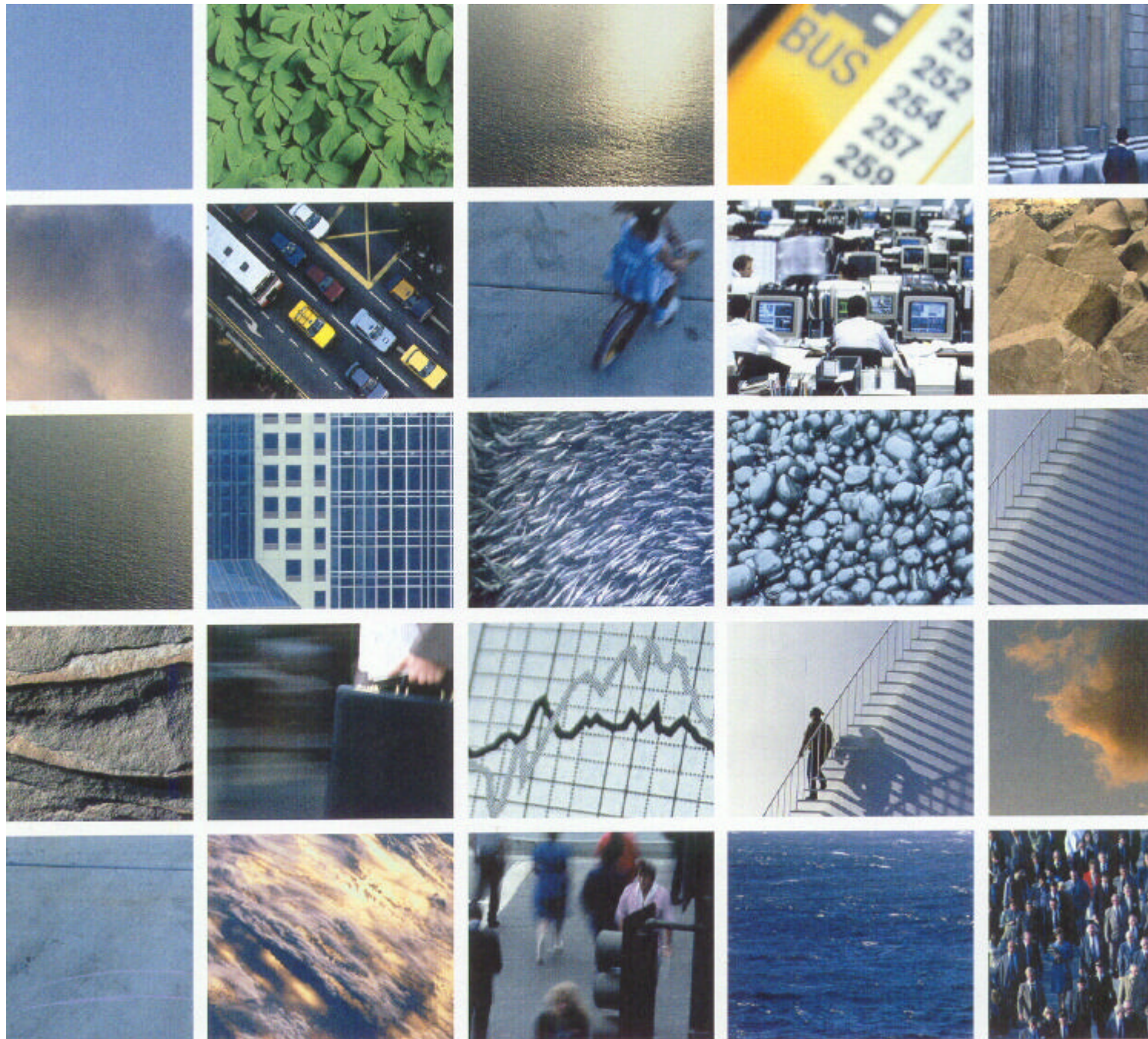




Allain Duhangan Hydroelectric
Project Tehsil Manali, District Kullu,
Himachal Pradesh:
*Addendum to Environmental and Social
Impact Assessment Report*



**Rajasthan Spinning &
Weaving Mills Limited**

Draft Final Report

September 2004

www.erm.com

Rajasthan Spinning & Weaving Mills Limited

**Allain Duhangan Hydroelectric
Project Tehsil Manali, District
Kullu, Himachal Pradesh:
*Addendum to Environmental and
Social Impact Assessment Report***

September 2004

Reference I-5724

For and on behalf of
Environmental Resources Management

Approved by: **Subir Gupta**

Signed:



Position: **Managing Director**

Date: **10 September 2004**

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1 ADDENDUM TO THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT REPORT

1.1 INTRODUCTION

This report has been prepared by ERM India Private Limited (ERM) as an addendum to the revised draft Environmental and Social Impact Assessment (ESIA) report, prepared in December 2003 for the proposed 192 MW Allain Duhangan Hydroelectric Project (the Project) in Kullu District, Himachal Pradesh by Rajasthan Spinning and Weaving Mills Limited (the Company). The Company has approached International Finance Corporation (IFC) – the private sector development arm of the World Bank Group – for partial financing of the project.

In keeping with International Finance Corporation's procedures for the Environmental and Social Review of projects, ERM carried out detailed studies and prepared a draft ESIA report that was disclosed to the public in May 2003. Following the public disclosure of this draft ESIA, a revised draft ESIA was prepared and disclosed to the public in December 2003. Subsequent to the December 2003 disclosure, the Company facilitated public consultations and focus group meetings to elicit feedback from all stakeholders. Issues raised by various stakeholders during the public consultation process have been collated and incorporated into this Addendum to the revised ESIA.

The draft ESIA report was based on updating of the environmental baseline data, carrying out fresh ecological and social surveys, consultations, impact identification, evaluation and recommendations on environmental and social mitigation management measures and monitoring plan.

The objective of this Addendum is to record all environmental and social issues raised through the public consultation process and the mitigation measures that will be undertaken by the Company for review of all concerned so that a final ESIA report can be prepared and released upon the completion of ongoing studies. It is expected that these studies will be completed by year 2005.

The issues have been grouped under a number of headings and summarized in the subsequent sections as per the following:

- **Section 2:** This section provides summary of Stakeholders Concerns on:
 - Project justification;
 - Public disclosure and consultation;
 - Land acquisition;
 - Completeness of the ESIA;
 - Impact on natural resources;

- Public health and safety;
 - Livelihood and employment;
 - Local support for the Project; and
 - Commitment of the Company to mitigation of impacts
- **Section 3:** This section comprises of details of issues raised in the public consultation process and mitigation measures agreed by the Company. The section covers details of issues identified in during public consultation process and mitigation measures agreed by the Company. Details of necessary Annexes relevant to the issues are also provided in the section;
 - **Section 4:** This section comprises of additional information relating to the provisional action plan for biodiversity protection, public disclosure events taken up to date for the project, environmental and social impact assessment studies taken up for the project and list approvals/clearances obtained by the Company for the project from State and Central Governments.
 - **Section 5** Provides *Annexes* relevant to **Section 3**.

1.2

LAYOUT PLAN

A detailed layout plan indicating land usage pattern, project components location, muck disposal site etc. is shown in **Figure 1.1**.

NOTES:-

- ALL DIMENSIONS ARE IN METRES.
- 1 HECTARE = 100,000 SQ. M
1 HECTARE = 10,000 SQ. M
1 ACRE = 0.4 HECTARE

SALIENT FEATURES

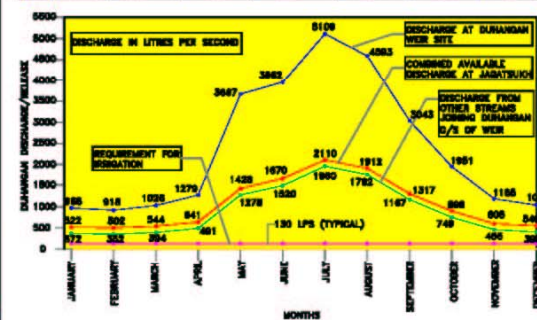
DESCRIPTION	IN M.
LENGTH OF ALLAM TUNNEL	2000.00
LENGTH OF DUHAGAN TUNNEL	4460.00
LENGTH OF PRESSURE SHAFT	1087.00
LENGTH OF TAIL RACE TUNNEL	830.00
LENGTH OF ACCESS TUNNEL	813.00
HEIGHT OF ALLAM BARRAGE	14.00
HEIGHT OF INTERMEDIATE RESERVOIR	14.50

DISTANCES

FROM	TO	DISTANCE IN KM.
DELHI	MAMALI	274
MAMALI	PRIN	3
PRIN	MAMTA	10
MAMTA	ALLAM BARRAGE	9
POWER HOUSE	ALLAM BARRAGE	10
PRIN	JAGATBHUL	3
DUHAGAN WEIR	KALA CONFLUENCE	2
DUHAGAN WEIR	JAGATBHUL	1.75
JAGATBHUL	DUHAGAN WEIR	1.4

MINIMUM DISCHARGE IN DUHAGAN OVER 34 YEARS FROM 1971 TO 1999

S.NO.	MONTH	MINIMUM DISCHARGE OBSERVED IN DUHAGAN AT WEIR SITE (IN LPS)	MINIMUM DISCHARGE OBSERVED IN DUHAGAN AT WEIR SITE (IN LPS)	MINIMUM DISCHARGE OBSERVED IN DUHAGAN AT WEIR SITE (IN LPS)	MINIMUM DISCHARGE OBSERVED IN DUHAGAN AT WEIR SITE (IN LPS)	MINIMUM DISCHARGE OBSERVED IN DUHAGAN AT WEIR SITE (IN LPS)	MINIMUM DISCHARGE OBSERVED IN DUHAGAN AT WEIR SITE (IN LPS)
(1)	(2)	(3)	(4)	(5)=(3)-(4)	(6)	(7)=(5)-(6)	(8)
1	JANUARY	989	100	372	502	130	372
2	FEBRUARY	918	180	382	502	130	372
3	MARCH	1026	150	384	544	130	414
4	APRIL	1279	100	481	541	130	511
5	MAY	3687	100	1278	1426	130	1296
6	JUNE	3682	100	1330	1670	130	1540
7	JULY	3109	100	1940	3110	130	1980
8	AUGUST	4863	100	1782	1912	130	1782
9	SEPTEMBER	3043	100	1187	1317	130	1187
10	OCTOBER	1981	100	748	889	130	759
11	NOVEMBER	1186	100	488	606	130	476
12	DECEMBER	1041	100	388	548	130	418



LEGEND:-

- OPEN FOREST
- DENSE FOREST
- AGRICULTURE
- BARRIER STONY WASTE
- PASTURE
- LAND WITH SOILS
- COMPENSATORY AFFORESTATION
- PROJECT ROAD & STATE ROAD
- PROJECT ROAD & STATE ROAD
- RIVER/STREAMS
- DUHAGAN FOREST

LAND ACQUISITION (No. m.)

TYPE	NOTES	UNDER NOTIFICATION	TOTAL
GOVT LAND	103800	4100	107900
FOREST LAND	278280	0	278280
PRIVATE LAND			
a) PRIN	88300	21800	90100
b) JAGATBHUL	0	4100	4100
c) ALED	9800	0	9800
SUB TOTAL	78200	25900	104100
GRAND TOTAL	837700	29000	866700

MUCK DISPOSAL SITES

- PA-1A = 15A
- PA-1B = 15A
- PA-1C = 15A
- PA-1D = 15A
- PA-1E = 0.55A
- PA-1F = 0.55A
- PA-2 = 15A
- PA-3 = 15A
- PA-4 = 15A
- PA-5 = 15A

ALLAM DUHAGAN HYDRO POWER LTD.

INDO CANADIAN CONSULTANCY SERVICES LTD.

Project: ALLAM DUHAGAN HYDRO-ELECTRIC PROJECT (THRU)

Site: LAYOUT OF LAND USAGE

Date: 10/10/99

Scale: 1:50,000

Sheet No: 104-001

Page: 2

Figure 1.1 Layout of the Project Components

2.1

PROJECT JUSTIFICATION

According data published by the Central Electricity Authority, Government of India, (website - www.cea.nic.in) the majority of the Indian States are suffering from an energy demand – supply gap. For example, generation data available for the current financial year indicate that during April - June 2004 the Northern Region faced an overall shortage of 2,323 million units (MWh) or 5.4% power deficit despite the commissioning of the 1500 MW Naptha Jhakhri Project in December 2003.

As per the XVI Electrical Power Survey published by the Central Electricity Authority, the demand for power in the Northern Region is estimated/ forecasted to increase from 27,031 MW (peak demand from April 2003 to March 2004, according to the CEA) to about 35,540 MW in 2006-2007 and to about 49,674 MW in 2011-2012. The CEA has projected a peak demand of 35,540 MW in 2006-2007, and the country plans to add 12, 320 MW during the 10th Five Year Plan ending in 2007. However, given the country's past generation capacity addition achievement rates of 54% and 47% during the 8th and 9th Five-Year Plans, respectively, and given the current plant load factors of central and state owned thermal and hydropower plants, the effective generation capacity is unlikely to meet the projected peak demand in 2007.

Although HP has only about 670 MW of demand with relatively low growth prospects and is a power surplus state, the Project will help meet electricity demand growth in the northern region.

At present, the current total installed generation capacity of in India is about 112,500 MW. The southern and northern regions account for about 38 % and 33 % of the total installed hydro capacity, respectively. The share of hydropower declined from around 40% of the installed capacity in 1980 to the present level of 26%. The project will improve the hydro-thermal mix in the country.

The project will contribute free power to Himachal Pradesh which HP can sell to neighbouring states; hence the project contributes positively to the state's economy.

The Allain Duhangan Hydroelectric Project is private sector merchant power plant - a run-of-river project with a four-hour peaking capacity that will help alleviate short falls in the northern region power system. The project is not forcing any state electricity board or consumers to buy its electricity.

Some stakeholders were concerned that alternatives to the Project were not considered in the draft ESIA reports. However, the Project location was assigned by the Government of Himachal Pradesh and the Government of India for the implementation of this specific run-of-river scheme. The Project has been scrutinized Central Electricity Authority, Government of India from

the techno-economic and environmental perspectives and has been found suitable for commercial development.

The proposed project may result in adverse environmental and social impacts, which may require specific mitigation measures, as noted in the draft ESIA reports. The following paragraphs clarify the specific environmental and social mitigation measures the Company has committed to undertake in order to address the potential adverse environmental and social impacts identified to date.

2.2 *PUBLIC DISCLOSURE & CONSULTATION*

As reported by the Company, the public consultation process for the Project has been ongoing since 1993 and has continued to date.

In late 2002, the Company approached International Finance Corporation (IFC) to gauge their interest in providing financing for the Project. As a condition of IFC's consideration of the Project, the Company was required to undertake further public consultation and disclosure measures, which included an update of the previous Environmental Impact Assessment (EIA) by Rail India Technical and Economic Services (RITES) and a public meeting with the project-affected people (PAP).

Several public consultations and hearings have been organized at the Project site since March 2003. A complete chronology of the public disclosure process is included in *Section 4.2*. The first public meeting was held in May 2003 in village Prini. It was a well-attended meeting with the presence of government officials including the Sub Divisional Magistrate, the Assistant Conservator Forests, the Range Officer, the Kullu Circle and Panchayat Bodies and the local representatives/villagers of Prini and Jagatsukh, as well as an IFC representative. The issues raised included rates for acquisition of private land, concerns regarding muck disposal, entry of outsiders in the area, priority employment to local villagers, availability of water, NOC from Panchayat and tree felling.

The draft ESIA was publicly disclosed in August 2003. A revised ESIA, incorporating the change in location of the reservoir based on additional optimisation studies, was released in December 2003 along with Hindi translations of Non Technical Executive Summary and Environmental and Social Management and Monitoring Plan (ESMMP). As with the earlier draft, these documents were made available at the project site and posted on the IFC web site. The Company also circulated a list of Frequently Asked Questions with corresponding answers on 2 January 2004 in both Hindi and English to the Project Affected People.

The second public meeting was held on 6 January 2004 in village Jagatsukh in the presence of representatives of IFC, local NGOs, villagers, Company

representatives and ERM. During this meeting, the major issue was the Hindi translation of the remaining ESIA documents and for a subsequent meeting to be facilitated by an independent panel.

Thereafter, two remaining volumes of the revised ESIA report were translated to Hindi and provided by the Company to all interested persons at the project site in February 2004 and posted on the IFC web site on 9 March 2004.

Subsequently, focus group meetings to describe the Project were held between 16 to 18 March 2004 in the villages of Prini and Jagatsukh. The objective of the focus group meetings was to inform the villagers about the various issues and concerns affecting the community and the proposed mitigation measures. About 35 men and women attended the Prini meeting. The meeting at Jagatsukh was however, attended by more than one hundred men and women.

Focus group meetings were again held on 30 April 2004 in village Prini and on 1 May 2004 in Jagatsukh, respectively. An Independent Observer facilitated both meetings. Representatives of the Company and ERM also held a focus group meeting at village Aleo on 2 May 2004 to inform Project area residents about the Project and discuss their concerns.

A third and fourth public meeting was held in villages Prini and Jagatsukh on 20 May and 21 May 2004, respectively, at the request of villagers. These meetings were facilitated by an independent panel of three respected environmental and social activists. In the meeting held on 20 May 2004, the Company and ERM representatives held discussions with village Panchayat of Prini. About 200 villagers from Prini, representatives of local NGOs, the media, and IFC officials attended the meeting. Stakeholders demanded a raise in the previously negotiated land rates.

Discussions were held at Village Jagatsukh on 21 May 2004, when meeting was disrupted by a group of stakeholders.

Due to the disruption, the Company decided that in order to give smaller and less-vocal groups an opportunity to voice their concerns, another round of focus group meetings would be necessary. These meetings were held on 7 July 2004 in villages Prini and Shuru and on 8 July 2004 in village Jagatsukh, again facilitated by a respected NGO representative. Over 150 villagers attended the discussions at Jagatsukh and actively participated in the discussions.

As a result of the ongoing public disclosure and consultation process, the issues and concerns of various stakeholders were identified and discussed in public and focus group meetings. In addition to the recommendations made by the independent panel of the May 2004 public meetings, the Company will

address the issues and concerns of various stakeholders through specific mitigation measures as outlined in this Addendum.

2.3 LAND ACQUISITION

The Government of India had initially approved the diversion of 77.272 Hectare (Ha) land for the implementation of the Allain Duhangan Hydroelectric Project. The Company optimised the requirement to 58.77 Ha as per *Table 2.1*.

Table 2.1 *Details of Land Acquisition*

Land Type	Prini	Jagatsukh	Aleo	Hamta	Total	%
Private, Ha	9.01	0.41	0.99	-	10.41	18
Forest, Ha	-	-	-	-	37.69	64
Government, Ha	-	-	-	10.67	10.67	18
				Total	58.77	100

The details of acquisition of private land acquisition in village Prini measuring 6.830 ha (84.41 Bigha) are as follows:

- The Negotiation Committee constituted by the Government of Himachal Pradesh, under the Chairmanship of Deputy Commissioner, Kullu held negotiations with the land owners of Village Prini on 28 August 2003 to finalise the cost of land.
- Thereafter during a public hearing held on 20 May 2004, the villagers demanded an increase in the land rates negotiated and finalized earlier. Subsequently, the Company accepted the demand and agreed to a higher compensation rate of Rs. 1,750,000/- per Bigha (1 Bigha = 809 sq m) as against earlier agreed rate of Rs. 1,500,000/- per Bigha for the prime quality land. The Company also agreed enhancement of the rate of other three types of land in the same proportion. The rates agreed by the Company with the villagers are indicated in the *Table 2.2*.
- The agreed rates are 541% higher than the 5 years average rates for land in the Project area and when compared to the market rate (one year average) the agreed price is 457% higher.

Table 2.2 *Rates of Land Agreed by the Company (in Indian Rupees)*

Sl. No.	Type of Land	Market Rate per Bigha (One year Average)	Market Rate per Bigha (Five Yearly Average)	Final Agreed Rate per Bigha
1	First grade agriculture land of best quality (<i>Ropa Avval- bagicha</i>)	383,000/-	323,250/-	1,750,000/-
2	Second grade agriculture land of good quality (<i>Ropa doem</i>)	306,000/-	258,600/-	1,400,000/-
3	Third grade agriculture	153,200/-	129,300/-	700,000/-

Sl. No.	Type of Land	Market Rate per Bigha (One year Average)	Market Rate per Bigha (Five Yearly Average)	Final Agreed Rate per Bigha
	land of average quality (<i>Bagicha bathal faldar</i>)			
4	Waste/barren Land (<i>Banjar kadeem</i>)	6,128/-	5,172/-	28,000/-

The entitlement framework for land acquisition is provided in the draft ESIA report.

2.4

COMPLETENESS OF ESIA

The original EIA for the Project was carried out in 1996 by Rail India Technical and Economic Services (RITES) as per the regulatory requirements of the Ministry of Environment and Forests, Government of India (MoEF). On the basis of documentation, the Project received environmental clearance from MoEF in December 2000 and Final Clearance for diversion of forestland from Forest Conservation Division of MoEF in October 2002.

The Company subsequently updated the RITES EIA in year 2001 for submission to Government of India for Techno-economic Clearance of the Project.

Following the submission of the updated EIA to IFC by the Company, IFC determined that the EIA documents needed upgrading. Accordingly, the present draft ESIA incorporates, updates and expands available documentation and is responsive to the requirements of IFC. The draft ESIA is based on updating of the environmental baseline data, carrying out of fresh ecological and social surveys, consultations, impact identification and evaluation and recommendations on environmental and social mitigation and management measures and monitoring plan. In addition, a reconnaissance survey along the proposed transmission line route was conducted for a preliminary environmental and social assessment.

During the public consultation process, various stakeholders raised certain issues, which are discussed in detail in this addendum to the draft ESIA. A summary of these issues is given in the following subsections.

2.4.1

Environment and Socio Economic Survey

Socio Economic Survey

The social and economic impact assessment survey in the draft ESIA was incomplete due to the acquisition of private land in two phases and subsequently delays in the second phase of acquisition. However, a sample survey was conducted and, based on the sample survey, the ESIA report has projected a total number of Project Affected Persons and Project Affected

Families. In order to arrive at the compensation package, the maximum impact of land acquisition was considered. The revised ESIA recommends a full census of the PAPs be the first task completed once the Project components are finalized.

Since the submission of the revised ESIA, a full census of the PAPs has been conducted, based on all the government notifications till date. Based on that census, it is estimated that there are 212 title-holders constituting a total of 168 Project Affected Families (PAFs) spread over Prini, Jagatsukh and Aleo, Shuru and Old Manali. The land to be acquired, however, restricted to Jagatsukh, Aleo and Prini villages. The title-holders covered in the survey include those who are likely to lose their land for the construction of colonies and roads. The Company has requested the government for issue of second phase of notification for the land acquisition. As soon as such notifications are issued, the Company will undertake a similar assessment of the additional PAFs under the same framework, which is already in place.

Environment and Social Impact Assessment

The draft ESIA prepared by ERM is an update of the earlier EIA. ERM carried out field work to evaluate information based on land holding and crop sharing pattern of the Project Affected People, the impacts on pasture lands, water, social security, dust and pollution, etc. to prepare the draft ESIA. The field surveys for the draft ESIA were undertaken for one season. Recommendations were also made in the Environmental and Social Monitoring and Management Plan (ESMMP) for periodical monitoring of the baseline parameters. The ESMMP also calls for continuous monitoring of fish in both the Allain and Duhangan streams for 12 months (including monsoon months), to record a complete baseline for the fisheries.

The revised ESIA updated baseline information on ambient air quality, surface water quality, underground spring water and soil quality as undertaken by the Himachal Pradesh State Environment Protection and Pollution Control Board by conducting detailed studies in the Project area.

While many of the potential impacts to ecology resulting from the Project, both direct and indirect, have been documented in the revised ESIA, along with suggested mitigation measures, baseline information on the ecological profile needs confirmation by way of further studies reflecting terrestrial and aquatic ecological baseline of all the four seasons, for which following studies are now being undertaken:

- Study of riverine ecology including fisheries by the Foundation for Ecological Security, Pithoragarh, Uttarakhand for one full year; and
- Study of terrestrial flora and fauna including pheasants by the World Pheasant Association, New Delhi covering all the three dry seasons.

ERM has also prepared a Provisional Environment Action Plan for Biodiversity Protection (refer to *Section 4.1*) to be put into place as soon as the Project implementation has begun. The plan covers various Project activities, mitigation measures and designates responsibility to implement the same in the pre-construction, construction and operation phases.

2.4.2 *Availability of previous Environment Impact Assessment Reports*

RTES conducted the earlier EIA, which were updated by Indo Canadian Consultancy Services Ltd in April 2001 and April 2003. The earlier EIA reports are available at the project site.

2.4.3 *Impact Assessment for Transmission Line*

The draft ESIA reports include an environmental and social reconnaissance survey of the proposed 185 km long transmission line corridor from switchyard near Prini village to Nalagarh (*Section 3*, draft ESIA - Volume III). The draft ESIA reports also provide a framework of mitigation measures for likely environmental and social impacts due to the proposed power transmission line.

The final termination point for the transmission line may be changed as a result of the Parbati Stage III Hydel Project. The Company upon finalisation of its route will carry out a detailed ESIA for the transmission line corridor.

2.5 *IMPACT ON NATURAL RESOURCES:*

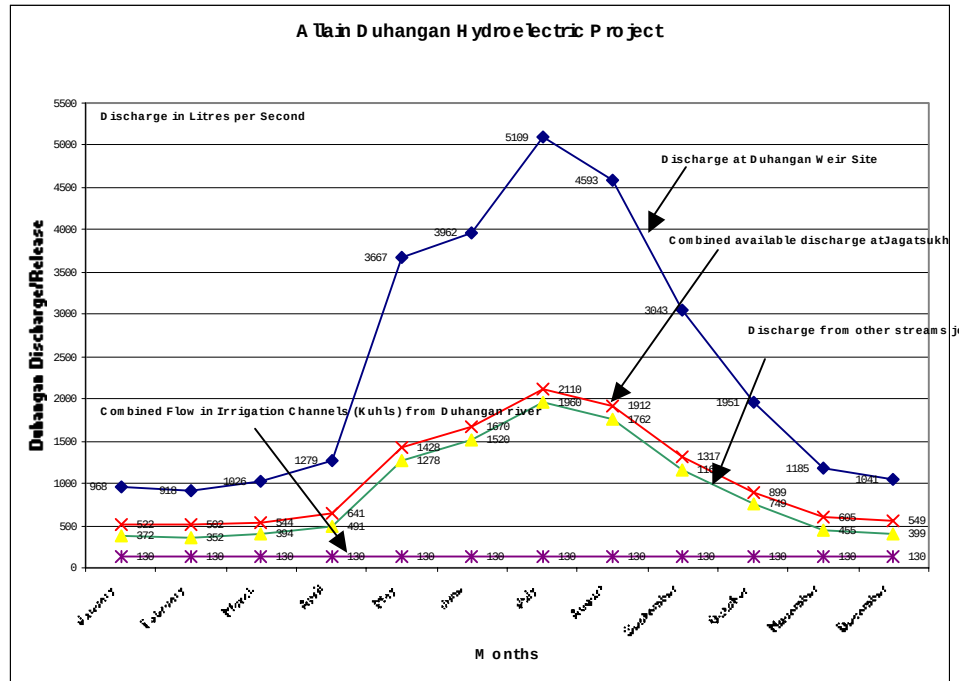
2.5.1 *Drinking and Irrigation water*

Some villagers are concerned that Project construction activities could adversely affect the drinking water sources of villages Jagatsukh and Prini at Chor Pani /Dhani stream and Jamlu Devta/Pahali streams respectively. The Company has assured the villagers that the Dhani, Pahali, Chor Pani or Jamlu Devta drinking water sources will not be disturbed. Construction activities and their impact on water resources will be jointly monitored by the Company and representatives of the affected communities.

In the event of any disturbance to the drinking water sources due to Project construction activity, the Project Company will provide sufficient water of potable quality to the affected community to offset any shortages.

The Company has given an undertaking to the State Government that the riparian rights, that is the rights of access to drinking and irrigation water, of the Project affected villages will be respected.

Based on 24 years historical data during January through December at Duhangan weir site, a graphical representation of minimum flows available at the weir site, discharges available from other flows downstream of the weir the site and combined available flow at Jagatsukh along with combined flow in the existing irrigation channels is presented in below.



The graphical representation shows that the minimum water available during the operation phase of the project would be in excess of existing water requirement in the two irrigation channels (with a combined flow of 130 litres per second). The excess water would be helpful for ecological sustenance downstream.

Based upon an assessment of 24 years of water flow data in Allain and Duhangan streams, downstream additional flow available and users need in the local communities, ERM has recommended that a minimum of 150 litres per second of water flow be discharged by the Company at each of the diversion structures (i.e. Duhangan weir site and Allain barrage site) if necessary, even at the cost of power generation.

The Company will install mechanical and electronic flow measuring devices to monitor flow of water for downstream users and has invited the participation of local government and villagers to monitor these devices.

A table showing minimum discharge in Duhangan over 24 years with the above graph is also presented in *Annex VII*.

In respect of the issue of wastewater disposal by the Project leading to possible health hazards and damage to the agricultural crops, the Project will provide treatment plants for wastewater from campsites, colony and workshop, sewage treatment plant for domestic wastewater and controlled discharge of flushing from desilting chambers. The Project shall also make provision for regular participatory monitoring of treated wastewater before it is discharged.

2.5.2 *Impact on Forest*

A Forest Clearance of 32.17 ha of diversion of forestland was issued by Ministry of Environment and Forests. Subsequently, State Forest Department required for inclusion of diversion of forestland (5.51 ha) for underground structures. As per the recommendations of Government of Himachal Pradesh, a total 37.63 Ha of forestland is diverted for the project. The forestland usage for various project components is given in *Table 2.3*.

Table 2.3 *Forestland Usage for Various Project Components*

S.No.	Description	Land requirement, Ha		
		Allain	Duhangan	Total
1	Silt Removal Chamber	0.096	0.091	0.187
2	Barrage	2.010	2.530	4.540
3	Intermediate Reservoir	-	-	2.300
4	Roads	7.200	4.750	11.950
5	Plant Area	4.000	1.000	5.000
6	Switch Yard and Tail Race	-	-	5.140
7	Colonies, Offices etc.,	1.000	0.000	1.000
8	Power House	-	-	1.000
9	Magazine	0.750	0.250	1.000
		Sub Total- I (1 to 9)		32.12
10	Surface Area Over Underground Works			
(i)	Tunnel	1.402	1.760	3.162
(ii)	Interconnecting Tunnel	-	-	0.115
(iii)	Allain Adit	-	-	0.12
(iv)	Surge Shaft	-	-	0.008
(v)	Valve House 1 and 2	-	-	0.006
(vi)	Valve House and Branches	-	-	0.14
(vii)	Duhangan Desilting Basin	-	-	0.16
(viii)	Pressure Shaft	-	-	0.403
(ix)	Adit-1 to Pressure Shaft	-	-	0.124
(x)	Adit -2 to Pressure Shaft	-	-	0.08
(xi)	Power House and Transformer Cavern	-	-	0.223
(xii)	Tail Race Tunnel	-	-	0.37
(xiii)	Main Access Tunnel	-	-	0.601
		Sub Total - II (10)		5.51
		Grand Total (I + II)		37.63

In the diverted forestland, a total number of 1,370 trees have been earmarked for felling. In addition to this, a total number of 2,586 saplings have been counted for removal. Saplings are small plants and having diameter of less than 10 centimetres. Removal of saplings and cutting of trees will be

undertaken by the Himachal Pradesh Forest Corporation Limited, Government of Himachal Pradesh.

The Company will follow the measures listed below to mitigate the impact of diversion of forestland:

- The Government of India Compensatory Afforestation requirement stipulates that twice the area of forestland diverted for Project use must be planted with trees. The Company has deposited approximately Rs 2.95 million to cover the costs of forest plantation by the State Forest Department;
- Catchment Area Treatment Plan has been submitted by the Company including afforestation, pasture development and soil conservation works. This plan has been approved by the Ministry of Environment and Forests, Government of India and the State Forest Department and the Company has deposited approximately Rs 2.10 million as initial deposit for the implementation of this plan; and
- The Company has deposited Rs 25.7 million with the State Government of Himachal Pradesh towards compensation against loss of environmental value resulting from the Project.

The Company will also carry out its own afforestation programme in the Project-affected area in collaboration with local communities. As part of the company's community development support, local people will be encouraged to develop their own nurseries and carry out plantation in agreed areas as a part of the afforestation activities.

The Government of Himachal Pradesh has constituted the Joint Monitoring Committees vide notification No. FFE-B-(F)-2-25/96 dated April 7, 1997 for ensuring implementation of Catchment Area Treatment Plan and compensatory afforestation program. The Company will request the Government to include a provision for local participation in the monitoring of the felling and compensatory afforestation program. In case of problems observed in the survival of species, the Joint Monitoring Committee will take up the issue and solutions with the State Forest Department and request necessary action.

2.5.3 *Ambient Air Quality*

Diesel generators will be used by the Company for back up power during construction when the normal power from State grid is not available. Air pollution will be limited and often zero. Mufflers, acoustically designed enclosures, adequate stack heights and regular maintenance will be adopted to reduce air and noise pollution. The Company will ensure that diesel generators adhere to the norms specified by Himachal Pradesh State Environment Protection and Pollution Control Board (including emission standards).

2.5.4 *Fuel Wood for Labour Force*

The Company will require all contractors, to observe Indian national and World Bank Group environmental, health and safety regulations, policies and guidelines including compliance with a prohibition on the felling of trees for meeting fuel wood requirements. Construction contracts will contain terms and conditions to ensure that illegal felling is not done by the contract labour. Violations of these regulations will result in fines and/or cancellation of contracts.

Contractors will be required to provide kerosene oil or LPG as the primary fuel to the labours. Where necessary, fuel wood will be sourced only from the State Forest Department and the contractor will maintain records of procurement and distribution for use.

2.5.5 *Access to and Impact on Pastureland*

Some villagers expressed concern that the access to existing pasture for their livestock will be impaired with the construction of Project roads. They are also concerned that the total available pasture will be reduced by Project land acquisition.

The Project Company will ensure that access to pasture land will be maintained throughout the construction and later during the operation phase of the Project. Any footpath damaged during the construction of the roads will be repaired and passages and ramps will be provided wherever necessary. Restoring degraded areas in consultation with the community will enhance existing pasturelands. An additional 200 hectares of pastures will also be developed as identified in the Catchment Area Treatment plan as per the *Table 2.4*.

Table 2.4 *Pastureland Development by the State Forest Department*

Sl.#	Location	Pasture Development (ha)
1	Sianthen village	30
2	Ustream storage reservoir	90
3	Pahali Nallah	20
4	Hamta Garh	30
5	Tangra/ Chikka Springs	30
	Total	200

2.5.6 *Muck Disposal*

Queries have been raised on the quantity of muck and method of disposal of muck as improperly disposed muck could damage to riverine ecology and crops.

The Company will implement the Muck Disposal Plan submitted to and approved by the State Pollution Control Board, Government of Himachal

Pradesh. As per this plan, a reuse of minimum of 30% of muck, proper staking and compaction of muck and spoil, afforestation and landscaping of filled muck sites is ensured. It is expected that overall 1,035,000 cum of earthwork will be carried out during Project construction. Muck will be disposed only in identified disposal sites and plant areas and no muck will be disposed in rivers or streams. The details of muck generation, use and disposal are given in *Table 10.13* of the draft ESIA.

2.5.7 *Impact on Wildlife Habitat, Flora & Fauna*

In view of the remarks that the ESIA does not contain a comprehensive baseline study on wildlife, biodiversity and riverine ecology, provisions have been made to carry out additional studies on aquatic/riverine biodiversity study by Foundation for Ecological Security, Munsiri, District Pithoragarh, Uttarakhand and terrestrial flora and fauna study by World Pheasant Association, New Delhi. The Company will implement the recommendations of both studies.

Pending the completion of those studies, the Company will implement a broad Provisional Biodiversity Conservation Action Plan to ensure that the Project's impacts on local flora and fauna are minimized. This Action Plan is presented in *Section 4.1*. Among the mitigation measures that will be implemented include optimised blasting to control air pollution, maintenance of minimal light to avoid disturbance to night animals/birds and Catchment Area Treatment Plan involving afforestation over 800 ha.

Contractors and their employees will be bound through contractual provisions to observe wildlife, environmental, health and safety regulations. Those who hunt or gather and otherwise disturb wildlife and vegetation in the Project area will be fined and repeated violation will result in cancellation of contracts.

2.5.8 *Impact on Fisheries*

Concerns have been raised that the draft ESIA does not contain comprehensive study of fish ecology.

Although no fish were found in during the biological surveys of the Allain and Duhangan streams, a comprehensive aquatic/riverine study is being undertaken by the Foundation for Ecological Security. The Project Company will implement the recommendations of this study.

ERM has recommended that a minimum flows be maintained downstream of diversion structures for sustenance of aquatic ecology. In addition, a Fisheries Monitoring Plan will also be implemented during the construction and operation phases.

2.5.9 *Global Warming and Shrinkage of Glacier*

Some villagers expressed concern that the project will add to global warming and therefore, adversely affect the Himalayan glaciers.

The global warming is a phenomena related to emissions of greenhouse gases like carbon dioxide, methane, nitrogen oxide, etc. The likely emissions of green house gases from the project are limited to construction phase during power interruption from the state electricity supply when diesel generators are run to meet construction power requirement. The operation phase of the project will actually result in saving fossil fuel emissions due to combustion of over 40 tonnes per hour of fuel oil equivalent to generate 192 MWh of power. Thus the Project has very limited global warming potential.

2.6 *PUBLIC HEALTH & SAFETY*

2.6.1 *Women's Safety*

In order to address the concerns of project-affected peoples regarding women's security and safety due to the influx of migratory labour for project implementation, the Company will fund the establishment of a police station in village Prini. The Government will be requested to depute women staff at the Prini Police station to register local complaints related to women. Additional security staff with instructions to ensure women's safety will be provided at the project sites by the Company. If requested by the villagers, the Company will also consider provision of security at additional locations.

The Company will provide separate colonies for the labour force with segregated facilities, and all contractors will be bound through contractual provisions to observe local, national and World Bank Group environmental, health and safety regulations policies and procedures, including compliance with local security requirements. Violations of these regulations will result in fines and/or cancellation of contracts.

2.6.2 *Influx of Labour Force*

A number of stakeholders are about the lack of sanitation and resulting health hazards resulting from the influx of migrant labour to work on the Project. It is also feared that a large influx of migrant labour will affect local culture. In order to reduce such potential impacts, the Company will stipulate in its labour contracts that preference be given to hiring local labourers first, and then to Pahari/Nepali labourers. The Company will establish labour camps to accommodate all migrant labourers. To the extent possible the labour camps will be located at suitable distance from the nearest settlement.

Provision of civic amenities for construction labour will include toilets, sewage collection systems, communicable disease awareness programmes and construction of wastewater treatment plant.

2.6.3 *Potential Public Health Impact of the Labour Force*

In order to mitigate the possible health hazards, the Company will ensure use of all stipulated personal protective equipment. The Project Company will construct a hospital at Prini and will provide financial support to the health management plan.

In addition to the hospital, the Project Company will provide one Ambulance/mobile dispensary unit to be stationed at Jagatsukh. The Company, with the support of IFC, will conduct community awareness and prevention programmes for HIV/AIDS, Malaria, Tuberculosis and other communicable diseases that could be carried by migrant labourers. The Company will require contractors to carry out health checks on labourers before engaging them.

2.6.4 *Solid Waste disposal*

All the solid waste generation sources have been identified for regular collection in separate bins at the Project site. All domestic biodegradable wastes from the construction campsites will be collected in humus pit(s) for conversion into compost. Any hazardous wastes such as used oil will be disposed of through vendors as approved by Himachal Pradesh State Environment Protection and Pollution Control Board. Codes of practice for safety and disposal of muck and solid waste will be prepared and put in place by the Company prior to taking up construction activities.

2.6.5 *Wastewater Treatment*

The Company will provide sewage treatment plant for sewage from campsites and colonies. A separate treatment plant will be provided for wastewater from maintenance workshops.

2.6.6 *Impact due to Noise Pollution*

The movement of equipment and vehicles would adversely affect peace in the area due to increased noise levels. The Company will ensure demolition and removal of structures, if any, to be limited to daytime only. Other measures include provision of mufflers, rubber padding at the foundation, regular maintenance and acoustic enclosures for high noise generating machinery like Diesel generators to control noise and vibrations. Advance blasting techniques will be adopted to minimise noise levels. As far as possible traffic will be confined to the Project area. Barrier sheets will be provided along the roads near settlements. The Company will ensure regular maintenance of Company owned and leased vehicles.

2.6.7 *Blasting & Ground Vibrations*

In order to mitigate the effect of blasting in the Project area, the Project Company will ensure use of specialized blasting techniques such as delay detonators and explosives to restrict ground vibrations. Regular monitoring of ground vibrations will be undertaken. The Project Company will inform villagers of blast timings to ensure that cattle and pedestrians avoid blasting locations during those times. Security personnel will be posted at these sites to ensure that no animal or pedestrian enters the area during blasting times.

2.6.8 *Reservoir Safety*

The height of the Allain barrage and the intermediate reservoir measured from the base to full reservoir level is 12 m and 14 m respectively. With the free board provisions, the heights are 14 m and 14.5 m respectively. Both Allain Barrage and the Intermediate Reservoir structures lie within low risk category with reference to height criteria as specified by International Commission On Large Dams (ICOLD). However, with reference to the water storage capacity, both Allain barrage and Intermediate reservoir, having 0.125 and 0.195 million cubic meter of storage capacity, respectively, fall in the moderate risk category of 0.1 to 1 million cubic meter capacity of ICOLD.

The measures for the safety of water storage structures include hydraulic model testing to confirm the safety of the water storage structures proposed for the project. The Company is carrying out such hydraulic model tests to confirm the safety of the structures. The Project Company will undertake regular inspection and maintenance of diversion structures. The Company has appointed an independent engineer Lahmeyer International to review design and construction of Project structures. The independent-engineer will periodically report to Project lenders about review findings of the safety of all structures at the design, construction and operation stages. The Company will ensure a well-rehearsed emergency response plan in place before project commissioning with mechanisms of mock trials for regular checks and controls to effectively meet any emergency.

2.6.9 *Risk due to Natural Hazards*

Natural hazards could lead to structural damage to the project components, which in turn would lead to widespread damage in the surrounding area. The Company will ensure inclusion of adequate engineering measures during detailed design and engineering of project structures to protect them from natural hazards.

Project structures need to be designed with the highest applicable safety factor for the Himalayan Zone (Zone - V). The Company has engaged Roorkee University, Roorkee, India to carry out studies to assess seismic impacts on

tunnels and the findings of these studies will be incorporated into the design of tunnel construction.

2.7 LIVELIHOOD & EMPLOYMENT

2.7.1 *Impact on Apple Crops*

Stakeholders raised the issue of reduced apple and other fruit tree production in the Project affected villages due to the dust raised by the increased vehicular traffic and construction activities. However, since the roads will be bitumen topped, a very small, if at any, increase in level of dust due to vehicular movement is anticipated. During the construction of roads, the Company will ensure that water is sprinkled at 3 to 4 hour intervals.

Additional mitigation measures include traffic management, proper covering of construction material vehicles while moving, and options of crop insurance for the community. The Project Company will consider any and all claims of impact on crop production through the established grievances redressal mechanism.

2.7.2 *Availability of Potato Seeds*

In order to compensate the loss of potato seeds due to acquisition of the Government Potato farmland at Hamta by the Project, the Company will make arrangements to provide seeds of similar quality to the village Panchayats as required at similar rates.

2.7.3 *Employment Opportunities*

Project affected villagers are concerned that preferential employment opportunities will not be provided to them.

The Company will ensure that preferential employment opportunities are given to all Project Affected Families and local communities. These issues have been addressed through the Rehabilitation Action Plan contained in the environmental and Social Monitoring and Management Plan of the ESIA, and detailed in the addendum to draft ESIA as provided in **Section 3** of this report.

2.7.4 *Impact on Cultural Aspects and Tourism*

Some stakeholders have expressed concerns that the Project will reduce employment in the tourism sector. The socio-economic studies conducted by ERM indicated that the dependence of the local population on employment in tourism-related businesses (e.g., porters, trekking guides, lodge operators and taxi operators) was not significant. While construction activities are likely to discourage trekking in the Project area temporarily, the construction of roads to Allain and Duhangan barrage sites will attract day visitors as well as trekkers and tourists and thus, create additional employment opportunities for the local population.

2.7.5 *Land for Land Compensation*

Concerns have been raised by some stakeholders that land for land compensation has not been offered to people whose land is being acquired for the project. The Company reports that land for land compensation has been offered to affected villagers. However, these villagers have rejected the option in preference for cash compensation.

Nonetheless, as noted in the draft ESIA report, families losing more than 75% of their land after acquisition will be considered as most vulnerable and the Project will provide them with an option of cash compensation or a parcel of land equivalent in size, value and quality to their original holding. The Company will seek the assistance of the local government revenue department for this purpose.

2.8 *LOCAL SUPPORT FOR THE PROJECT*

2.8.1 *Availability of Education and Health Facilities*

Some stakeholders have questioned what benefits the Project will bring to the affected communities. Among other facilities, the Company has offered to construct a primary school building on the land provided by the Prini village Panchayat. The Company will also operate a school for the children of Project staff, which will be open to children of the Prini and Jagatsukh Panchayats. Health facilities will also be provided for village Prini and Jagatsukh.

2.8.2 *Public Access to Project Roads*

Pedestrians and vehicles will have full access to the Project roads subject to certain restrictions during the construction period and providing that all safety rules and regulations are followed. Company security personnel will manage access to these roads to ensure their safe use.

2.8.3 *Access to Cremation Ground*

In response to a request by members of the affected villages, the Company has agreed to build the access route to the cremation ground once the Prini village Panchayat provides the land without trees with all statutory approvals.

2.8.4 *Provision of Public Lighting and Electricity*

In response to a request by members of the affected villagers, the Company will provide street lighting in the villages as per the terms of the Agreement signed with the village Panchayat.

2.8.5 *Religious Sentiments*

Concerns have been raised for the protection the religious significance of the Duhanagan River. The Company respects all the religious sentiments of the villagers and will discuss construction schedules with the community to prevent disturbance of any religious or cultural activities. The Company will also adhere to the provisions of the World Bank policy on Cultural Property, where applicable.

2.8.6 *No Objection Certificate from Jagatsukh*

As required by the State and Central Governments, the Company obtained a No Objection Certificate (NOC) from Prini and Jagatsukh villages (copies are provided in *Annex XV* and *XVI* respectively). Based on these NOCs, the State Government gave its consent to establish the Project. All subsequent clearances were obtained based on these NOCs from Central and State Governments.

2.8.7 *Public Support*

The Village Committee of Prini has signed an agreement with the Company in favour of the project. Similarly, Women's Group and a significant number of villagers of Jagatsukh have signed statements in favour of the project (refer to *Annex XVII*).

2.9 *COMPANY'S COMMITMENT*

The Company agrees to undertake environmental and social mitigation measures for all identified potential adverse environmental and social impacts resulting from the proposed project.

The Company will be required to abide by all applicable World Bank Group Environment and Social safeguard policies as a condition of IFC financing. In addition to the above there will be an independent monitoring of the Company's environment and social performance by the Independent Engineer

and the Independent Engineer's Environmental Consultant who, together, will verify the safety of all Project civil works and the implementation of the Environment and Social Management and Monitoring Plan, respectively. The Project's Environment and Social Cell will also include participation of the project-affected people in the monitoring of the Project by way of the Community Development Plan, the Grievance Redressal Cell, the Independent Appeal mechanism, etc. IFC will also monitor the Project's compliance with all applicable health, safety, environmental and social policies and guidelines as well as the performance of the Project's Environment and Social Cell.

2.9.1 *Implementation of Rehabilitation Action Plan*

All monitoring under the Environmental and Social Management and Monitoring Plan will be participatory and will include representatives of the affected villages.

An estimated budget for the Rehabilitation Action Plan is Rs 5.01 million, exclusive of the compensation for land acquisition, and includes various allowances and assistance for the project-affected families as provided in the entitlement framework in the ESIA.

The Company has agreed to provide employment during the construction of the Project to at least one person from each family whose land is being acquired for the Project.

2.9.2 *Implementation of Environmental Action Plan*

Some villagers feel that, although the Company has agreed to deposit funds for a Catchment Area Treatment Plan and Compensatory Afforestation with the State Government, the implementation of the Environmental and Social Management and Monitoring Plan needs to be ensured. In order to mitigate villagers' concerns following actions will be taken up by the Company:

- The Company is bound to comply with the environmental action plans as approved through statutory approvals of the Ministry of Environment & Forests and the Himachal Pradesh State Environment Protection and Pollution Control Board.
- The Company has begun the process of setting up a Project Environmental and Social Cell at project site to implement, manage and monitor the environmental and social action plans drawn up for the Project.
- All monitoring under the Environmental and Social Management and Monitoring Plan will be participatory and will include representatives of the affected villages.

An estimated budget for the implementation of the Environmental and Social Management and Monitoring Plan is Rs 101.96 million.

2.9.3

Credibility of Compliance Mechanisms

Some villagers expressed doubt that the mechanisms proposed by the Company to ensure its compliance with all proposed impact mitigation measures are not credible. To ensure their credibility, the Company has taken the following steps to implement credible compliance mechanisms:

- A Grievance Redressal Cell was set up in May 2004 that will involve meetings with the villagers to consider and act on the grievances received from the affected villagers.; and
- A separate committee was constituted by the Company on 24 June 2004 that includes representatives of the affected villages, to act as an Independent Appeal Mechanism to redress grievances and to ensure that the Grievance Redressal Cell works properly.

**DETAILS OF ISSUES RAISED IN THE PUBLIC CONSULTATION PROCESS
AND MITIGATION MEASURES AGREED BY THE COMPANY**

The key issues raised during the public consultation process, by the Project Affected Villagers and others, have been collated in the past few months in the matrix format (*Tables 3.1 & 3.2*) as an addendum to the draft ESIA report. Relevant annexes to the addendum to the draft ESIA are also presented in *Section 5*. The list of key issues discussed are as given in the *Table 3.1*.

Table 3.1 **Table of Contents of Key Issues**

Sl. No.	Key Issues
1	Contradictory projections of power demand
2	Public Consultation and Disclosure Plan (PCDP)
3	Acquisition of private land
4	Incomplete socio-economic survey
5	Previous EIA reports to be made available
6	Impact Assessment of Transmission Line
7	Drinking & Irrigation Water
8	Forest
9	Air quality
10	Fuel wood for labour force
11	Access to and Impact on pastureland
12	Muck Disposal
13	Impact on wildlife habitat and flora
14	Impact on fisheries
15	Potential “shrinkage” of glaciers not considered
16	Women’s safety and security
17	Influx of labour force in the area
18	Solid waste disposal
19	Waste water treatment
20	Noise pollution
21	Blasting
22	Reservoir safety
23	Risk due to natural hazards e.g. earthquakes, forest fires, landslides, etc.
24	Potential public health impacts of labour force
25	Impact on apple crops
26	Availability of Potato seeds
27	Employment opportunities
28	Impact on local cultural and tourism
29	Land for land compensation not offered to people whose land is being acquired
30	Religious sentiments
31	Availability of education and health facilities
32	Public access to project roads
33	Access to cremation ground
34	Provision of public lighting and electricity
35	Validity of Jagatsukh NOC
36	Implementation of Rehabilitation Action Plan
37	Implementation of Environmental Action Plan
38	Lack of credible compliance mechanism

Table 3.2 Issues Raised in the Public Consultation Process and Mitigation Measures Agreed by the Company

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
1	Contradictory projections of power demand	Some villagers could not understand the power demand and supply projections given in the ESIA.	The various sources that have been referred in the draft ESIA regarding power demand of the country include: The Fourth National Power Plan Hydrology Report of Lahmeyer International CEA's XVIth Energy & Power Survey Report	<u>Volume I:</u> Section 1.4, pages 6 – 7	
2	Public Consultation and Disclosure Plan (PCDP)	It has been alleged that the Project authorities are not communicating with the villagers.	A. The company has followed a comprehensive public consultative and disclosure process and are carrying out the following: • Dissemination of project documents both in Hindi and English and focus group and public meetings facilitated by Independent specialists; • Community development using the participatory approach, i.e., promotion of consultations, dialogues, to develop the localized Community Development Plan; • Social Management Unit/Cell set up at the project office to implement the various plans; • Grievance Redressal Cell: Villagers will constitute a coordination committee to bring up any grievances during project construction and operation phases. • The company has constituted a Grievance Redressal Cell; • Appeal mechanism set up by the company.	<u>Volume I</u> Section 10.11.1, Pages 278-283 Section 10.21.3, pages 305,306 Section 10.21.4, page 306	Refer to Section 4.2 of this Report for Chronology of public disclosure events Prini Agreement, Annex III, Para 12. Copy of order dated 23 May 2004 for constitution of Grievance Redressal Cell, Annex XI Copy of Order dated 24 June 2004 to constitute Independent Appeal Mechanism, Annex XII.

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
3	Acquisition of private land	Loss of agricultural land would lead to loss of the main source of earnings for the affected villagers. Due to delay in payment of compensation of the finalization of land rates, villagers demanded higher compensations along with crop compensation.	- Total amount of private land to be acquired is 9.01 ha. - Majority of the families losing less than 25% of their total land holdings - Compensation against land acquisition as per negotiated rates with the project affected people. - The average amount of land to be taken from each family is 0.49 Bigha. The negotiated rate of compensation for acquisition of land is an increase of 357 percent over the market rate. Increase of negotiated rates for land by Company on request of villagers due to payment of higher compensation by a 3 MW project coming up at village Prini. - Rehabilitation Action Plan, which includes provisions for project affected people in form of transitional allowance, tree shifting allowance, job priority, training/ skill capacity building for income generating facilitation and community development plan. - Monitoring & Evaluation Cell for monitoring of Rehabilitation Action Plan to ensure that specified process and objectives are followed; - Budget of Rs 50.1 Lakh for Rehabilitation Action Plan - Community development programme using participatory approach - Additionally, the vulnerable families, i.e. families losing more than 75% of their land after acquisition, will be provided an option of cash compensation or an alternative land equivalent in size, value and quality to that they are losing. The Company will seek the assistance of the revenue department of the State Government for this purpose.	<u>Volume - I</u> Section 10.5.3, pages 264-272 Section 10.22, pages 306-308 Table 10.1, Point No.A.1, page 252 Table 10.16, page 311 Section 10.53, page 264 - 265	Prini Agreement, Annex III, Para 1 Annex XIII Land Rate

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
4	Incomplete socio-economic survey	Some villagers feel that the socio-economic survey is not complete and therefore, the draft ESIA is incomplete.	ERM has completed the census survey and socio economic survey based on private land for which notification u/s 4 has been issued and also for the land for which notification is under issue. The impact assessment report for the same will be contained in the final ESIA report. The compensation framework is designed to meet all contingencies of adverse socio-economic impacts.		
5	Previous EIA reports to be made available	Some villagers wanted to see the previous EIA reports.	Copies of previous EIA reports prepared by RITES in 1996 and updated by the Company in 2001 are available at the project office in Prini for reference and study to any person interested in doing so.		
6	Impact Assessment of Transmission Line	A complete impact assessment of the proposed transmission line has been suggested.	The 185 km route of the transmission line from switchyard at Prini to Nalagarh does not seem to pass through any densely inhabited areas however, it passes through reserve forest areas in the proximity of Khokhan and Bandli sanctuaries with a few road crossings across the NH-21 as well as the State Highways and 4 to 5 river crossings. The types of likely impacts due to construction of transmission lines will include impact on land use and land productivity, loss of vegetation, grazing/pasture land etc. Framework of Mitigation Measures for likely Environmental & Social Impacts due to proposed power transmission line has been prepared. As the exact route of the transmission line is yet to be finalised. After finalization of pooling point by Power Grid Corporation of India, a detailed ESIA shall be carried out.	<u>Volume - I</u> Section 5.0, pages 133-143 Section 7.14, pages 208-216 Section 10.19, pages 296-302	

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
7	Drinking & Irrigation Water	Construction would adversely affect the drinking water sources of Jagatsukh & Prini village at Chor Pani /Dhani stream, & Jamlu Devta/Pahali streams respectively. There could be shortage of irrigation water due to permanent diversion of Duhangan stream into the project powerhouse which is being located at Prini.	- The Company has assured that there will not be any disturbance to the Dhani, Pahali, Chor Pani or Jamlu Devta drinking water sources. This will be monitored jointly with the village community; - In the event of any disturbance to the drinking water sources the company will provide sufficient water of potable quality to cover the gap, to the affected community; - The Company has given an undertaking to the State Government that the riparian rights of the project affected villages will be respected (refer to Annex VI); - The Company will install mechanical and electronic flow measuring devices to monitor flow of water for downstream users. - Town & Country Planning Department letter dated 17 June 2002 has confirmed a water requirement of 100 litres per second for Allain & Duhangan streams. - Duhangan discharge data & irrigation water requirement Vs availability graph presented by the project for the operation phase of the project (Annex VII) - Company has agreed to ensure that the project releases a minimum discharge of 150 lps from the Duhangan barrage, if necessary, even at the cost of generation. In addition the downstream tributaries of Duhangan add a minimum of 360 lps of water, making a minimum water to be available downstream to be 510 lps.		Annex VI Annex VII Clause No.5.11, part 3 of the Implementation Agreement, Annex VIII.

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
8	Forest	There will be an adverse impact on forest due to diversion of forestland for the project	A) Measures to mitigate the impact of diversion of forest land are listed below: • Compensatory Afforestation as approved by Government of India (GOI) will be carried out; • Catchment Area Treatment (CAT) Plan as approved by the the MoEF GOI and the state forest department along with detailed budget • Compensation against loss of environmental value paid to the State Government. • Provision of an estimated Budget of Rs 39.8 million for CAT plan covering cost of afforestation, pastureland development, engineering measures like check dams, spurs etc. and their maintenance.	<u>Volume - I:</u> Annex A, Ministry of Environment & Forest (MOEF) letter dated 25.10.2000 Table 10.1, Point A.2, Pg.252 Annex A, Part A – (i,iv,v) & Part B - (i, ii, vi) of MOEF letter dated 12.12.2000 Table 10.1, Point C.2, Pg.257 Section 10.12, Pgs.284-286 Sec.10.18, Pgs.294-296 Table 10.15, Points D,E,F, Pg. 311	
		The villagers feel that there is some discrepancy over the number of trees to be felled by the project. Villagers feel that the plantations carried out by the Forest Department does not have much chance of survival.	B) In the diverted forestland, a total number of 1,370 trees have been earmarked for felling. In addition to this, a total number of 2,586 saplings have been counted for removal. Saplings are small plants and having diameter of less than 10 centimetres. Removal of saplings and cutting of trees will be undertaken by the Himachal Pradesh Forest Corporation Limited, Government of Himachal Pradesh. The Company has clarified that the tree felling will be carried out on the basis of approval given by GOI. The tree felling will be done by the Forest Department of Government of Himachal Pradesh (GOHP). C) Joint Monitoring Committees constituted by the Government for ensuring implementation of Catchment Area Treatment plan and compensatory afforestation program. The Company will request the Government to include a provision for local participation in the monitoring of the felling and compensatory afforestation program.	Table 4.27, page 101 Section 10.22.2, Table 10.14, point No.4, Pg.309	Para 5.24 of the Implementation Agreement with Govt. of Himachal Pradesh, Annex I GOHP Notification of Forest Committee for monitoring of Catchment Area Treatment plan, Annex II

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
			D) As a part of the Company's community development support, local afforestation activities will develop their own nurseries and carry out plantation in agreed areas.		
9	Air quality	Use of DG sets for construction purposes could lead to air pollution in the project area. This would result in higher than normal concentration of suspended particles, SOx and NOx in the air.	- The air pollution will be negligible since the DG sets will be used by the Company only for providing construction power when the normal power from State Grid is not available. - The Company will ensure DG sets adhere to norms specified by HP State Environment Protection and Pollution Control Board, HPSEPPCB (including emission standards); - Noise pollution will be limited through use of mufflers and acoustically designed enclosures.	<u>Volume - I:</u> Sec.3.6.1, Pg.50 Table 10.1, Point Nos.BB,BD.4,BD.9, BD.10, BD.11,BD.12, Pgs.253-256 Table 10.14, Point no.1, Pg.308, Table 10.15, Part A: Point Nos.3 & 4, Parts C & D, pages 310-311	FAQs dated Jan.2, 2004, Annex IV, Para 21

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
10	Fuel wood for labour force	The migratory labour could resort to illegal felling and cutting trees and branches for use as fuelwood.	- Labour contracts will contain conditions to ensure that illegal felling is not done by the contract labour. - Provisions for use of kerosene oil or LPG as the primary fuel by the labour. This will be the contractor's responsibility and included in the contract. - Use of fuel wood as secondary option. This will be sourced from the State Forest Department and records of procurement and distribution for use, will be maintained by the contractor. - All contractors will be bound through contractual provisions to observe environmental, health and safety regulations of the Company, including compliance with conditions regarding no-illegal-felling of trees for meeting fuel wood requirements. Violations of these regulations will result in fines and/or cancellation of contracts.	<u>Volume - I:</u> Table 10.1, point BA.4, page 253 Sec.10.13, pg. 286-287 Sec.10.18.2, pg.296 Table 10.15, Point G, page 311	

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
11	Access to and Impact on pastureland	Access to existing pasture land will be disturbed due to construction of road and the livestock will have difficulty in reaching these pastures.	Access to pasture land will be maintained through the construction and later during the operation phases of the project by following means: • The company will ensure that access to pasture land is maintained through the construction and later during the operation phase of the project. • Any footpath damaged during the construction of the roads will be repaired. • Appropriate steps will be provided in the retaining wall structures to facilitate movement of people and livestock to the pastures • Ramps will be provided where necessary (temporary or permanent) with slopes appropriate for animal movement. • Realigning road where feasible • Enhance existing degraded pasturelands by restoring degraded areas in consultation with the community. • Develop 200 hectares of pastures as identified in the Catchment Area Treatment plan with the help of State Forest Department.	<u>Volume - I:</u> • Table 10.15, Point D, page 311 • Table 10.3, page 284 • Table 10.6, Point 2, page 285 • Table 10.1, point E.4, page 258 • Section 10.18.2, page 295 • Condition A, part (i) of Environmental Clearance accorded by MOEF letter dated 12.12.2000, Annex A	

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
12	Muck Disposal	Improperly disposed muck could lead to damage to riverine ecology. Improperly disposed muck could lead to damage to crops.	The Company will implement Muck Disposal Plan as approved by the State Pollution Control Board, Govt of HP which includes the following provisions: • Reuse of minimum 30% of muck, disposal as per Muck Disposal Plan, proper staking and compaction of muck and spoil, afforestation and landscaping of filled muck sites. • Temporary muck dumping site to be provided with adequate safeguards- location compatibility with topography, retaining wall of suitable material with adequate weepholes.	<u>Volume - I</u> • <u>Section 10.15, pages 289-291 & Annex H</u> • <u>Table 10.1, points BD.6, BD.8 & BD.9, pages 255 & 256</u>	Layout drawings showing muck dumping areas. Annex V.

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
13	Impact on wildlife habitat and flora	The ESIA does not contain a comprehensive study on wildlife, biodiversity and riverine ecology.	The Company will implement a range of activities intended to protect the biodiversity of the project area including: • Compensatory afforestation over 64 ha. of degraded forest land; • Optimized blasting to control air pollution, controlled traffic management; • Although no fish was found in fish catch attempts, in Allain and Duhangan streams, a 12months fish survey is to be carried out; • Foundation for Ecological Security (FES), Munsiri, Dist. Pithoragarh, Uttarakhand would be carrying out aquatic/riverine biodiversity study for one year; • Additionally, World Pheasant Association (WPA), New Delhi, is taking up three seasons baseline for terrestrial flora and fauna studies; • Maintenance of minimal light to avoid disturbance to night animals/birds, if any, and for safe and secured project operations; • Catchment Area Treatment Plan involving afforestation over 800 ha will be implemented; • The contractors and their employees will be bound through contractual provisions to observe environmental, health and safety regulations of the Company, and those who hunt or gather and otherwise disturb wild life and vegetation in the project area will be fined heavily leading to cancellation of contracts.	Volume I • Table 10.1, Point A.2, pg 252 • Point BD.3, page 254, • Point C.2, page 257 • Point E.6, page 259 • Section 10.12, Pages 284 – 286 • Section 10.18.3, Page 296 • Table 10.14, pages 308-309 • Table 10.15, Part C, page 311	• Copy of letter of acceptance from FES to undertake study of fish fauna and Riverine ecology for Allain and Duhangan streams, Annex IXA. • Copy of letter of acceptance from WPA to undertake study of flora, fauna including pheasants, Annex IXB.

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
14	Impact on fisheries	The ESIA does not contain a comprehensive study of fisheries.	Although no fish was found in fish catch attempts, in Allain and Duhangan streams, a comprehensive aquatic/riverine study is being co-ordinated through the Foundation for Ecological Security (FES), Pithoragarh. The company will implement the recommendations of FES. It is already recommended that a minimum flows shall be maintained downstream of diversion structures for sustenance of any aquatic ecology downstream. In addition, a Fisheries Monitoring Plan will also be implemented during the construction and operation phases	<u>Volume I</u> - Section 7.7.3, page 195 - Table 10.1, Point No.C.2, page 257 - Section 10.17, pages 293, 294 <u>Volume II</u> - Fisheries study – Section 6 Report	Copy of letter of acceptance from FES to undertake study of fish fauna and riverine ecology for Allain and Duhangan streams, Annex IXA.
15	Potential “shrinkage” of glaciers not considered	Some villagers think that the project will add to global warming and therefore, adversely affect the Himalayan glaciers.	The global warming is a phenomena related to emissions of greenhouse gases like carbon dioxide, methane, nitrous oxide, ozone etc. The likely emissions of green house gases from the project is limited to construction phase that too during power interruption from the state electricity supply when diesel generators are run to meet construction power requirement. The operation phase of the project will actually result in saving fossil fuel emissions due to combustion of over 40 tonnes per hour of fuel oil equivalent to generate 192 MWh of power. Thus the proposed hydropower project does not have global warming concerns. Further, the diversion structures at Allain and Duhangan streams are at a much lower elevation than the glaciers.		

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
16	Women's safety and security	Women's safety and security will be adversely affected due to influx of outside labour force	- The Company will fund a police station to be set up at village Prini. - Company will provide security staff at all project component sites. Security Staff will have instructions to ensure women's safety - Provision of security will also be considered at additional locations if requested by the villagers. - Separate colony for labour force with segregated facilities and regular checks to monitor the same - The Government will be requested to depute women police staff at the Prini Police station to register local complaints related to women. It is suggested that the GRC will liaise with the Police Station to monitor complaints relating to women's security in particular. - All contractors will be bound through contractual provisions to observe environmental, health and safety regulations of the Company, including compliance with local security requirements. Violations of these regulations will result in fines and/or cancellation of contracts.	<u>Volume - I:</u> - Sec.3.3.10, Pg.40 - Table 10.1, point BD.14, pg. 257 - Sec.10.8.2, Pg.275-276	- Prini Agreement, Annex III, Para 6 - Frequently Asked Questions (FAQs) dated 2 Jan 2004, Annex IV, Para 31.

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
17	Influx of labour force in the area	The migratory labour would disturb the social and cultural fabric of the affected villages Large influx of migratory labour would lead to adverse sanitation conditions	A. Regular check to control interference of labour force with local residents - Construction Labour Management Plan, which includes management for labour accommodation, fuel arrangement for labour and issues related to their health management. - The Company will stipulate in its labor contracts that preference will be given to hiring local laborers first, and then to Pahari/Nepali laborers - Labour camps will be set up catering to all migrant labour force. This should be located at a suitable distance from the nearest settlement. This clause will be included in the contract. B. The contractors will be required to provide of civic amenities for construction labour including toilets, sewage collection systems, - The Company will implement awareness programmes on various communicable diseases, hygiene and sanitation; - The Company will establish treatment plants for wastewater from workshops & colonies, and make provision of fuel for labour force, conversion of biodegradable waste into compost.	Volume – I Section 3.3.10, page 40 Table 10.1, point A.3, page 252 Table 10.1, point BA, page 253 Table 10.1, point BD.14, page 257 Section 10.13, pages 286 - 289	

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
18	Solid waste disposal	Improper solid waste disposal could lead to health hazards. During construction of retaining walls for roads, adequate toilets were not provided to the labourers.	The Company will implement measures for Solid waste disposal which includes the following: • Identification of all solid waste generation sources. All bio-degradable including kitchen waste to be put into humus pit. • Construction of toilet facilities and sewage collection & treatment systems for labour camps; • Construction of public toilets in the village; • Provision of toilets at all construction sites; and • Development of codes of practice for safety and disposal of muck and solid waste prior to taking up construction activities	<u>Volume - I</u> Section 3.6.3, page 51-52 Section 7.2.4, pages 176-177. Table 10.1, point A.3, pg.252 Table 10.1, point A.4, page 252 Table 10.1, point BA.5, page 253	Prini Agreement, Annex III, Para 14
19	Waste water treatment	Improper wastewater disposal by the Project could lead to health hazards and could also damage the agricultural crops.	The Company will ensure the proper management of wastewater generated by the project in the following manner: • Provision of treatment plants for wastewater (from camp, colony and workshop) • Provision of sewage treatment plant for domestic wastewater, controlled discharge of flushing from desilting chambers • Regular participatory monitoring of treated water before it is discharged into disposal outlet.	<u>Volume - I</u> Section 3.6.2, pages 50-51 Table 10.1, point BA.1, pg.253 Table 10.1, point E.2, page 258 Table 10.1, point E.5, page 259 Table 10.15, Part A, Point 5, page 310	

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
20	Noise pollution	The movement of equipment and vehicles would adversely affect peace in the area due to increased noise levels.	The Company will take all possible measures to control noise pollution from the project including: • Limiting demolition and removal of structures, if any, limited to daytime only. • Daytime operation, regular maintenance and provision of enclosures for high noise generating equipment. • Adoption of optimized blasting techniques and controlled traffic management to minimize noise. • Provision of mufflers on DG sets, rubber padding of enclosure foundation of DG sets to control vibrations, optimized operation of construction related machinery. • Fleet management, vehicular traffic confined to project area. • Limited vehicular movement during operation phase, regular maintenance of company owned vehicles. • Provision of barrier sheets along road construction especially in areas near settlements.	<u>Volume I</u> Table 10.1, Point BB.1, page 253 Point BC.2, page 254 Point BD.1 & BD.3, page 254 Point BD.11, page 256 Point BD.12, page 256 & 257 Point E.3, page 258	

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
21	Blasting	Ground vibrations due to blasting in the project area could lead to damage of existing residential structures. The blasting could also disturb the flow of existing springs in the area.	The Company will take all possible measures to control the impacts of blasting including the following: • Use of specialized techniques and explosives, ground vibrations will not affect structures beyond 81 m from point of blast. • Adoption of optimized blasting techniques using delay detonators, blasting in confined areas. • Regular monitoring of ground vibrations will be undertaken. • The Company will intimate blast timings to villagers and ensure cattle and local people are away from the locations of blasting.	<u>Volume I</u> Section 7.6.1, Page 193 Table 10.1, Point BD.1 & BD.2, page 254	FAQ's dated 2 Jan 2004, Annex IV, Para 30.

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
22	Reservoir safety	Any failure of the reservoir could lead to widespread damage in the surrounding areas.	The height of the Allain barrage and the intermediate reservoir measured from the base to full reservoir level is 12 m and 14 m respectively. With the free board provisions, the heights are 14 m and 14.5 m respectively. Both Allain Barrage and the Intermediate Reservoir structures lie within low risk category with reference to height criteria as specified by International Commission On Large Dams. However, with reference to the water storage capacity, both Allain barrage and Intermediate reservoir having 0.125 and 0.195 million cubic meter respectively of storage capacity fall in moderate risk category of 0.1 to 1 million cubic meter capacity of International Commission On Large Dams. The measures for the safety of water storage structures include: - Hydraulic model testing to confirm the safety of the water storage structures proposed for the project. The Company is carrying out such hydraulic model tests to confirm the safety of the structures. - The company is to undertake regular inspection and maintenance of diversion structure safety design and appoint an independent engineer to verify design and conduct inspections during project construction phases of the project. - An independent-engineer will periodically report to project lenders about review findings of the safety of all structures at the design, construction and operation stages. - The Company will ensure a well-rehearsed emergency response plan to be in place before project commissioning with mechanisms of mock trials for regular checks and controls to effectively meet any emergency.	<u>Volume I</u> Table 10.1, Point No.E8, page 259 & 260. Section 9.4.2, Para 3 and Table 9.6, Page 250 Table 10.1, Point E.4, Page 258	Detailed note on height of water retaining structures of ADHEP, Annex X.

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
23	Risk due to natural hazards e.g. earthquakes, forest fires, landslides, etc.	Natural hazards could lead to structural damage to the Project components which in turn would lead to widespread damage in the surrounding area.	Natural hazards could lead to structural damage to the project components, which in turn would lead to widespread damage in the surrounding area. The Company will ensure: • inclusion of adequate engineering measures during detailed design and engineering of project structures to protect them from natural hazards. • The project structures need to be verified for its designs with the highest applicable safety factor for the Himalayan Zone (Zone - V). • The Company has engaged Roorkee University, Roorkee, India to carry out studies to assess seismic impacts on tunnels. • The Company will ensure a well-rehearsed emergency response plan to be in place before project commissioning with mechanisms of mock trials for regular checks and controls to effectively meet any emergency.	<u>Volume I</u> Table 10.1, Point No.E8, Page 259 & 260. Section 10.16, pages 292, 293	Copy of order placed on Roorkee University to carry out studies to assess seismic impact on tunnel, Annex XIV.

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
24	Potential public health impacts of labour force	There is a possibility of migratory labour carrying communicable diseases, which could lead to health hazards in the project affected villages.	In order to mitigate the possible health hazards the company will support & carry out the following measures: • The Compulsory use of all stipulated personal protective equipment. • Health Management Plan including budgetary support. • Construction of hospital at Prini. • Maintenance of Health and Settlement and provision of medical facilities for the labour force as stipulated under the Environmental Clearance. • Provision of one Ambulance/mobile dispensary unit to be stationed at Jagatsukh. • Conduct community awareness programmes on AIDS among villages and labour camps	<u>Volume I</u> Table 10.1, Point A.3, Page 252 Table 10.1, Point BD.4, page 255 Section 10.13.3, Page 287-289 Section 10.18.2, Page 295 Annex A, Copy of Environmental Clearance, Part A, Points ii & iii Table 10.15, Point H, Budget, page 311	FAQs dated Jan2, 2004, Annex IV, Para 34. Prini Agreement, Annex III, Para 3.

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
25	Impact on apple crops	The dust raised by the increased vehicular traffic may lead to reduction in apple production in the affected project villages.	- Water trucks will sprinkle roads under construction to minimise dust; - All roads will be bitumen topped; - Traffic management through daily fleet management to avoid accidents and congestions at various points; - Vehicles carrying construction material to be covered and use of water sprinkling, - The Company will be restricting vehicular movements at the areas other than project sites; - Loads of construction waste material will be sprinkled with water; - The Company will discuss explore crop insurance with the community during construction phase of the project; - The Company will consider any and all claims of impacts on crop production for appropriate compensation through the established grievance redressal mechanism to verify the same.	<u>Volume - I</u> Table 10.1, Point BB.1, page 253 Table 10.1, Point BB.3, page 254 Table 10.1, Point BD.12, pages 256-257	
26	Availability of Potato seeds	Loss of potato seeds due to acquisition of the Government Potato farm land at Hamta for the project	- Project would provide seeds of similar quality to the village Panchayats, as requested. - The Company will make arrangements to provide potato seeds at same rate at which farmers procured it from the potato farm.	<u>Volume - I</u> Section 10.10, page 277	FAQ's dated Jan 2, 2004, Annex IV, Para 10

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
27	Employment opportunities	The affected villages have raised the issue of employment opportunities to be made available to them. The Employment issues are: Identification of suitable jobs Training to the villagers for jobs Contract to local people Bank loans for trucks to the local youth All plantation work to be given to women's groups Assessment of indirect employment opportunities All adults to be treated as separate families Community development Plan to be prepared in consultation with Gram Sabha	The Company will ensure that preferential employment opportunities are given to the Project Affected Families and local communities. These issues have been addressed through the rehabilitation action plan including: • Priority in jobs to the local people with first priority given to the project affected family • Skill up gradation and training program for income restoration • Transition allowance for the vulnerable families • Restriction on deployment of child labour. • Participatory approach to prepare and implement Community Development Plan. • Employment in project to at least one member of each project affected family as per clause No.5.16 of the Implementation Agreement with the Govt of HP. • For rehabilitation assistance including skill development all family members above 18 yrs have been considered as a separate unit • Hiring of taxis from village where requirement and rates match with Company's needs.	<u>Volume I</u> Table 10.1, Point A.1, page 252 Point BD.14, page 257 Section 10.5.1, Page 263 Section 10.5.3, page 265 Section 10.5.5, page 265 Section 10.6.1, point 5, page 267 Section 10.6.3, page 268 Table 10.2, page 270-272 Section 10.11, pages 277-283 Table 10.16, page 311	Prini Agreement, Annex III, Para 2 Clause No.5.16, part 3 of the Implementation Agreement, Annex VIII. Prini Agreement, Annex III, Para 11 FAQ's dated Jan 2, 2004, Annex IV, Para 33 on job opportunities for affected villages

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
28	Impact on local cultural and tourism	Some villagers have expressed concerns over problems that may arise due to differences in customs of outside workers and local residents. The project during construction phase may have some impact on trekking.	- The company will ensure regular check and measures to control interference of construction labour with local residents. - Any damage to the trekking route due to construction work would be repaired. - The Company has maintained that the number of trekkers and tourists is likely to increase due to the construction of road up to Allain and Duhangan barrage sites, which will create additional employment opportunities for the local population.	<u>Volume I</u> Table 10.1, Point BD.14, page 257	FAQs dated Jan 2, 2004, Annex IV, Para 37.
29	Land for land compensation not offered to people whose land is being acquired	It is thought that land for land compensation has not been offered to people whose land is being acquired for the project.	It has been clarified in the draft ESIA that families losing more than 75% of their land after acquisition will be identified as most vulnerable and the project will provide them with an option of cash compensation or an alternative land equivalent in size, value and quality to that they are losing. The land should not be far from where these families are currently located. The Company will seek the assistance of the revenue department for this purpose. Land for land compensation has been offered to the villagers. The affected villagers have rejected the option and have preferred to accept cash compensation.	Section 10.53, page 264 - 265	

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
30	Religious sentiments	Some villagers have mentioned that Duhangan river has religious sentiments attached to it. Therefore, the water should not be diverted.	It must be noted that the first indication of the religious significance of the Duhangan came to light well after the detailed socio-economic surveys conducted by ERM, public hearings conducted by the Company and focus group meeting moderated by independent observer. The company respects all the religious sentiments of the villagers and will discuss construction schedules along the streams with the community to flag religious and cultural sensitivities, and observe the advised safeguards as applicable and to the extent possible. The company will ensure that all employees and contracted staff of the project will be required to adhere to the provisions related to the World Bank policy on Cultural Property, where applicable.	Volume I Annex C, Record of Minutes of Meeting held at village Prini on 7 May 2003	
31	Availability of education and health facilities	The villagers have raised demands for provision of educational facilities in the project area.	The Company will construct a school building on the land provided by the village Panchayat for the purpose. The Company will build a school for the project staff where admission will be open to children of the Prini and Jagatsukh Panchayats. The Company also has a plan to set up a hospital in the village Prini and a dispensary in village Jagatsukh. In addition, a mobile dispensary will also be available in the area.		Prini Agreement, Annex III, Para 13. FAQs dated Jan2, 2004, Annex IV, Para 35.

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
32	Public Access to project roads	An apprehension has been mooted that the Project authorities will not allow the villagers to use the project roads.	People and vehicular movement will have full access to the project roads with the safety rider that they follow all safety rules and regulations for the construction period.		Prini Agreement, Annex III, Para 4. FAQs dated Jan 2, 2004, Annex IV, Para 36.
33	Access to cremation ground	The villagers have asked for a convenient access route to the cremation ground at Prini.	The Company has agreed to build access road to the cremation ground once the village Panchayat provides the land without trees with all statutory approvals.		Prini Agreement, Annex III, Para 7.
34	Provision of public lighting and electricity	The villagers have raised the following demands Free electricity Street Lighting	Electrification of roads within the village shall be carried out by the Company in the village as per the terms of the Agreement signed with the village Panchayat.		Prini Agreement, Annex III, Para 8.
35	Validity of Jagatsukh NOC	The villagers say that the NOC obtained from former Pradhan of village Jagatsukh does not have legal validity.	The Company had asked for and received an NOC from the then Pradhan of Panchayat on 23 May 1997, as legally required and based on this certificate, the Company got all government clearances. Based on these No Objection Certificates, the State Government gave its consent to establish the project. All subsequent clearances were obtained based on these No Objection Certificates from Central and State Governments. The villagers discussed the matter in the focus group meeting on 7 July 2004 in Jagatsukh village in the presence of Independent Observer. The report of Independent Observer mentions that the No Objection Certificate is issued on behalf of the Gram Panchayat.		

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
36	Implementation of Rehabilitation Action Plan	There is an apprehension that the Rehabilitation Action Plan will not be implemented sincerely.	The Company will make necessary institutional arrangements for implementation of social plans & monitoring program to address the following: - Monitoring & Evaluation Cell for monitoring of Rehabilitation Action Plan to ensure that specified process and objectives are followed; - Rehabilitation Action Plan, to implement provisions like transitional allowance, tree shifting allowance, job priority, training/ skill capacity building for income generating facilitation and community development plan for the project affected people. To implement the RAP a budget of Rs 5 million has been provided - All monitoring under the Environmental & Social Management & Monitoring Plan will be participatory and will include representatives of the affected villages. - It has been specified that employment options will be provided to at least one person from each family whose land is being acquired for the project.	<u>Volume I</u> Section 10.21, Page 302-308 Table 10.16, Page 311 Annex E, Organogram for Project implementation depicting Social Cell	Implementation Agreement, Clause 5.16, Part 3, Annex VIII. Prini Agreement, Annex III, Para 1, 2, 11 & 12.

W	Key Issues	Detailed Description of the Issues Raised	Mitigation Measures Agreed by the Company		
			Clarifications	Draft Environmental & Social Impact Assessment (ESIA) - Dec. 2003 (Reference for details)	Additional Annexes (for details)
37	Implementation of Environmental Action Plan	The villagers feel that although the Company has agreed to deposit funds for CAT plan and Compensatory Afforestation with the State Government, the implementation of the Environmental Mitigation and Monitoring Plan needs to be ensured.	A) Compliance of environmental action plans under statutory approvals of the Ministry of Environment & Forests and the Himachal Pradesh State Environment Protection and Pollution Control Board. B) Setting up of Environmental cell to implement, manage and monitor the environmental action plans drawn up for the project. C) All monitoring under the Environmental & Social Management & Monitoring Plan will be participatory and will include representatives of the affected villages.	<u>Volume I</u> Section 10.18, Pages 294 - 296 Section 10.21, pages 302-310 Table 10.15, Estimated Budget for EAP, page 310-311	
38	Lack of credible compliance mechanism	Some villagers think that the participatory compliance mechanism is not credible.	The company is committed to a participatory compliance mechanism involving the villagers. In pursuance to this, the Grievance Redressal Cell (GRC) was set up that would involve meetings with the villagers to consider and act on the grievances received from the affected villagers. A separate committee has been constituted by the Company, that includes representatives of the affected villages, to act as an Independent Appeal Mechanism for redressal of grievances and to ensure that the GRC works properly.	Section 10.21.4, page 306	Copy of order dated May 23, 2004 for constitution of Grievance Redressal Cell, Annex XI Copy of Order dated June 24, 2004 to constitute Independent Appeal Mechanism, Annex XII.

This section comprises of additional information related to the following:

- a) Provisional Environmental Action Plan for Biodiversity Protection;
- b) Public disclosure events;
- c) Environmental and Social Impact Assessment Studies; and
- d) Various approvals/clearances from State and Central Governments.

4.1***PROVISIONAL ENVIRONMENTAL ACTION PLAN FOR BIODIVERSITY PROTECTION***

Provisional Environment Action Plan for Biodiversity Protection is to be put into place as soon as the project implementation starts. The plan as given in the **Table 4.1** covers various project activities, mitigation measures and designates responsibility to implement the same in the pre-construction, construction and operation phases.

Table 4.1 *Provisional* Action Plan for Biodiversity Protection*

S No.	Issue- Project Activity	Associated Impacts	Action Plan - Mitigation Measures	Responsibility
A	Pre Construction Phase			
1	Forest land acquisition and forest clearance	• Forestland diversion for establishing project components; • Loss of 32 ha of forestland and removal of trees and other vegetation; • Forests are extremely important plant resource for it is in addition to a fodder plant, a rich repository of bio-diversity. Clearing of these forests for the construction of different components will cause loss or displacement of animals and plants and their habitats.	• Compensatory Afforestation of over 64 ha (on double degraded land). Afforestation to be ensured by Forest Department; • Only trees enumerated by the Forest Department to be felled. The felling of trees is to be undertaken only by the Forest Department; • Compensatory Afforestation to be ensured as per the approved afforestation plan • Soil loosened is to be fixed properly and provided with necessary embankment where sloppy area is involved • Follow up of Catchment Area Treatment Plan by the Company as approved by the Forest department.	Manager (Land Acquisition), State Department of Forests; Manager (Social & Environment). Project's Environment Monitoring Cell with the participation of villagers will monitor requirements under Forest Clearance, Environmental Clearance and Catchment Area Treatment Plan.
2	Setting up construction camps near forest areas in upper reaches of project area	• Labourers might cut trees to meet fuel demands • Presence of labourers may cause disturbance to wildlife (e.g., noise, poaching, trapping, etc.)	• The Company is to ensure supply of fuel (LPG and Kerosene). In case of requirement of fuel wood, it should be sourced from Forest Department). The company or its Construction Contractor is to maintain log of fuel purchased and utilised in construction camps. • Proper fencing of construction camp to restrict movement of labour; • All contractors to be instructed for a complete ban of any poaching by their labourers. The Company is to ensure a check in this regard through its security personnel and regular visit of its officials; • Arrangement of sanitary waste disposal by making pits for defecation at the construction sites and covering it by soil cover on daily basis to avoid contact with flies and other vectors of diseases. Provision of temporary cover around the pits to avoid fall of any wildlife accidentally during night time.	Manager (Social & Environment). Project's Environment Monitoring Cell with the participation of villagers

S No.	Issue- Project Activity	Associated Impacts	Action Plan - Mitigation Measures	Responsibility
B	Construction Phase			
1	Access Roads- Construction of the road Clearing of trees Blasting Waste disposal	- Some species of mammals and birds will face disturbance and loss of habitat. - Some trees will be removed. - Loose debris becoming a cause of perpetual landslides and erosion. - Disturbance caused by the presence of labour. - Herb species like <i>Saussurea costus</i>, <i>Corydalis govaniana</i>, <i>Salvia moorcroftiana</i> and <i>Thymus linearis</i>, <i>Viola odorata</i> and <i>Dioscorea deltoidea</i>, all of which have medicinal value may be impacted to some extent. - Increase of silt/sediments in streams along the project area which may adversely affect the benthic species.	- Alignment of road along the least impact area. - Removal and shifting of debris to dumping grounds. - No tree will be felled by the Company; only Forest Department will fell any tree based on pre-enumeration done for the same. - No dumping of debris down slope should be allowed to reduce collateral damage. - In altitude ranges of above 2,400 m and within oak and conifer forests, blasting and road building may be done in months other than May and June, the breeding season for most birds. - Restricted movement of labour; - Species which are rare if falling within the road alignment, the Company need to offset the alignment where feasible; - Follow up of measures to control silt/sediments during construction phase, provision of check walls, check dams and spurs.	Manager (Road / Bridge). Manager (Social & Environment). Project's Environment Monitoring Cell with the participation of villagers

S No.	Issue- Project Activity	Associated Impacts	Action Plan - Mitigation Measures	Responsibility
2	Blasting activity	- The initial phase of excavating the tunnel may become noisy with blasting and drilling which is likely to cause local disturbance to animals, which may force the animals to abandon the area temporarily. Dust (SPM) in air will increase. - The excavated material may cause collateral damage to the forest area	- Provision of enclosures and other measures for high noise generating machinery and equipment. - Blasting activity to be restricted only once in a day when exposed to surroundings. Time of blasting should be fixed (say 1400 hours) in the afternoon to ensure that domestic or wild animals and local people (mostly grazers) are not in the reaches of the impact zone. - Blasting for road building or tunnelling should be timed sequentially and not simultaneously so that disturbance is restricted to an area for a period of time rather than throughout the area. - Proper insulation of electric wires to avoid electrocution. - Regular disposal of excavated materials. Truck movement should be restricted to only short duration (e.g. from 1300 to 1600 hours).	Manager (Road / Bridge), Manager (Social & Environment) Manager (Contracts respective for various underground packages). Project's Environment Monitoring Cell with the participation of villagers
3.	Material Transportation- vehicular movement and general construction activities	Presence of dust and noise in the ambient air may hamper ecology of the area.	- Fleet management on daily basis - Regular dust suspension measures like water sprinkling on roads. - Barrier screens near construction/excavation sites	Manager (Social & Environment). Manager (Road / Bridge) having responsibility of Fleet Management, Project's Environment Monitoring Cell with the participation of villagers
4	Wastewater generation from project workshop containing high oil and grease contaminants, drilling activity etc and waste water from camp sites and colony	Impact on aquatic and benthic life downstream	Treatment plant for wastewater generated from workshop, drilling sites and camps sites with discharge only after ensuring standards.	Manager (Social & Environment).

S No.	Issue- Project Activity	Associated Impacts	Action Plan - Mitigation Measures	Responsibility
5	Quarrying for construction Materials. From the hillside	- Loss of habitat - Disturbance - Air (Dust) pollution	Will not be permitted.	Manager (Social & Environment)
	From Stream	- Damage to aquatic habitat - Increase turbidity - Affect fauna	Will not be permitted.	Manager (Road / Bridge), Manager (Contracts respective for various underground packages). Project's Environment Monitoring Cell with the participation of villagers
C	Operation Phase			
1	Lighting of the project component areas during night time	May disturb mammals and birds at night	Minimum light to be maintained for safe and secure operations	Manager (Social & Environment).
2	Reduction of water flow in the stretch between diversion point to tailrace discharge in Allain Stream while in Duhangan stretch between diversion point to its confluence in Beas River	Reduced flow and increased silt level may affect the aquatic and benthic life	- Provision of maintaining minimum 0.150m³/sec flow in both the streams immediately after diversion points. - Sewage treatment plant for domestic water. - Controlled discharge of flushing from de-silting chambers. - Provision of check walls with boulders, stone with/without meshes (gabions) at 5 locations, check dams at 4 locations and spurs at 5 locations.	Manager (Social & Environment). Manager (Civil)

*Note: The Provisional EAP for Biodiversity Protection is to be updated following completion of comprehensive studies on flora & fauna and wildlife biodiversity

4.2

PUBLIC DISCLOSURE EVENTS

The chronology of the public disclosure events for the project are as given in the *Table 4.2*

Table 4.2 *Chronology of Public Disclosure Events*

S. No.	Date	Place	Type of Meeting (Public meetings/ focus group/ others)	Participants (how many people and from which villages)
1	During Field Surveys by ERM			
A	12 March 2003	Prini Village	Public Consultation	The company and ERM representative held discussions with 16 families along with village Panchayat.
B	13 March 2003	Aleo Village	Public Consultation	The company and ERM representatives held discussions with 7 families.
C	13 March 2003	JagatSukh Village	Public Consultation along with Group discussions	Company and ERM representatives held discussions with 25-26 families.
D	14 March 2003	JagatSukh Village	Group Discussions	The company and ERM held discussions with village Panchayat of JagatSukh in the presence of consultants ERM.
2	7 May 2003	Prini Village	Public Meeting	Discussions held with village Panchayat of Prini and 300 villagers in the presence of representatives of the company, IFC, ERM, SDM, Manali, AFC & Range Officer, Kullu.
3	13 November 2003	Prini Village	Focus Group	Discussions were held with 13 villagers in the presence of representatives of IFC & ERM.
4	6 January 2004	JagatSukh Village	Public Meeting	Company and ERM representatives held discussions with village Panchayat of JagatSukh and almost 350 villagers in the presence of representatives of IFC & ERM.
5	15-18 March 2004	Prini & JagatSukh Village	Focus Group	Independent observer conducted public meetings with 40-50 personnel at Prini and 80-90 personnel at JagatSukh.
6	30 April 2004	Prini Village	Focus Group	The company and ERM representatives held discussions with Prini Pradhan (Head Villager) and 14 other villagers.
7	1 May 2004	JagatSukh Village	Focus Group	The company and ERM representatives held discussions with 45 villagers from JagatSukh in the presence of representatives of ERM and independent moderator.
8	2 May 2004	Aleo Village	Focus Group	The company and ERM representative held discussions with villagers from Aleo.
9	20 May 2004	Prini Village	Public Meeting	The company and ERM representatives held discussions with village Panchayat of Prini & about 200

S. No.	Date	Place	Type of Meeting (Public meetings/ focus group/ others)	Participants (how many people and from which villages)
10	21 May 2004	JagatSukh Village	Public Meeting	villagers from Prini, DC, Kullu and representatives from IFC, in the presence of independent observer. The company and ERM representatives held discussions with village Panchayat JagatSukh, about 400 villagers from JagatSukh, DC, Kullu and representatives from IFC in the presence of independent observer.
11	7 July 2004	Prini Village	Focus Group	Independent observer and ERM representative held discussions with villagers from Prini & Shuru.
12	8 July 2004	JagatSukh Village	Focus Group	Independent observer and ERM representative held discussions with 150 villagers from Jagatsukh.

4.3

ENVIRONMENTAL AND SOCIAL STUDIES FOR THE PROJECT

The environmental and social studies undertaken so far for the project include as per the **Table 4.3**. The Company has informed that they have placed copies of the reports at their project site.

Table 4.3 *List of Environmental and Social Studies undertaken for the Allain Duhangan Hydroelectric Project*

S.No.	Study	Agency	Date
1	Environment Impact Assessment (EIA) Study	Rail India Technical Engineering Services (RITES)	January 1996
2	Updating of Environment Impact Assessment Study prepared by RITES	Indo Canadian Consultancy Services Ltd.	April 2001
3	Further updating of EIA by incorporating baseline data for air, water and soil quality provided by Himachal Pradesh State Environment Protection and Pollution Control Board (HPSEPPCB)	Indo Canadian Consultancy Services Ltd.	April 2003
4	Draft Environment & Social Impact Assessment (ESIA) Report	Environment Resources Management (ERM)	December 2003

4.4

APPROVALS/CLEARANCES FROM STATE AND CENTRAL GOVERNMENTS

A list of approvals/clearances as obtained by the Company for the Allain Duhangan Hydroelectric Project are presented in the **Table 4.4** in their chronological order.

Table 4.4 *List of Approvals/Clearances for the ADHE Project (in chronological order)*

Sl. No	Description	Remarks
1	MOU with Govt of Himachal Pradesh	MOU signed with Govt. of H.P on 28.08.93.
2	Extension of MOU upto the date of signing of Implementation Agreement	Govt. of HP Letter No.MPP-F(2)14/93-III dated 1.2.2002.
3	Implementation Agreement	Implementation Agreement with the Govt. of H.P. dated 22.02.2001.
4	Declaration of RSWM Ltd. as a generating company under Section 2(4-a) of the Indian Electricity Supply Act, 1948 in the Memorandum of Articles of Association of RSWM Ltd.	Govt. of HP Letter No.MPP-F(2)-14/93 dated 24.06.94.
5	In-principle Clearance of CEA	CEA Letter No. 2/HP/18/96-PAC/282 dated 31.03.1996.
6	Gazette Notification under Section 29 of ES Act to invite objections and/or representations if any from any licensee or other person or member of the general public.	Notification published in Newspapers & Gazette dated 8.8.2001 and 11.09.2001 respectively.
7	Objections or representations received against the Gazette Notification under Section 29 of the ES Act	Letter No.D/AD/CEA-02 from RSWM Ltd./ Generating Company dated 31.01.2002.
8	Govt. of Himachal Pradesh orders under Section 18-A of ES Act to establish, operate & maintain ADHEP(192 MW), District Kullu, HP.	Govt. of HP order under Section 18-A of the ES Act vide Letter No.MPP-F(2)/14/93-III dated 13.03.2001.
9	Govt. of Himachal Pradesh Certificate under Section 72 of ES Act,1948 in respect of water availability.	Govt. of HP Certificate under Section 72 of the ES Act vide Letter No.MPP-F(2)/14/93-III dated 13.03.2001.
10	Availability of Funds	RSWM Certificate confirming equity funds dated 22.01.2002. ICICI letter confirming debt funds vide letter No.EOG/8019 dated 27.09.2001.
11	Revised Certificate of HPSEB as per "Approach Paper" of CWC/CEA for according Techno-Economic Clearance based upon revised DPR dated April 2001.	HPSEB Letter No.HPSSEB(SECTT)/CE(PSP&SO)/ 401(H)/ALD/ 2001-2600-01 dated 18.01.2002.
12	Clearance of Revised DPR & Cost from Govt of HP	Govt. of HP letter No. MPP-F(2) 14/93-III dated 1.2.2002.
13	Ministry of Environment & Forests (MOEF) Clearance for Diversion of Forest Land.	MOEF letter No. 8-109/99-FC dated 25.10.2000.
14	Environment Impact Clearance of MOEF, Govt. of India	MOEF letter No.J-12011/33/96-IA-I dated 12.12.2000.
15	Beneficiary of Power	MOU with the DVB signed on 16.06.2000.
16	Forest Clearance & construction of Transmission	HPSEB Letter

Sl. No	Description	Remarks
	line within Himachal Pradesh for Evacuation of Power from Pirni (Project Powerhouse) to Nalagarh to be carried out by HPSEB.	No.HPSEB(Sectt)/CE(PSP&SO)/401(H)/ALD-2000/548-49 dated 13.03.2001.
17	Evacuation of Power by PGCIL from Nalagarh to Delhi.	PGCIL Letter No.C-BDD-14 dated 26.06.2000 and PGCIL's detailed system study report Ref. No. C-BDD-162 dated 07.08.01.
18	Government of India Clearance for construction of explosive magazine	Jt. Chief Controller of Explosives, Faridabad Letter No. FBD/APP/4295 dated 23.05.02
19	Gazette Notification under Section 4A of the Land Acquisition Act, 1894	Notification published in Gazette dated 06.06.02
20	Permission of Government of Himachal Pradesh for pre-construction investigation	Letter No. MPP-F(2)-14/93-III dated 13.06.02
21	Techno - Economic Clearance accorded by Central Electricity Authority	Letter No. 2/HP/18/96-PAC/8108-39 dated 20.08.2002.
22	Formal & Final Clearance from MoEF for Diversion of 32.167 ha of Forest land.	Letter No. 8-109/99-FC dated 18.10.2002.
23	Himachal Pradesh State Environment Protection & Pollution Control Board HPSEPPCB Clearance.	Letter No. EPPCB/ Allain Duhangan HEP - Prini-Manali/2002-3211-18 dated 28.05.2004

Sl. No.	Description	Annex
1	Implementation Agreement between Government of Himachal Pradesh and the Company for Clause no. 5.24 regarding felling of trees to be undertaken by the Forest Department	Annex – I
2	Notification of Forest Committee released by Government of Himachal Pradesh for monitoring and implementation of environmental safeguards	Annex – II (Pages 1& 2)
3	Agreement between Prini Villagers and the Company	Annex III
4	Frequently Asked Questions in English	Annex IV
5	Layout drawing including muck disposal sites.	Annex V
6	Affidavit for compensation of riparian rights for surface and groundwater resources	Annex VI
7	Table and Graph showing data on discharges from Duhangan stream	Annex VII
8	Implementation Agreement between Government of Himachal Pradesh and the Company for Clause no. 5.11 regarding maintaining of minimum flow of water from diversion structures	Annex VIII
9	Letter of Acceptance from FES for undertaking study of riverine ecology	Annex IX A
10	Letter of Acceptance from WPA for undertaking study of flora, fauna and pheasants	Annex IX B
11	Note on Heights of the Water Retaining Structures	Annex X (Pages 1 to 7)
12	Office Order for constitution of Grievance Redressal Cell	Annex XI (Pages 1 to 3)
13	Office Order for constitution Committee for Independent Appeal Mechanism	Annex XII
14	Land acquisition agreement between villagers and the Company showing rates negotiated for the private land.	Annex XIII
15	Work order for hiring services of Roorkee University for site specific earthquake design parameters	Annex XIV (Pages 1 & 2)
16	Copy of No Objection Certificate issued by Prini village	Annex XV
17	Copy of No Objection Certificate issued by Jagatsukh village	Annex XVI
18	Copies of support letters from Mahila Mandal and People of Jagatsukh	Annex XVII

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