Male
35	Suman Basnet			Winrock	Director	4467087		Male
36	Binod Shrestha		Baneshwor	Winrock	Sr. Pr. Officer	4467087		Male
37	Krishna C. Manandhar		Thamel	JBIC	Coordinator	4226467		Male
38	Upendra Dev Bhatta			NEA	Director	4229651		Male
39	Sabitri Gurung Dura		Tanahu	C.P.N (Maoist)	M.P	9.841E+09		Male
40	Hari Krishna Shah		NEA	NEA	Employee	9.841E+09		Male
41	Suresh Ale Magar		CPN	CPN (Maoist)	Politics	9.842E+10		Male
42	Saurab Rana		Sanghayakosh Building	JICA		9.851E+09		Male
43	Satis Chandra Devkota		NEA-ESSD	NEA	Economist	9.841E+09		Male
44	Dr. Toran Sharma	Braman	NESS, Kathmandu	NESS	Consultant	4244989	52	Male
45	Surendra Sharma	Braman	NESS, Kathmandu	NESS	Service	4244989	30	Male
46	Amrit Paudel	Braman	NESS, Kathmandu	NESS	Service	4244989	27	Male
47	Pradeep Kumar Maharjan	Newar	NESS, Kathmandu	NESS	Service	4244989	30	Male
48	Mr. Yoshimasa Ishii			JICA Study Team				Maleale
49	Mr. Hironobu Nishimiya			JICA Study Team				Maleale
50	Mr. Tomoo Aoki			JICA Study Team				Maleale
51	Dr. Hiromi Yasu			JICA Study Team				Maleale
52	Mr. Tadashi Amano			JICA Study Team				Maleale
53	Ms. Toshiko Shimada			JICA Study Team				Female

Minutes of Third Stakeholder Meeting in Kathmandu

Upgrading Feasibility Study of Upper Seti Storage Hydroelectric Project

Third Stakeholders Meeting

Time:	10.30 AM
Date :	May 5, 2007; Baishakh, 27, 2064
Venue:	Malla Hotel, Thamel, Kathmandu
Organized by:	Nepal Electricity Authority with the Assistance of Japan International Cooperation Agency
Master of Ceremony:	Mr. Satish Devkota, NEA

The stakeholder meeting was chaired by ***Mr Arjun Bahadur Karki***, Managing Director, Nepal Electricity Authority. Other guests who took chair in the dais were:

1. Mr. Bhakta Bahadur Balayar – Representative Nepali Congress (D)
2. Mr. Bhoj Raj Regmi – General Manager, Nepal Electricity Authority
3. Mr. Shiva Chandra Jha – Head, Environmental and Social Studies Department, NEA
4. Mr. Yoshimasa Ishii, Team Leader, JICA Study Team
5. Mrs. Sabitri Gurung Dura - Representative NCP Maoist
6. Mr. Suresh Ale Magar - Representative NCP Maoist
7. Mr. Ghana Shyam Sharma – Representative, Jana Morcha

Mr. Bhoj Raj Regmi – General Manager, Nepal Electricity Authority, delivered opening address to the participants of the stakeholder meeting. Welcoming the participants, he briefly described the project features and objective of the stakeholder meeting.

The project is undertaken by the collaboration of the NEA and JICA Study Team. The JICA Study team initiated the project feasibility Study from 2062 (2005). The draft report has been submitted to NEA and the final report of the project is expected in June 2007. During the project study, JICA study Team has also conducted detailed environmental and social studies. To disseminate the findings of the study and to collect feed back from the concerned stakeholders, two stakeholders meeting have already accomplished by the team. This is the third stakeholder meeting.

Nepal is passing though a phase of severe electricity shortage. In this context the project is of utmost significance. The past screening studies, and the present investigations, have shown that the project is the best among the available options for implementation. NEA has already requested JBIC and ADB for the financial arrangements for the project. This project is twice the capacity of currently operational Kulekhani storage project. With your cooperation and creative and constructive suggestions to the study team, the project could be developed as environmentally sound and socially acceptable project.

Mr. Yoshimasa Ishii, Team Leader, JICA Study Team presented the finding of the upgrading feasibility study. His presentation was divided into four topics as under:

1. Background & Outlines of Study
2. Findings
   2.1 Power Demand & Supply
   2.2 Characteristics of Project Site
   2.3 Contents of Study

3 Conclusions and Recommendations
4 Time-line of the Project

Dr. Yasu, Member, JICA Study Team, presented the findings of natural environmental studies. His studies focused on.

1. Baseline physical and biological environment of the project
2. Project impacts and proposed mitigation measures on physical and biological environments
3. Monitoring plan and project physical and biological environment mitigation costs.

Miss Shimada, Member, JICA Study Team, presented the findings of Social and socio-economic environments of the project. Her presentation focused on:

1. Identification of the Project impact areas
2. Major Socio-economic and Cultural impacts
3. Framework of Resettlement Plan
4. Framework of Social Action Plan
5. Recommendations and further investigations in the detail design phase

After the deliberations from the JICA Study Team the floor was open for comments and suggestions on the project findings on natural and social environments.

Mrs. Neera Pradhan – Representative Ministry of Forests and Soil Conservation

The project seems to affect a large portion of riverine forest. A few of the species reported are also listed in the conservation lists of Government of Nepal, IUCN and CITES. The project should give emphasis on the conservation of forest area as much as possible. Appropriate mitigation measures should be designed and implemented, if the impacts on the forest areas are unavoidable.

Mr. Ghanashyam Sharma Poudel – General Secretary, Jana Morcha, Nepal

Though the project is estimated to cost 34 corores of US$, our experience is that it may even exceed 50 Corores of US$. The cost estimations should be more pragmatic and reflect actual conditions.

How much of the project cost is to be borne by NEA? Does Government of Nepal also invest on the project? Have you allocated shares to the Nepali people? What is the number or quantity of allocated shares to the people?

JBIC and ADB are requested for loan. What is the amount of loan and what are the conditions attached to the loan?

How much of the productive land of Bhimad area will be affected? As far as possible such productive land should be conserved. The Bote community of the area will be affected. Provisions for such community should be considered. The river banks are highly unstable and would require protection. My suggestion is to minimize the loss of productive land and forest as far as possible. We should consider to built the project on our own effort than depend on loan and attached conditions.

Mr Bishnu Prashad Dhakal, Local Development Officer, Tanahu

The project has been a source of inspiration to the local community. The District Development Committee meeting has endorsed the project and has shown commitment for the project implementation. The local people expect minimum impacts to the local community and resources from the project. They expect adequate mitigation measures to minimize the project impacts. In this regard, they have expected a pragmatic resettlement Plan and social action plan to rehabilitate the project's impact to the affected community.

Job opportunity in the project is the other concern of the local people. Maximum job opportunity should be made available to the local people and a mechanism of employment of the affected district and affected people need to be well considered before the project construction activity. In this connection, skill training programs should be launched at least six month before the project construction works to train the local interested people in the project construction works.

Mr. Suresh Ale Magar – Representative, NCP Maoist

Our party is in favor of any good work that makes the people quality of life better. That is why we emphasize the project to be people centric. Development project of this scale, we know is going to have some negative impacts. But the project should try to minimize the negative impacts as far as possible and maximize the beneficial impacts.

This is a 140m high dam. We must also look into its implication in the downstream areas on the event of any accidents. The compensation and resettlement plan need to be robust and should not marginalize affected people.

We have to change the prevailing mindset and start new approach in the project implementation. In all conditions, the local people should get maximum benefit.

Mr. Ishwor Onta – Representative Nepal Engineering Council

The project has a risk of sedimentation. Watershed management should be one of the components of the project and should give emphasis in the control and prevention of erosion. The estimated sedimentation rate is quite high, further investigation is desirable.

The project has considered only two turbines for power generation. Our experience in the repair and maintenance of the turbine is not very good. Many times, the repair and maintenance work hinder the electricity generation in the most critical period. I would request that the number of turbines be increased. I purpose 43MW capacity three turbines instead of 64 MW capacity two turbines.

This project should be developed as a company. Shares should be opened for the people. There is no dearth of money in the market. Remittance of the workers outside Nepal is a good source of money for investment. Only deficit amount should be taken from the funding agencies local or foreign (JBIC/ADB).

We have started implementing hydropower projects since long. However, we are still lagging behind in the technical and contractual aspects. It is therefore, we must develop a mechanism to include our consultants and contractors in the project both during investigation and construction. Our contractors and consultants could be involved in joint

venture with the foreign companies. Government has to develop such regulations and obligatory provisions.

Further investigations will bring new impact issues. This is a continuous process and should be continued. Some of the mitigation measures are very good. The example of fraction fence to control eutrophication is a good example. To implement the resettlement plan and social action plan local committee need to be constituted and resettlement and compensation should be accomplished before the beginning of the project construction.

Mr. Suman Basnet – WINROCK International

In the context of Climate Change, the storage project is better than the thermal projects. However, the impacts of high dam projects are also high and require high investments for the mitigation of the project effect. The project should consider the provisions of Cleaner Development Mechanism and its benefits to implement the mitigation measure required for the project impacts.

Mr. V.B. Singh - NEA

Is there any provision for emission trading management system /CDM mechanism in this project? Can we introduce benefit from CDM for financial analysis?

Mr. --- Representative, Employee Union, NEA

This project will take minimum of six years for the construction. In this period many other projects will come up, such as 309 MW Tamakosi, which NEA is implementing. What is the rate of return of this project? If we have to take loan, the interest rates are very high. Hence, I purpose to focus on the Run off The river projects than in the storage projects.

Mr. Sanat Man Shrestha – Representative, Nepal Worker's and Peasants Party

The NEA is always interested in the mega projects. Why we have not given adequate attention to the small scale projects? They are environmentally and otherwise are more beneficial. At policy level, we need to consider these things.

When we start a new project of this type, we are happier. But when the project construction starts, a new sets of problem surface and the project cost becomes high. It is therefore, it is opportune moment to take stock of the likely problems during project construction and take needed mitigation options such that the project cost does not shoot up and the local problems are adequately addressed.

Much is said on the financial aspect of the project. How much is the loan from JBIC and ADB?. What is the rate of return of the project. We must allocate share for the Nepali citizens and project area people.

To enhance and strengthen our technical skills and capabilities, we must give preference to the local consulting firms and contractors in the study and project construction. As far as possible we must use our local technology to maximize the benefit.

Mr. Resham Raj Dhital - Fisheries Directorate

For the control of phytoplankton, the fishes could be effectively used. Fish culture provision in the reservoir should also be considered for fish production and economic enhancement of the local people and their culture.

Mr. Bhakta Bahadur Balayar – Representative, Nepali Congress (Democratic) Former Minister of Environment

All development works should benefit the local people. As this is a storage project, we have to incorporate the lesson learned from the Kulekhani project in the design and conceptualization of the mitigation measures of this project. Sedimentation of the reservoir is a major problem. Comprehensive watershed management plan is a pre-requisite of the project to control and minimize the sedimentation impacts.

The local have the right over their resources. Project is expected to encroach upon the peoples right. Hence adequate attention should be given to conserve the natural resources, and culture of the people. The displaced people should be the target group to up keep their living standards after the project implementation.

The local people should be given adequate opportunities for jobs related to the project. Skill enhancement programs should uplift their skills for maximization of job opportunities. The people should be told in advance what benefits and other development programs that they will be getting from the project.

All the information with regard to the project should be delivered to the people before hand. So that they could understand and participate in the decision making process.

Mr. Shiva Chandra Jha - Head, Environmental and Social Studies Department, NEA

On behalf of NEA, I extend my thanks to all the participant members of this stakeholder meeting. Your suggestions are very valuable to us and will certainly help the study team in finalizing the Upgrading feasibility study.

This being a storage project, we are focused to the impacts of the project on the local communities and households. The study has emphasized on the Resettlement framework and Social action plan framework to minimize the impacts and rehabilitate the effects of the project.

For the implementation of the project we will have to depend upon the donor agencies. This study is conducted as per the JICA guideline to make the feasibility study technically sound and financially bankable from the international agencies. Your continued cooperation will move the project forward. Once the government gives approval, the project will go ahead with further detailed studies.

Mr Arjun Bahadur Karki, Managing Director, Nepal Electricity Authority.

The concerns of the stakeholders raised in this meeting certainly strengthen the project. We are going through a phase of critical power shortage. Only 40% of the Nepalese people have

been using electricity. Even these people are affected by the recent load shedding. If the situation remains like this, these 40% people will also become like remaining 60% who have not got electricity supply.
We have Run Off the River system for hydropower generation. The seasonal variation in water discharge affects our power generation. In the dry season out of 611MW installed capacity we could only get 170MW. The Kulekhani storage project is supplementing the power demand in this period. It is for this reason; we have no other alternative than to go for storage project like this for the management of power deficit in the coming years. Implementation of only ROR project is not going to manage our power system. Further we have to provide power to the remaining 60% of Nepalese population. Certainly storage projects are costly than ROR projects, but in long term storage projects are more dependable than the ROR for power demand and supply management.

It is high time for us to implement such projects by 2014 despite all problems. We require foreign assistance in the project development. It is said that the money market is inundated with excess liquidity. The remittance money could be utilized for the required project investment. However, our experience in the case of Tama Koshi Project, does not reveal such a situation. Even the national banks, Karmachari Sanchayakosh refuses to lend money for investment despite our commitment to directly transfer revenue of some of the projects into their accounts. We are not against local investment, but there should be government mechanism established for such investment environment.

Only way for the development in Nepal is the development of hydropower. We can sell the excess electricity to growing Indian market. Considering this we have an agreement with India to built high capacity Transmission Line projects for power transfer. The project is underway for development.

The concern that hydropower project have made us poorer, but are we getting richer by allowing our rivers to rundown without harnessing electricity. We are constrained by many limitations for the development of hydropower projects. This is one of the reasons why our projects are becoming costlier. Government policy is different for different sector. This policy conflict does not allow us to complete jobs in time. Unified policy at national level and at all sectors is very essential for the development of the hydropower. This demands a long term political commitment and review of the existing policy, and legal provisions.

Lengthy EIA process, Forest policy conflict, etc are instrumental in the project delays. We are not against EIA; we understand that project impacts have to be internalized in the project cost; no body should be marginalized by the project, but could we not carry out all EIA required things hand in hand during project implementation. Let us form a committee involving all sector ministries and department to look into these matters for speedy project development. Our Board has requested such an arrangement to the cabinet.

We are in the process of opening power bond. Such power bond could be converted into share if the investor would like to do so. We welcome every one in the public life for the development of the hydropower in Nepal.

Advance Notification of Third Stakeholders Meeting

in Kathmandu

13-1 Public notice published in the national newspaper "The Himalayan Times" 11th May 2007.

NEA seeks hydropower policy

Himalayan News Service

Kathmandu, May 10

Managing director of the Nepal Electricity Authority (NEA) Arjun Kumar Karki said today that the country would not develop unless the government came up with a clear policy for the execution of power projects.

"Lack of consensus among the political parties is hampering the exploitation of water resources," Karki said at a programme on the Upper Seti Storage Hydroelectricity Project.

He urged the parties to build a consensus on the execution of hydropower projects. Terming the "differences among leaders over the utilisation of water resources" 'very disappointing', Karki said hydropower could not be harnessed unless parties came up with a unified stance on harnessing of natural resources.

"Some party leaders say no country has become rich by exporting electricity. I wonder if any country has become rich by letting water flow off the river."

He called on the government to make a policy with help from ministries concerned and enable the NEA to execute hydroelectricity projects.

13-2 Public notice published in the national newspaper "The Himalayan Times" 11th May 2007.

Go ahead with Upper Seti project, experts tell NEA

Himalayan News Service

Kathmandu, May 10.

A team of experts from the Japan International Cooperation Agency (JICA), which is conducting feasibility study of 128 MW Upper Seti Hydroelectricity Project, has advised the Nepal Electricity Authority to do the needful to develop the project as new source of power.

"We recommend the NEA to proceed to the next stage of study to develop the Upper Seti project as a new power source," said Masayoshi Ishii, while addressing a stakeholders' meeting today. He is the leader of the Japanese study team.

He said the team examined the feasibility of the project in terms of technology, impact on the environment, economic cost and financial aspect from February 2005 to January 2007 and found it suitable to be developed.

The project has been identified as a possible remedy for the current power shortage. The NEA had undertaken a feasibility study in 2001, an upgrading feasibility in 2004 and the JICA had initiated a preliminary study in 2004.

The findings of the recent Upgrading Feasibility Study by the JICA team showed that the project would make stable power frequency, maintain power voltage in the network, reduce or replace operation hours of costly thermal power plants and reinforcement of NEA's network by transmission.

The study has estimated that the project would cost to the tune of $340 million and would take six years, including preparatory work.

Previous stakeholders meeting for the same project had pointed out that provision of electricity, drinking water and schools should be given priority.

Meantime, a member of the JICA team, Masami Yasu, said the project is going to make impact on land use, air quality and water quality.

The report states that habitat of some wild species will be disturbed by the project.

"Since similar habitat conditions are widely seen in the vicinity of the study area, it is considered that possibility of specific species extinction is little in the wilder area including the project site," the report states. Toshiko Shimada, who had studied the framework of resettlement plan and social action plan, said land acquisition and involuntary resettlement should be avoided where feasible and minimised to the extent possible.

"Affected persons shall be compensated at replacement cost for all losses and damaged assets. The absence of legal titles to lands, property and facilities shall not be a bar to compensation," she said. The study estimates that the resettlement plan alone would cost over Rs 1000 million to the project.

13-3 Public notice published in the national newspaper "The Rising Nepal" 11th May 2007

Upper Seti to cover power deficit

By Raj Kumar KC

KATHMANDU, May 10: If everything goes uninterrupted, the state-owned Nepal Electricity Authority with the financial/ technical assistance of Government of Japan will begin the country's biggest reservoir type project-the Upper Seti Storage Hydroelectric Project (USSHP) in the next couple of months.

Major political parties in the country have also expressed their full commitments to support it as long as the project does 'good' for the local people.

USSHP, the second reservoir project (after Kulekhani First Hydropower Project) is expected to supply 128 MW of peaking power throughout the year.

The NEA with the technical support of Japan International Cooperation Agency (JICA) began feasibility study of the USSHP in February, 2005. The study will be completed by June this year, *according to the NEA officials.*

The 128MW Storage Hydroelectric Project is expected to play a vital role in reducing power-deficit and more importantly providing economic opportunities to the local people without causing much damage to the local environment.

Even though the storage hydro-electric project is costlier than the run-of river (RoR) hydro-power projects, it is need of the nation to cut down the power-shortages.

If we fail to initiate this project, the people (who are bearing hours of load-shedding now) will have to bear the brunt of more load-shedding in future, said Chairman of the NEA Arjun Kumar Karki.

Karki also noted that the USSHP is more feasible in comparison to other projects. The study report has proved that degree of risks can be minimised to a larger extent, he added. However, he lamented over the dearth of fund for hydropower development.

It is said that the money market is inundated with excess liquidity, but bankers or even top financial institutions including the Karmachary Sanchaya Kosh (Employees' Provident Fund) which has billions of rupees in its coffer are reluctant to invest in the power sector, he lamented.

On top of that bankers are also not interested to investment in the hydropower sector, said Karki adding "the country's economic development is possible only through the generation of hydropower."

Karki while speaking at the third Stakeholders' meeting expressed confidence over the economic and technical viabilities of the project.

The NEA and JICA have already hold three consultative meetings with the local people/ stakeholders in its project site in Tanahu. Apart from that two meetings in the capital have already been held in the past.

However, in today's stakeholders' meeting people from different walks of life underlined the need for sustainability of the project.

Some even questioned why the NEA chose storage hydro-electric Project instead of cheaper and more sustainable RoR hydropower projects. The NEA management and concerned authorities at the Ministry

See UPPER, Page 6

UPPER: Seti to cover power deficit

of Water Resources have been much criticized for choosing expensive project.

However, NEA officials have flatly denied the charges saying that the project would be more viable though the initial costs of the project are bigger.

Yoshimasa Ishii, team leader of JICA Study team while presenting the study report described the technical viability of the project.

Other JICA experts presented their social- cost and benefit analysis. They noted that the project to the greatest possible extent has tried to mitigation losses.

However, political leaders emphasised on the aspects of the welfare of the people. Suresh Ale Magar, a senior leader of Communist Party of Nepal-Maoist assured his party's full support to the project. "But the project should serve the interests of majority of people."

The Local Development Officer of Tanahu district informed that the local people had pinned much hope on the project that it would do something to support their livelihoods.

According to him, around 19 houses will be displaced from the project.

Bhakta Bahadur Balayar a former minister also spoke about the environmental aspects of the project area. He said that the project will affect the major cultivable land and create the problem of inundation. The people who are likely to be affected by the project should be adequately compensated, he said.

As of July 2006, total installed capacity of the country is 614 MW out of which 90 per cent is contributed by hydropower.

Energy demand in Nepal has been on the rise by eight per cent per annum since last one decade, according to NEA. But the supply has not been increased even after the addition of 144 MW Kaligandaki 'A' hydropower project in the system.

According to the NEA the RoR type of hydropower plants dominates Nepal's hydro power capacity.

However, RoR type of plants can marginally regulate river discharge for power generation. Thus to cope with problem of power shortage in the dry season, NEA has initiated the process of developing storage type of hydropower plants that can seasonally regulate river discharge for generation.

The main objective of the study, according to NEA and JICA officials is to formulate the optimum development plan of the project and to assess the technical and economical and financial and environmental viabilities of the USSHP.

Major features of USSHP

Specifications	Value
Type	Underground
Width x Length x Height	22m x 42m x 90 m (L)
Turbine Types	Vertical Francis
Maximum Discharge	127.4 m^3/s