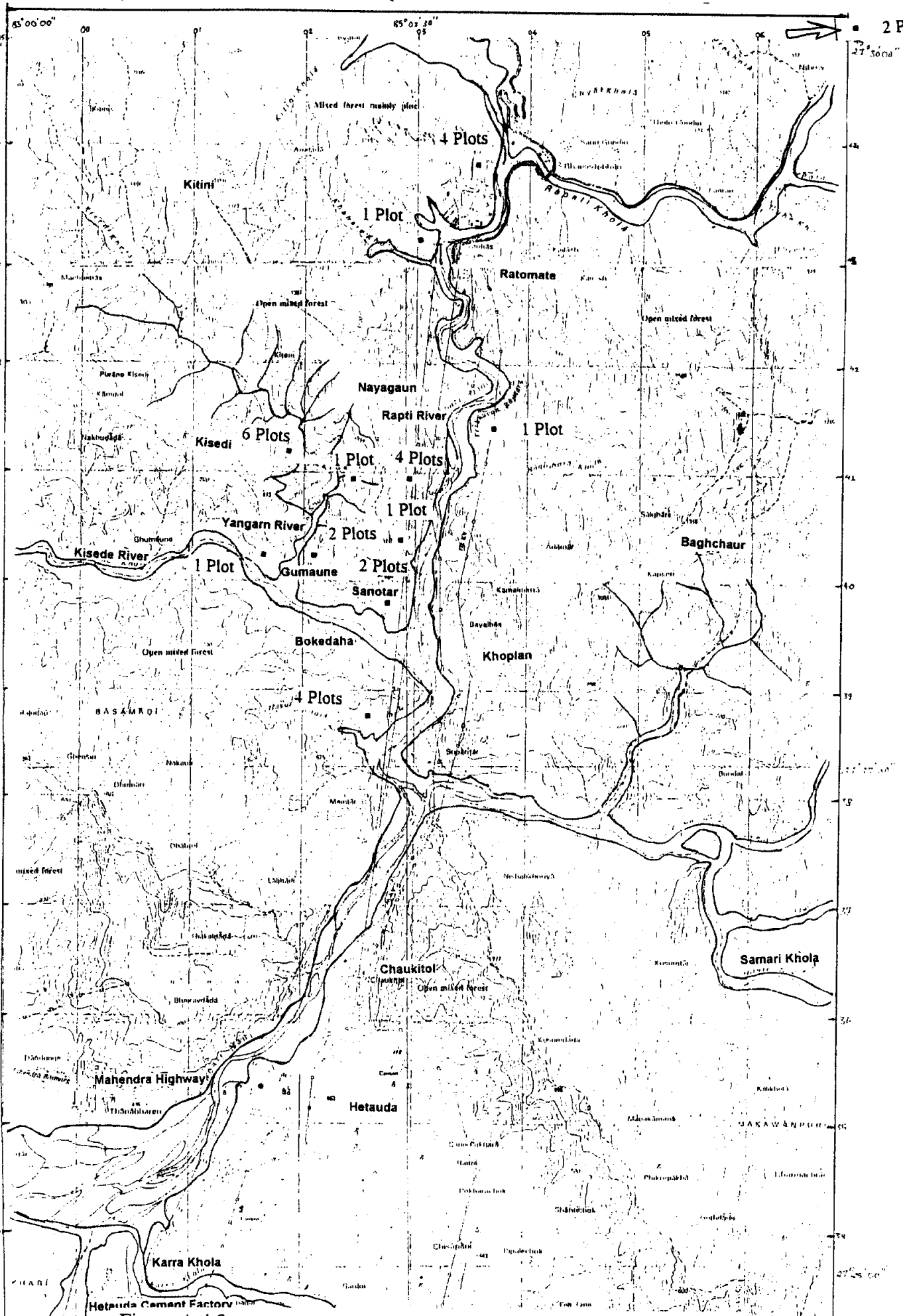


Figure A.4.3 Location Map Showing Vegetation and Wildlife Sampling Sites

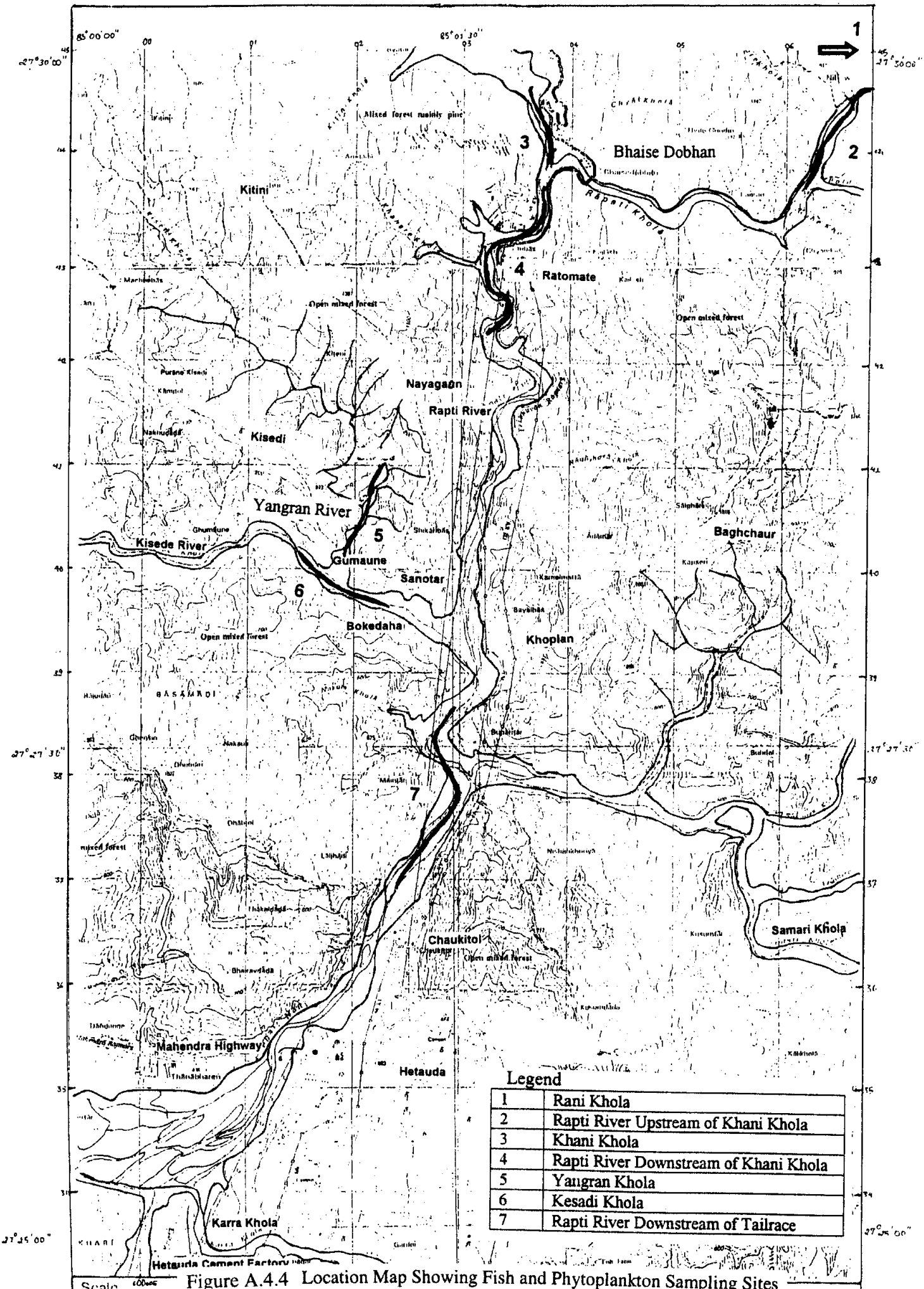
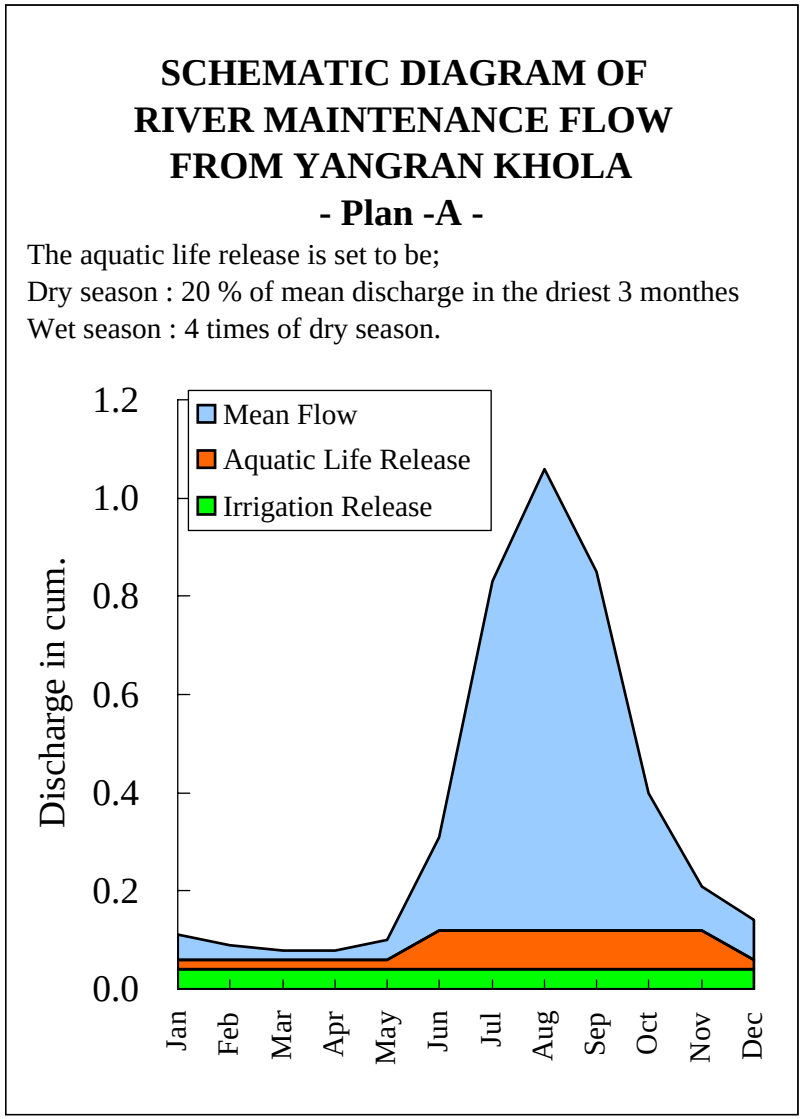


Figure A.4.4 Location Map Showing Fish and Phytoplankton Sampling Sites



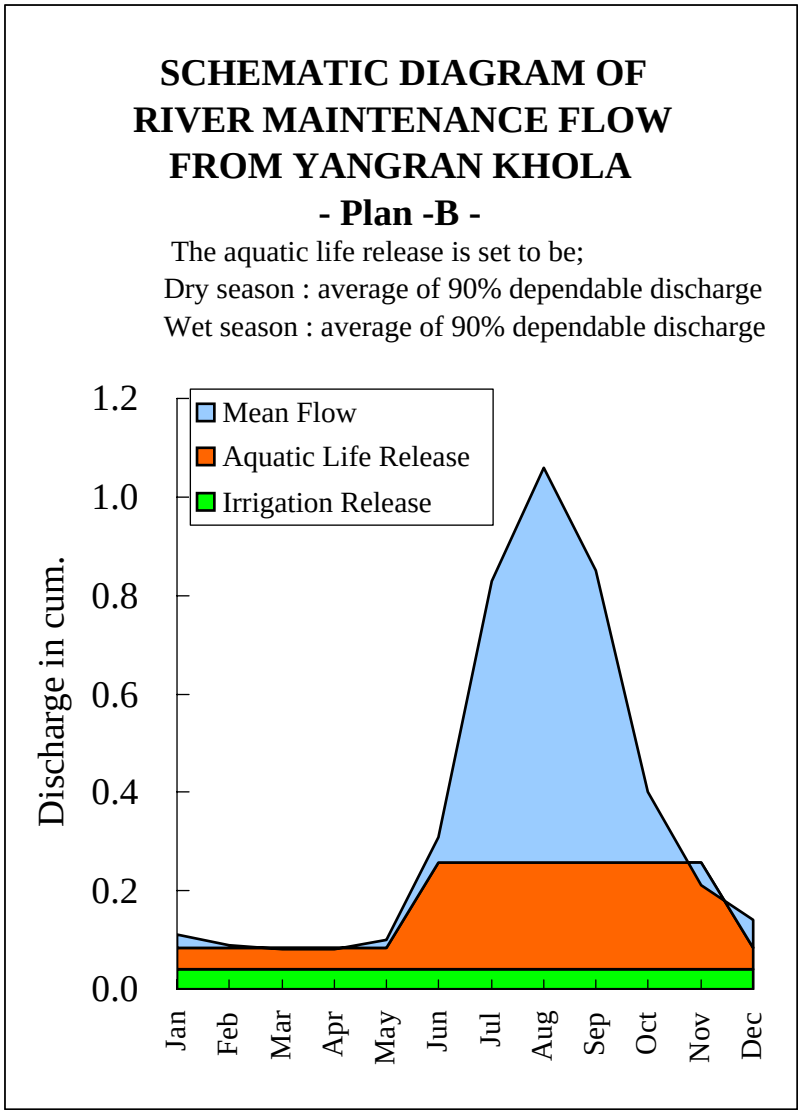
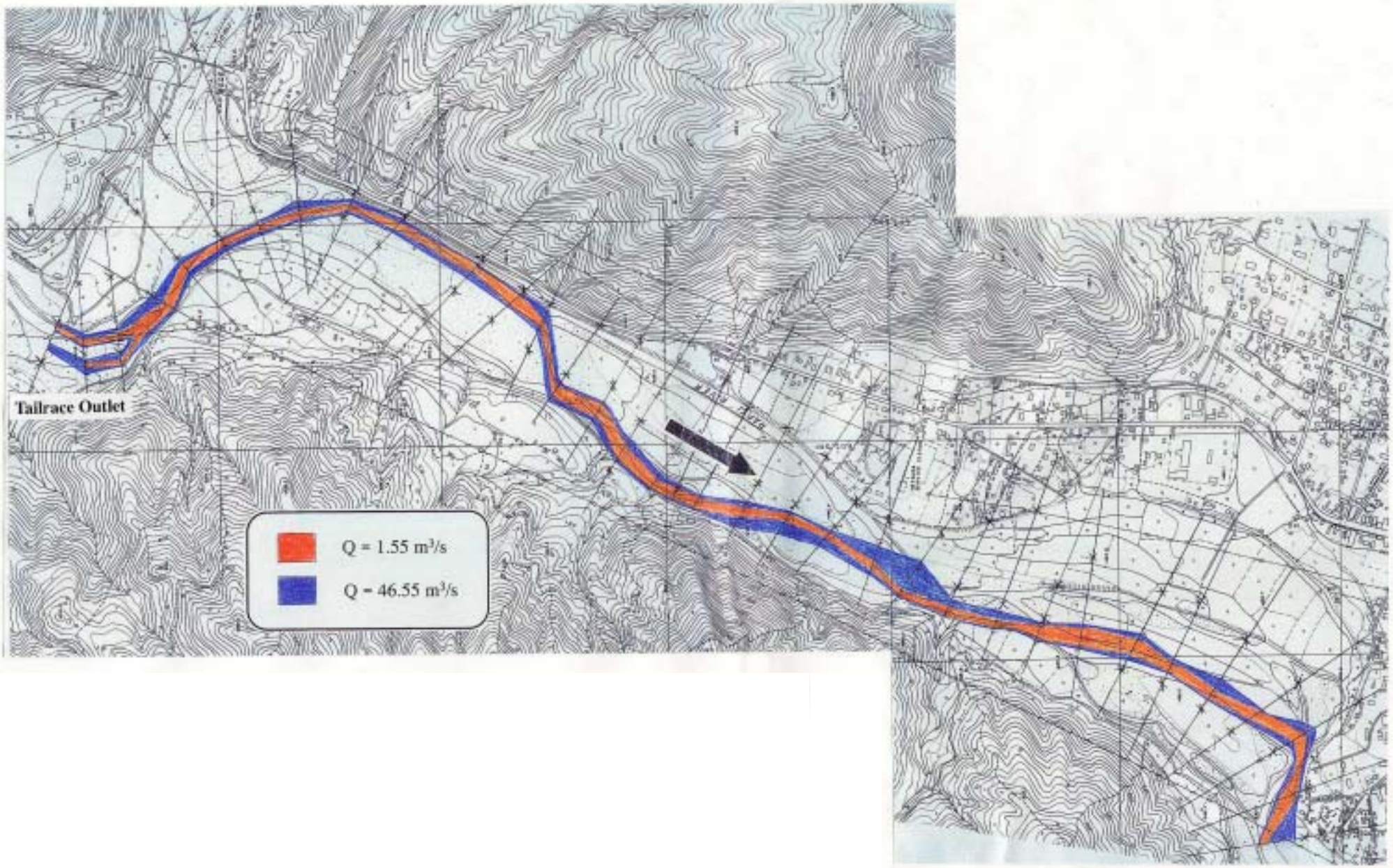


Figure A.6.1 Schematic Diagrams of River Maintenance Flow from the Yangran Khola



THE UPGRADING FEASIBILITY STUDY ON THE DEVELOPMENT OF THE KULEKHANI III HYDROPOWER PROJECT IN THE KINGDOM OF NEPAL JAPAN INTERNATIONAL COOPERATION AGENCY	Figure A.6.2 Affected Area of the Rapti River at Peak Discharge from Tailrace Outlet

Annex

Part A

ANNEX A1 - LIST OF MAIN ACTS OF HMG NEPAL APPLICABLE TO ENVIRONMENTAL MATTERS FOR HYDROELECTRIC PROJECTS

- Environment Protection Act,2053 (1997)
- Environment Protection Regulations,2054 (1997)
- National Environmental Assessment Guidelines,2050 (1993)
- EIA Guidelines for Forestry Sector, 2052 (1995)
- Draft EIA Guidelines for Water Resources Sector, 2052 (1995)
- Forest Act,2050 (1993) and Forest Regulations, 2052 (1995)
- Forestry Sector Policy,2054 (1997)
- Soil & Water Conservation Act, 2039 (1982)
- National Parks & Wildlife Conservation Act,2029 (1973)
- Aquatic Animals Protection Act, 2039 (1982) &Amend't,2055(1999)
- Electricity Act & Regulations,2050 (1992)
- Land Acquisition Act,2034 (1977)
- Water Resources Regulations, 2050 (1993)
- Local Self Governance Act,2055 (1999) & Regulations,2056 (2000).
- Explosives Act, 1961;
- Vehicle and Transportation Management Act, 1992;
- Labour Act, 1991;
- Solid Waste (Management and Resource Mobilisation), Act, 1986;
- Land Acquisition Guideline, 1993;
- Public Roads Act, 1974;
- Hydropower Development Policy, 2002

ANNEX A2 – LIST OF SELECTED STANDARDS COMMONLY USED IN NEPAL FOR VARIOUS EMISSIONS

Proposed Ambient Air Quality Standards in the Project Area

(Adopted from WHO guideline values with modifications)

S.N.	Parameters	Average time in a day	Level		
			ppm	*mg/m^3*	*$\mu g/m^3$*
1.	Co	15 min. 30min. hr. 8.00 hrs.	- - - -	100 60 30 10	100000 60000 30000 10000
2.	No_2	24 hrs. 1 hr.	- -	0.15 0.35	150 350
3.	So_2	24 hrs. 1 hrs. 10 min.	- 0.30 0.43	0.125 0.35 0.5	125 350 500
4.	SPM	24 hrs.	-	0.250	250
5.	PM_{10}	24 hrs.	-	0.150	150
6.	Lead	24 hrs.	-	-	0.5-1

Source: WHO (1977, 1978, 1979, 1987).

Proposed Noise Exposure Limits for the Work Environment

(Adopted from Occupational Safety and Health Administration (OSHA).

S.N.	*Noise Exposure (dBA)*	*Permissible exposure (Hours and Minutes)*
	85	16 hrs.
	87	12 hrs. –18 min.
	90	8 hrs.
	93	5 hrs – 18 min.
	96	3 hrs.-30 min.
	99	2 hrs. – 18 min.
	102	1 hr. – 30 min.
	105	1 hr.
	108	40 min.
	111	26 min.
	114	17 min.
	115	15 min.
	118	10 min.
	121	6.6 min.
	124	4 min.
	127	3 min.
	130	1 min.

Source: Marsh, 1991.

Proposed Average Equivalent Sound Levels Recommended to Protect the Public Health and Welfare of the Project Site Communities

S.N.	Land Use	Measure	To Protect Against Activity Interference and Hearing Loss Effects (dBA)
	Residential including farm residences	Leq (24)	55
	Commercial	Leq (24)	70
	Hospitals	Leq (24)	55
	Industrial	Leq (24)	70
	Educational	Leq (24)	55
	Recreational Areas	Leq (24)	70
	Farmland and general unpopulated land	Leq (24)	70

Source: U.S, Environmental Protection Agency, 1974

Note: Leq (24)= Equivalent Sound Level in decibels for 24 hours.

Proposed Standards for Vibration from Construction Sites

Type of Restriction	*Area Classified*	
Standard Value	I & II	75 dB
Work Prohibited Time	I	7.00 P.M. - 7.00 A.M.
	II	10.00 P.M. - 6.00 A.M.
Maximum Working Duration	I	10.00 hrs. per Day
	II	14 hrs. per Day
Maximum Consecutive Working Days	I & II	6 Days
Working Prohibited Days	I & II	Saturdays & Holidays

Source: Vibration Regulation Law 64 of 1976, Japan

Notes:

- Area I, stands for areas to which one of the following descriptions applies:
- Areas where maintenance of quiet is particularly needed to preserve the residential environment.
- Areas which require maintenance of quiet since they are need for residential purposes.
- Areas need for commercial and industrial as well as residential proposes which are in need of measures to prevent vibration pollution since a considerable number of houses are located.
- The neighbourhood of schools, hospitals and the like.
- Area II stands for areas where there is a need to preserve the living environment of in habitants and other than Area I.
- Vibration level shall be measured at the boundary line of the specified construction work site.

Proposed Limits for Road Traffic Vibration

Time area	Day time	Night time	Applicable areas
I	65 dBA	60 dBA	Areas where maintenance of quiet is particularly needed to preserve a good living environment and where quiet is called for us as they are used for residential purpose.
II	70 dBA	65 dBA	Areas need for commercial and industrial as well as residential purposes where there is a need to preserve the living environment of local inhabitants and areas mainly serving industrial propose which are in need of measures to prevent the living environment of local residents from deteriorating.

Source: Vibration Regulation Law 64 of 1976, Japan

Note: Vibration level shall be measured at the boundary line of the road.

PART B

SOCIAL ENVIRONMENTAL ASSESSMENT

THE UPGRADING FEASIBILITY STUDY ON THE DEVELOPMENT OF THE KULEKHANI III HYDROPOWER PROJECT IN THE KINGDOM OF NEPAL

FINAL REPORT
VOLUME III SUPPORTING REPORT (2)
PART B: SOCIAL ENVIRONMENTAL ASSESSMENT

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PART B SOCIAL ENVIRONMENTAL ASSESSMENT

INTRODUCTION

The previous EIA prepared by NEPECON/DIP has been supplemented in this report with respect to 'land acquisition and compensation and the actual plots affected', especially with regards to the adoption of the proposed final design alternative. Over half of the plots identified for land acquisition were in Hetauda, Ward 1, to be affected by the Tailrace Outlet's impacts downstream, 4 km to the Hetauda Bridge. On investigation, it was found that much of the irrigated agricultural fields had already been destroyed by the 1993 floods; that the lands would not be impacted by the Tailrace Outlet, for reasons given below, and that only one or two of the properties listed in the EIA annexes could actually be found using official cadastral maps obtained from the District Survey Office in Hetauda as part of a GIS mapping exercise to identify land plots to be affected by land acquisition.

Although not predictable at the beginning of the fieldwork subcontracted to NESS, it has since transpired that much of the irrigated lands, as well as water mills, that might have been affected in Ward 1 have since also been destroyed by floods that occurred during July 2002, which has been documented in the Volume III: Supporting Report (2).

The existing EIA did also not account for resettlement effects, making the assumption that there would be no dislocation of households requiring relocation of families or loss of land to the extent that loss of livelihood would occur. This was despite the fact that the camps associated with the Project were, on close examination of existing documents, found to be planned for placement on top of Sanutar's school and many of its homes as well as most of its irrigated rice paddy fields, so that it would be virtually impossible to avoid resettlement.

The environmental legislation in Nepal, under which the EIA was prepared, is notoriously weak in this area, and it was assumed that the question of land required by the Project would be adequately handled under the *Land Acquisition Act, 2034 (1977)*, or LAA, which also makes no provision for resettlement effects caused by development Projects. Accordingly, to meet international standards in this regard, the Study Team adopted the Asian Development Bank's (ADB's) policy for involuntary resettlement as a guideline for investigating and preparing mitigation for any resettlement effects encountered. This was appropriate also, as the ADB has been providing technical assistance to HMG for updating the LAA with regards to resettlement effects. Also the ADB's recent involvement in the

Kali Gandaki A and Melamchi Water Supply Projects have provided the Study Team with applied examples setting precedents for the policy adopted in the Resettlement Plan (RP) that has been one outcome of this study, updating the existing EIA in this important area. This has been an important improvement to the existing EIA, since although efforts have been made to minimize resettlement effects, such as moving most of the associated camps to Hetuada, placing spoil sites within the river plains, and carefully aligning the access roads to avoid houses, it has been impossible to entirely avoid the dislocation of houses, and it is likely that many of those households losing agricultural land will suffer a significant impact on their livelihoods for which the RP will provide adequate rehabilitation assistance.

The existing EIA proposed a set of social programs that were well conceived, and the Study Team has improved upon this formulation through integrating them into a Social Action Plan (SAP) designed to take advantage of the opportunities for local development the Project will provide, to mitigate identified indirect resettlement effects not immediately caused by land acquisition, and to promote good long term community relations for the Project extending beyond its construction phase into operation.

The NESS sub-consultants have carried out a socioeconomic study of the 55 households of the most impact communities of Sanutar, Ghumaune and Pari Ghumaune, updating the work done in the existing EIA. Coordinating with NITI, another sub-consultant specializing in digital mapping, to prepare a GIS based Natural and Social Environment Map that includes official cadastral map data as well as the final Project Design Boundaries, they have identified the direct resettlement effects of the Project's land acquisition, so that an RP budget could be prepared based on the best information to date. The data base now acquired will be updated during the Detailed Design Study phase, both to incorporate data that could not be obtained at this time and also upon completion of the detailed design work through a Detailed Measurement Survey, on which the final draft RP will be based.

EXECUTIVE SUMMARY

SOCIAL Impact Assessment (SIA)

The Study Team, through its sub-consultant NESS, organized a Social Impact Analysis (SIA) that provided community profiles at the Makwanpur District Level (including its only municipality, Hetauda), at the level of the Project Impacted Communities, which included all communities from the Headworks area to downstream of the Tailrace Outlet, to the Most Impacted Communities (MIC) of Sanutar, Ghumaune, and Pari Ghumaune villages, where all of the houses and privately owned agricultural land to be acquired by the Project is found.

The SIA addressed in particular the Project's indirect resettlement effects, within the framework of an impoverishment risk model, to better prepare an SAP that would counter these risks with a well informed development strategy suited to local conditions. *Resettlement Effects* is taken to mean, very broadly, *all* negative situations directly caused by the Project, including loss of land, property, income generation opportunity, and cultural assets. Therefore, the mitigation measures for adverse impacts as outlined in the SIA are for the most part found in the SAP's several social programs components, whereas the RP will address the direct resettlement effects arising from the Project's land acquisition.

SIA Findings

The Study Team provided a general profile of the Project impacted Makwanpur District, in particular of Hetauda municipality, as well as of the Project Impacted Communities, providing household and population and caste and ethnic composition for these levels and several comparative social and economic indicators for the broader Project impacted area, defined as Bhainse Village Development Committee (VDC) Ward 6 where the main Project components are situated, Wards 8 & 9 of Basamadi VDC, where the Tailrace Outlet is located and has its downstream effects, and Ward 1 of Hetauda Municipality, where the Tailrace Outlet downstream impacts will occur, along a 4 km stretch of the Rapti River to Hetauda Bridge.

Makwanpur District is one of the seven Hill districts located in Nepal's Central Development Region, with a population of 372,604, almost half (48.2 percent) of whom are Tamang ethnic 'tribal' peoples who will be considered among 'vulnerable' groups in the RP policy due to past official discriminatory policies and their widely acknowledged level of relative poverty. Chief among the other major groups that also fall within the Project impacted communities are

Brahmin-Chetri (together 26.6 percent) high castes in the Hindu social hierarchy, and Newars, a largely urbanized group that is found primarily in Hetauda but are also absentee landlords in the MIC villages of Sanutar, Ghumaune, and Pari Ghumaune.

Both Brahmin-Chetri and Newars predominate in Hetauda municipality, at about 56 and 15 percent respectively, with Tamangs only 10 percent of the municipality's population of 64,482. However, in the rural VDCs impacted by the Project, Tamangs are as much as 68 percent of the population in Bhaise and more than 52 percent in Basamadi, whereas Brahmin-Chetri are as little as 6 percent in Bhaise and 31 percent in Basamadi VDC, while Newars are only about 2 percent in both VDCs. Bhainse VDC's population is 6,616 and Basamadi's 10,232.

The MIC (Sanutaur, Ghumane, and Pari Ghumaune) consists of 55 households and a population of only 349, 100 percent surveyed by the Study Team for the socioeconomic profile that is more appropriately given in the RP rather than in the SIA, since these Most Impacted Communities are the only ones to lose their housing and substantial amounts of productive agricultural land. Here is the highest proportion of Tamangs, at almost 70 percent of the households, Brahmin-Chetri at only 13 percent, and no resident Newars, although this ethnic groups serve as absentee landlords and so are among the potentially affected households identified during the fieldwork's efforts to identify more precisely land to be acquired.

Other social and economic indicators provided for District, the Project Impacted Communities and the MIC are literacy status, religion, length of residence (MIC), type of families (nuclear/extended), occupation and skills (particularly Project employment-related), Gender Analysis (MIC), livestock holdings and produce, land holding size and ownership pattern, fruit tree ownership, food production, food self-sufficiency and coping strategies, household income and expenditure patterns, energy sources, sources of financial services, access to water and sanitation, and health status. These are given in the SIA for the District and Project Impacted Communities and in the RP for the MIC.

The SIA took into account both direct Resettlement Effects caused by land acquisition and indirect Resettlement Effects caused by a variety of other Project impacts. Together these could affect some estimated 1,100 households or 6,600 persons, assuming that some quantification is possible for the indirect Resettlement Effects.

Estimated Direct and Indirect Resettlement Impacts

Direct Resettlement Effects Due To Land Acquisition, Impacted HHs and Population		
	No. Potentially Affected HHs	Estimated Potentially Affected Population*
HHs Losing 26 Houses	25	150
(Incl. HH Losing Only 1 Ancillary Structure)	(1)	(6)
HHs Losing 15 Ha Agricultural Land	72	454
Total	97	604
Indirect Resettlement Effects Due to Various Project Impacts		
Description	No.	HHs
Water Mills	10 Mills	11
6 Downstream Irrigation Intakes	215 Ha	325
Sanutar-Ghumaune Irrigation	8 Ha	25
Water shortage in Natural Springs	23 Used Springs along Tunnel Route, 7 villages	400
Forest Reserves – Clearing and Encroachment	11 Ha Direct Clearing, 31 Ha indirectly impacted	308
Total Quantifiable Indirect Resettlement Effects:		*Approx. 1,000 HHs, 6,000 Pop.*
Foot Transport across Rapti River	Undetermined Seasonal Wooden Bridges	Unknown
Misc. Uses of Rapti	Recreation, Collection of Construction Materials, Etc.	Unknown
Fishing	Undetermined	Unknown

July 2002 Floods. It is noted that since the fieldwork assessing the above indirect resettlement effects was carried out, disastrous floods occurred, fully or partially destroying many of the water mills and irrigation schemes discussed below. A two-day visit to Hetauda briefly confirmed this damage, and the next study phase will update this information for appropriate revisions to the SAP to take the new situation into account, especially in assessing whether or not HHs or communities have managed to rebuild in the meantime.

Kulekhani III Impoverishment Risks and Reconstruction (IRR) Model. The ADB has adopted Impoverishment Risks and Reconstruction (IRR) model as an analytical tool for helping to prevent the onset of new causes of impoverishment caused by resettlement effects. A Matrix indicating some of the possible impoverishment risks associated with the Kulekhani III Project, and including measures to mitigate impoverishment risks and is shown in Annex B.6, where the specific risks discussed above of direct and indirect resettlement effects are ranked on a scale from very high to very low.

This approach encompasses impoverishment measurements not only in terms of

income, but also in terms of employment opportunities, health care, nutrition and food security, common assets, education, shelter, or social capital. Indeed, *the* eight most common impoverishment risks captured in the model, and also signaled in the ADB *Handbook on Resettlement,* are: (a) landlessness; (b) joblessness; (c) homelessness; (d) marginalization; (e) increased morbidity and mortality; (f) food insecurity; (g) loss of access to common property; and (h) social (community) disarticulation.

During the fieldwork, the following impoverishment risks were assessed from the Project's direct and indirect resettlement effects:

Estimation of Impoverishment Risks Associated with Kulekhani III Project, Assuming no Mitigation

Impoverishment Risks	*Without Mitigation*
Landlessness	High-Very High
Joblessness	Medium-High
Homelessness	High-Very High
Marginalization	High – Very High
Increased Morbidity & Mortality	Medium-High
Food Insecurity	Medium-High
Loss of Access to Common Property	Medium-High
Social Disarticulation	Medium-High
(Risk Assessment = Very Low, Low, Medium, High, Very High)	

These are to a large extent subjective findings, but they do provide needed focus for prioritizing mitigation actions and were useful in framing the SAP and those parts of the EMP that relate to social impacts, such as the impacts on forests or on fish. The finding show that, while the number of potentially affected households is not as great as, say, a reservoir hydro power plan, the impacts on those households that are affected will need to be no less carefully considered in order to avoid the identified impoverishment risks.

In the design of the RP and the SAP, an effort will be made to adopt development strategies so that these risks may be transformed into 'counter-risk strategies' through targeted provisions.

Maximum safeguarding is achieved when involuntary displacement is avoided altogether. This is the first and foremost response to risks that should be considered. Recognizing risks upfront and their financial implications is often a powerful stimulus to search for an alternative that will eliminate the need for displacement completely or cut down its size. The Study Team has attempted wherever possible to propose measures, such as placing camps in Hetauda, placing spoil sites away from agricultural lands, incorporating the Sanutar-

Ghumaune canal into the Access Road design, and careful alignment of the Main Access Road, to avoid land acquisition and HH displacement whenever possible.

Resettlement Plan (RP)

A major aspect of the upgrading of the existing EIA was the preparation of a Resettlement Plan (RP) for Kulekhani III Hydropower Project. The RP, presented in a 'stand alone' format in the Supporting Report attempts to highlight the extent of the Project's resettlement impacts and proposes mitigation measures so that the affected persons (APs) can improve their living standard or restore their living standard to its pre-Project status. The precise details of land and property to be acquired by the Project are yet to be finalized, and the RP is based on the most recent data available from field surveys undertaken in June 2002, as the design alternative for the Project was still being finalized. The RP takes into account the most recent attempts to develop comprehensive resettlement policies and action plans including practices by other Projects in Nepal, and it incorporates the policies of the Asian Development Bank (ADB) and World Bank (WB) as far as they are applicable in the local context.

Loss of Houses. The fieldwork discovered 24 HHs that lose their homes and will be required to relocate under direct resettlement effects. At this stage, all HHs identified within the Project Design Boundaries, as shown on the *Natural and Social Environment Map*, are presented as 'potentially affected' HHs, as it is not clear which agricultural or forest land owners will actually be affected once the Detailed Design is completed. On the other hand, it is almost certain that these 24 homeowners will be classified as SPAFs[1] during the Detailed Design Stage studies, based on their having lost their residence. All of the HHs also own ancillary structures for which they will receive compensation. In addition, the owner of an ancillary structure (a cow shed) at Check Dam 1 will also receive compensation. Compensation for ancillary structures has been figured into the

[1] **Project Affected Family (PAF)** is the term commonly used in Projects in Nepal for APs, but with special reference to households, each 'household' defined as those family members – especially in extended families – that share a cooking hearth, or kitchen (*bhanse*). In many extended families, several 'households' may live under one roof but have separate kitchens, and adult sons will have inheritance rights to family land that will be recognized by the Project, although the land may not as yet be registered in their name.
Severely Affected Families (SPAFs) are those PAFs who are displaced from their residences or commercial establishments or who are severely affected through loss of agricultural land as defined in the Kulekhani III Project's Resettlement Policy *Entitlement Matrix*: (a) PAFs who lose 25% or more of their land (owned and operated and taking into consideration the local situation) within the Project area or whose production levels are severely affected by the loss of land; (b) PAFs who lose residential/business house SPAFs will be assisted with special rehabilitation measures, including displacement allowances and preferential Project employment, to achieve the Project's Involuntary Resettlement Policy goals of restoration or improvement of pre-Project living standards.

estimated RP costs, as a part of compensation estimated as required by each affected HH. All of the Project induced relocation of households will take place in the Most Impacted Communities (MIC) of Sanutar, Ghumaune and Pari Ghumaune.

Impacts on Productive Lands. The total potentially affected land area is estimated to be 79.6 Ha. Of the potentially affected land area, some 22 percent is agriculture land under private ownership. The largest proportion of potentially affected land is forestland, most of which is under Community Forest management.

Of the total potentially affected land, some 17.295 ha are, according to the official Cadestral Maps obtained from the Survey Department in Hetauda, classed as agriculture land. Of this, about 15 ha are required by the Project for permanent and temporary acquisition. This includes all land required from the Sanutar, Ghumaune, Nakoligaon settlements and by the Yangran Regulating Reservoir.

Of the total agricultural land needed, 12.36 ha (82 percent) of private lands are to be acquired permanently for various Project facilities at the Sanutar, Ghumaune, Nakoligaon settlements and along the Yangran Khola. Likewise 2.64 ha (18 percent) of land under private ownership will be needed for the Construction Camps at Ghumaune but may be acquired on a temporary, rental basis.

Households Losing Agricultural Land. It is presently estimated that some 72 households, compromising around 430 persons, will lose agricultural land and require compensation. These figures will, however, need to be updated at the beginning of the new Detailed Design Study phase with more reliable data, to verify the actual numbers of affected HHs. While useful for planning purposes, this estimate necessarily has to remain inconclusive.

There are three reasons for this inconclusiveness of the data on households losing agricultural land: (1) the first is due to the difficulties due to time constraints of carrying out the socioeconomic study while the final Project design was still under decision, so that some land plots were newly within the defined Project Design Boundaries that as yet have no ownership assigned to them; (2) the second reason is due to inaccuracies found with the official Cadastral Maps obtained from the Survey Office in Hetauda; (3) the third reason has to do with absentee landowners, most of whom appear to be the urban, business oriented ethnic group, Newars, are probably living in Hetauda or possibly in some cases farther abroad, even in Kathmandu. They are the second largest ethnic group seen to be losing agricultural land, after the 'tribal' ethnic Tamangs, but there are no Newars resident in the most affected communities. More detail about these circumstances

is provided in the Supporting Report.

The *Natural and Social Environmental Map* will be updated using data from a plane table survey of agricultural fields, combined with new household lists from the District Survey Office, to update this information at the beginning of the next study phase. Final information will be obtained, though, only after the completion of the Final Design, when a Detailed Measurement Survey (DMS) will be conducted to obtain the most accurate planning information possible.

Despite its limitations, the *Land Acquisition Act 2034* (1977) (LAA) so far is the main legislation to guide land acquisition in Nepal. The Water and Energy Commission Secretariat (WECS) is currently taking the initiative for amending the LAA, with technical assistance from the ADB to be more in line with international donor policies. This is, however, likely to take some time. Therefore, based on the limitations in the existing legal framework, a Project-specific Policy for the Kulekhani III Project will be developed anticipating the ADB-supported proposed amendments to the LAA. These proposed amendments to the LAA to incorporate mitigation measures for Resettlement Effects are similar to the Resettlement Policy developed for the ADB-financed Melamchi Water Supply Project, which has been approved by the Cabinet and is being implemented. The Middle Marsyangdi Hydroelectricity Project has also adapted a similar Policy for Resettlement. Based on these, as well as precedents set in previous NEA projects such as the Kali Gandaki A, a set of principles and policies together with an Entitlement Matrix has been prepared to form a Policy Framework for the Kulekhani III Project.

The terms 'Involuntary Resettlement' and 'Resettlement Effects' in the RP are understood to cover all social and economic impacts, permanent or temporary, caused by direct and involuntary acquisition of land and other fixed assets, by change in the use of land, or by restrictions imposed by the Project on access to land and natural resources resulting in the loss of assets, incomes and livelihood, *with or without physical relocation of affected people from housing*. The, as mentioned above, the basic principle of resettlement planning is to avoid involuntary resettlement or, if it is unavoidable, to minimize the acquisition of land and other property as far as possible and to also to minimize other impacts that may cause loss of livelihood.

In line with the above, the Basic Principles and Objectives of the Kulekhani III Project will be:

- Land acquisition and involuntary resettlement will be avoided where feasible or minimized to the extent possible through the incorporation of social considerations into the Project design options.
- Where population displacement is unavoidable, individuals, households and communities losing assets, livelihood and other resources will be fully compensated and assisted so that they can improve or at a minimum restore their former economic and social conditions.
- The Project will seek to enable communities in the Project area to benefit from the Project

The RP follows the standard outline found the ADB's Handbook on Resettlement, and the RP contains a detailed Entitlement Matrix, outlining specific measures for compensation and rehabilitation for all categories of Affected Person (AP).

Social Action Plan (SAP) Framework

The following ten components are proposed for inclusion in the SAP:

1. Restoration of Project Impacted Infrastructure Outside the Construction Sites

The reduction and fluctuation in Rapti River flow in the Project operation period is likely to impact five water mill canals, and eight irrigation canals. Restoration of these canal intakes for the diversion of water requirements during the different seasons for different crops and other uses is a priority program to reduce risks to food security, marginallization, and increased morbidity and mortality to the APs who depend on the water mills and/or the irrigated fields. Accordingly, this component will address rehabilitation and maintenance of water mills and intakes for irrigation schemes, as well as construction of one suspension bridge at Maintar to compensate for disruption of foot traffic across the Rapti and study of the feasibility of moving the current suspension bridge at Sanutar to Choke Tole in Hetauda, near the NEA Diesel Plant.

2. Awareness Program for Accident Risks Downstream of the Tailrace and along the Tribhuvan Rajpath (Tribhuvan Highway)

To reduce the accidental risks related to tailrace water release downstream tailrace and traffic accidents in the *Tribhuvan Rajpath* corridor and other access corridors due to increase in traffic a special program on environmental awareness against accidental risks is proposed for the people of tailrace downstream areas. This will involve Community Awareness Programs for Accident Risks Due to Increased Traffic through the Communities along *Tribhuvan Rajpath* and within the Project Construction Sites; Placing of Traffic Signs Along the Highway; Placement of Display Boards and Warning Signs (Tailrace Downstream Areas);

Community Awareness Programs for Accident Risks of Daily Tailrace Water Releases (Hetauda Ward 1, Maintar and Laljhundi and Downstream Communities along the *Tribhuvan Rajpath*); and Sanitation Program For The River Bank Communities Downstream of the Tailrace.

3. Agricultural Development Program

The Agricultural Development Program will be focused on minimizing any adverse impacts on the agricultural productivity of the about 208 ha of agricultural land irrigated by the irrigation facilities downstream tailrace and on increasing their productivity. The Program shall also include impact minimization and enhancement of the irrigated rice fields at the directly Project impacted villages of Sanutar, Ghumaune, and Ghumaune Pari villages. In addition, the Program will launch activities to enhance the agricultural production and diversification of agricultural crops, including vegetables and fruit, of the Yangran catchment area, including the villages of Kisedi, Nakhudanda, Kamitole, Machhebas, Shikharibas, Nayagaon, Kitni, Yangran, and Amdanda. This component will also include animal husbandry enhancement activities.

Currently, the *Rural-Urban Partnership Program (UNDP)* is assisting local communities in Makawanpur District to establish Micro-Enterprise Groups. This NGO has already established over 200 Micro-Enterprise Groups in the District. One of the activities supported is creation of market linkages between towns and the rural hinterlands. In similar fashion, and possibly through coordination with this NGO's activities or directly contracting with it, the Agricultural Development Program will be a support program for additional income generation for the project area communities to take advantage of the Project constructed motorable, all-weather bridge across the Rapti River. The constitution of Micro-Enterprise Groups will be helpful in organizing Collection Depots for local agricultural produces and for improving marketing arrangements at the Hetauda Township. The co-ordination of the Agricultural Development Program particularly in Sanutar and Yangran hinterland with the *Rural-Urban Partnership Program* will open venues of sustainable agricultural development and income generation in the rural areas. In the context of the Project's all-weather bridge across the Rapti River, and extension of the Project's Access Roads deep into the Yangran hinterland, the Program will provide needed social capital for improving rural-urban market linkages.

4. Community/Public Health & Education Enhancement in Areas Close to the Construction Camps

The influx of outside workers, their families and various entrepreneurs providing

services, including shopkeepers, hotel and restaurant owners, consumable item dealers, and vegetable grocers will not only put pressure on existing institutions such as schools, health care centers, and telecommunications in the directly affected villages and more generally in the Hetauda area. In particular they will create increasing pressure on the existing water supply and sanitation conditions. Experience in the construction camps and labor camps of other development projects in Nepal reveals a general decline in sanitary conditions, with implications for the community and public health of the Project impacted area. Though the Project envisages locating the labor camps away from the rural settlements of Sanutar, Ghumaune, Ghumaune Pari and Bhaise to minimize these impacts to on communities nearby the Project construction sites, it will be difficult to avoid boomtown settlements that generally spring up spontaneously close to Project construction sites. There are no legal mechanisms under prevailing HMG legislation to control such boomtown settlements. Considering the likelihood of the boomtown impacts, a targeted support Program for public health, sanitation, water supply, health and education institutions are proposed at Sanutar, Ghumaune, Ghumaune Pari, and Bhaise.

The Program will also focus on support for improved schooling accommodations, including more classroom space and provision of new teachers, at Sanutar and Bhaise. Sanitation facilities (water supply taps, toilets and waste management) will be planned based on an informed estimation of the likely influx of outsiders. A health clinic facility manned by a medical doctor will be established at Sanutar and Bhaise on a rotational basis during the construction phase. Also a preventative health program will be designed and implemented. To prevent fecal-borne diseases such as cholera and other gastro-intestinal diseases from becoming a problem in the construction areas environmental sanitation and water education will be part of the Program. A focused program on public awareness and education about HIV-AIDS and its prevention will be launched. Due to the influx of population and poor wastewater management, malaria is likely to be a health issue and will be addressed through proper education about sanitation, proper water management, and other appropriate measures to control and prevent Malaria vectors.

5. Skill Development & Project Employment of Local Population

Experience from completed and ongoing projects in Nepal show that local people frequently have little or no skills suited to Project work that draws higher salaries. Kulekhani III Project area is not an exception. The only opportunity availed to local people from the Project area is expected to be employment as general

laborers. In the existing social environment, common laborer work in front of their kith and kins is below dignity of many who would otherwise be qualified for these jobs. Also, local agriculture labor rates are higher than the district rates for common laborers, and most local populace prefers not to become laborers unless no other option is available.

To provide access to the better paying jobs, skill enhancement suited to the Project construction works for those local people who are interested and eligible is a necessity for achieving a higher local employment rate in the Project, and the quality of the training needs to meet the Project's employment requirements. Such training will also provide certification at the level of training taken and according to the quality of trainee performance. Such training will take longer, however, it will provide life long skills that can be used in other locations or may be adapted for self-employment.

There are also many in the Project area who have working skills but due to lack of certificates, or accreditation from recognized institutions, will not be eligible for jobs at their potential. A pre-project skills and testing of skills, certification and accreditation of skills will also help getting project employment. In both ongoing and upcoming projects in Nepal, provisions for maximizing local employment are one of the contractual obligations. Accordingly, contractors have employed many locals in preferential order, from SPAF to PAF to Project VDC inhabitants, to those from the adjoining VDCs, to employing from the affected Districts, to employing Nepalese nationals. Even so, the rate of local employment is considerably below desired levels due to a number of factors. Among these is the lack of stringent contractual clauses to ensure that the principal contractors and their sub-contractors establish transparent employment mechanisms. Often employment is made without prior public notice and local people have no opportunity to know about the availability of Project job opportunities. Often too, local people are never been told the reasons why they have been judged not eligible for specific higher-level jobs.

Therefore, contractual clauses will need to be incorporated into the civil contracts whereby the contractors and their sub-contractors are responsible to set up a transparent employment mechanism to provide skilled job opportunities to the local people in preferential order from SPAF, PAF, Project VDC, Adjoining VDCs, Project District, to hiring Nepalese in general. The civil contract clauses will also need to include employment of only Nepali Citizens for unskilled and semi-skilled jobs. For skilled jobs, the civil contract clauses need to required proof of non-availability of qualified person in Nepal as a condition for employment of

foreigners by the contractor or sub contractor. Table // provides the Allocated Costs for Skill Enhancement and Training.

6. Rural Electrification Program

Rural electrification is one of the expectations of residents in the Kulekhani III Project area. Currently, being close to the Hetauda Township and more over to Kulekhani I and Kulekhani III hydropower Projects, Wards 6 and 8 of Bhaise VDC and Ward 9 of Basamadi VDC are not connected to the domestic electricity supply despite being directly affected by these Projects. And Kulekhani exploratory audit work is supported in Sanutar and Ghumaune by an electric connection that goes directly over the heads of the village houses. It is recommended to connect the affected VDC Wards to the National Electricity Grid in line with making APs direct project beneficiaries and as a development gesture on the part of the Kulekhani III Project.

7. Yangran Watershed Management Program

The Yangran Khola Watershed is relatively untouched, with a forest cover area of about seventy four percent The Kulekhani III Project will put pressure on the Yangran Watershed forests, not only by direct clearance of vegetation in the Regulating Reservoir, Check Dam, and Access Road areas but also by improving access into the forested areas. Since the Kulekhani Regulating Reservoir is located on the middle reaches of the Yangran Khola, increased erosion in the Watershed due to increasing forest exploitation also presents a risk to the long-term capacity Reservoir by increasing siltation. Though two Check Dam structures upstream of the Reservoir are included in the Project for control of Reservoir sedimentation, given the nature of Nepal's high intensity monsoon rains, additional preventive measures to control erosion in the watershed are highly desirable. In this context, the Yangran Watershed Management Program is proposed as a key social program. Although a key social environment program, it also is highly important to the natural environment and will be carried out as part of the EMP.

8. Neighborhood Support Programs

The Neighborhood Support Program will be designed to provide financial assistance in particular to the project affected communities of Bhaise Wards 1, 6 and 8; Basamadi Ward 9 and Hetauda Municipality Ward 1. This Program will allocate development funds to each of the affected Wards. The Ward and its constituent communities will select development programs and will use the allocated funds for these programs on the condition that the Ward or community will contribute about twenty five percent of the estimated cost (in cash or in kind) of the selected program. From this financial assistance, large development works

may not be possible, but the Program will help in executing a number of medium and small sized community development projects, such as the repair and expansion of schools, student hostels, and teacher's quarter; improvement or construction of water supply systems, irrigation systems, trails, temples, and health posts.

9. Women's Development Program

A specially designed Women's Development Program will focus on improved family and preventative health, household sanitation, income generation skills, STD, HIV AIDS education, family planning, and girl trafficking. Inclusion of micro-credit funds in the Project affected areas is also proposed. The program will be launched in Bhaise Wards 1, 6, 8; Basamadi Ward 9 and Hetauda Municipality, Ward 1.

10. Information Dissemination and Feedback

This Program will include the establishment of Public Information Centers inside and outside the Project, dissemination of information through the local FM radio station and by use of Internet services for establishing a Project Webpage. The Program shall also include Stakeholders Meetings within the Project area on regular basis.

It is important to reiterate that the SAP, as presented in this Framework, is still a very generalized 'Program of Activities.' Tentative cost allocations are made to ensure that the costs are included in the Project. However, the Project in its Detail Design Phase will carry out an exercise to fill in the details of the individual programs through the use of extensive public consultations and the use of experts from NGOs and other agencies, including from Government and private sources.

Public Consultation Program

A Public Consultation Strategy has been developed based on experience during the fieldwork carrying out two Public Consultation Meetings, described in detail in the Supporting Report. It will be important to carefully plan for and budget the next phase of the Public Consultation, during the Detailed Design Study. It is recommended to have three stakeholder Public Consultation Meetings held in Hetauda. One will be at the beginning and reiterate the findings of the feasibility stage studies. The second meeting will come approximately six months into the next phase studies to present inception findings and obtain public feedback. The third and final meetings will present the final study findings.

The Hetauda stakeholder Public Consultation Meetings will need to be set up through the Chief District Officer's (CDO's) office and sufficient time allotted

both to accommodate this formal process and to assure all attendees have adequate advance notice. It is recommended that sufficient budget be allotted to produce brochures and posters, as well as to have flip chart equipment, for these meetings to properly record issues and recommendations. Preparation of PowerPoint presentations is recommended. However, it will be a good idea to rent a small back up generator for assuring an uninterrupted supply of electricity during the presentations. Adequate budget for refreshments is recommended for about 200 attendees per meeting, as well as for conference hall rental. Finally, it will be an important courtesy to the village attendees to rent at least one van or small bus to assist the villagers in coming to and returning from Hetauda The Public Consultation Strategy identifies key stakeholders and also content that will need to be covered.

Further Studies - Detailed Design Phase

The following are studies required for the next stage, under categories of RP and SAP.

Resettlement Plan

- Plane Table Survey of Agricultural Plots & updating of household records & GIS *Natural and Social Environment Map*, also using records obtained from Tax Office (*Mal Addha*) and District Survey Office, to prepare for Detailed Measurement Survey
- Detailed Measurement Survey (DMS) when Detailed Design is completed, for updating and finalizing the RP

Social Action Plan (SAP) Framework

- *Strengthening the Urban-Rural Linkage in Rural Development of the Kulekhani III Project Are*a, to explore both existing and potential economic activities related to rural-urban linkage development, particularly as a spur to agricultural development in the Project Affected Area and its surroundings. Includes GIS Tracking survey of foot traffic for proposed Choki Tole suspension Bridge (and for feasibility of relocation of Sanutar's suspension Bridge) and for assessing economic impact of Project's motorable bridge over Rapti River, possible development commercial nucleus (produce collection center, bus stand) on spoil site at Sanutar
- Survey of irrigation and water mill water diversion downstream Tailrace, updating information from July 2002 floods, including survey of type and volume of agricultural produce in downstream irrigation. and economies of water mills
- Preparation of Social Program Details, with NGO involvement

Chapter B.1 SOCIAL IMPACT ASSESSMENT (SIA)

B.1.1 Introduction

The Study Team, through its sub-consultant NESS, organized a Social Impact Analysis (SIA) that provided community profiles at the Makwanpur District Level (including its only municipality, Hetauda), at the level of the Project Impacted Communities, which included all communities from the Headworks area to downstream of the Tailrace Outlet, to the Most Impacted Communities (MIC) of Sanutar, Ghumaune, and Pari Ghumaune villages, where all of the houses and privately owned agricultural land to be acquired by the Project is found.

The SIA addressed in particular the Project's indirect resettlement effects, within the framework of an impoverishment risk model, to better prepare an SAP that would counter these risks with a well informed development strategy suited to local conditions. *Resettlement Effects* is taken to mean, very broadly, *all* negative situations directly caused by the Project, including loss of land, property, income generation opportunity, and cultural assets. Therefore, the mitigation measures for adverse impacts as outlined in the SIA are for the most part found in the SAP's several social programs components, whereas the RP will address the direct resettlement effects arising from the Project's land acquisition.

SIA Findings. The Study Team provided a general profile of the Project impacted Makwanpur District, in particular of Hetauda municipality, as well as of the Project Impacted Communities, providing household and population and caste and ethnic composition for these levels and several comparative social and economic indicators for the broader Project impacted area, defined as Bhainse Village Development Committee (VDC) Ward 6 where the main Project components are situated, Wards 8 & 9 of Basamadi VDC, where the Tailrace Outlet is located and has its downstream effects, and Ward 1 of Hetauda Municipality, where the Tailrace Outlet downstream impacts will occur, along a 4 km stretch of the Rapti River to Hetauda Bridge.

B.1.2 Makwanpur District

(1) General

Makwanpur District is one of the seven Hill districts located in Nepal's Central Development Region[2] Makwanpur is categorized as "Intermediate" among

[2] Overall there are three Zones (Makwanpur is in Narayani Zone), nineteen districts and twenty municipalities, including Makwanpur's only municipality, Hetauda, and the national capitol city Kathmandu in the Central Development Region. Nepal has five Development Regions, Eastern, Central, Western, Mid Western, and Far Western.

Nepal's districts according to its the overall development parameters. However, its position is considered less advantaged with respect to natural resources (ICIMOD/SNV1997). There are 43 Village Development Committees (VDCs and one Municipality, Hetauda, in the District.

This chapter provides a brief account on the various overall socio-economic related indicators of Makwanpur District. The Social Impact Assessment (SIA) is based on the thorough review of secondary information collected at national and district level and on discussions held with key informants in the field. The information provides a basis for designing the key social environmental measures to mitigate problems that may be caused as a result of the proposed Kulekhani III Hydropower Project.

(2) Hetauda

Hetauda Municipality, with eleven Wards and a population of 64,482, contains most of Makwanpur's district offices, although technically it is not the District headquarters. It is located in a valley between the Mahabharat and Churi Ranges, The town is situated along the Rapti River, some 2-3 kilometers south of the proposed Kulekhani powerhouse location, whose Tailrace Outlet water release is expected to have consequences some 4 km downstream to the Hetauda Bridge, on *Mahendra Rajmarg* (East-West Highway). Hetauda is centrally located in relation to the eastern part of the East-West Highway and linked by the 210 km *Tribhuvan Rajpath* (Highway) to Kathmandu. The Trihuvan Highway was the major route to Kathmandu during the 1950s and 60s but has since been superseded by routes further west, and the Hetauda-Kathmandu Ropeway that was a major link to the Capitol during this earlier period, has also been closed down for several decades.

Hetuada Cement Industries LTD (HCIL), which commenced operation in 1985, is a major industry in the area, one of the largest industrial plants in Nepal[3], as are twenty-eight public and private industries, mostly located in an industrial part at the south end of the town. The establishment of HCIL and the industrial park has helped to make Hetauda a trade center for the southern and western part of Makwanpur District, having 1,500 shops and commercial establishments and approximately six hundred diverse cottage industries, including food related industries and serving as a trade center for cereal sand imported goods, for distribution in its hinterland and surrounding districts. Hetauda's industrial sector, though, has been declining due to the tremendous industrial development of Bharatpur that is better strategically located. On the other hand, the proposed

[3] http://www.sajilo.com/hetaudacement/

Kanti Raj Path and Tunnel Highway may improve Hetauda's economic situation should it restore the previous strategic link with Kathmandu that the town held in earlier decades.

(3) Household and Population

The District population is 372,604, consolidated into 71,112 households. The household size is 5.52 persons per HH, which is slightly greater than the national average size of 5.44. From 1991 to 2001, the district's population grew by 25 percent, with the annual growth of 2.13 percent per annum, compared to the national rate of 2.24 percent (Table B.1.1).

Table B.1.1: Makwanpur District Households and Population

1991 Census					2001 Census				
HH No	Av. HH Size	Population			HH No	Av. HH Size	Population		
		Total	Male	Female			Total	Male	Female
56,091	5.6	314,599	159,562	155,037	71,112	5.52	392,604	199,144	193,460

Note: Population Growth rate during 1991-2001 Census: 2.13% compared to 2.24% of national average.
Source: I) *District Population Census 2001* (Final Results), CBS, National Planning Commission. II) *Population of Nepal by Districts and VDCs/Municipalities, Population Census* 1991 CBS, 1994.

Makwanpur District constitutes 1.7 percent of Nepal's population and 4.9 percent of the Central Development Region's population. The population is 162 person/km^2, which is considerably lower than that of the Central Development Region, standing at 293 person/km^2 and somewhat lower than the central hill average, at 153 person.km^2. It is, however, slightly higher than the national average density of 157 person/km^2 (Table B.1.2).

Table B.1.2: Population Features of Makwanpur District Compared with and the Central Development Region (2001 Census)

Area	Population		Number of Households	Average HH Size	Area In Km^2	Population Density/ Km^2
	Number	%				
Nepal	23,151,423	100	4,253,220	5.44	147,181	157
Central Development Region	8,031,629	34.7	1,475,477	5.44	27,410	293
Central Hill	643,246	7.1	309,149	5.32	10,749	153
Makwanpur District	392,604	1.7	71,112	5.52	2,426	162

Source: *District Population Census 2001* (Final Results), CBS, National Planning Commission.

The District's population is expected to increase at the rate of 2.33 percent/annum and reach to 563,880 by the year 2016.

Table B.1.3: Makwanpur District: Future Population Trend

2006		2011		2016		Growth Rate (1991-2016)
Population	Growth Rate	Population	Growth Rate	Population	Growth Rate	
457,497	2.39	510,785	2.20	563,880	1.98	2.33

Source: *Population Projections for Nepal 1996-2016*; Volume II, Sub-National Projections, Ministry of Population and Environment, HMG/N, June 1998

(4) Caste and Ethnic Composition

At 48.2 percent of the population, the Tamang ethnic, or '*tribal*' group, dominates the Makwanpur District, Other caste/ethnic groups are: Brahmin at 15.4 percent, Chhetri, at 11.2 percent, Newars at 6.7 percent, Magar at 4.8 percent, Chepang (Praja) at 3.8 percent, *Kami/Damai/Sarki* at 4.2 percent and other hill groups at 5.7 percent (Table B.1.4).

Table B.1.4: Makwanpur District: Caste/Ethnic Composition

Caste/Ethnic Group	Percent
Tamang	48.2
Brahmin	15.4
Chetri	11.2
Newar	6.7
Magar	4.8
Chepang (Praja)	3.8
Kami/Damai/Sarki	4.2
Other Hill Groups	5.7
Total	100

Caste/Ethnic Descriptions[4]

Currently there is no accurate taxonomic systematization for Nepal's caste and ethnic diversity, although a rough correlation does exist between Nepal's step-like geographical structure and the ethnical structure of its population. The 1991 Census, however, did for the first time indicate caste and ethnic categories, and this systematic outline of Nepal's caste and ethnic composition is presented in Annex 3.

About 60 percent of the population lives in the intermediate hill, or *Pahar*, areas, which constitute most of Nepal. Here, although Indo-European Nepali language predominates throughout, there are also several Tiebeto-Burman languages (Tamang, Newari, Magar, Rai Kirati, gurung, Limbu, and Sunuwar) found in distinct regions. Some 35 percent of Nepal's population resides in the low-lying, tropical strip of land to the south known as the *Terai*. Here, Indo-Aryan languages in common with India predominate, although small indigenous populations speak

[4] Descriptions adapted from: Dor Bahadur Bista.2000. *People of Nepal*. Kathmandu: Ratna Pustak Bandar, 7th Ed. And Finlay, Hugh. 2001. *Nepal*. Melbourne: Lonely Planet. .

Dravidian languages. Lastly, 5 percent of Nepal's population lives in the high Himalayan region, speaking a number of Tibeto-Burman languages.[5]

The Kulekhani III Project is located in the intermediate hill area, although close to the Terai, and by and large it exhibits the ethnic characteristics of this, *Pahar*, area.

Tamangs

Tamangs are the largest of the Tibeto-Nepalese, groups originally from Tibet, and usually living in the middle to higher elevations in Nepal. They generally live in the high hills east, north, south and west of Kathmandu Valley.

Their religion is closely associated with Tibetan Buddhism, though some Tamangs follow *Bön*, the pre-Buddhist religion of Tibet. Tamang areas will usually have *chortens*, Tibetan Buddhist stupas with a square base, topped with a dome, and *mani* walls made of prayer stones engraved with Buddhist mantras. Tamang homesteads are often solitary, with modest sized houses constructed of brick or stone, with a porch, a courtyard, a mud finish and thatched roof.

Although one of the largest groups in Nepal, Tamangs during the period before the 1950s were relegated to bonded labor and were dependent on menial work, particularly as porters. They were prevented from joining the government or the military, unlike many other Tibeto-Burman hill groups such as the Gurung, Mangar, Limbu and Rai. Tamangs remain in general very poor, and girl trafficking has been a feature of their community. They are therefore to be considered one of the vulnerable groups within the Project's RP policy.

Brahmin (Bahun) and Chetri

Brahmin (*Bahun*) and Chetri are the two highest castes in Nepal, as Priest and Warrior (Kshatriya) in the four fold Hindu caste hierarchy, and both wear a sacred thread, the *janai*, with the *Bahun* tending to be more caste-conscious than other Nepali Hindus. They are Indo-Nepali, originally from India, though in more recent history from the Khas kingdoms that flourished in Western Nepal for at least a millennium before Nepal's unification in the late 18th century. They are currently about 30 percent of Nepal's total population. Although widely distributed throughout Nepal, more than half live in Nepal's Western hills, where they are 80 percent of the population.

Bahuns and Chetris played an important role in the court and armies of Prithvi

[5] Adapted from Tod A. Ragsdale, *Once a Hermit Kingdom: Ethnicity, Education, and National Integration in Nepal*. Delhi: Manohar Press, 1989.

Narayan Shah, and after unification they were rewarded with lands throughout the country. Their language, *Khas Kura* (Nepali), became the national language, and they continue to dominate the processes of government in Kathmandu.

Outside of Kathmandu Valley, however, the majority of *Bahun-Chetri* (a term used in the Hills to refer to these two high castes as one group) are simple peasant farmers, indistinguishable in most respects from their neighbors. Most live in two-storey stone and mud-brick thatched houses that are washed with lime or red ochre and sometimes reflecting their relative wealth through being of larger size. Generally their homes are found loosely scattered along hill slopes, on hilltops, in flat valleys or along ridges, and *Bahun-Chetri* are associated closely with ownership of irrigated *Khet* paddy lands. Many had roles as tax collectors in the earlier regime, and some of these are moneylenders, often with a great deal of power.

Newar

Newars, who make up about 6 percent of Nepal's population, are closely associated with Kathmandu Valley, where they are the indigenous inhabitants and more than half of them, about 55 percent, reside, concentrated in the large cities of Kathmandu, Patan, Bhadgaun, Kirtipur and half a dozen smaller towns. Although Kathmandu Valley can be said to be their principal home, they are found in great numbers in every market town and village in the outlying districts of the Hills and in the Terai, where they have spread since Nepal's unification in the late 18^{th} century, as small shopkeepers, big businessmen, importers, exporters, farmers and craftsmen.

Newars number about 1.1 million and speak Newari, a language distinct from Tibetan, Nepali or Hindi. Bista (2000) has called them a 'unique and interesting people, one of the oldest groups in Nepal,' among whom are 'artisans and caste groups ranging from the lowest to the highest, from sweeper to priest, both Buddhist and Hindu.'

The most striking Newar characteristic is their love of communal life, and Newari houses are invariably clustered together, usually around sites of religious significance. Always traders and merchants, they have continued to fulfill this role in Nepal, and their proximity in Kathmandu Valley to the center of power has led them to having a disproportionate influence in the Government's bureaucracy.

Magar.

Like the Tamang, Magars are a numerically large, around 8 percent of Nepal'ls population, Tibeto-Nepali 'tribal' ethnic group who live in many parts of the

midlands zone of Western and Central Nepal. Until the 18th century they had their own kingdoms, but close contact with Indo-Nepalese *Bahun-Chetri* and their participation in the armies that united Nepal under the shah dynasty, led to the gradual increase in Hindu influence and to their cultural assimilation in terms of religion, farming practices, housing and dress, in all of which they closely resemble the Chetris.

They are the largest single group in the British and Indian Gurkha regiments, and their earnings and foreign remittances have played an enormously important role in improving their village living standards, otherwise based as they are on subsistence agriculture, and in the Nepali economy as a whole. They generally live in two-storey, rectangular or square thatched houses washed in red clay similar to those of the *Bahun-Chetri*, although historically these houses were often round or oval in shape.

Chepang (*Praja*)

Chepangs, also known as *Praja* (the 'subjects') are a Tibeto-Nepalese group called by Bista (2000) 'one of the least known groups of Nepal.' They live exclusively in the southern part of Dhading district, the western part of Makwanpur, the northern part of Chitwan, and the southern part of Gorkha, along the steeper slopes of the Mahabharata Range at elevations between 2,500 and 4,000 feet, generally just below Tamangs and above the other hill groups in their 'homeland.'

Bista describes them as 'economically at a disadvantage compared to the people living around them,' with most of their lands mortgaged as security against amounts they have borrowed from Bahun and other moneylenders, and they generally have few artisan or artistic skills, according to Bista, aside from weaving baskets and leaf umbrellas for protection against the rains. They will be considered a 'vulnerable' group in the Kulekhani III Project's RP policy.

Kami/Damai/Sarki

The Kami (metal workers), Damai (tailors), and Sarki (leather workers) are the traditional occupational, '*untouchable*,' castes in the Nepalese Hindu hierarchy. Although many live in towns or among Tibeto-Nepalese hill peoples, they are traditionally associated with Bahun-Chetri to whom they are closely related ethnically, although at the lower end of the social scale and generally few in population compared to their neighbors, out of necessity to not compete in supplying occupational services to other caste and ethnic groups. This has kept them both politically and socially dominated and by and large in greater poverty

than most other groups in Nepal.

Although none are recorded to live in the most directly affected villages of Sanutar and Ghumaune, they, like the Chepang and Tamang, will be categorized as a 'vulnerable' group in the Kulekhani III Project's RP policy.

(5) Other Social and Economic Indicators

1) Literacy Status

Makwanpur District has a low literacy ratio 36.7 percent, compared to national average 50 percent. The ratio of literacy among women is only 31 percent. Poverty, poor social infrastructure, and 'backwardness' have been cited as some of the reasons for the District's low-level educational level.

2) Food Production and Sufficiency

Makwanpur District is a food deficit Hill district, with the total amount of food deficiency estimated to be 23,441 metric tons (Table B.1.5).

Table B.1.5: Makwanpur District: Edible Food Availability

	Edible Production [Metric Ton]							
Population	Rice	Wheat	Maize	Millet	Barley	Total	Required	Deficit
37,553	14,623	6,610	28,379	2,825	10	52,447	75,808	-23,441

Source: *Agricultural Marketing Information Bulletin*, Special Issue-199, Dept. of Agriculture, marketing Development division 1999.

3) Livestock Population and Their Products

Makwanpur District has 227,680 livestock and 366,826 chickens. The average number of livestock, including poultry, is 8.4 per household and is relatively high for Nepal (Table B.1.6). One of the key reasons of this is that Tamangs, the dominant ethnic group, keep a significant number of poultry and pigs for consumption, which many higher caste Nepalis would not.

Table B.1.6: Makwanpur District: Livestock and other Animals and Their Produce

	Cattle	Buffalo	Sheep	Goat	Pig	Total Poultry Birds	Total Animals
Livestock No.	130,951	34,356	539	17,399	8,845	366,826	227,689
Product							Total Amounts
Milk [mt]	7,566	9,177					16,743
Meat [mt]			3	365	157	238	2159
Egg [000nos]						8,829	8,829
Wool [kg]			370				370
Fish [kg]							30,500

Source: *Statistical Information on Nepalese Agriculture 1998/99*, Ministry of Agriculture, And Agricultural Statistics Division.

4) Access to Water Supply and Sanitation

Almost half of Makwanpur District's population, some 49.2 percent, has access to piped drinking water. However, a significant number of people depend on wells (*kuwa*), at 26.1 percent, spring water, at 16.5 percent, streams and rivers, at 5.8 percent and tube wells, at 2.4 percent. Only about 43 percent of the District's population uses a toilet, with among these only 27.3 percent having constructed a permanent facility.

5) Health

The following diseases have been reported as most common in Makwanpur District:[6]

- Diarrhea
- Otitismedia (Ear Infection)
- Gastritis
- Skin Infection
- Joint Pain Arthritis
- Jaundice
- Worm Infections
- Sexually Transmitted Diseases
- Sinusitis
- Chronic Headache

The District reports one fifty-bed District Hospital at Hetauda, four Health Centers, eight Health Posts, 30 Sub Health Centers, and one *Aayurbed* (traditional) medical facility.[7]

B.1.3 Project Impacted Communities

(1) General

The Project Impacted Communities include the Village Development Committees (VDCs) of Bhaise, Ward 6 and Basmadi, Wards 8 and 9 as well as Hetauda Municipality, in particular Ward 1. There will also be a corridor along the Bhainse to Nihuwatar highway and along the Rapti.River, from the Headworks area to the Tailrace Outlet (Table B.1.7). This chapter describes the key socio-economic characteristics of these impacted communities.

[6] http://www.rainbowchildrensfund.org/medmission/recent.html (Information provided by the *Praja* Medical Hall and People's Health Center)

[7] http://hetaudaonline.com/Hetauda/about_hetauda.htm

Table B.1.7: Project Impacted Communities: VDCs and Hetauda Municipality

VDC/Municipality	Ward No	Village/Area
1. Bhainse VDC	6	Sanutar, /Ghumaune; Kisedi Village
2. Basamadi VDC	8,9,11	Bokheda, Maintar Villages
3.Hetauda Municipality	1	Choke Tole, Supariter Military Camp/Police, NEA Diesel Plant
4. Bhainse Dhoban-Nibuwatar Corridor Area		Hwy to Bhimpedu, KL I Power Plant, Reservoir
5.Corridor along Rapti and Connecting Tunnel		Bhainse VDC

(2) Household and Population

The Project impacted VDCs and Municipality have altogether some 86,266 people, consolidated within 18,102 households. The average household is 4.8, lower than the District's average size of 5.5 and the national average size of 5.4 persons per household. The population has increased by 22 percent between 1991 and 2001 census, with the annual growth of 2.2 percent, a slightly lower growth rate than that of the District (Table B.1.8)

Table B.1.8: Affected Communities: Households and Population

Description	1991 Census			2001 Census			Total
	Bhainse VDC	Basamadi VDC	Hetauda Munic.	Bhainse VDC	Basamadi VDC	Hetauda Munic.	
Total Households	1,105	1,815	10,420	1,286	2,545	14,271	18,102
Population	6,615	10232	53,836	7,614	14,170	64,482	86,266
Male	3,415	5,209	27,805	3,827	7,213	35,320	46,360
Female	3,164	5,023	26,031	3,787	6,957	33,162	43,906

Source: I) *Population of Nepal by Districts*, VDCs/Municipalities (Population Census 1991), CBS 1994. ii) *District Population Census* 2001 (Final Results), CBS, National Planning Commission.

The impacted VDCs and Municipality make up only 1 percent of the Central Development Region's population and only 2.2 percent of Makawanpur District's population.

(3) Caste and Ethnic Composition

The Project impacted communities are predominately Tamang, some 43.53 percent. This is especially the case in Bhainse VDC, where the Tamang are 68.25 percent, followed by Basamadi VDC, where they are 52.62 percent. In Hetauda Municipality, on the other hand, Tamangs make up only 9.73 percent of the population. Other caste and ethnic groups in the impacted communities include Brahmin, some 21.75 percent, Chhetri, at 11.2 percent, Newar, 9.04 percent, Magar, 7.01 percent, the occupational castes of Kami/Damai/Sarki at 4.2 percent,

the Chepang (Praja) at 3.8 percent, and other Hill groups, at 5.36 percent (Table B.1.9).

Table B.1.9: Project Impacted Communities: Ethnic Composition

Caste/Ethnicity	Average	Bhainse VDC	Basamadi VDC	Hetauda Municipality
Tamang	43.53	68.25	52.62	9.73
Brahmin	21.75	2.87	23.37	39.02
Chhetri	9.04	2.79	7.55	16.77
Magar	7.01	14.47	3.13	3.44
Newar	6.57	2.18	2.55	15.23
Occupational Castes*	4.81	5.09	6.67	2.67
Praja	1.95	3.64	1.53	0.69
Others	5.36	0.71	2.58	12.45
Total	100	100	100	100

*Occupational Castes = Kami (Metal Worker), Damai (Tailor) and Sarki (Leather Worker). Source: i) *VDC Profile, Ward level Socio-economic Data, Basamadi VDC,* District Development Committee, and Makwanpur Nepal 2057.ii) *VDC Profile, Ward level Socio-economic Data, Bhainse VDC,* District Development Committee, and Makwanpur Nepal 2057. iii) *Ward Level Socio-economic Data of Hetauda Municipality*, District Development Committee, and Makwanpur Nepal 2057.

(4) Other Social and Economic Indicators

1) Literacy status

The Project impacted communities have a low literacy ratio overall of only about 34.4 percent, compared to District rate of 36.7 percent and the national average of 50 percent. The literacy rate among women is lower, at only 29 percent. Basamadi VDC's literacy rate is highest of the two VDCs, at 37.5 percent, compared to Bhainse at 31.7 percent. Hetauda Municipality is a surprisingly low 33.8 percent[8] (Table B.1.10).

Table B.1.10: Project Impacted Communities: Literacy Status (Percent)

Literacy Status	Bhainse VDC	Basamadi VDC	Hetauda Municipality
Male Literate	40.2	39.2	44.5
Female Literate	22.8	35.8	26.9
Total	31.7	37.5	33.8

Source: i) *VDC Profile, Ward level Socio-economic Data, Basamadi VDC,* District Development Committee, and Makwanpur Nepal 2057.ii) V*DC Profile, Ward Level Socio-economic Data, Bhainse VDC,* District Development Committee, and Makwanpur Nepal 2057. iii) *Ward Level Socio-economic Data of Hetauda Municipality*, District Development Committee, and Makwanpur Nepal 2057.

8 NESS, the study sub consultants, reported this low literacy rate for Hetauda. However, according to Internet sources, Makwanpur District's 'Urban Area' literacy rate is an average of 64.8 percent (male 76.3 percent and female 53.3 percent), Source: http://hetaudaonline.com/Hetauda/about_hetauda.htm. This seems more reasonable.

2) Vulnerable groups

Some 4.3 percent of the Project Impacted Community's population is elderly, widows or handicapped (Table B.1.11).

Table B.1.11: Vulnerable Groups of the Project Impacted Communities: Elderly, Widows & Handicapped, No. and Percent of Population

Vulnerable Group	Bhainse		Basamadi		Hetauda Municipality	
	HH No.	%	HH No	%	HH No	%
Elderly	38		91		496	
Widows	36		76		453	
Handicapped	2		1		14	
Total	76	1.12	168	1.32	963	1.86

Source: i) *VDC Profile, Ward Level Socio-economic Data, Basamadi VDC*, District Development Committee, and Makwanpur Nepal 2057.ii) VDC Profile, Ward Level Socio-Economic Data, Bhainse VDC, District Development Committee, and Makwanpur Nepal 2057. iii) *Ward Level Socio-economic Data of Hetauda Municipality*, District Development Committee, and Makwanpur Nepal 2057.

3) Occupation and Skills

The impacted communities constitute some 1.54 percent of District population acknowledged as having various skills such as electricity, construction worker, health worker that might be useful for the Kulekhani III Project construction works. Some 30 percent of these belong to Hetauda Municipality, followed by Basamadi, 71 **[21]** percent and Bhainse, with 19 percent (Table B.1.12).

Table B.1.12: Persons with Technical Skills in the Project Impacted Communities

Skills	Bhainse		Basamadi		Hetauda Municipality	
	HH No.	%	HH No	%	HH No	%
Electricity	2		51		59	
Civil Construction	1		5		131	
Shoe Maker	1		0		2	
Health	4		1		49	
Rural Veterinary	11		0		3	
Rural Agricultural	-	-	-	-	18	
Other	0		20		45	
Total	19	0.28	77	0.66	307	0.59

Source: I) *VDC Profile, Ward level Socio-economic Data, Basamadi VDC*, District Development Committee, and Makwanpur Nepal 2057.ii) *VDC Profile, Ward level Socio-economic Data, Bhainse VDC*, District Development Committee, and Makwanpur Nepal 2057. iii) *Ward level Socio-economic Data of Hetauda Municipality*, District Development Committee, and Makwanpur Nepal 2057.

4) Livestock Population and their Products

Rearing livestock is an integral part of rural economy in the Project Impacted Communities. The average livestock holding size varies from 3.5 animals per HH in Hetauda to 8 animals per HH in Bhainse VDC, including poultry.

Table B.1.13: Project Impacted Communities, Livestock HH Holding Size

Livestock Type	Bhainse VDC	Basmadi VDC	Hetauda Municipality
Poultry	2.9	2.1	2.3
Goat	2.5	1.9	0.5
Bull	1	1	0.2
Cow	1	0.9	0.4
Buffalo	0.5	0.2	0.5
He-buffalo	0.1	0.4	0.1
Pig	0.1	0	0.1
Other (Rabbit)	0	0	0
Total Livestock	5	4.4	1
Total	8	7	3.5

Source: I) *VDC Profile, Ward Level Socio-economic Data, Basamadi VDC*, District Development Committee, and Makwanpur Nepal 2057.ii) *VDC Profile, Ward Level Socio-economic Data, Bhainse VDC*, District Development Committee, and Makwanpur Nepal 2057. iii) *Ward level Socio-economic Data of Hetauda Municipality*, District Development Committee, and Makwanpur Nepal 2057.

5) Land Holding Size and Ownership

The average land holding size of the area varies from 0.2 in Hetauda Municipality to 1.6 ha. The households of Bhainse VDC have the highest holdings, with 1.6 ha including both Khet (irrigated paddy land), although the land is mostly un-irrigated type (*Pakho*) (Table B.1.14). It should be noted, however, that the data for Bhainse VDC is incorrect, as the 8 Ha of *Khet* (irrigated paddy land) at Sanutar-Ghumaune has not been accounted for. Or, on the other hand, since the canal system there was only recently repaired, this land was not under irrigation at the time the data was compiled. It does illustrate, however, the importance and relative scarcity of such irrigated *Khet* land.

Table B.1.14: Project Impacted Communities, Average Land Holding Size

Land Type	Bhainse VDC		Basamadi VDC		Hetauda Municipality	
	Area (Ha)	%	Area (Ha)	%	Area (Ha)	%
Av/HH - *Khet*	0.00	0	0.01	23.71	0.10	58.0
Av/HH- *Pakho*	1.60	100	0.30	76.29	0.07	42.0
AV/HH- *Both*	1.60	100	0.40	100	0.20	100

Source: I) *VDC Profile, Ward Level Socio-economic Data, Basamadi VDC*, District Development Committee, and Makwanpur Nepal 2057.ii) *VDC Profile, Ward Level Socio-economic Data, Bhainse VDC*, District Development Committee, and Makwanpur Nepal 2057. iii) *Ward level Socio-economic Data of Hetauda Municipality*, District Development Committee, and Makwanpur Nepal 2057.

The number of landless farmers ranges from 5 percent in Hetauda to 16 percent in Bhainse VDC, with Basamadi VDC between the two, at 11 percent. The large majority of the households in Hetauda Municipality, 91.6 percent, and Bhaise VDC, 44.87 percent, own up to 0.25 hectors of land. In Basmadi VDC, however, almost 30 percent household own land raising 0.25-0.5 hectare. The highest

number of households holding more than one hectare of land [13.5%] is also recorded in Basmadi VDC (Table B.1.15).

Table B.1.15: Project Impacted Communities, Land Holding Size

HH Holding Size	Bhainse VDC	Basmadi VDC	Hetauda Municipality
	Percent	Percent	Percent
Landless	15.5	11.2	5.2
Having up to 0.25Ha.	44.8	24.5	91.6
Having up to0.25- 5 Ha.	26.6	29.7	2.3
Having up to 0.5-1 Ha.	11.4	21.1	0.8
Having above 1Ha.	1.7	13.5	0.1
Total	100	100	100

Source: I) *VDC Profile, Ward Level Socio-economic Data, Basamadi VDC*, District Development Committee, and Makwanpur Nepal 2057.ii) *VDC Profile, Ward Level Socio-economic Data, Bhainse VDC*, District Development Committee, and Makwanpur Nepal 2057. iii) *Ward level Socio-economic Data of Hetauda Municipality*, District Development Committee, and Makwanpur Nepal 2057.

6) Food Sufficiency and Coping Strategies

The food production in the Project Impacted Communities is insufficient to meet local food sufficiency. About 64 percent of households say they must buy food each year, adopting a number coping strategies, such as taking out loans, finding wage, employment, firewood collection, selling livestock, and hunting. Key constraints for improving this situation are cited as: Insufficient irrigation and inputs, traditional agricultural practices lack of improved farming skills, lack of transportation and of a marketing network, lack of a minimum in social services, and natural calamities.

Table B.1.16: Project Impacted Communities, Food Sufficiency

Food Sufficiency, Yes or No	Percentage
Yes	36
No	64
Total	100

7) Energy Sources

All households in Bhainse VDC and 89 percent of those in Basamadi VDC use firewood as their key energy resource. In Hetauda, most households, 40 percent, use kerosene followed by firewood, 38 percent, LP Gas, 16 percent, Biogas, 5 percent, and other sources, 1 percent (Table B.1.17).

Table B.1.17: Project Impacted Communities, Percent of HHs Using Different Kinds of Cooking Fuel

	Bhainse VDC	Basamadi VDC	Hetauda Municipality
Firewood	100	89	38
Biogas	0	3	5
Electricity	0	0	1
Kerosene	0	7	40
LP Gas	0	1	15
More Than Two Sources	-	-	1
Total	100	100	100

Source: I) *VDC Profile, Ward Level Socio-economic Data, Basamadi VDC,* District Development Committee, and Makwanpur Nepal 2057.ii) *VDC Profile, Ward Level Socio-economic Data, Bhainse VDC,* District Development Committee, and Makwanpur Nepal 2057. iii) *Ward level Socio-economic Data of Hetauda Municipality,* District Development Committee, and Makwanpur Nepal 2057.

Almost 90 percent of the VDC population using firewood spends above 60 minutes daily collecting firewood (Table B.1.18).

Table B.1.18: Project Impacted Communities, Time to Collect Firewood

Time	Bhainse		Basamadi		Hetauda Municipality	
	HH No.	%	HH No	%	HH No	%
Over 60 Minutes	1,091	93	1755	83		
45-60 Minutes	80	7	216	10	NA	
10-15 Minutes	0	0	0	0		
15-30 Minutes	0	0	148	7		
30-45 Minutes	0	0	0	0		
Total	1,171	100	2,119	100		

Source: I) *VDC Profile, Ward Level Socio-economic Data, Basamadi VDC,* District Development Committee, and Makwanpur Nepal 2057.ii) *VDC Profile, Ward Level Socio-economic Data, Bhainse VDC,* District Development Committee, and Makwanpur Nepal 2057. iii) *Ward level Socio-economic Data of Hetauda Municipality,* District Development Committee, and Makwanpur Nepal 2057.

8) Access to Water Supply and Sanitation

The population having access to piped drinking water ranges from 30 percent in Basamadi to 80 percent in Bhainse, compared to 49 percent of District average. In Bhaise, probably the activities of Plan International over the last eight years account for the high, at 80 percent, proportion of the population with piped drinking water. This is followed by Well water, 12 percent, spring water, 7 percent, and river water, at less than 1 percent. Basamadi has its highest reliance on spring water, 39 percent, followed by piped water, 30 percent and wells, 23 percent, river, 5 percent, and tube wells, 3 percent. Hetauda's greatest reliance, like Bhaise, is on piped water, 66 percent, well, 14 percent, spring, 11 percent, tube well, 6 percent, and river water, 1 percent (Table B.1.19).

Table B.1.19: Project Impacted Communities, Drinking Water Source (Percent of HHs)

Source	Bhainse VDC	Basamadi VDC	Hetauda Municipality
Piped Water	80	30	66
Spring	7	39	11
Dug Well	12	23	14
River	1	5	1
Tube Well	0	3	8
Total	100	100	100

Source: I) *VDC Profile, Ward level Socio-economic Data, Basamadi VDC*, District Development Committee, and Makwanpur Nepal 2057.ii) *VDC Profile, Ward level Socio-economic Data, Bhainse VDC*, District Development Committee, and Makwanpur Nepal 2057. iii) *Ward level Socio-economic Data of Hetauda Municipality*, District Development Committee, and Makwanpur Nepal 2057.

Some 80 percent of Bhaise VDC residents are within fifteen minutes of their water source, which is similar to the situation in Hetauda Municipality, where 87.65 percent of residents take only fifteen minutes or less to fetch water. In Basamadi VDC, on the other hand, this proportion much less, at 37.8 percent (Table B.1.20). There, some 75.84 percent travel up to 45 minutes to fetch water. Again, the favorable situation in Bhaise VDC must reflect the activities of Plan International there over the last decade.

Table B.1.20: Project Impacted Communities, Water Fetching Time

Time	Bhainse VDC	Basamadi VDC	Hetauda Municipality
Up to 5 minute	21	20	73
5-15 minute	59	18	14
15-30 Minute	13	16	10
30-45 Minute	1	22	2
45-60 Minute	3	11	1
Above 60 Minute	3	13	0
Total	100	100	100

Source: I) *VDC Profile, Ward Level Socio-economic Data, Basamadi VDC*, District Development Committee, and Makwanpur Nepal 2057.ii) *VDC Profile, Ward Level Socio-economic Data, Bhainse VDC*, District Development Committee, and Makwanpur Nepal 2057. iii) *Ward level Socio-economic Data of Hetauda Municipality*, District Development Committee, and Makwanpur Nepal 2057.

Hetauda Municipality has the highest number of households with toilet facilities, 73 percent, followed by Bhainse VDC, with 62 percent, and Basamadi VDC, with 39 percent. Nevertheless, as many as 66-77 percent of those in the VDCs having toilets are unable to construct permanent toilets. In Hetauda Municipality, some 60 percent of households own permanent toilets, compared to the District average 27 percent (Table B.1.21).

Table B.1.21: Project Impacted Communities, HHs Having Sanitation Facilities

	Bhainse VDC	Basamadi VDC	Hetauda Municipality
Toilet Facilities	%	%	%
Permanent Toilet	14	13	44
Temporary Toilet	47	26	29
Total	62	39	73

Source: I) *VDC Profile, Ward Level Socio-economic Data, Basamadi VDC*, District Development Committee, and Makwanpur Nepal 2057.ii) *VDC Profile, Ward Level Socio-economic Data, Bhainse VDC*, District Development Committee, and Makwanpur Nepal 2057. iii) *Ward level Socio-economic Data of Hetauda Municipality*, District Development Committee, and Makwanpur Nepal 2057.

(5) Project's Most Impacted Communities (MIC)

1) General

Among the Project Impacted Communities, the socio-economic characteristic of the residents of Sanutar, Bokedaha, and Ghumaune Pari communities, totaling some fifty five households, are especially relevant, as they will bear the main brunt of the Project's direct impacts due to land acquisition and resulting Resettlement Effects for private households, and they are also likely to experience most of the Project's significant indirect impacts. The socioeconomic fieldwork surveyed all of these households, which are altogether the Most Impacted Communities (MIC).

2) Resettlement Plan: Section on Socioeconomic Information

The socioeconomic information collected during the fieldwork, which covered 100 percent of the fifty-five households of the Most Impacted Communities, or MIC, as above, is presented in the Resettlement Plan (RP) under the section on Socioeconomic Information. This profile provides the context for understanding the MIC and the direct and indirect Project impacts on the relatively small area that constitutes the villages of Sanutar, Bokedaha, and Ghumaune Pari as well as the primary area where Project construction and its associated camp areas, access roads and other facilities are most concentrated.

(6) Indirect Project Resettlement Effects

1) Summary of HHs Affected by Direct Resettlement Effects

As indicated in the Resettlement Plan (RP), total number of HHs currently estimated to be potentially affected by the Project's land acquisition is 97 HH, with an estimated population of 611 persons.

Table B.1.22: Summary Resettlement Effects: Relocation & Loss of Agricultural Land, No. of Potentially Affected HHs and Estimated Population

Description	No. Potentially Affected HHs	Estimated Potentially Affected Population*
HHs Losing 26 Houses	25	150
(Incl. HH Losing Only 1 Ancillary Structure)	(1)	(6)
HHs Losing 15 Ha Agricultural Land	72	454
Total	97	604

* Estimated at 6.3 persons per HH, as per MIC field survey

The ADB defines 'Significant Resettlement Effect' requiring a Full RP (as outlined in its Handbook on Resettlement) as 200 people or more experiencing major impacts, with "major" impacts being physical displacement from housing and/or more than 10 percent of the household's productive (income generating) assets are lost. Currently, the Project most likely falls below this defined level of 'significance' with respect to loss of housing. On the other hand, at this time an expression of the level of severity of HHs loss of agricultural land as a percentage of HH income is not possible. This will be determined, however, during the next study phase. In any case, the Project will finalize an RP at the ADB's standard of 'significant resettlement effect.'

Table B.1.22 above provides useful overall numbers for HHs likely to experience relocation due to loss of a house and HHs potentially affected by loss of agricultural land, and these have allowed the Study Team to broadly define the scope of likely resettlement effects associated with Project, for purposes of this early draft RP. However, these figures will need to be updated at the beginning of the new Detailed Design Study phase with more reliable data, to verify the actual numbers of affected HHs, and this new data will be used to update the RP, which is the primary mitigative measure for addressing the Project's direct resettlement effects.

In addition to the above potentially affected HHs, there are also institutions owning land that will be acquired by the Project, most particularly Hetauda Cement Industries Limited (HCIL) in the Headworks area and along its ropeway through Sanutar, NEA through its Kulekhani II Hydropower Project facilities at the Headworks area.

2) Range of Indirect Resettlement Impacts

While the direct impact of the Project's land acquisition is easily understood and readily addressed in the RP, the term *Resettlement Effects* is also more broadly

understood to mean all negative situations directly caused by the Project, including loss of land, property, income generation opportunity, and cultural assets. The RP is concerned with those direct resettlement effects of loss of house structures, agricultural land, and businesses, if any, caused by the Project's land acquisition.

On the other hand, the Project is likely to have other, indirect, Resettlement Effects that are less easily seen, more difficult to quantify and to compensate. These too are potential resettlement effects brought about by Project impacts other than land acquisition. These indirect effects are indicated below. The main mitigatory document for addressing them is the Social Action Plan (SAP) framework.

The indirect effects are at this stage inadequately understood, and a major activity in the next study phase will be to understand them better and to finalize the SAP, which will consist of a range of programs designed to avoid loss of livelihood due to these impacts. These will be designed to mitigate or compensate for any such effects that do occur, especially with regards to any impoverishment risks, and more proactively to take advantage of all development opportunities that arise by virtue of the Project's implementation. The objective will be to ensure that all Affected Persons (APs) may be as much as possible beneficiaries of the Project, and that the Project will so far as is feasible meet local expectations that it be an engine of local development.

Table B.1.23: Summary of Indirect Resettlement Effects

Description	No.	HHs
Water Mills	10 Mills	11
6 Downstream Irrigation Intakes	215 Ha	325
Sanutar-Ghumaune Irrigation	8 Ha	25
Water shortage in Natural Springs	23 Used Springs along Tunnel Route, 7 villages	400
Forest Reserves – Clearing and Encroachment	11 Ha Direct Clearing, 31 Ha indirectly impacted	308
Total Quantifiable Indirect Resettlement Effects:		*Approx. 1,000 HHs, 6,000 Pop.*
Foot Transport across Rapti River	Undetermined Seasonal Wooden Bridges	Unknown
Misc. Uses of Rapti	Recreation, Collection of Construction Materials, Etc.	Unknown
Fishing	Undetermined	Unknown

Table B.1.23 provides some estimation of the Project 's overall indirect resettlement effects. It is difficult to know what household and population numbers may be involved, especially as some of the effects will overlap in their

effects on particular households. Of those resettlement effects that can be quantified to any degree, it might be supposed that approximately one thousand households could be potentially affected, without mitigation measures, with respect to diminished livelihood and other quality of life indices, constituting a population of roughly six thousand. This is in addition to the almost one hundred households and 600 persons who might experience direct resettlement effects from the Project's land acquisition in the MIC.

Thus, taking into account both direct Resettlement Effects caused by land acquisition and indirect Resettlement Effects caused by a variety of other Project impacts there could be overall a potential estimated 1,100 households or 6,600 persons, assuming that some quantification is possible for the indirect Resettlement Effects, affected either directly or indirectly by the Project. The various identified indirect resettlement effects are described in more detail below.

Summary Downstream Effects

In addition to land acquisition effects, there are about 450 HHs potentially affected by alteration in water flows due to the Project, either having an economic interest in water mills along the river's course or dependent to some degree on irrigated fields from intakes along the river.

There could also be Resettlement Effects (effecting household income) difficult to measure on an unknown number of villagers who presently cross the Rapti River over small, seasonal wooden bridges on a regular basis going to and from Hetauda.

July 2002 Floods

It is noted that since the fieldwork assessing the above indirect resettlement effects was carried out, disastrous floods occurred, fully or partially destroying many of the water mills and irrigation schemes discussed below. A two day visit to Hetauda briefly confirmed this damage, and the next study phase will update this information for appropriate revisions to the SAP to take the new situation into account, especially in assessing whether or not HHs or communities have managed to rebuild in the meantime.

Water Mills

As shown in Table B.1.24, here are ten water mills in operation, four at Chauki Tole on the Rapti's Left Bank, three at Mainatar on the Rapt's Right Bank, two at Sanutar on the Rapti's Left Bank, and one at Nayagaon on the Rapti River's Right Bank. Short canals divert water from the Rapti River. The intake structures are temporary and require regular readjustment of their intakes with the frequent

variations in the Rapti River's flow.

Table B.1.24: Water Mills Below Tailrace Outlet

Location	No. Water Mills
Chauki Tole (Rapti Left Bank)	4
Mainatar (Rapti Right Bank)	3
Sanutar (Rapti Left Bank)	2
Nayagaon (Rapti Right bank)	1
Total	10

All of the water mills are operated round the year. The water mills are used for the grinding of the cereals such as maize, millet and wheat. Water mills are the traditional mechanical means of grinding. Though slow, it is also the cheapest service facility available to the local communities. Besides, it is a means of economy generation to the eight households.

Dewatering Effects downstream of the Tailrace Outlet. Since reduction in water volume will occur downstream of the Tailrace for about twenty hours (20.00 to 16.00 hours) on the Rapti River, some seven Water Mills between Nakoligaon and the Hetauda Bridge) may be effected by dewatering impacts, causing loss in subsistent income to about five households.

Dewatering Effects upstream of the Tailrace Outlet. Although the Rapti's water will not be diverted to the Kulekhani III at Bhaise, there will still be substantial water to operate the water mills in the dewatered section of Rapti floodplain for the three water mills during operation on the Rapti River between Bhaise and Nakoligaon, i.e., upstream of the Kulekhani III Proejct's Tailrace Outlet but downstream from the Project's Tunnel Inlet. They will be, however, partially impacted as their existing water diversion intakes will not be able to divert water to their requirements of about. 1.5/m^3/s due to dewatering effects along this stretch of the Rapti. About 3 households would stand to lose their subsistent income.

Irrigation

The Rapti River and its tributaries in the Project Region of Influence are the prime source of irrigation water. Irrigation canal intakes on the Rapti River are observed downstream from the Kesadi-Rapti confluence. Between Kesadi-Rapti Confluence and Hetauda Highway Bridge there are six irrigation intake locations on the Rapti River. Another scheme, at Sanutar, will also be affected by construction activities and by the Project's operation. Altogether, there could be, without mitigation activities, roughly some 224 hectares and about 350 families having their income reduced through the Kulekhani III Project's construction.

Actual water diversions from these irrigation canals in different seasons are

largely unknown and are a matter of further study, as are details about the production of the schemes or the families served. It is to be noted that User Groups and Committees of the several irrigation canals on the Rapti River maintain and readjust the irrigation canal intakes regularly as the Rapti's main channel shifts in the Dry and Wet Seasons. In addition to these schemes, thee was some concern by the District's Irrigation Department about potential effects on the E. Rapti Irrigation Project. However, the Kulekhani III Project is not expected to pose any problems for this scheme.

Impacts in the other irrigation canals downstream of the Tailrace Outlet due to water reduction for at least twenty hours daily are, however, envisaged to render their existing intake structures ineffective. The Kulekhani III Project's dewatering of the Rapti during these periods will impact about 216 ha of irrigated land and its agricultural production with adverse implication for the quality of life of some 325 or so households reliant on the fields with intakes between the Hetauda Bridge and the Tailrace Outlet:

- *Nakoligaon opposite the military camp at Suparitar*. Here an irrigation intake on the Rapti's Right Bank is located just at the Kesadi-Rapti confluence, irrigating about to three hectares of paddy on the protected natural levees of on the Rapti below the main village. The irrigation canal here benefits about six families of the Basamadi VDC Wards 8 and 9. The intake structure is a simple river diversion using loose boulders and gravel. Regular intake maintenance is required for the operation of irrigation canal.
- *Maintar, on the Rapti's Right Bank*. At this location an irrigation canal irrigates about five hectares of paddy land, benefiting about twenty-five families, also of Basamadi, Wards 8 and 9. The intake is a simple water diversion using loose boulders and gravel. With the assistance of the District Irrigation Department about two years back, water from the intake was diverted through a 400 m long poly pipe of 6" diameter across a landslide area that lies in the path of the Kulekhani III's planned Tailrace Outlet's daily water discharge into the Rapti and so could be undermined by this daily 45 m^2/sec pulse of water.
- *Satghatte and Ghate Kulo (canal), below Chauki Tole*. These two intakes at this location on the Rapti's Left Bank, just below Hetauda, irrigate together about fifteen hectares of paddy land, benefiting some forty five families of Hetauda, Ward 1. There is no permanent irrigation intake structure. A simple and loose weir of boulder and gravel divert the Rapti water into the irrigation canal.

- *Nawalpur Basamadi Irrigation Canal, on the Rapti's Right Bank close to the abutment of the Hetauda Highway Bridge.* The Nawalpur Basamadi Irrigation Scheme was constructed in 2040 B.S. (1983) and irrigates about 125 hectares of paddy land, benefiting about 180 families of Hetauda Municipality, Ward 11 and Basamadi VDC, Ward 9. Temporary weirs of boulders and heaps of gravel divert the Rapti water into the irrigation canal. This irrigation scheme is operated and maintained by the same Water User Committee as the following Simaltar-Gopingtar scheme.
- *The Simaltar-Golpingtar Irrigation Scheme.* The intake for this recently constructed scheme is also nearby the abutment of the Hetauda Highway Bridge. It irrigates about 66 hectares of paddy land, benefiting Hetauda, Ward 11. The District Department of Irrigation provides about NRs. 100,000 annually for the intake and canal maintenance.
- *Kesadi Khola-Rapti Confluence*. Two apparently temporary irrigation canal intakes were observed on the Kesadi's Right Bank near Bokedaha, within the Project's Zone of Influence, irrigating about two hectares of land in total, benefiting // families of Basamadi VDC, Ward 9. Although above the Tailrace Outlet, these too may be affected by the Project's changing of river flows, particularly those of the Yangran Khola.

Table B.1.25: Irrigation Schemes Possibly Affected by Kulekhani III Project

	Location	Ha	HHs	Remarks
1	Right Bank of Rapti - Kesadi-Rapti Confluence	3	6	Irrigates protected natural levees of Rapti below Nakoligaon, opposite Suparitar. Intake structure - simple river diversion by loose boulders and gravel. Basamadi VDC Wards 8 and 9.
2	Right Bank of Rapti River at Maintar	5	25	Intake is simple water diversion by loose boulders and gravel. Water from the intake is diverted through a 400m long poly pipe of 6" diameter across the landslide area on the assistance of District Irrigation Department about 2 years back. Basamadi Wards 8 and 9
3	Two-irrigation intakes on the Rapti Left Bank (below Chauki Tole) at Satghatte & Ghate Kulo (canal),	15	45	No permanent irrigation intake structure. Simple and loose weir of boulder and gravel divert the Rapti water into the irrigation canal. Hetauda Municipality Ward 1.
4	Nawalpur Basamadi Irrigation on Rapti Right Bank close to abutment of Hetauda Highway Bridge.	125	180	Constructed in 2040 BS (1983). Temporary weirs of boulders and heaps of gravel divert the Rapti water into the irrigation canal. Hetauda Ward 11 & Basamadi VDC Ward 9.
5	Simaltar- Golpingtar Irrigation on Rapti Right Bank close to abutment of Hetauda Highway	66	67	Hetauda Ward 11. District Department of Irrigation provides about NRs. 100,000.00 annually for the intake and canal maintenance. Both Nawalpur Basamadi & Simaltar- Golpingtar canals operated and maintained by a single irrigation Water User Committee. (No. of HHs an estimation)
6	On Kesadi Khola, two temporary irrigation canals on the Right Bank near Bokedaha.	2	2	(No. of HHs an estimation)
7	Sanutar and Ghumaune	8	25	
	Total	224	350	(Estimated Totals)

Impacts Downstream of Water Released from the Kulekhani III Tailrace Outlet

Impacts Downstream of Water released from the Kulekhani III Tailrace will increase the present instantaneous Dry Season flows by more than three fold. This will bring a drastic change in the river dynamism, with the daily fluctuations in water flows to extremes of from as little as 2.1 m^3/s to a high of around 47.1 m^3/s). This will bring a change in the configuration of the Rapti River channels and sand bars, particularly in the Dry Season.

The water releases from the Kulekhani III tailrace will have, however, both a positive as well as an adverse impact. Water released from the Kulekhani III Tailrace will be sediment free and will therefore have a higher erosive power than water currently in the river. The Tailrace water is thus expected to initiate a cycle of riverbed erosion, and his will have a positive implication to the currently aggrading riverbed between Tailrace to the Hetauda Bridge. The extent of the riverbed erosion is very difficult to predict; however, will play a positive role in the protection of the currently used agricultural areas from the currently frequent Monsoon flood inundation.[9]

On the negative side, the riverbed erosion caused by the sediment free Tailrace Outlet water, as well the high amount of water discharge, may displace the currently operational irrigation intakes of at least five schemes, one just below the Tailrace Outlet, at Maintar Village, two at the Chauki Tole, and the two at the Hetauda Bridge, with adverse effects on the agricultural production of about 216 ha of land along the 4 km stretch between the Tailrace and the Hetauda Bridge.

The *EIA Report* (NEA, 2001) had predicted adverse impacts from the water release of the Kulekhani III Project's Tailrace Outlet on agricultural land downstream of the Tailrace up to Hetauda Bridge, over a course of only about 4 km. Nearly fifty percent of the land acquisition and compensation proposed in the EIA, in fact, was for this agricultural land below Tailrace and above the Hetauda Bridge. Release of the Tailrace water of 45m^3/s, which will be limited to 16.00 to 20.00 hours every day, was envisaged by the EIA to increase the width of wet channel as well as the depth of the wet channel below the Tailrace Outlet for four hours every day. The HEC-2 Study of water surface profiles simulation (NEA

[9] Other Beneficial Impacts are easy access for people and stone collecting vehicles across the Rapti River between Bhaise and Nakoligaon; easy access to the Trikhandeshwor Mahadev Temple due to lowering of Rapti River during the festival season (at present due to high Rapti water during festival season, worshipers have difficulty visiting the temple located on the opposite bank of the river); and easy access to the HCL mining area due to reduction in the water flows downstream from Bhaise.

2001) has shown that the Rapti River width and depth will change. On the other hand, the Tailrace water release will be mostly in the Dry Season, and it will not over spill the main channels presently occupied by the Rapti during the Dry Season. The over spilling of the Rapti's banks in the Wet Season, on the other hand, affecting agricultural lands above the Rapti flood plain, is expected to occur only in flood conditions exceeding 1 in 10 years.

Considering that Nepal's Run-of-River Projects will operate at their installation capacities during the Monsoon, it is highly unlikely that the Kulekhani III Project will be operated in the Monsoon for peak load supply. In normal practice, Peaking Power Plants, such as the Kulekhani III, are in fact shut down for maintenance during the Monsoon. In this context, there will not be any additional release of water from the Kulekhani III Tailrace Outlet over and above a Monsoon flood. If the Kulekhani III is at all operated in the Monsoon, it will be only during very dry periods. Even if the Kulekhani III were operated during a normal Monsoon period, the water released from the Tailrace Outlet will not over spill the flood plains presently occupied by the Rapti River (refer hydrological data, JICA 2002). Hence, impacts of Kulekhani III Tailrace water release during the Monsoon floods need no consideration for impact analysis. Since water released in other seasons from the Tailrace Outlet will be confined to the limits of the existing channels, the impacts of water release on the agricultural land above the Rapti flood plain, including those of the E. Rapti Irrigation Project so far downstream, does not arise. Any impacts in future to downstream agricultural land during monsoon will be the result of only high floods, a natural phenomenon of the region. Such floods have occurred in the past and will have the potential to occur in the future, which is one of the major risks in any case for agricultural land lying near the Rapti River.

E. Rapti Irrigation Project. Consultation with the Irrigation Department in Hetauda found concern about the E. Rapti Irrigation Project, some forty km plus downstream on the Rapti River. The East Rapti Irrigation Project (ERIP), funded by His Majesty's Government of Nepal, the Asian Development Bank, and USAID is a large-scale (more than 9500 ha) surface water irrigation scheme in the Nepal Inner Terai. A low dam diverts water from the river into a canal network for distribution to farmers' fields.

There was concern that during peak flooding, the barrage freeboard design of the irrigation scheme embankments might not be adequate during a 800 m^3/sec flood to withstand pulse releases of 40 m^3/sec plus from the Project's Tailrace Outlet. The Study Team visited the E. Rapti Irrigation Project to gain some understanding of this issue. This, however, given the above circumstances of the Kulekhani III

not being run during the Monsoon mean that this is unlikely to be a major issue.

Sanutar-Ghumaune Irrigation Scheme

The Yangran Khola provides irrigation water for irrigating about eight hectares of paddy, benefiting about // families in these two villages, of Bhaise VDC, Ward 6. The local communities of Sanutar recently, with the assistance of Plan International, renovated this irrigation canal. The estimated Summer Wet Season water diversion on the canal is about 100 l/sec, and the Winter Dry Season flow is about 45 l/sec. The irrigation water user committee of Sanutar operates this canal.

The Main Access Road to the Yangrang Re-Regulating Dam Structure will impact the irrigation facility at Sanutar severely during construction.

During the Kulekhani III's operation, the scheme will also be severely impacted due to reduction of Yangran flows particularly in the Dry Season. There will be virtually no water for diversion to irrigate about 8 ha of land at Sanutar and Ghumaune and nearly twenty-five household's agricultural production will be reduced, with adverse effect on their quality of life and household income. In the Wet Season, since water is abundant due to recharging of natural springs during the Monsoon, the impact will be minimal.

Transportation Routes across Rapti River

A number of wooden bridges are constructed annually in the Dry Season along the downstream section of the Rapti River, between the Tailrace and the Hetauda Bridge in order to provide easy access across the river for the local communities. Due to high discharges of Tailrace, such bridges will not be possible and this will impact local village foot traffic to and from Hetauda.

Based on local requests during the Public Consultation Meetings, two suspension bridges have been recommended across Rapti River to provide all season access across the river for, among others, the communities of Hetauda at Chauki Tole, Laljhundi, Maintar, Thakal Danda, Bhairav Danada, Nakauli, and Dhabto. The recommended locations for the suspension bridges are at Maintar, the current location of a rope ferry, and at the downstream NEA Electricity Sub-Station at Chauki Tole in Hetauda, Ward 1. The estimated length of the suspension bridge at Maintar is 375 m and at Chauki Tole 325 m.

Water Pipes for Irrigation and Water Supply

Besides, at various locations local communities on their own or on government assistance have established poly pipe facilities to conduit water for irrigation and water supply in the Dry Season, for example, for Maintar's irrigation (already mentioned above) and the water supply to Chauki Tole, which is part of

Hetauda's Ward 1 and brings its water by pipe across the Rapti. The high water discharges of the Tailrace will disrupt these facilities.

Fishing

Local people from Syauli Bazar and Bhainse Dhobhan area are found to involved in fishing. Professional fishermen are not found, however. The Rapti River is the major fishing ground although fishing is also observed in Samari Khola and Kesadi Khola.

According to available information, fishing takes place throughout the year, but the peak fishing mainly from March to June and September to November. Fishing is particularly high during high water phase of July to October. The gear most commonly used is cast net, dip net, bamboo trap, sneering loops and hook line. Manual methods such as poisoning by using various plant leaves, stems and barks are also used.

Most of the fish species of the Rapti River and its tributaries are of high economic value. All the fish species collected/reported during the field are edible and have considerable food value.

Impacts Downstream of the Tailrace

The aquatic life below tailrace will be subjected to impulse of high and low water flow daily which will have an unprecedented impact on the aquatic habitat such as spawning grounds, rearing grounds and feeding grounds. The impacts could be severe to the fish species that has a limited range of adjustment with the flow volume and flow speed. Spawning and rearing grounds of the stretch as far as tens of kilometers downstream may be impacted. The temporary isolation of fish in pools under such a regime will make them more vulnerable to prey and to exploitation.

Impacts Upstream of the Tailrace

The reduction of flows in the Rapti River downstream Khani Khola to the Tailrace will stabilize the riverine conditions to levels prior to Kulekhani I (1982). The impacts of this reversal hence are not envisioned as adverse to the aquatic communities. However it will depart from the current conditions, particularly in the Dry Season. The low water conditions will reduce the current rearing and feeding grounds of fish species. But stabilized water flows will maintain the ecological conditions affected by the daily fluctuations in flows of from 2.1 to 14.8 m^3/s, with positive implications on bio-diversity of fish, phytoplanktons and zooplanktons. Conversely, the low water will favor excessive fishing activities in the stretch with implication on current diversity of the fish and overall population.

However, in the Wet Season, due to availability of excess water, there will not be any additional impact on fish migration nor on their spawning and feeding grounds.

Water flow reduction in the lower Khani and Yangran Khola are considered adverse. Aquatic communities on both the areas will suffer the most. Some implications due to lowered water volume in dry season (October - June) is expected even in the habitat conditions in the Kesadi Khola.

Resettlement Effects from Changes in Natural Springs

The Project will construct a 3.5 km long Connection Tunnel, a 0.6 km long Headrace Tunnel, a 2.1 km long Tailrace Tunnel, and an Access Tunnel, Adits and a Powerhouse Cavern, all components totaling some 7 km. The domestic water used for villagers around the Project Area could be decreased since the groundwater may be lowered by excavation of tunnels. Therefore, an inventory survey of spring water and surface water is being carried out before the Project construction in order to establish baseline information against any claims later on that the Tunnel construction has affected groundwater supplies in the Project Area. A compensation fund will be set up and administered, as required, .as part of the EMP.

The Spring Water Inventory Survey has located 25 springs, 23 used, 2 occasionally used in the Mountains & Hills along Headrace, Connection, and Tailrace Tunnels These are in the villages of Amdada, Kitini, Kiteni, Nayagaun, Sanutar, Shikaribas, Bokedah.

The survey will be held once for about a week in Dry & in Wet Seasons, carried into next Study Phase, when the next Dry season (October-May) will occur. The survey will include:

- Location of spring or surface water source
- Purpose of use, including domestic source, livestock watering, irrigation of seedlings or crops, etc.
- Periods and volume of use
- Number of households using specific source
- Alternative sources at varying times of the year
- Online storage or lengths of piping connected to the source
- Discharge from the source using most appropriate technology

Encroachment of Forest Resources

This is another potential Resettlement Effect of the Kulekhani III Project, i.e., having direct income impacts on the residents within the Project's Zone of

Influence.

Direct impacts, covered in this RP, are those of the project Facilities, such as the Main Access Road, Work Adit 1, the Dam at Yangran, the Regulating Reservoir, and the Check Dams are sited within community forestlands. Nearly 10.64 ha of forested land will be impacted directly by the vegetation clearance, whereas over 31 ha of forestland will be impacted indirectly due to construction activities. Major impacts on the forestland will be on the mixed sub-tropical vegetation lying along the riverine belt of Yangran. Part of this forest belongs to Bokedaha and Kalika Community forests. Nearly 308 households will be impacted by the loss of the Community forest resource.

On the other hand, other impacts will need to be mitigated through other means. For instance, a large number of construction workforces and their families are expected in various construction sites once the construction starts. The mushrooming of tea stalls and restaurants, to cater the needs of construction workforces, is an obvious feature in the adjoining areas of construction sites. To supplement the energy need for cooking and other needs, families of the workforces as well as local shopkeepers are expected to venture into the adjoining forest areas for firewood collection. Even the local peoples may do so to maximize their secondary economic benefits. Such activities are envisaged to diminish the forest resources of the adjoining areas and to have along term adverse impact on local incomes.

While the direct impacts caused by the Project construction will be mitigated through the RP for direct compensation to private owners and Community Forest User Groups, other impacts associated with greater accessibility to the forest lands through the construction period and also afterwards due to new motor access to the area will be addressed through the EMP and through its proposed Yangran Watershed Management Program for the longer term.

Mitigation of Resettlement Effects aside from those brought about by LandAcquisition.

The RP is primarily concerned with providing a program to mitigate direct resettlement effects as a result of land acquisition. The SAP (see below) and the EMP will contain mitigation programs for these other resettlement effects, some of which are indirect and all of which are difficult for assessing compensation to individual households.

3) Kulekhani III Impoverishment Risks and Reconstruction (IRR) Model

The ADB has adopted Impoverishment Risks and Reconstruction (IRR) model as

an analytical tool for helping to prevent the onset of new causes of impoverishment caused by resettlement effects.[10] A Matrix indicating some of the possible impoverishment risks associated with the Kulekhani III Project, and including measures to mitigate impoverishment risks where the specific risks discussed above of direct and indirect resettlement effects are ranked on a scale from very high to very low.

This approach encompasses impoverishment measurements not only in terms of income, but also in terms of employment opportunities, health care, nutrition and food security, common assets, education, shelter, or social capital. Indeed, *the* eight most common impoverishment risks captured in the model, and also signaled in the ADB *Handbook on Resettlement,*[11] are: (a) landlessness; (b) joblessness; (c) homelessness; (d) marginalization; (e) increased morbidity and mortality; (f) food insecurity; (g) loss of access to common property; and (h) social (community) disarticulation.

During the fieldwork, the following impoverishment risks were assessed from the Project's direct and indirect resettlement effects:

Table B.1.26: Estimation of Impoverishment Risks Associated with Kulekhani III Project, Assuming No Mitigation

Impoverishment Risks	*Without Mitigation*
Landlessness	High-Very High
Joblessness	Medium-High
Homelessness	High-Very High
Marginalization	High – Very High
Increased Morbidity & Mortality	Medium-High
Food Insecurity	Medium-High
Loss of Access to Common Property	Medium-High
Social Disarticulation	Medium-High
(Risk Assessment = Very Low, Low, Medium, High, Very High)	

These are to a large extent subjective findings, but they do provide needed focus for prioritizing mitigation actions and were useful in framing the SAP and those parts of the EMP that relate to social impacts, such as the impacts on forests or on fish. The finding show that, while the number of potentially affected households is not as great as, say, a reservoir hydro power plan, the impacts on those households that are affected will need to be no less carefully considered in order to avoid the identified impoverishment risks. The details behind these assessments

[10] Asian Development Bank (ADB). 2000. *Operational Directive: Risks Assessment and Risks Reduction in Resettlement*. Manila. October. Cernea, Michael M. and Christopher McDowell (eds.) *Risks and Reconstruction: Experiences of Resettlers and Refugees* The World Bank: Washington DC. 2000.

[11] ADB, *Handbook on Resettlement. A Guide to Good Practice,* OESD, Manila, 1998, p 61

are given in Annex B6, as well as suggested counter measures to turn the risks around into development opportunities, and these provide the basis for developing the SAP framework.

In the design of the RP and the SAP, an effort will be made to adopt development strategies so that these risks may be transformed into 'counter-risk strategies' through targeted provisions.

Maximum safeguarding is achieved when involuntary displacement is avoided altogether. This is the first and foremost response to risks that should be considered. Recognizing risks upfront and their financial implications is often a powerful stimulus to search for an alternative that will eliminate the need for displacement completely or cut down its size. The Study Team has attempted wherever possible to propose measures, such as placing camps in Hetauda, placing spoil sites away from agricultural lands, incorporating the Sanutar-Ghumaune canal into the Access Road design, and careful alignment of the Main Access Road, to avoid land acquisition and HH displacement whenever possible.

CHAPTER B.2 RESETTLEMENT PLAN (RP)

B.2.1 Introduction

This Resettlement Plan (RP) has been prepared for Kulekhani III Hydropower Project. The RP attempts to highlight the extent of the Project's resettlement impacts and proposes mitigation measures so that the affected persons (APs) can improve their living standard or restore their living standard to its pre-Project status. The precise details of land and property to be acquired by the Project are yet to be finalized, and the RP is based on the most recent data available from field surveys undertaken in June 2002, as the design alternative for the Project was still being finalized. The RP takes into account the most recent attempts to develop comprehensive resettlement policies and action plans including practices by other Projects in Nepal, and it incorporates the policies of the Asian Development Bank (ADB) and World Bank (WB) as far as they are applicable in the local context.

B.2.2 Glossary

ACRS	Acquisition, Compensation & Resettlement Section
ADB	Asian Development Bank
AP	Affected Person
*B*igha	Nepali land measurement equaling 0.66 Ha
CBO	Community Based Organization
CCV	Community Consensus Valuation
CDC	Compensation Determination Committee
CDO	Chief District Officer
DDC	District Development Committee
DMS	Detailed Measurement Survey
DoR	Department of Roads
EL	Elevation
EA	Executing Agency
EIA	Environmental Impact Assessment
EMP	Environment Management Plan
Ha	Hectare
HCIL	Hetauda Cement Industries Limited
HH	Household (Potentially affected by the Project)
HW	Headworks
INGO	International Nongovernmental Organization
KESMU	Kulekhani III Environment & Social Monitoring Unit

Km	Kilometer
LAA	*Land Acquisition Act, 2034 (1977)*
LCG	Local Consultative Group
l/sec	Liters per second
LRA	*Land Reform Act, 2021 (1964)*
LRO	Land Revenue Officer
m	Meter
m asl	Meters at Sea Level
m^3/sec	Cubic Meters per Second
MIC	Most Impacted Communities (With special reference to *Sanutar*,*Bokedaha*, and *Ghumaune Pari*)
MW	Megawatt
NGO	Non Governmental Agency
PIC	Public Information Center
Project	Kulekhani III Hydrodevelopment Project
PAF	Project Affected Family
Ropani	Nepali land measurement equaling 0.05 Ha
RP	Resettlement Plan (Also Regulating Pond)
RRO	Resettlement & Rehabilitation Officer, RU, KESMU
RU	Resettlement Unit (Of KESMU, includes ACRS)
SAP	Social Action Plan
SPAF	Severely Project Affected Family
VAC	Village Advisory Committee
VDC	Village Development Committee
WECS	Water and Energy Commission Secretariat

B.2.3 Definition of Terms

Resettlement Plan (RP) is a time-bound action plan with budget setting out resettlement strategy, objectives, entitlement, actions, responsibilities, monitoring, and evaluation.

Affected Person[12] (AP) indicates any juridical person being as it may an

[12] This is in line with international practice. The ADB, for instance, defines the term Affected Person (AP) as including any person or persons, households, a firm, or private or public institution who, as of the cut-off date on account of the execution of the project, or any of its sub-components or part thereof, would have their: i) standard of living adversely affected; ii) right, title, or interest in any house, land (including residential, commercial, agricultural, forest and grazing land) or any other moveable or fixed assets acquired or possessed, in full or in part, permanently or temporarily or; iii) business, occupation, place of work or residence or habitat adversely affected, with or without displacement. AP means persons or affected household and consist of all members of a household residing under one roof and operating as a single economic and social unit, who are adversely affected by the Project or any of its components.

individual, a household, a firm or a private or public who, on account of the execution of the Project, or any of its components or sub-projects or parts thereof would have their:

(i) Right, title or interest in any house, land (including residential, agricultural and grazing land) or any other fixed or moveable asset acquired or possessed, in full or in part, permanently or temporarily; or

Business, occupation, work, place of residence or habitat adversely affected; or

Standard of living adversely affected.

Project Affected Family (PAF) is the term commonly used in Projects in Nepal for APs, but with special reference to households, each 'household' defined as those family members – especially in extended families – that share a cooking hearth, or kitchen (*bhanse*). In many extended families, several 'households' may live under one roof but have separate kitchens, and adult sons will have inheritance rights to family land that will be recognized by the Project, although the land may not as yet be registered in their name.

Severely Affected Families (SPAFs) are those PAFs who are displaced from their residences or commercial establishments or who are severely affected through loss of agricultural land as defined in the Kulekhani III Project's Resettlement Policy *Entitlement Matrix*: (a) PAFs who lose 25% or more of their land (owned and operated and taking into consideration the local situation) within the Project area or whose production levels are severely affected by the loss of land;[13] (b) PAFs who lose residential/business house SPAFs will be assisted with special rehabilitation measures, including displacement allowances and preferential Project employment, to achieve the Project's Involuntary Resettlement Policy goals of restoration or improvement of pre-Project living standards.

Potentially Affected Household (HH) refers to all households that are located within the Project zones as shown on the *Natural and Social Environment Map, 2002*. These HHs have been the subjects of social surveys carried out in 2002

[13] It may be risky to specify a flat cut-off percentage because area specific realities may be different. The RP will take this threshold into consideration and may adjust within a range of five percent. However, differentiation based only on a percentage land loss potentially ignores or simplifies complex socio-economic processes, especially in urban or peri-urban areas, such as Sanutar, located only 2.5 Km from Hetauda. In urban and peri-urban areas, households losing less than 25–30 percent of land but with their income loss based on the annual production in the affected plot being 25-30 percent or more of their total household income will be considered for inclusion into the SPAF category. Depending upon the circumstances, in consultation with Village Advisory Committees and Local Consultative Groups (VACs and LCGs), the Compensation Determination Committee (CDC) may propose additional criteria to categorize PAFs whose production levels are severely affected and need special assistance.

within the defined Project zones where the main Project and components and facilities will be located. The exact location of these components and facilities will only be determined during the Detailed Design Phase, at which time a Detailed Measurement Survey (DMS) will be carried out to provide precise information on which households will actually be affected, and these HHs will be redefined as PAFs or SPAFs, as per the Project's Resettlement Policy.

Land Acquisition means the process whereby a person is compelled by a public agency to alienate all or part of the land s/he owns or possesses, to the ownership and possession of that agency, for public purpose in return for fair compensation.

Replacement Cost means the cost of replacing lost assets and incomes, including cost of transactions. If land, it means the cost of buying a replacement land near the lost land with equal productive potential and same or better legal status, including transaction costs. If structures, the replacement cost is the current fair market price of building materials and required labor cost without depreciation or deductions for salvaged building material or other transaction cost. Market prices will be used for crops, trees and other commodities.

Resettlement Effects mean all negative situations directly caused by the Project/subproject, including loss of land, property, income generation opportunity, and cultural assets.

Relocation means the physical relocation of an AP from her/his pre-Project place of residence.

Rehabilitation means the process to restore income earning capacity, production levels and living standards in a longer term. Rehabilitation measures are provided in the entitlement matrix as an integral part of the entitlements.

Compensation means payment in cash or in kind to replace losses of land, housing, income and other assets caused by a project.

B.2.4 Description of Project

(1) Overview

The Kulekhani III is the last feasible Project in a series of hydropower development on the Kulekhani River and the upper Rapti River by utilizing the hydropower potential of a total head of about 1,000 m between the two rivers. The series consists of three hydropower projects: 1) the Kulekhani I Hydropower Project by constructing a 114 m high Kulekhani Dam on the Kulekhani River and diverting the water to the 60 MW Power Station at the upper Rapti River, 2) the Kulekhani II Hydropower Project of the 32 MW run-of-river type along the upper

Rapti River, and 3) the Kulekhani III Hydropower Project of the peaking run-of-river type (PROR) based on a daily storage of Kulekhani II releases.

The Kulekhani River originates about 5 km west of Palung near Daman around 2,500 m asl in the Mahabarat range. The Kulekhani River is one of the tributaries of the Bagmati River and joins the Bagmati River about 26 km downstream of the Kulekhani Dam. The upper Rapti River basin is adjacent to the south of the Kulekhani River basin. The upper Rapti River originates in a ridge on the Mahabarat range about 4 km east of Bhimphedi and forms an open valley down to Bainsedobahan and Hetauda. The upper Rapti basin ranges from EL. 2,480 m at Sim Bhanjyang and EL. 460 m in Hetauda.

The Kulekhani Dam (Kulekhani I), situated at about 120 km southwest of Kathmandu, impounds the water of the Kulekhani River for power generation. The Kulekhani I Hydropower Project generates a power output of 60 MW by utilizing a gross head of 600 m and a maximum discharge of 13.1 m^3/sec between the Kulekhani Dam and the Mandu River. The Kulekhani I Power Station is 400 m upstream from the confluence of the upper Rapti River. The Kulekhani II Hydropower Project utilizes the water released from the tailrace of the Kulekhani I Power Station and the natural runoff at the Mandu River. The Kulekhani II Power Station generates a power output of 32 MW by utilizing a maximum discharge of 13.3 m^3/sec and the gross head of 320 m between the Mandu River and the Khani River. Its Power Station is 250 m upstream of the confluence of the upper Rapti River.

The Kulekhani III Hydropower Project will be located in Makwanpur District, about 130 km southwest of Kathmandu. The Kulekhani III Power Station will take the released water from the Kulekhani II Power Station and the natural runoff of the Khani and Yanrang Rivers. The Kulekhani III Project will generate a power output of 42 MW as a peaking run-off river type station by utilizing a gross head of 130 m. The Kulekhani III Project will use a maximum discharge of 40.1 m^3/sec for peak power generation by regulating the outflow of the Kulekhani II in a regulating pond on the Yangrang River, one of tributaries of the Kesadi Khola, a tributary to the Rapti River.

For the Project design, three alternatives were considered, and Alternative 1 was chosen at about the time of the fieldwork on which this draft RP is based was being undertaken to identify households likely to be affected by the Project. This alternative, now the final design, will have its Headworks just below the Kulekhani II at the Khani River near Bhaise town, with a regulating pond on the

Yangran River, an underground Powerhouse, and a culvert tailrace across the Kesadi River. This design alternative was conceived as the optimum layout from an economical point of view for the Detailed Design Study.

Table B.2.1: Design Alternatives Considered for Upgrading Feasibility Study

Alternatives	Headworks (HW)	Regulating Pond (RP)	Power Station	Tailrace	NPV (Million US$)
1	Khani HW	Yangran RP with Dam	Underground	Culvert	+1.119
2	Khani HW	Underground RP without Dam	Underground	Tunnel	- 36.218
3	Khani HW	Distributed RP without Dam	Underground	Tunnel	- 14.596

Source: JICA 2002

(2) Project Components

Kulekhani III Hydroelectric Project is located in Makawanpur District of the Central Development Region of Nepal.

(3) Project Facilities

1) Headworks

Project Headworks are confined on the lower section of the Khani Khola riverbed about 200 m upstream of the Khani-Rapti Confluence. Various structures of the Headworks will extend for about 500 m along the Khani Khola riverbed by the side of the Kulekhani II Powerhouse.

Most of the Headworks area lies on the riverbed. In part they occupy the degraded vegetation area on the Khani Khola Right Bank, within the Hetauda Cement Industries Limited's (HCIL's) mining area and to some abandoned agricultural land on the Khani's Left Bank occupied by the Kulekhani II Project.

2) Connection Tunnel

A 3.25 m diameter horseshoe shape Connecting Tunnel, of about 3,500 m, will connect the Headworks at Khani Khola with the Re-Regulating Dam on the Yangran Khola. The Tunnel will pass through the HCIL's mining area near Bhaise and across the Nayagaon Kitini Ridge.

3) Re-regulating Dam and Regulating Reservoir

A 52 m high concrete gravity Dam with a crest elevation of 600 m and crest length of 110 m will be constructed across the Yangran Khola approximately 1.2 km upstream of the Yangran-Kesadi confluence. The Reservoir behind the Dam will occupy an approximate area of 45,000 m^2 and will extend approximately 475 m along the Yangran valley.

The Regulating Reservoir will inundate the Yangran riverbed and a forested vegetation area on either flank of the Yangran valley.

4) Check Dams

Two Check Dams, one approximately 900 m and the other about 1,600 m upstream of the Yangran Dam, will be constructed across the Yangran Khola. The first Check Dam will occupy an area of deposition of about 15,000 m^2 and will extend about 200 m upstream from the Check Dam axis. The second Check Dam is envisioned to occupy an area of deposition of about 26,000 m^2 and will extend about 475 m upstream from the Check Dam axis along the Yangran Khola.

The Check Dams and the area occupied for deposition of sediments mostly lie on the Yangran riverbed and on the vegetated riverbanks. The Check Dams and their depositional areas affect of private agricultural land.

5) Headrace Tunnel

A 350 m long horseshoe shaped 4.1 m diameter Headrace Tunnel will connect the Surge Tank with the Regulating Reservoir. The Tunnel will pass beneath the northwestern flank of the Shikharibas hill complex.

6) Penstock

A vertical drop Shaft will connect the Tunnel to the Penstock. The length of the Penstock is 130 m, and the diameter of Penstock is 3.4 m. This structure will be located underground about 200 m north of the Shikharibas settlement.

7) Underground Powerhouse

The Powerhouse is an underground cavern structure. The dimension of the Powerhouse cavern will be 74 m long, 17 m wide and 31 m height. It will house 2 units of Power Turbines and a gallery for transformers and the Tailrace Surge Tank. The structure will be located underground about 150 m north of the Shikharibas settlement.

8) Tailrace Tunnel

Approximately 1,750 m long, the 'D' shaped 4.4 m diameter Tailrace Tunnel will connect the Powerhouse cavern with the Rapti River opposite Suparitar at Nakoligaun. At the Kesadi Khola crossing, an approximately 400-m section of the Tailrace Tunnel will be constructed through a cut and filling method. The open cut and fill at this section is expected to disturb about 90,000 m^2, of which eighty percent lies on the Kesadi flood plain, fifteen percent lies on the eastern part of the Sanutar settlement, and five percent will occupy agricultural land on the Kesadi's Right Bank.

The Tailrace Tunnel Outlet at Nakoli is expected to extend over about 6,250 m^2 of the agricultural land

9) Access Adits/Tunnel

Work Adit 1

Work Adit 1 is proposed to be located on the Rapti River's Right Bank, opposite Taubas, to facilitate construction of the Connection Tunnel. Approximately 450 m long and 4.4 m in diameter, the Work Audit will drive into the eastern facing slope of the Kitini-Amdanda ridge. This is a temporary facility for the construction period only. The Work Adit 1 surface opening area will be located in an area of highly degraded rocky-forested land.

Access Tunnel

The Access Adit to the Powerhouse cavern is located on the Yangran Khola's Left Bank, about 350 m north of Ghumaune. Approximately 650 m long, 5.6 m in width and 5.45 m in hight, the Access Tunnel will drive into the west facing slope of the Shikharibas hill complex. This is a permanent facility. The Access Tunnel surface opening location will be located within a degraded vegetation area.

10) Access Roads

Main Access Road

A permanent Main Access Road approximately 3.7 km long will be constructed from near Kamalimati to Sanutar, Ghumaune, and along the left flank of the Yangran Khola to Check Dam No 2 in the middle reaches of the Yangrang. To cross the Rapti River at Kamalimati, a 150 m long motorable bridge is proposed. At Ghumaune a permanent road of approximately 675 m long will bifurcate to the Access Tunnel. The land use across the various Access Roads is presented in Table B.2.2. The proposed Main Access Road including right of the way will have an average width of 30m.

Access Road to Work Adit 1 and Headworks

About 1,100 m long, the temporary Access Road will be constructed from Bhaise (Sundari Mai Ghat) to Work Adit 1 along the Rapti River's Right Bank around HCIL's Mine Office area. It will improve and utilize the causeway currently used by HCIL for approach to Work Adit 1 and to the Headworks. Land use across the road is also given in Table B.2.2.

Access Road to Spoil Bank A

The Project will utilize the Adit 1 Access Road and *Tribhuvan Rajpath* (Highway) from Sundari Maighat to Baghjhora Khola (approximately 5 km) to transport spoil to Spoil Bank A. Construction of a new Access Road for Spoil Bank A will not be required.

Access Road to Spoil Bank B

A temporary Access Road of approximately 100 m will be constructed from

Ghumaune to Spoil Bank B. Land use across the road is given in Table B.2.2.

Access Road to Spoil Bank C

A temporary Access Road of approximately 850 m will be constructed from Ghumaune to Spoil Bank C. Land use for constructing the road is given in Table B.2.2.

Access Road to Spoil Bank D and Tailrace

A permanent Access Road to Spoil Bank D and to the the Tailrace of approximately 850 m will be constructed from Kholpan to Nakoligaun. It will utilize the existing entrance road to the Rapti River at Kholpan. An approximately 225 m long causeway will be constructed across the Rapti River. Land use for constructing the road is given in Table B.2.2.

11) Camps

Construction Camps

Two Construction Camps, one at the Headworks (Bhaise) and the other at Ghumaune, will be established. The Headworks Camp will utilize the land and facilities of the Kulekhani II Project at Nibuwatar. At Ghumaune, the entire settlement of Ghumaune will be acquired on a temporary basis, paying rent, during the construction period. The land, but not the structures, will be returned to the owners after reestablishment of the land conditions to their pre-existing levels.

Table B.2.2: Land Use along the Access Roads

Access Road	Total Length (m)	Length in Agricultural land (m)	Length in forest land (m)	Length in grassland (m)	Length in River and Flood Plain (m)
Main Access Road from Sanutar to Check Dam 2	3,700	1,335	2,100	90	175
Access Road from Ghumaune to Access Tunnel	675	300	375	0	0
Access Road from Ghumaune to Spoil Bank C	850	410	0	125	315
Access Road from Ghumaune to Spoil Bank B	200	50	0	50	100
Access Road from Bhiase to Headworks and Work Adit	1,100	0	285	140	675
Access Road from Kholpan to Tailrace Outlet	850	115	0	520	215
TOTAL	7,375	2,210	2,760	925	1,480

Labor Camps

Available areas at Sanutar and Ghumaune are not sufficient to meet the area requirements for the establishment of Labor Camps by the side of the Construction Camp. It is proposed to utilize the land area of the Kathmandu-Hetauda Ropeway Station at Hetauda as a Labor Camp for lthe Yangran and Sanutar areas. There is also land available at the Nepal Food Corporation's warehouse facilities across the road and a number of open plots that could be utilized for this purpose in this part of Hetauda, paying rent to the owners. There is available space at the Kulekhani II Camp at Nibuwatar for a Labor Camp for the Headworks work area. Both of these locations lie within 5 km distance from their respective work areas.

Engineer's Camp

The land area and structures of NEA's Diesel Power Plant at Hetauda is proposed for the Engineer's Camp both during construction and operation of the Kulekhani III. If necessary, there appear to be numerous other land options in this part of Hetauda that may be investigated during the design phase for this facility. For Engineers working at the Headworks, available officer's residential structures at Nibuwatar may also be utilized as an optional location.

12) Spoil Disposal Sites

For spoil management four Spoil Disposal Sites have been identified as below:

Spoil Bank A

Spoil Bank A will be located on the Rapti River 's floodplain below the Tribhuvan Rajpath, just upstream of Baghjora Creek and the major landslide there. It is proposed for the management of spoil from the Headworks, Adit 1, and top end of the connection tunnel. The proposed area is about 16,000 m^2 of the Rapti River flood plain.

Spoil Bank B

Spoil Bank B will be located on the Kesadi Khola's floodplain below Sanutar. It is proposed for the management of muck from the main Access Road during the Summer Rainy Season, as well as for part of Connecting Tunnel, the Power Station Adit and Cavern, the Dam, the Regulation Pond and the Check Dams spoil. It covers an approximate area of 28,000 m^2, of which nearly sixty percent is the river flood plain and forty percent is agricultural and grassland, with a few standing trees.

Spoil Bank C

Spoil Bank C will be located on the Kesaadi Khola east of Ghumaune Pari It is proposed for the management of muck from the main Access Road, part of the Connecting Tunnel, the Power Station Adit and Cavern, the Dam, the Regulation Pond and the Check Dams during the Winter Dry Season. It covers an area of 21,000 m^2, of which nearly seventy five percent is the flood plain and twenty five percent is grassland, with a few standing trees.

Spoil Bank D

Spoil Bank D is located on the Rapti River floodplain in the vicinity of the Tailrace Outlet. It is proposed for the spoil management of the Tailrace Tunnel, the Tailrace Outlet and part of the Tailrace Access Road. It covers an approximate area of 13,000 m^2, of which nearly eighty percent is occupied by the Rapti flood plain and about twenty percent by the grassland, with a few trees.

B.2.5 Scope of Land Acquisition and Resettlement

(1) Resettlement Effects

Resettlement Effects is understood to mean all negative situations directly caused by the Project, including loss of land, property, income generation opportunity, and cultural assets. In the context of the RP, we are concerned with those direct resettlement effects of loss of house structures, agricultural land, and businesses, if any, caused by the Project's land acquisition.

The resettlement impact of the Kulekhani III Hydropower Project III is limited. A large part of the Project land will be on little utilized Government land, particularly, that belonging to the Ministry of Forests and Soil Conservation. The Project will utilize some areas already transferred to NEA (e.g. for the Headworks area) and belonging to HCIL (Work Adit 1 Access Road) or to Bhainse (Ward 1). In addition, the impact on the Re-regulating Pond area (Yangran) on private land is also minimal.

As a result, the focus here is largely limited to Sanutar and Ghumaune areas that are the Most Impact Communities (MIC) by the construction of the Main Access Road, the establishment of the Construction Camp at Ghumaune and Tailrace Outlet Tunnel's aboveground culvert at Sanutar. Except for a very small proportion, which lies in Basamadi, all the affected land in the Headworks area lies in Bhainse Village Development Committee (VDC) of Makwanpur District, and the potentially affected HHs identified so far in the MIC of Sanutar, Ghumaune, and Pari Ghumaune villages

1) Resettlement

The fieldwork discovered 24 HHs that lose their homes and will be required to

relocate (See Annex 5 for a detailed list). At this stage, all HHs identified within the Project Design Boundaries (see *Natural and Social Environment Map*), are presented as potentially affected HHs, it is not clear which agricultural or forest land owners will actually be affected once the detailed design is completed. On the other hand, it is almost certain that these 24 homeowners will be classified as SPAFs during the Detailed Design Stage studies, based on their having lost their residence. As can be seen from Table B.2.3 below, all of the HHs also own ancillary structures for which they will receive compensation. In addition, the owner of an ancillary structure (a cow shed) at Check Dam 1 will also receive compensation. Compensation for ancillary structures has been figured into the estimated RP costs, as a part of compensation estimated as required by each affected HH. All of the Project induced relocation of households will take place in the Most Impacted Communities (MIC) of Sanutar, Ghumaune and Pari Ghumaune.

Resettlement Caused by Project Components & Facilities

It can be seen that among the Project Components, only the Tailrace Tunnel will cause household relocation, specifically its Tailrace Culvert component, where the Tunnel goes above ground across Sanutar, affecting both houses and agricultural Khet (irrigated paddy) lands. Table B.2.3 is a schematic representation of the Project design layout indicating these affected residential structures.

So far as the Project Facilities are concerned, there are 21 houses as yet identified as requiring acquisition. The Main Access Road will acquire 7 houses, although because of the heavy erosion of lands along the Rapti River side of Sanutar, the road may require further realignment, and likely will acquire more houses. The Main Access Road was carefully aligned to avoid Sanutar's primary school and maternal and child health center, as well as as many residences as possible, including several that are along the Sanuthar-Ghumaune irrigation canal on government land and contain small family shops. Finally, the Construction Camp at Ghumaune will take a total of 14 residential structures, affecting 13 HHs owning these structures (one family owns two).

Table B.2.3: Structures, as Affected by Project Components

Project Sites	Houses	No. HHs	*Ancillary Structures*	*No. HHs*
Project Components				
Check Dam 1	0	0	*1*	*1*
Tailrace Tunnel (Culvert)	5	4	*5*	*4*
Total for Components:	5	4	*6*	*5*
Project Facilities				
Main Access Road	7	7	*8*	*5*
Camps				
Construction Camp at Ghumaune	14	13	*15*	*10*
Total for Facilities	21	20	*23*	*15*
Total	26	24	*29*	*20*

As can be seen from Table B.2.4 below, the status of ownership of house plot lands will be an issue for further examination during the Detailed Design Study phase. Some 9 HHs own both house plot and residence, whereas the rest either have their house on land they don't own, whether Government land as in the case of 3 HHs, or have hereditary rights to their house plot land but so far have not had it officially registered in their name.

Table B.2.4: Status of House Plot Land Ownership for Potentially Relocated HHs

House Owners	No. HHs
Owners of Both House and Land	9
Landless House Owners *	6
House Owners with Hereditary Rights to Land	9
(House Owner Losing Ancillary Structure Only)	(1)
Total	24

* One HH has land elsewhere. Three HHs are on Government Land

2) Impacts on Productive Lands

The total potentially affected land area is estimated to be 79.6 Ha. Of the potentially affected land area, some 22 percent is agriculture land under private ownership. The largest proportion of potentially affected land is forestland, most of which is under Community Forest management (Tables B2.5 and B2.6).

Of the total potentially affected land, some 17.295 ha are, according to the official Cadestral Maps obtained from the Survey Department in Hetauda, classed as agriculture land. Of this, about 15 ha are required by the Project for permanent and temporary acquisition. This includes all land required from the Sanutar, Ghumaune, Nakoligaon settlements and by the Yangran Regulating Reservoir. Of the total agricultural land needed, 12.36 ha (82 percent) of private lands are to be acquired permanently for various Project facilities at the Sanutar, Ghumaune, Nakoligaon settlements and along the Yangran Khola. Likewise 2.64 ha (18 percent) of land under private ownership will be needed for the Construction

Camps at Ghumaune but may be acquired on a temporary, rental basis.

The discussion here primarily focuses on the impacts of permanent loss of privately owned land through land acquisition by the Project, since this loss has a direct impact on the living standards of the households presently owning, and or farming, this land.

Table B.2.5: Percentage of Affected Land, by Land Use Categories

Affected land use categories	Area Affected (Ha)	Percent
Forestland, Community Forest	35.595	45
Grassland, River, Other	26.709	33
Agriculture Land	17.296	22
Total	79.6	100

Source: Field Survey 2002/ *Natural and Social Environment Map, 2002*.

Table B.2.6: Affected Land, by Land Use Categories in Different Project Sites

Project Sites	Agriculture Land (ha)	Forestland (ha)	Grassland and Other (ha)	Total Land (ha)
Khani Khola Headworks	1.64	0	1.96	3.6
Work Adit and Access Road to Adit 1 and Headorks	0.656	1.875	2.869	5.4
Spoil Bank A	0	0	1.6	1.6
Sanutar, Ghumaune, Ghumaune Pari, Yangran Regulating Pond and Check Dams including Spoil Banks B and C	13.5	33.72	16.38	63.6
Tailrace Outlet including Access Road to Tailrace and Spoil Bank D	1.5	0	3.9	5.4
Total	17.296	35.595	26.709	79.6

Categories of Affected Agricultural Land

The Kulekhani III Hydropower Project affects two categories of cultivated land under private ownership. In the local terminology these categories are called *khet* and *bari*. *Khet* refers to irrigated lowland and *bari* refers to rain-fed upland cultivated area. Table B.2.7 gives the likely proportion of affected land by quality

Sixty percent of the affected land is *bari* and 40 percent is *khet*. Sanutar and Ghumaune are the most affected areas due to land loss for Project facilities, especially for the Main Access Road and the Construction Camp.

Table B.2.7: Affected Land by Type

Description	Area (Ha)	Percent
Bari	9	60
Khet	6	40
Total	15	100

Source: Field Survey, 2002/*Natural and Social Environment Map, 2002*

(1) Summary Resettlement Effects:

1) Relocation & Loss of Agricultural Land

The discussion has primarily focused on the impacts of permanent loss of privately owned land through the Project's land acquisition, including houses and house plots, since this loss has a direct impact on the living standards of the households presently owning, living on, and or farming, this land.

For purposes of establishing an RP budget to cover agricultural land acquisition and compensation costs, there are understood to be, provisionally, overall some 97 potentially affected HHs.

2) Loss of Housing Structure

Some 24 HHs with an estimated population of 151 persons who by virtue of losing their house, will have to relocate. In addition to this, there is one HH affected through loss of a cow shed, who will not have to relocate, as shown below in Table B.2.8.

3) Loss of Agricultural Land

The Study Team has made the assumption that 72 HHs, with an estimated population of 454 persons, will be potentially affected by losing their agricultural land, as shown in Table B.2.8.

4) Summary: Potentially Affected HHs

The total number of HHs estimated to be potentially affected by the Project's land acquisition is 97 HH, with an estimated population of 604 persons.

Table B.2.8: Summary Resettlement Effects: Relocation & Loss of Agricultural Land, No. of Potentially Affected HHs and Estimated Population

Description	No. Potentially Affected HHs	Estimated Potentially Affected Population*
HHs Losing 26 Houses	25	150
(Incl. HH Losing Only 1 Ancillary Structure)	(1)	(6)
HHs Losing 15 Ha Agricultural Land	72	454
Total	97	604

* Estimated at 6.3 persons per HH, as per MIC field survey

The ADB defines 'Significant Resettlement Effect' requiring a Full RP (as outlined in its Handbook on Resettlement) as 200 people or more experiencing major impacts, with "major" impacts being physical displacement from housing and/or more than 10 percent of the household's productive (income generating) assets are lost. Currently, the Project most likely falls below this defined level of 'significance' with respect to loss of housing. On the other hand, at this time an expression of the level of severity of HHs loss of agricultural land as a percentage

of HH income is not possible. This will be determined, however, during the next study phase. In any case, the Project will finalize an RP at the ADB's standard of 'significant resettlement effect.'

Table B.2.9 provides useful overall numbers for HHs likely to experience relocation due to loss of a house and HHs potentially affected by loss of agricultural land, and these have allowed the Study Team to broadly define the scope of likely resettlement effects associated with Project, for purposes of this early draft RP. However, these figures will need to be updated at the beginning of the new Detailed Design Study phase with more reliable data, to verify the actual numbers of affected HHs.

There are three reasons for the figures in Table B.2.9 to be considered, while useful for planning purposes, as yet inconclusive. The first is due to the difficulties due to time constraints of carrying out the socioeconomic study while the final Project design was still under decision, so that some land plots were newly within the defined Project Design Boundaries that as yet have no ownership assigned to them. The second reason is due to inaccuracies found with the official Cadastral Maps obtained from the Survey Office in Hetauda. The third reason has to do with absentee landowners, most of whom appear to be Newars, probably living in Hetauda or possibly in some cases farther abroad, even in Kathmandu.

5) Shifting Project Design Boundaries

The Survey Team undertook the socio-economic field survey while the Project's Final Design was still being decided from three alternative designs. The Study Team was able, using cadastral maps and corresponding ownership lists obtained from the Survey Office in Hetauda, to prepare, though GIS methodology, a *Natural and Social Environment Map* that shows both the cadastral map layout for the affected communities and also the Project design boundaries, within which all potentially affected structures and lands are expected to be found.

For the sake of thoroughness, the socio-economic survey covered the entire 55 HHs residing the Most Impacted Communities (MIC) of Sanutar, Ghumaune, Pari Ghumaune, and Nokaligaon, and the results are presented below. The Study Team has, therefore, a complete data set for all of the potentially affected HHs living in the Project's main zone of impact, which will be affected either directly or indirectly. At the time of the socio-economic survey, Project design boundaries were used to identify affected property owners within the then understood area of impact.

After the survey was completed, the final Project Design was chosen, and this

resulted in a shift in the defined Project Design Boundaries, as shown in the revised *Natural and Social Environment Map* attached to this reports Annexes. Within the newly revised boundaries, the Study Team could identify from ownership lists previously obtained, some 36 land owners. It found, however, an additional 36 land plots newly falling within the Final Design Boundaries for which there are at present no names associated. The Study Team has made the assumption that the set of 36 land plots newly falling within the Final Design Boundaries are equal to 36 potentially affected HHs, although the actual number of HHs can only be known during the next study phase. Table B.2.9 summarizes the current situation, with regards to known land owners and land plots for which there is currently no name associated.

Table B.2.9: Estimation of Potentially Affected HHs by Agricultural Land Acquisition

Known Status of Agricultural Land within Project Design Boundaries	Potentially Affected HHs
Identified Agricultural Land Owners (No Correlation of 1 HH to 1 Land Plot)	36
Not Identified Agricultural Land Plots (Assumption 1 Land Plot = 1 HH)	36
Total (Known Owners + Known Land Plots)	72

During the next study phase, the land ownership lists will be updated and the data revised accordingly, through a visit to the Survey Office in Hetauda.

6) Inaccuracy of Cadastral Maps

While the official cadastral maps for Sanutar and other areas within the Project Design Boundaries appear to be accurate, there are whole sections where the block of land plots, while appearing to be essentially correct, are shifted over into areas inconsistent with an accurate rendering. For instance, at Ghumaune a block of land plots appears to be, as indicated through the GIS compilation, to be in the middle of the Keshadi Khola. This inaccuracy will be rectified early in the next study phase through a plane table survey to assure complete accuracy of the cadastral plot information.

7) Absentee Landlords

As can be seen below, in the section on Socio-economic Information about the 55 households residing in the Most Impacted Communities of Sanutar, Ghumaune, and Pari Ghumaune, all are of 'tribal' ethnic Tamangs, Magars, and Gurungs, or of the Hindu caste groups, Brahmin and Chetri. The same is true for the ethnic composition of HHs potentially affected by losing their house, as shown in Table B.2.10.

Table B.2.10: Distribution of Potentially Affected HHs Losing Houses, by Caste/Ethnicity

Caste/Ethnic Groups	HHs	Percent
Tamang	16	66.6
Brahmin	5	20.8
Chetri	1	4.2
Gurung	1	4.2
Magar	1	4.2
Total	24	100

(Does not include one HH losing a shed only)

On the other hand, the ethnic composition of HHs so far identified as losing agricultural land has Newar and Chepangs with the potentially affected HHs. While the 100 percent survey of the MIC community 55 households provided a good overlay to assure a reasonable coverage of impacted HHs among those surveyed, there was a number of HHs not present in these communities who fell outside the survey.

Table B.2.11: Distribution of Landowning Potentially Affected HHs by Caste/Ethnic Status

Caste/Ethnic Groups	Percent Land Owning HHs
Tamang	55.5
Newar	15.6
Brahmin	15.6
Chhetri	6.7
Magar	4.4
Chepang [Praja]	2.2
Total	100

Source: Field Survey 2002.

As it is common for business oriented Newars living in urban localities to have tenant arrangements in surrounding peri-urban areas, it is reasonable to assume that some form of formal and informal tenant arrangements are currently in place. During the next study phase, this issue of tenancy will be clarified, and as many landlords living outside the directly impacted communities interviewed to update the socioeconomic profile of the affected HHs.

The socioeconomic survey indicates some 2.33 Ha of irrigated *Khet* by 5 HHs and 3.14 of un-irrigated *Bari* lands rented in by 11 HHs, mostly from two absentee Newari landowners. Whether or not this is a complete picture of the informal land tenancy situation will be investigated during the next study phase.

8) Vulnerable Communities

In Sanutar and Ghumaune there are 3 households who are landless and have been living in the structures built on land not belonging to them. They are among the

most vulnerable groups potentially affected by the Project and at risk of losing their livelihood options. Any rehabilitation measures proposed by the Project will pay particular attention to the risk to these HHs.

Likewise there are 5 women headed HHs in Sanutar and Gumaune who may lose their house. Also, of the land plots having ownership associated with them, some thirteen are in women's names, the majority Tamang These HHs are also among the vulnerable groups who may need special assistance.

There is one Chepang (*Praja*) HHs that may lose its land, and the Chepang community is among the most disadvantaged groups in Nepal. Tamangs, largely due to a past history of officially sanctioned social restrictions, and constituting the most affected HHs, may also be considered a vulnerable group.

(2) Measures for Minimizing Resettlement Effects

Irrespective of the design and the Project's layout, the proposed design alternatives required various project facilities for the construction and operation of the Project. The facilities required and their siting by all the alternatives that were considered were more or less similar. Various Project facility alternatives were studied in the course of the upgrading the feasibility study. The RP principle of minimizing land acquisition and resettlement was a foremost concern in choosing the proposed facilities. The following are examples of design choices, where minimization of land impacts was a major feature of the decision arrived at.

1) Access Roads

Main Access Road

To cross the Rapti River two alternatives were analyzed:

- Alternative 1, Causeway Option. It would be cheap but difficult to operate on a round the year basis during Monsoon floods and would require repeated repair and maintenance. This option was envisaged to give operational difficulties during construction as well as during operation. Hence this option was rejected.
- Alternative 2, the Permanent Bridge Option. Though costly, this option had number of advantages. It provided round the year transportation facilities across the Rapti River and thus would avoid any operational difficulties during the construction and operation of the Project. Besides, it would open an opportunity for round the year transportation and marketing facilities to the people of the Kesadi catchment in general and for Sanutar and Ghumaune in particular.
- For the alignment of the Main Access Road, particularly at Sanutar and

Ghumaune, two alternatives were analyzed:

- Alternative 1, was a lower alignment through the flat agricultural land of Sanutar and Ghumaune. This alternative involved acquisition of much fertile agricultural land and residential structures.
- Alternative 2, was an upper alignment through the marginal land above Sanutar and Ghumaune agricultural land. This option involved minimum private land acquisition but would have problems of excessive erosion related to land instability. The steep slope is highly unstable and the bedrock is weak and fragile.

It was considered that:

- The Construction Camps will be located at Ghumaune
- Other temporary access to the facilities and Spoil Banks would have to pass through Ghumaune
- Land disturbance should be minimized, and
- The local people prefer the lower alignment,

So the lower alignment was selected, avoiding house structures as much as possible.

Access Road to Work Adit 1 and Headworks

Two alternatives for access were analyzed to approach Work Adit 1 from the *Trivhuvan Rajpath*:

- Running the Access Road from north of the Kulekhani II Powerhouse across the Khani Khola and to the Headworks and then to Work Adit 1 along the Khani Khola's Right Bank
- Reaching Work Adit 1 via the currently used causeway to the HCIL Mine area across the Rapti River and then following the Rapti's Right Bank to the Headworks and to Work Adit 1.

The first alternative would provide round the year access to the Intake but would require considerable private land acquisition, including that of HCIL. This alternative would have incurred a higher social cost and financial investment. The second alternative using the existing causeway would inhibit access to the site during the Monsoon. However, this second alternative would be less costly and would traffic-related problems in the Bhainse Dobhan bazaar area.

The second alternative was selected with measures such as elevation of the causeway and provision of a flood protection embankment for round year access.

2) Camps

Construction Camps.

Two alternative options were analyzed for the Construction Camp required for the construction of the Dam and the Underground Power Station and for the various other Project components in the Sanutar area.

- Alternative 1: Sanutar Settlement Area
- Alternative 2: Ghumaune Settlement Area

The Sanutar settlement area is wide, flat, and productive and comprises a large number of structures. It also houses a primary school and a childcare center (*Matri Sisu Kendra*). The Ghumaune settlement, on the other hand, is small, less productive, and has fewer house structures.

Considering the above factors the Ghumaune settlement area was selected for the establishment of the Construction Camp, on the condition that the area will be re-established and returned to the Ghumaune residents after the completion of the construction works. This option will further avoid long-term resettlement of the affected people. The Ghumaune area also has advantages such as not being visible from the *Tribhuvan Rajpath* and its closeness to the main construction sites.

Labor Camps

Two alternatives were analyzed for the establishment of the Labor Camps for the Powerhouse and Regulating Dam construction workforce.

- Alternative 1: Labor camps at Sanutar or at Ghumaune Pari
- Alternative 2: Labor camps in the Hetauda Area at the now abandoned Kathmandu-Hetauda Ropeway Camp

Alternative 1 would need relocation and resettlement of the entire population of either Sanutar or Ghumaune Pari, involving a high degree of social impact by the Project. To avoid this social impact, Alternative 2, the unutilized Ropeway Camp at Hetauda is proposed for the Labor Camp, in coordination with the Ministry of Works and Physical Planning, on rental basis. There are also a number of other options available in this part of Hetauda, including the Nepal Food Corporation's warehouse, largely unutilized, across the road from the Ropeway Camp and a number of open areas that could likewise be rented.

Engineer's Camp

For the construction period, as well as for the operation of the Kulekhani III, an Engineer's Camp is needed. Two alternatives were analyzed.

- Alternative 1: Establishment of the Engineer's Camp at Sanutar
- Alternative 2: Engineer's Camp at Hetauda

To avoid high relocation and resettlement, the establishment of the Engineer's

Camp at Sanutar was rejected. Besides, the underused facility at Hetauda Diesel power plant may be utilized as the Project's Engineers' Camp. There may be noise issues during rare occasions when the Diesel power plan might be in operation. As with the Labor Camps, there are other land options available in this part of Hetauda that may also be considered, though this option is preferred to maximize NEA's available resources.

3) Spoil Disposal Sites

A substantial volume of spoil material is expected from the construction activities of the Kulekhani III Project. Alternatives for the final spoil disposal management in the near by areas is very limited. Two possible alternatives have been envisioned.

- Alternative 1: It proposed to use the wide floodplain of Rapti for spoil management.
- Alternative 2: It proposed to use the relatively flat areas above the riverbed.

Alternative 2 was rejected, because such flat areas above the riverbed are mostly agricultural areas or developed areas with settlements and structures. Occupying these areas would mean inviting a wide range of social impacts and conflicts. Alternative 1, though, would involve risk of change in river morphology and a high degree of erosion and sedimentation of riverbeds, with implications many kilometers downstream. However, these risks can be minimized with adequate stabilization of spoil against river related erosion, a problem particularly in the Monsoon. One of the advantages of this option would be land development, which can be used for afforestation or as recreational sites after the Project construction is completed. Accordingly four spoil disposal sites, Spoil Sites A-D, two on the Rapti River's the flood bank and two on the Kesadi's flood bank have been identified and proposed.

B.2.6 Socioeconomic Information

(1) Project's Most Impacted Communities (MIC)

This section profiles the socio-economic characteristic of the residents of Sanutar, Bokedaha, and Ghumaune Pari communities, totaling some fifty five households, on which Project activity will have the most significant direct and indirect impacts. The fieldwork surveyed all of these households, which are altogether the Most Impacted Communities (MIC).

(2) Households and Population

The total population in the three MIC communities, Sanutar, Ghumaune, Ghumaune Pari, is estimated to be 349, with an average household size of 6.3.

Some 59 percent fall into the economically active 15-65 years age group. About 27 percent are in the school going 5-14 years age group, while 10 percent are less than 5 years and 3 percent are over 65 years. The ratio of female to male is 1:1.05.

Table B.2.12: MIC Age Structure, Average HH Size

Age	No.	Percentage	Av. HH Size
<5	37	10	6.3
5 - 14	97	27	
15- 35	135	39	
36-50	44	13	
51-65	27	8	
>65	9	3	
Total	349	100	

Table B.2.13: MIC Population by Gender

Sex	No.	Percentage	M/F Ratio
Male	170	48.7	1:1.05
Female	179	51.3	
Total	349	100.00	

(3) Caste and Ethnic Composition

The majority of the households are Tamang ethnic group, 69 percent, compared with the District ratio of 48 percent and that of the Project Impacted Communities, 45.5 percent. Other groups affected are Magar and Gurung, at 18 percent, Brahmin, at 11 percent and Chhetri at nearly 2 percent.

Table B.2.14: MIC, Ethnicity of Sanutar, Ghumaune, Ghumaune Pari (52 HH)

Caste/Ethnicity	No. HHs	Percentage
Tamang	38	69
Other [Gurung/Magar]	10	18
Brahmin	6	11
Chetri	1	2
Total	55	100

[**NOTE:** Why put Magar and Gurung together? What are they separately? Please clarify. Seems silly when there are as many as 10 houses, the second largest component in the MIC, to mix them up and call them 'others.']

(4) Other Social And Economic Indicators

1) Literacy Status

About 75 percent of the MIC population is estimated to be literate. This percentage includes those who can read and write only, 19 percent without benefit of formal education, as well as those having only a primary level of education, about 36 percent, making about 61 percent who are literate either by virtue of a primary education or by their own efforts. The overall literacy rate, of 75 percent, seems high compared to the District average of only 31 percent and to

that of the Project Impacted Communities, at 35 percent, although these official figures only reflect literacy achieved through formal education.

Table B.2.15: MIC, Educational & Literacy Status

Educational & Literacy Status	No.	Percentage
Primary	127	36
Illiterate	87	25
Can Read And Write Only	66	19
Lower Secondary	40	11
Higher Secondary	20	6
SLC	7	2
Intermediate	2	1
Bachelor	0	0
Master	0	0
Total	349	100.00

2) Religion

Some 65 percent of MIC households are Buddhists and 35 percent are Hindu.

Table B.2.16: MIC, Household Religion

Religion	No. HHs	Percentage
Buddhist	36	65
Hindu	19	35
Total	55	100.00

3) Length of Residence

The majority of the households, 69 percent have been residing in the area for more than 25 years. Some 90 percent have lived in the MIC more than 15 years. There are only 4 percent of populations who have been settled in the area for less than 5 years. (Table B.2.17).

Table B.2.17: Length of Residence in MIC

Duration	No. HHs	Percentage
More than 25 Years	38	70
16 to 25 Years	11	20
5 to 15 Years	4	6
Less than 5 Years	2	4
Total	55	100

4) Nucleus and Extended Family Residences

Some 65 percent of MIC households are in nuclear (single family) residence, and 35 percent are in extended (joint) family residences.

Table B.2.18: MIC, Type of Family

Family Type	No. HHs	Percentage
Nuclear	36	65.45
Extended (Joint)	19	34.55
Total	55	100.00

5) Occupation and Skills

Of the total population, including the children, 35 percent are involved in agriculture while 28 percent are students, 12 percent labor and 12 percent are unable to work. Some 7 percent are involved in job/services and 7 percent are doing business. This table covers 360 persons from the MIC's fifty-five households, rather than only 349, as some listed are working outside the MIC.

Table B.2.19: MIC, Occupations

Occupation	Population	Percentage
Agriculture	127	35
Student	101	28
Labor	43	12
Unable To Work	44	12
Job/Services	25	7
Business	17	5
Others	3	1
Total	360	100

About 10 percent of the MIC population, or 37 persons, posses various skills such as driver, general construction, and masonry, and four persons from the MIC work for HCIL and one for NEA.

Table B.2.20: MIC, Skilled Workers

Occupation	Population	% Total Pop
Driver	10	3
Construction	10	3
Mason	7	2
Other	5	1
HCIL	4	1
NEA	1	0.3
Carpenter	0	0
Tailor	0	0
Blacksmith	0	0
Shoemaker	0	0
Weaving *Doko/Nanglo**	0	0
Total	37	10

*Local handicraft items, used by porters to carry loads

6) Gender

Women's Primary Activities

MIC women are involved in number of farm and household related activities. All are participate in processing grains, some 69 percent are involved in transporting and storing agricultural products, and 6 percent in land preparation. The highest female involvement is in cooking and in processing grains, 100 percent, fetching water, 99 percent, and fuel wood and fodder collection as well as in looking after children, 96 percent, followed by raising livestock. About half or more of

women report being involved in activities such sowing, land preparation, fertilizing and weeding, harvesting, and working as agricultural laborers. Virtually none report participating in plowing or in irrigation activities.

Table B.2.21: MIC Women's Primary Activities, by Percent of Women Reporting

Activities	Average (%)
Processing Grain	100
Cooking	100
Fetching Water	99
Fuel Wood & Fodder Collection	96
Looking After children	96
Raising Livestock	90
Transportation & Storing	69
Sowing	61
Land Preparation	56
Fertilizing	53
Weeding	53
Agricultural Labor	52
Harvesting	50
Plowing	1
Irrigation	0

MIC Women's Participation in Community Organizations and User Groups

In the MIC, some 36 percent of women report being involved with various community organizations and user committees, related to a range of political, social, cultural and economic activities.

Table B.2.22: MIC Women's Involvement in CBOs and User Groups (44 Respondents)

Women's Involvement	Total	Percentage
No	28	64
Yes	16	36
Total	44	100

7) Livestock Holding and Their Product

Almost 80 percent MIC households keep livestock.

Table B.2.23: MIC Households Having Livestock

HHs with Livestock	Total	Percentage
Yes	44	80
No	11	20
Total	55	100

The average livestock holding size is estimated to be 7.6, excluding poultry. The average holding of poultry, 7.8 percent is higher than the District and the more general Project Impacted Community figures. Among the livestock animals, the number of sheep/goat is highest, at 4.9 per household.

Table B.2.24: MIC, Average Livestock & Animals Owned by HHs

Livestock Type	Total	Average/HH
Chicken	442	7.75
Sheep, Goat	278	4.88
Oxen	87	1.53
Cows	37	0.65
Cows (milking)	9	0.16
Buffalo	6	0.10
Buffalo (milking)	1	0.1
Pig	1	0.1
Duck	0	-
Others	0	-
Total	861	15.7

Milk Production.

The MIC households milk production on average is estimated to be about 57 liters per day. [**NOTE**: Is this realistic? Need to clarify if any of this can be used.]

Table B.2.25: MIC, Milk Production, Litres/Day

Animal	Milk Production Total
Cows	2,830
Buffalo	300
Total	3,130
Average	__?

[**Note** in original table: 'Insufficient Data'? Clarify, please]

8) Land Holding Size and Ownership Pattern

The average MIC land holding size is estimated to be 0.4 hectare, 42 percent of which is *Khet* [irrigated low land]. About 60 percent of the land holdings fall under joint ownership.

Table B.2.26: MIC, Land Holding Size by Ownership Pattern (Ha)

Ownership	Total Land (Ha)		
	Khet	*Bari*	Forest
Jointly Owned	5.852	7.215	1.24
Rented - In	2.222	2.966	0
Owned	0.783	1.241	0
Rented - Out	0.356	0	0
Total	9.213	11.39	1.24
Grand Total			21.843 Ha

9) Fruit Trees Ownership

About 64 percent in the MIC own fruit trees.

Table B.2.27: MIC Households Owning Fruit Trees

HH Owning Fruit Trees	Total	Percentage
Yes	35	64
No	20	36
Total	55	100

Most fruit trees owned by MIC households are banana, pineapple, and guava, followed by a relatively smaller number of mango, lemon, and papaya.

Table B.2.28: MIC Household Fruit Tree Holdings, by Type of Tree and Whether Yielding or Non Yielding

Description	Yielding	Non Yielding	Total
Banana	413	378	799
Pineapple	505	158	663
Gauva	120	34	154
Mango	54	43	97
Lemon	19	14	33
Papaya	5	6	11
Litchi	3	3	6
Orange	0	1	1
Other	44	37	81
Total	1163	674	1845

10) Food Production

The MIC households produce cereals, vegetables and other cash crops. Crops such as paddy, wheat, maize, millet are popular among the cereals, while pulse, potato, mustard, sugarcane are grown as cash crops. The paddy yields of 3.4, maize at 3.8 and potato at 34 ton/ha are higher than the respective District averages of 2.3, 1.7, and 10.5 ton/ha respectively. On the other hand, the yields for other crops are relatively low compared to District averages.

Table B.2.29: MIC Yield of Major Crops Compared to District

	Paddy	Wheat	Maize	Millet	Pulses	Vegetable	Potato	Mustard
MIC	3.4	0.90	2.8	0.84	0.3	1.3	34.0	0.6
District	2.3	1.7	1.7	1.1	1.1	14.0	10.5	0.7

Table B.2.30: MIC, Total and Average Production of Cereals, Vegetables, and Cash Crops

Crops	Area (Ha)	Average Production (Kg/Ha)	Total Production (Kg)
Cereals			
Paddy	8.049	3.4	27.4
Wheat	6.566	0.90	5.9
Maize	19.49	2.8	55.5
Millet	9.382	0.84	7.8
Pulses	9.649	0.3	3
Other	0	-	-
Total	***53.136***	***1.88***	***99.6***
Vegetables			
Vegetable	2.519	1.3	3.4
Total	***2.519***	***1.3***	***3.4***
Cash Crops			
Potato	3.026	34	103
Mustard	1.982	0.6	1.3
Sugarcane	0	-	-
Other	0	-	-
Total	***5.008***	***20.8***	***104.3***

11) Food Sufficiency and Coping Strategies

Food Sufficiency

The food grown by the MIC households is sufficient for only 51 percent population.

Table B.2.31: MIC, Households' Food Sufficiency

Sufficiency	Total	Percentage
Sufficient	28	51
Insufficient	27	49
Total	55	100

Most households, some 41 percent, report food insufficiency for 6-8 months, another 33 percent for 9-11 months, 14.8 percent for 2-5 months, and 1.2 percent for the whole year, 12 months, respectively.

Table B.2.32: MIC, Households' Duration of Food Insufficiency

Duration	Overall	Percentage
6 to 8 month	11	41
9 to 11 month	9	33
2 to 5 month	4	15
For 12 month	3	11
Up to 1 month	0	0
Total	27	100

Coping Strategies

MIC households, when facing food deficiency, generally report taking up wage

work, 56 percent, and engagement in other jobs, such as service and business, 44 percent, to cope with food insufficiency. This means that some families are not self reliant on the crops they grow themselves but regularly seek employment outside of agriculture, such as families known to be working for HCIL and NEA. None report borrowing or selling off household property to purchase food.

Table B.2.33: MIC, Households' Copy Strategy for Food Insufficiency

Coping Strategy	Total	Percentage
Daily Wages Work	15	56
Others [Salary/Business]	12	44
Selling Of HH Property	0	0
Borrowing	0	0
Total	27	100

12) Household Income and Expenditure Patterns

Income

The average MIC household annual income is estimated to be Rs. 68,659, compared to an annual expenditure of Rs. 81,783. A large proportion of income is derived from agricultural production, 30.0 percent, and wage earning, 25.2 percent.

Table B.2.34: MIC, Annual HH Income (NRs)

Item	Total (NRs.)	Ave/HH/Year (NRs.)
Agriculture Income		
Cereal	1,145,413	20,827
Vegetable	111,734	2,032
Fruit	72,242	1,314
Livestock		
Livestock	383,100	6,965
Milk	55,300	1,005
Ghee	-	-
Eggs	-	-
Other Sources		
Service	536,000	9,745
Wages	1,134,800	20,633
Pension	17,136	312
Trade	100,000	1,818
Cottage Industry	-	-
Professional Job	265,000	4,818
Remittances	282,000	5,127
Business	325,000	5,909
Others	70,000	1,273
Total	4,497,725	68,659

Table B.2.35: MIC, Summary Annual HH Income (NRs)

Agriculture	Live.	Service	Wage	Pension	Trade/Business	Job	Remit.	Other	Total
24,169	7,970	9,745	20,633	312	7,727	4,818	5,127	1,272	81,773

Expenditures

The purchase of food items, such as cereals, fish and meat, and vegetables is the greatest proportion of total expenditure, 28.2 percent.

Table B.2.36: MIC, Annual HH Income (NRs)

Item	Total (NRs.)	Ave/HH/Year (NRs.)
Rice	585,580	10273
Pulses	165,000	2895
Maize	167,340	2936
Vegetable	184,820	3242
Fish/Meat	200,400	3516
Oil/spices etc	211,680	3714
Firewood	183,840	3225
Electricity	0	0
Kerosene	75,840	1330
Medicine (Annual)	521,500	9149
Education (Annual)	447,700	7854
Cloth (Annual)	468,000	8210
Festival (Annual)	428,000	7509
Fertilizer	98,161	1722
Animal feed	176,100	3090
Total	3,913,961	

Table B.2.37: MIC, Summary Annual HH Expenditure (NRs)

Cereals	Veg-tables	Fish/ Meat	Oil/ Spices	Fire wood	Kero sene	Medi-cine	Educ-ation	Cloth	Fest-ival	Fest-ival	Animal Feed	Total
16,102	3,242	3,515	3,713	3,225	1,330	9,149	7,854	8,210	7,508	1,722	3,089	68,659

13) Sources of Financial Services

It is noteworthy to see that, although 89 percent of MIC households do not report borrowing money, the few who do, 5 percent, rely on relatives. Other financial services, such as the Agricultural Development Bank of Nepal (ADB/N), the Nepal Bank, and even merchants appear to be very little used, or at least as reported by the MIC households. This is despite the relative closeness, some 2.5 Km, of Hetauda, with numerous financial services available.

Table B.2.38: MIC Households' Reliance on Financial Services

	HHs	Percentage
Do Not Require	49	89
Relatives	3	5
ADB/N	1	2
Nepal Bank	1	2
Merchants	1	2
SFDP	0	0
NGO	0	0
Total	55	100

14) Access to Water Supply and Sanitation

Sources of Drinking Water

Slightly more than 60 percent of MIC households have access to piped water. However, a significant proportion of households depend on river, 23 percent, stream 14 percent, well 2 percent, sources for their drinking water. Most households reported using the same sources during both Dry and Wet Seasons.

Table B.2.39: MIC, Water Sources Reported by HHs

Sources	Total	
	Dry Season	Percentage
Piped Water	35	61
River	12	23
Stream	7	14
Well	1	2
Total	55	100

Sanitation

Nearly 90% households have toilets in Sanutar Ghumaune.

15) Health Status

Since, a significant number of MIC households depend in unhygienic water sources, such as rivers and streams for their drinking water, it is perhaps not surprising that almost 60 percent households reported to be suffering from various types of diseases during the previous year.

Table B.2.40: MIC HHs Reporting Illnesses during Previous Year

HHs Reporting Illness	Total	Percentage
Yes	33	60.00
No	22	40.00
	55	100.00

It is perhaps surprising that some 64 percent of cases of illness reported were female and that relatively few cases were reported for the age group 0-5 years, which normally suffers disproportionately from pneumonia and gasto-intestinal illness and suffers a correspondingly high death rate in rural areas in Nepal. On the other hand, the prevalence of pneumonia and tuberculosis, as well as various water-related diseases such as typhoid, diarrhea, dysentery and jaundice, is typical of rural areas such as the MIC, although the high prevalence of piped water and also of sanitary facilities should have some positive influence on disease incidence over the long run.

The MIC during public consultation meetings has expressed a desire for a local clinic. On the other hand, a variety of health institutions are in Hetauda, within 5

km of the community.

Table B.2.41: Details of Reported Cases (42) of Illness among MIC HHs.

Details	Total	Percentage
Sex		
Female	27	64
Male	15	36
Total	*42*	*100.00*
Age Group		
15 to 59	27	64
6 to 14	11	26
0 to 5	3	7
60 and above	1	2
Total	*42*	*100*
Diseases Type		
Pneumonia	5	12
Typhoid	4	10
Tuberculosis	3	7
Blood Pressure	3	7
Diarrhea	2	5
Respiration	2	5
Dysentery	1	2
Jaundice	1	2
Skin Disease	1	2
Cholera	0	0
Malaria	0	0
AIDS & Other Sex Related Diseases	0	0
Others	20	48
Total	*42*	*100*

B.2.7 Objectives, Policy Framework and Entitlements

(1) Laws Regarding Land Acquisition Procedures

1) Introduction

Despite project objectives of providing new national infrastructure and/or productive assets or projects aiming at the protection of natural resources and benefiting the country's population at large, there necessarily are also adverse social impacts. There is a need to incorporate social dimension into development and to mitigate adverse social impacts, especially resettlement effects. It is important to ensure that directly affected persons (APs) are not disadvantaged in the process of development. The rationale of addressing resettlement effects in projects in Nepal is based on the assertion:

- Human beings are the ultimate objective of development.
- People have sovereign human rights derived from national and international law and any development project must recognize this.

- For the greater benefit of society, development interventions such as roads, hydropower projects may have to, with appropriate mitigation measures, nevertheless proceed.

Every development project must ensure that APs are supported to restore their livelihood in an improved situation or at least assisted in maintaining their socio-economic status to its pre-project status. As a matter of principle, APs should be incorporated into project planning as also direct project beneficiaries, though this does not happen very often. Addressing resettlement effects is important primarily to protect disadvantaged groups created by the development process, but it is also necessary in the long run in order to protect the future of development itself.

2) Review of Existing Legal and Policy Framework for Land Acquisition and Resettlement

This section reviews the current policy and legal framework in Nepal regarding land acquisition and resettlement. Since the legislation mandating Environmental Impact Assessments (EIAs) does not embody social concerns to any serious degree, the discussion will cover policies, laws, and guidelines as reviewed in New Era 1999 (also, Molnar, Augusta and Tod A. Ragsdale. 1991. *Land Acquisition and Resettlement: Issues and Procedures in Nepal*. Draft Working Paper. Washington, DC: World Bank. February). The Legal discussion includes detailed consideration of the:

- Constitution of the Kingdom of Nepal, 2047 (1990);
- Land Reform Act 2021 (1964);
- Land Acquisition Rules 2026 (1969);
- Land Acquisition Act, 2034 (1997);
- Land Revenue Act 2034 (1977);
- The Hydropower Development Policy, 2049 (1992);
- Electricity Rules 2000;
- Environmental Protection Act (EPA) 1996 and Environmental Protection Rule (EPR) 1997;
- Water Resources Regulation 1993;
- Local Self-Governance Act 1999 and Local Self-Governance Regulation 2000;
- Arun III Access Road, Land Acquisition Guideline, 2045 (1989);
- Guidelines Relating to Land Acquisition for Arun III Hydroelectric Project, 2050 (1993);
- Melamchi Water Supply Project Resettlement Plan.

The discussion will focus on description and also limitations and constraints of

these with respect to forming a national policy for Nepal. Since resettlement policy and implementation has de facto been carried out on a project-by-project basis, the *'best practices'* of Projects is identified and emulated in formulating a policy framework for the Kulekhani III Project.

The Constitution of the Kingdom of Nepal

Article 17 of the Constitution of Nepal (1990), establishes the right to property as a fundamental right. All Nepalese citizens are guaranteed the right to acquire, own, sell and otherwise dispose their property. It states that no person shall be deprived of his property saved in accordance with the law. However, the right is not an absolute right since it further states that these rights are to be exercised "subject to the existing laws." In conditions where the State acquires or establishes its rights over individual's property for public interest, it shall compensate for the loss of property. The basis of compensation and the procedures for delivering compensation for any property acquired by the State shall therefore be as prescribed by the law.

Land and asset acquisition will be undertaken within the framework of the Land Acquisition Act (for permanent land acquisition) and the Public Road Act (for temporary land acquisition).[14]

Land Acquisition Act, 2034 (1977)

Since the *Land Acquisition Act 2034* (LAA) is so far the main legislation to guide social impact mitigation in Nepal, it needs to be discussed in detail. The LAA empowers HMG/N to acquire any land, on the payment of compensation, for public purposes and works.

Under the LAA, the acquisition and compensation of privately owned assets are undertaken according to a formal procedure, consisting of (a) initial procedures, (b) a preliminary investigation process, (c) acquisition notification, (d) compensation, and (e) appeal procedures.

Compensation Determination Committees (CDCs) are established at the District level to ascertain compensation rates for land and other assets to be acquired for the public interest. The CDC members include, the:

- Chief District Officer (CDO),
- Chief of the Land Revenue Office (*Mal Addha*),
- Project Chief, when the land has to be acquired for a Project, and

[14] The 1978 amendment of the Public Road Act was promulgated to ensure uniformity with the Land Acquisition Act. It amended Section 4 and repealed Sections 5 to 13 of the 1974 Act.

- One representative of the District Development Committee (DDC).[15]

Compensation must be paid (a) for damages caused as a result of investigations during the preliminary investigation process, and (b) for land and assets permanently acquired by the Project (including standing crops, trees, and houses).

The LAA provides that compensation be paid in cash, although titleholders who have lost all of their landholdings may be given replacement land, if available.

Compensation will be made to the person who has the right to claim for the compensation; to be entitled to compensation for land, a person must submit an official land registration certificate at the time of compensation.

Titleholders are required to submit compensation claims or complaints within a specified period after issuance of the Land Acquisition Notice by the Local Authority (the CDO). The CDC pays compensation for land after determination of rates and verification of the list of entitled applicants.

Two separate rates of compensation can be paid (a) to titleholders who lose all their land, and (b) to titleholders who lose only some part of their land.

In determining the compensation amount, the CDC has to consider relevant periodic guidelines of HMG and the loss suffered by persons due to acquisition of land, including the shift of residence or place of business to another place.

If the land has to be acquired for institutions other than the VDCs and institutions fully owned by the Government, the CDC has to consider the following in determining the compensation amount: price of the land prevailing at the time of notification of land acquisition; price of standing crops and structures; and damage incurred by persons being compelled to shift their residence or place of business due to land acquisition.

Acquisition of land and other assets for the Kulekhani III Project will be undertaken within the framework of the LAA, although in the absence of updated Land Acquisition Rules (see below), Project-specific guidelines for applying the LAA will be adopted.

Land Acquisition Rules, 2026 (1969)

The *Land Acquisition Rules 2026* (1969) were issued in order to simplify the provisions under the *Land Acquisition Act, 2018* (1961). The Land Acquisition Act 2034 (1977) replaced the earlier Act, but the Rules have not been updated.

[15] This was a member of the 'District *Panchayat*' at the time the law was framed, now outmoded and replaced with the District Development Committee (DDC).

Because the Rules governing land acquisition have not been updated, Project-specific guidelines are needed.

Despite the Rules preceding the LAA, some provisions of the Rules are worth mentioning. The Rules deal with compensation rates, designation of a competent authority (A Government officer plus the CDC) for compensation, and the determination of the amount of compensation. The CDC set up under this legislation has to take into account the prevailing market value of the nearby land to fix the compensation rates of affected land and other assets. The Land Acquisition Rules also maintain that the State reserves the right to issue guidelines and maintain uniformity in the determination of the amount of compensation in the Projects.

Public Road Act 2031(1974)

The *Public Road Act 2031* empowers the Department of Roads (DoR) to acquire any land on a temporary basis for storage facilities, construction camps etc. during construction and upgrading of roads. Any buildings and other structures such as houses, sheds, schools, and temples are to be avoided wherever possible. The DoR is required to pay compensation for any damages caused to buildings, standing crops and trees. Compensation is negotiated between the DoR and the titleholder.

Land Reform Act, 2021 (1964)

The Land Reform Act (LRA), promulgated in 2021/9/1 (1964) and amended most recently in 1996 (2053/9/24) is considered to be a revolutionary step towards changing the existing system of land tenure by establishing rights of tenants and by providing ownership rights to the actual tiller. Article 7 sets a ceiling on land ownership. Different ceilings of agricultural land are set for Kathmandu Valley (50 *ropani*), the hills and mountains (80 *ropani*), and for the Tarai (25 *bigha)* one *b*igha equals, 0.66 hectare and one *Ropani* equals 0.05 hectare In addition to this ceiling, for houses and kitchen garden a family may own 8 ropani in Kathmandu Valley, 16 ropani in the Hills and Mountains, and 3 bigha in the *Tarai*.

The latest amendment on the land ceiling allows for 25 ropani, 70 ropani and 10 bigha for Kathmandu Valley, the Hills, including the Mountains, and the Tarai Districts respectively for cultivation purposes. In addition, the land ceiling for houses and for kitchen gardens is 5 ropani for the Hills and Kathmandu Valley and 1 bigha for the Tarai. This new ceiling has been effective from August 16, 2001 (Shrawan 32, 2058).

Article 25 (1) of the LRA deals with tenancy rights. The second amendment made

tenancy rights transferable after death to the tenant's nominee, among the spouse and sons. But according to the fourth amendment, the tenancy rights can be transferred in the following order: spouse, son or daughter in law, adopted son, 35 or more year old daughter.

According to Article 26 (b) of the LRA, land under tenancy rights may be divided between the owner and the tenant for single ownership. Furthermore, Article 26 (d) also specifies that if two parties i.e., the owner and the tenant, can not agree, and one of them applies for his/her share, the concerned Government officer may divide the land into two equal parts and cancel the previous tenancy right over the land. In this way dual ownership of land is being abolished throughout the country.

When the State acquires land that is under tenancy, the LRA establishes that the tenant and owner will each be entitled to 50% of the total compensation amount. Where the LRA and the LAA (by which the tenant is entitled to only 25% of the total compensation amount) differ, the LRA will take precedence for paying compensation to tenants. The LRA, however, covers only official, registered Tenants, not unrecognized tenancy, which is the rule in most parts of Nepal.

Land Revenue Act 2034 (1977)

Acquisition of land for development projects (i.e., those in the public interest) involves transfer of land titles for which, directly or indirectly, the *Land Revenue Act 2034* (1977) comes into force. Article 8 of this Act states that the registration, change of ownership, termination of ownership right and maintenance of land records are to be done by local Land Revenue (*Malpot*) Office. Likewise, according to Article 16, if the concerned owner has not paid any land revenue for a long period of time, the Government can collect revenue through the auction of the concerned parcel. Land registration, transfer of titles and record keeping in Nepal are governed by this Act.

Water Resources Act 2049 (1992)

Several Articles of the *Water Resources Act 2049* (1992), especially 16, 19 and 20, are directly related to land acquisition and environmental impact. Article 16 (1) states that if private land has to be used in order to utilize water resources, the licensed person (developer) can request the Government to acquire the land through standard procedures.

This Act relates to any construction of a dam, or embankment, irrigation canal or tunnel, water tank or reservoir, pond or construction works related to water

resource development.

Electricity Rules 2000

Electricity Regulation Rule 66, related to section 33 sub-section 3 of the Electricity Act, empowers the Government, from time to time, to prohibit use of land or structures in a Project development area, through publication of a public notice in the HMG *Gazette*. But Rule 87 of the Regulation mandates payment of compensation to the titleholders as per the decisions of the CDC.

Rule 88, related to section 28 and 29 of the Electricity Act, has made a provision of the structure of the CDC as below:

- HMG Appointee - Chairman
- Proposal Proponent or its representative - Member
- HMG Appointed Expert related to Power Development, - Member
- Representative of the Affected Titleholders - Member
- Land Revenue Officer (LRO) of the Area - Member
- Affected VDC or Municipality representative – Member

The above provisions contradict the LAA. The Electricity Act and Regulation does not clearly spell out whether this Act and its Regulation supersedes the LAA. Although the provision in the Electricity Act's Regulation for membership of the CDC is more progressive, the Regulation does not ensure that the compensation rates will be at the replacement cost. On the other hand, a positive aspect of the Regulation is that it requires formulation of a policy to evaluate the actual compensation rates of the affected property.

Environmental Protection Act (EPA) 1996 and Environmental Protection Rule (EPR) 1997

Section 17 of the EPA is concerned with compensation. In case of pollution, creation of disposal, sound, heat or wastes by anyone contrary to the provisions of this Act, any person or organisation that suffers any loss or damage may, if s/he desires, have compensation recovered from the person, institution or proponent in violation of the EPA. An application must be made to the prescribed authority (CDO) stating the details thereof of the complaint. In connection with the determination of the amount of compensation, the CDO possesses the power to summon the concerned individuals for negotiating an amount. The amount of compensation determined by the CDO under this Rule must, however, be appropriate and reasonable.

3) The ADB's Policy on Involuntary Resettlement

The Kulekhani III Project's land acquisition, compensation and resettlement will also comply with the ADB's Policy on Involuntary Resettlement, appended to the ADB's *Handbook on Resettlement: A Guide to Good Practice* (1998).

As JICA and JBIC Impact Assessment Guidelines tend to deal more with the natural environment, the ADB's Policy for Involuntary Resettlement is adopted for this Project.. The main objectives and principles of the ADB's Policy are as follows:

- Involuntary resettlement will be avoided where feasible.
- Where population displacement is unavoidable, exploring all viable project options will minimize it.
- People unavoidably displaced will be compensated and assisted, so that their economic and social future would be generally as favorable with the project as it would have been in the absence of the project.
- People affected will be informed fully and consulted on resettlement and compensation options.
- Existing social and cultural institutions of resettlers and their hosts will be supported and used to the greatest extent possible, and resettlers will be integrated economically and socially into host communities.
- The absence of a formal legal title to land by some affected groups will not be a bar to compensation; particular attention will be paid to households headed by women and other vulnerable groups, such as indigenous peoples and ethnic minorities, and appropriate assistance provided to help them improve their status.
- As far as possible, involuntary resettlement will be conceived and executed as a part of the project.

- The full costs of resettlement and compensation will be included in the presentation of project costs and benefits.

(2) The Kulekhani III Project Involuntary Resettlement Principles and Objectives

1) Introduction

Despite its limitations, the *Land Acquisition Act 2034* (1977) (LAA) so far is the main legislation to guide land acquisition in Nepal. The Water and Energy Commission Secretariat (WECS) is currently taking the initiative for amending the LAA, with technical assistance from the ADB to be more in line with international donor policies. This is, however, likely to take some time. Therefore, based on the limitations in the existing legal framework, a project-specific Policy

for the Kulekhani III Project will be developed anticipating the ADB-supported proposed amendments to the LAA. These proposed amendments to the LAA to incorporate mitigation measures for Resettlement Effects are similar to the Resettlement Policy developed for the ADB-financed Melamchi Water Supply Project, which has been approved by the Cabinet and is being implemented. The Middle Marsyangdi Hydroelectricity Project has also adapted a similar Policy for Resettlement. Based on these, as well as precedents set in previous lNEA projects such as the Kali Gandaki A, a set of principles and policies together with an Entitlement Matrix has been prepared to form a Policy Framework for the Kulekhani III Project.

The terms 'Involuntary Resettlement' and 'Resettlement Effects' are understood to cover all social and economic impacts, permanent or temporary, caused by direct and involuntary acquisition of land and other fixed assets, by change in the use of land, or by restrictions imposed by the Project on access to land and natural resources resulting in the loss of assets, incomes and livelihood, *with or without physical relocation of affected people from housing*. The basic principle of resettlement planning is to avoid involuntary resettlement or, if it is unavoidable, to minimize the acquisition of land and other property as far as possible and to also to minimize other impacts that may cause loss of livelihood.

2) Basic Principles

In line with the above, the basic principles and objectives of the Kulekhani III Project will be:

- Land acquisition and involuntary resettlement will be avoided where feasible or minimized to the extent possible through the incorporation of social considerations into the Project design options.
- Where population displacement is unavoidable, individuals, households and communities losing assets, livelihood and other resources will be fully compensated and assisted so that they can improve or at a minimum restore their former economic and social conditions.
- The Project will seek to enable communities in the Project area to benefit from the Project

3) Policies

For implementation of the above principles during execution of the Project, the following policies are formulated:

- The term Affected Person (AP) will be used to be inclusive on all entities affected by land acquisition and other Project social impacts, including

Institutions, businesses, and other agencies (See Glossary for detailed definition).

- Project Affected Family (PAF), as the term commonly used in Projects in Nepal for APs who are constituted into households, will be used in the Kulekhani III Project's resettlement effects mitigation with special reference to such households, each 'household' defined as those family members – especially in extended families – that share a cooking hearth, or kitchen (*bhanse*).[16]
- Compensation for all lost assets will be made at full replacement cost, at market value, without depreciation.
- Plans for acquisition of land and other assets and provision of replacement land and rehabilitation measures will be carried out in consultation with the APs to ensure minimal disturbance.
- CDCs will include in addition to the CDO, the LRO, a Representative from the DDC, and Representative from the Project, one representative of the Project Affected Families (PAFs) -- preferably who are also members of the Village Advisory Committee (VAC) -- as well as representatives from the concerned VDCs or municipalities -- preferably from the Local Consultative Group (LCG) (see below) -- as invited members for maintaining transparency and the full participation of PAFs and consultation with VACs and LCGs with regard to determination and award of compensation, and to resettlement (relocation) and rehabilitation. The CDC may propose, in consultation with VACs and LCGs, for instance, additional criteria to categorize PAFs whose production levels are severely affected and need special assistance. This is in line with the Community Consensus Valuation (CCV) process for determining land compensation rates followed by the Kali Gandaki A Project.
- The apparent time gap between the Notification of Acquisition, under the LAA, and the payment of compensation to PAFs will be kept to a minimum to avoid inconvenience.
- The cut-off date for eligibility for compensation and assistance under the Project's Resettlement Policy will be the date of the Notification of Acquisition, under the LAA. However, PAFs occupying public land (the non-title-holders) will have to have lived there with structures or cultivated the land for at least 3 years prior to the cut-off date mentioned above (i.e., the

[16] In many extended families in Nepal, several 'households' may live under one roof but have separate kitchens, and adult sons will have inheritance rights to family land that will be recognized by the Project, although the land may not as yet be registered in their name.

LAA's Notification of Acquisition) in order to be eligible for resettlement and rehabilitation support.

- Special attention will be given to protect the interests of economically and socially vulnerable groups, such as women-headed households, the poor, the old, minority ethnic groups, and the landless, especially informal tenants. Caste, religion or ethnic community will not be a bar to compensation and rehabilitation assistance.
- The LAA, Article 13 (1) has made a provision for paying compensation in cash. However cash compensation may produce negative impacts in terms of the proper use of cash by families who are not used to such a large cash flow. Also, those households severely affected by the loss of large amounts of agricultural land may be left with no productive resources. Such conditions may require special rehabilitation assistance, and priority will be given to providing land-for-land compensation, if so desired by the PAF and if *ailani* (unclaimed land) or other Government land is available, land that may be developed, or land that can be purchased from willing private sellers through negotiation.
- The Project will use land and/or other assets to begin the civil works construction only after full compensation has been paid to the APs and all PAFs entitled to relocate have been relocated on their new sites. In cases where authentic documents for affected parcels are lacking, or titleholder could not be present within the given time, the civil works may continue. The compensation in such cases will be paid as soon as the authentic documents are presented or the titleholder is present.
- The Resettlement Policy will give due attention to livelihood restoration, the improvement of production levels and income levels and to the earning capacity of PAFs. Severely Affected Families (SPAFs) that is, those households who are displaced from their residences or commercial establishments or who are severely affected through loss of agricultural land as defined in the "Entitlement Matrix" PAFs as those who lose 25% or more of their land (owned and operated and taking into consideration the local situation) within the Project area or whose production levels are severely affected by the loss of land. SPAFs will be assisted with special rehabilitation measures to achieve the Proejct's Resettlement Policy goals with the active participation of SPAFs. Displaced SPAFs will also be provided with displacement allowances as detailed in the Involuntary Resettlement Policy's *Entitlement Matrix* below.

- There is a provision under the LAA for paying compensation for the loss of crops, trees and for damage to walls. Attempts will be made to protect any trees standing on the land to be acquired, by paying separate compensation, to avoid large scale cutting of trees in the Project area, thereby maintaining a favorable environment.
- For any large-scale resettlement, although not expected with the Kulekhani III Project, efforts will be made to relocate communities as communities. Assistance will also be provided to re-establish all existing social and cultural institutions to the relocation site.
- Resettled families will be given priority for the restoration of their public facilities as utilized prior to the project (electricity, water supply and sewerage and public transport) as an integral part of restoring their living standards.
- SPAFs, affected as a consequence of their land being acquired by the Project, will be provided with *ailani* or any other government land according to the policies of the Landless People's Problem Solving Commission, provided that such affected individuals/households were permanently residing in the acquired land. for a minimum of three years before the cut off date as defined by the Project and that they do not possess any legal ownership over such land, do not possess land, house or property anywhere else within Nepal and are either non-registered tenants or landless squatters. They will also be assisted for increasing their income levels and productivity according to the entitlement matrix attached herewith.
- One person from each SPAF and vulnerable group household will be given priority for employment in Project-related construction works based on their capability and qualifications. Skills training will be provided to at least one member of the SPAF and vulnerable households prior to the commencement of the civil works to qualify them for Project construction work employment. The Project will undertake consultation with Contractors and with local communities to establish mutually agreeable conditions for employment, including the establishment of an Employment Center and requirement of keeping records to document local employment compliance. Bidding documents and contract specifications will include requirements for hiring SPAFs and vulnerable groups, in this order of priority, according to agreements reached during consultation. If there are still jobs available, the local community will also be encouraged to apply, according to their capability and qualifications, for priority hiring followed by Nepalese nationals more generally.

- The Project will not bar PAFs having documented evidence of their land and other assets from making use of their private property prior to the full payment of compensation entitlements. Necessary arrangements will also be made to provide SPAFs with displacement allowances and compensation in advance, as necessary.
- The RP will include estimates of all expenditures related to land acquisition, compensation, resettlement and rehabilitation, as well as an implementation schedule. The RP will also specify the responsibilities of the concerned organizations.
- In order to replace the loss of farmland, if any PAF/SPAF purchases farmland in another place within one year from the date of receiving compensation, the land registration fees for an equal amount and all Government taxes and duties related to the acquisition and registration of affected assets will be borne by the Project.
- Construction works will, as far as possible, be planned to allow for the harvesting of standing crops before land is acquired. Where crops cannot be harvested or the destruction of crops is unavoidable, cash compensation will be paid, based on market values.
- A Village Advisory Committee (VAC) or Local Consultative Group (LCG) in municipal areas will be established in each affected VDC/Ward to ensure PAFs make informed decisions and assist them with the reinvestment of their compensation in other productive assets. The RP will specify their formation process. The VAC/LCGs will also provide 'invited' members to the CDC, to assure transparency in the proceedings and provide for decisions on land compensation based on full local consultation.
- The Project will assist resettlers to integrate socially and economically, as appropriate to the circumstances, into host communities so that adverse impacts on host communities are minimized. Benefits will also be provided to host communities and to the remaining communities to ensure fairness and avoid unnecessary problems caused by large differences in allocation of infrastructure or services or other rehabilitation measures.
- After the acquisition of land, if the remaining portion is considered too small to be viable for cultivation or other use, the owner will have the option to relinquish the remainder of that parcel or landholding if they desire so. Such a limit will be decided after the Detailed Measurement Survey (DMS), based on the area boundaries set by the final design. PAFs/SPAFs who choose to relinquish the whole parcel or landholding will be entitled to assistance with the identification and purchase of replacement land or with cash

compensation at replacement cost for the entire parcel or landholding, as noted in the *Entitlement Matrix*. PAFs will also be entitled to compensation and rehabilitation as SPAFs if they meet the criteria for SPAFs defined in the *Entitlement Matrix* below.

- PAFs will have access to effective procedures for lodging complaints and for the appropriate resolution of such complaints. Complaint hearings and their resulting resolutions will be as per existing legal provisions as far as they come within this framework. Any inadequacies for addressing grievances will be specified in the Resettlement Plan and strengthened accordingly.
- Affected populations will be systematically informed and consulted about the Project, the rights and options available to them and proposed mitigating measures, and to the extent possible be involved in the decisions that are made concerning their resettlement. Preparation of a *Due Process Brochure on Land Acquisition and Entitlements* will be prepared and distributed early on in the Nepali language, with an English counterpart for Project staff, consultants, and Contractors.
- The consultative process will include not only those affected, but also representatives of the local governments of the areas in which the Project is located, host communities' community leaders, civil society organizations such as NGOs, and members of local people's organizations, and efforts will be made in preparing the final RP document to make APs direct beneficiaries of the Project, as feasible.

(3) Eligibility and Entitlement

1) Introduction

This section sets out the entitlements and implementation strategies proposed to be adopted for for the compensation, resettlement, and the rehabilitation measures to mitigate the adverse impacts of the Project. It describes the following, the:

Unit of Entitlement

APs

Types of Entitlements

2) Unit of Entitlement

Most development projects of public interest affect property owners and occupants, their dependants and community groups through acquisition of private and community assets. The Entitlement Policy accordingly specifies compensation and/or rehabilitation measures for two units of entitlement: individuals (i.e. affected individuals and their households) and for groups.

3) Affected Persons (APs)

Affected Persons (APs) will include any person or persons, households, enterprises, firms, or private or public institution who would be adversely affected by the execution of the project, and who would have their (i) standard of living adversely affected; (ii) right, title, or interest in any house, land (including residential, commercial, agricultural and grazing land) or any other moveable or fixed assets acquired or possessed, in full or in part, permanently or temporarily or; (iii) business, occupation, place of work or residence or habitat adversely affected, with or without their physical displacement.

Individuals

APs include, for instance, individuals (men and women) who may suffer one or a combination of the following losses:

- All or part of residential land;
- All or part of cultivated and forestry land (titleholders and registered and non-registered tenants);
- All or part of *guthi* (trust) land;
- All or part of residential structures (titleholders, tenants, encroachers and landless squatters);
- All or part of commercial structures (titleholders, tenants, encroachers and landless squatters);
- Rented accommodation (tenants);
- All or part of other structures (titleholders, tenants, encroachers and landless squatter;
- Income sources and income-earning capacity (farmers, commercial establishment owners);
- Other losses e.g., reduced water flow (mill owners, irrigation users etc.).

Households

APs also include household members of the person suffering any of the above-mentioned losses. The unit of entitlement for compensation for household losses will be the titleholder/household head, or heir(s), in the case of the loss of privately owned assets and resources. However, for displacement allowances, the unit of entitlement will be each household member. However, for the rehabilitation assistance the unit of entitlement will be the household. For example, in some cases, household subsistence and survival strategies may be disrupted through the loss of land or business enterprises. In these cases, rehabilitation assistance will be provided to the household. In addition, some rehabilitation measures such as the provision of employment will be extended to adult family

members.

PAF/SPAFs.

In the context of past practice in Nepal, all APs who are members of households will be designated either PAF or SPAF, according to the severity of impacts, such as loss of housing or of more than 25 percent of occupied and farmed agricultural land. This term does not encompass Groups, Institutions, business or other 'non-family' entities.

Groups. The term 'AP' may also apply to groups, as the project may have indirect, less-quantifiable or unforeseen effects on people living within the affected area or in the vicinity of the project. Potential negative impacts may include reduced access to natural resources, impacts on water supply and irrigation systems, or changes to local employment practices. For example, people living below the Intake or Tailrace may suffer from reduced or altered water flow resulting in lowered agricultural production or fish harvests or reduced operation of water mills. Where these impacts occur, they will be mitigated under the Project. Similarly, for measures to re-establish community structures such as burial sites (*ghat*), temples, irrigation canals, as well as compensation for loss of Community Forests, groups or the community will be the unit of entitlement.

The impact of the Project due to acquisition of land and other assets will not be equal for all PAFs. While some households may be marginally affected or a fraction of land or income lost, others may lose a significant amount of land or their residential house or both. Thus, for convenience of determining entitlements, the Project will distinguish households into having serious impacts and marginal impacts. This will help the determination of rehabilitation assistance.

In the agrarian context, two types of loss are helpful to differentiate PAFs into having significant and marginal impact. These are:

- Loss of land or income as percentage of total owned land or total income in the Project area
- Loss of residential house

Titleholders who lose less than 25 percent of their total landholdings (taking into consideration the local situation) in the project area or whose production levels are not severely affected by the loss of land will be considered PAFs in general. This also includes persons who due to acquisition of land or other community resources by the project lose livelihood options, business or income.

PAFs who lose 25% or more of their land (owned and operated and taking into

consideration the local situation) within the Project area or whose production levels are severely affected by the loss of land will be classified as having serious impact, and therefore categorized as SPAFs. It may be risky to specify a flat cut-off percentage because area specific realities may be different. The RP prepared will take this threshold into consideration and may adjust within a range of five percent.[1] It may be risky to specify a flat cut-off percentage because area specific realities may be different. The RP will take this threshold into consideration and may adjust within a range of five percent. However, differentiation based only on a percentage land loss potentially ignores or simplifies complex socio-economic processes, especially in urban or peri-urban areas, such as Sanutar, located only 2.5 Km from Hetauda. In urban and peri-urban areas, households losing less than 25–30 percent of land but with their income loss based on the annual production in the affected plot being 25-30 percent or more of their total household income will be considered for inclusion into the SPAF category.

PAFs who lose their residential house and as a result have to be displaced from their house due to Project activities will also be considered as having significant impact.

Depending upon the circumstances, in consultation with VAC/LCGs, the CDC may propose additional criteria to categorize PAFs whose production levels are severely affected and need special assistance.

4) Types of Entitlements

The type of entitlement depends upon the extent of impact to the PAFs. Not all PAFs deserve all entitlements. Three types of entitlements that PAFs (or, or broadly, APs) will receive, as determined by the *Entitlement Matrix*, are discussed below. These are:

- Compensation
- Rehabilitation Allowances,
- Other Rehabilitation Assistance
- Other Assistance

The following section provides a brief summary of the entitlements. The entitlements are given in more detail in the *Entitlement Matrix* following this summary description.

Compensation

All types of losses due to Project activities will be compensated. Compensation will be provided to the APs (including PAFs) as entitlement for various types of

losses.

The Loss of Land (Agricultural, Residential, Commercial and Forestry)

Land in Nepal is grouped into different types and classes, which, in turn, form the basis for the calculation of land taxes. The main land types are *khet, bari* and *ghaderi*. *Khet* is irrigated land, generally situated in valleys and mainly used for paddy rice and wheat production. *Bari* is not irrigated since it is situated mostly on hill slopes and is used mainly for rainfed production of crops such as millet and maize. *Gharderi* is homestead land. *Khet*, *bari* and g*haderi* are subdivided into the following land classes: *Abal* (class 1 land*); Doyam* (class 2 land); *Sim* (class 3 land); and *Chahar* (class 4 land).

Those who lose land due to Project activities are entitled for compensation. Such entitled persons include titleholders (owner cum cultivator), absentee landlords, registered tenants, and non-registered tenants (legalizable). The extent of compensation entitlement for them is given in the *Entitlement Matrix* below.

Non-registered tenant farmers will be assisted to become registered tenants wherever possible. This requires a formal agreement to be signed between the tenant and the titleholder. If the agreement is formalized, the tenant will be entitled to compensation as a registered tenant.

Non-registered tenants who have cultivated the affected land for at least 3 years prior to the cut-off date (to be validated by the VDC and the Local Consultative Group) and who do not have title to any other land, will be entitled to allocation of land if *ailani* or other Government land is available, land that may be developed, or land that can be purchased from willing private sellers through negotiation, as determined by the Project authorities and concerned authority in the District, and they are also entitled to rehabilitation assistance.

Wherever possible, the spouse of the AP (PAF/SPAF head of household) will be present during the compensation payment. PAFs having significant impact will be in addition to compensation for their lost assets, be entitled to additional rehabilitation measures and to other assistance.

VACs and LCG will be established in each affected VDC and municipality to assist PAFs having significant impact with the reinvestment of their compensation in other productive assets, specifically with the identification and purchase of suitable privately owned cultivation land for purchase in the vicinity.

In order to replace the loss of farmland, if any PAF/SPAF purchases farmland in another place within one year from the date of receiving compensation, the land

registration fee for equal amount shall be paid by the Project. This option will be provided to the owners of agricultural land in the urban areas as well.

Compensation and restoration of land if already temporarily acquired for the some works will be made retroactively.

Temporary Loss of Cultivated Land. Land taken for the construction period only will be leased, with standard stipulations in the leasing contract, covering:

Lease Period

Formula for the calculation of annual rent, e.g., market value of crops normally produced on the required land, and annual inflation adjustments

Form of payment, e.g., money or grain

Frequency of payment/delivery, e.g., quarterly

Land protection measures during the lease; and

Land rehabilitation measures at end of lease period

Where communal land (e.g. grazing land) is affected and has to be acquired by the project, the Department of Agriculture will be consulted for assistance to the affected communities in the improvement of their remaining grazing areas and fodder resources to ensure that pre-project levels are maintained or improved upon. As required, these support programs will be funded by the Project, within the SAP framework.

Owners of *Guthi* (trust) land will be compensated according to the *Guthi Corporation Act 2033 (1996)*. Severely affected land will be replaced with other land if *ailani* (unclaimed land) or other government land is available, or cash (or cheque) at full replacement cost. Marginal losses will be compensated with cash.

In cases where circumstances suggest that it is both cost efficient and agreeable with the owners/cultivators, land can be taken on easement under special agreement with the owner. This is anticipated for the Ghumaune settlement area. The CDC in this case will formulate the detail terms of reference. In this situation apart from a long-term acquisition agreement, PAFs will be entitled to:

Compensation for crop losses for the duration of each period of temporary occupation

Compensation for other disturbances and damages caused to property

Restored land to its original condition at the end of each temporary acquisition period

Use of land for agriculture with restrictions where structures will not be permitted, and

Right to sell the land

The Loss of Crops and Other Natural Resources

Construction works will as far as possible be planned to allow for the harvesting of non-perennial and perennial crops before land is acquired. Where crops cannot be harvested or the destruction of crops is unavoidable, compensation will be paid, based on crop market values at the time of compensation, as determined by the CDCs. All other resources from privately owned trees (e.g. timber/fuelwood) will remain the property of the concerned owner.

For land under registered tenancy, the amount of compensation for standing crops and permanent crops such as bamboo, timber and fruit trees shall be divided equally between the landowner and the tenant.

For land occupied by non-registered tenants, the amount of compensation for standing crops shall be divided between tenant and landowner. However, compensation for loss of permanent crops such as bamboo, timber and fruit trees shall be provided to the owner only.

The Departments of Agriculture and Forestry will be consulted for assisting affected owners with the reestablishment of new trees/perennial crops. As required, support programs will be funded by the Project under the SAP.

The Loss of Houses and Other Structures

Owners of houses and other structures such as *goth* (sheds), walls, and water mills will be compensated in cash, for full or partial losses, at replacement cost as determined by the CDCs according to market rates. This will include titleholders and tenants on private land, and encroaches and landless squatters occupying public land at the time of the *eligibility cut-off* date (Notice of Acquisition under the LAA) for each component and sub-component. If there are structures that can be re-installed at a new site, the re-installation cost and transport cost will be provided by the Project. Furthermore, PAFs whose structures are only partially affected will be entitled to the cost of repairing the structure in addition to compensation for affected materials at replacement cost.

Compensation for land and structures will be paid in one lump sum. It will be paid on the spot rather than making the PAFs travel to the District office. Owners will have the right to salvage materials from the affected buildings. The value of salvaged materials will not be deducted from the final compensation amount.

The necessity of relocation determines the severity of impact for partially affected residential land. If relocation is required, the impact will be considered to be severe.

Owners (i.e., titleholders, tenants in own accommodation, and encroachers and squatters on public land) of houses and commercial establishments to be relocated will be provided a Displacement Allowance, as described in the *Entitlement Matrix* below.

If there is a need for relocation of households to new settlements involving host communities, resettlement assistance will be provided to ensure effective integration with host communities as well as adequate provision of facilities, services and infrastructure.

The Loss of Community Facilities and Resources

Affected community buildings and facilities will be restored to their previous condition or replaced in areas identified in consultation with the affected communities and the with the relevant authorities. The community facilities may include schools, temples, health posts, water points, irrigation canals and footbridges, graves and *ghats*.

Where communal grazing lands are affected, under the current HMG regulations, the Department of Agriculture will be requested to assist communities so that impacts on the grazing areas are adequately mitigated. Likewise where community-owned trees are acquired, the Department of Forestry will be consulted to advise Forest User Groups regarding future production losses and compensation modalities. These consultations will be formally recorded to ensure equitable access to rehabilitation and/or compensation measures. User Groups will be assisted with the re-establishment of new trees and perennial crops and the establishment or improvement of Community Forestry Programs. As required, these support programs will be funded by the Project as part of the SAP. In addition, advance notice will be given so that PAFs may harvest resources from affected areas.

Any loss of trees in the Project area of influence will be mitigated by means of afforestation programs to be undertaken by the Project, in consultation with the local communities and with the Department of Forestry.

Group Losses

Vulnerable social categories and others such as porters and other providers of non-vehicular transport along the direct Project affected area who may be determined to lose income indirectly as a result of the Project will be entitled to rehabilitation

assistance as defined in RP. Vulnerable social categories affected by the Project will be identified in consultation with local Government and VAC/LCGs.

If the diversion of water by the Project results into a loss of water for irrigation or for water mills, it will be mitigated before it can affect farmers and concerned property owners. The mitigation measures will be based on findings or baseline information from the Environmental Management Plan and the concerned group will be entitled to a one-time payment for the cost of construction of any necessary mitigation measures. If such measures are also required in subsequent years, the affected owners will be entitled to funds from a Revolving Fund to construct mitigation measures to restore access to water for the affected systems. This also applies to downstream fisheries and to spring water points affected by the Project's tunnelling. (For other assistance in these situations see Table B.2.42).

Damages Caused During the Construction Works

Extreme care will be taken by contractors to avoid damaging public and private property during construction. Where damages do occur to public or private property as a result of construction works, the Contractor will be required to pay compensation immediately to PAFs, and to other APs, such as groups, communities, or government agencies, for damages to crops and trees. Damaged land, structures and infrastructure will be restored immediately to their former condition.

Government Property

Government infrastructure and facilities including utilities affected by the Project will be repaired or replaced in consultation with the relevant departmental authorities.

Government forested areas will be acquired in consultation with the Department of Forestry, and any loss of trees therein will be mitigated by means of afforestation programs undertaken by the Project as far as possible, under the EMP.

Rehabilitation Allowances

In addition to compensation for lost assets, SPAFs will be entitled for the following Rehabilitation Allowances:

Households that require relocation will receive a *Housing Displacement Allowance* equivalent 3 months wages for each of the adult members of the household. The wage rate will be as established at the national or local level, whichever amount is higher. Such an allowance shall be paid to the household head. Titleholders, tenants in own accommodation and encroachers and squatters

will be entitled to this allowance, to be paid at the time of compensation payment.

Owners of commercial enterprises who are required to relocate will receive a *Business Displacement Allowance* equivalent to 3 months wages as established at the national or local level, whichever amount is higher. This allowance will be paid at the time of compensation payment. Titleholders, tenants in own accommodation, encroachers and squatters will be entitled to this allowance, to be paid at the time of compensation payment.

Households whose landholdings are no longer economically viable as a result of land losses, as defined in RP, will receive a *Cultivation Disruption Allowance* equal to one season's production on the area of cultivation land lost. The amount payable will be based on published district production figures, land type (i.e. irrigated and non-irrigated) and market prices for crops for the year in which the land is acquired. The allowance will be paid at the time of compensation payment.

Displaced households who have to build new accommodation and have to make transitional accommodation arrangement will receive rental stipend for 6 months. Displaced households of rented accommodation also will receive, in addition to the Housing Displacement Allowance, a *Rental Stipend* (Allowance) equal to 30 days wage amount as established at the national or local level, whichever amount is higher, paid at the time of compensation payment to the house owner.

All displaced households will be entitled a *Transportation Allowance* or direct transportation assistance provided by the Project to move their belongings including salvaged materials. The amount will be paid depending on the quantity of materials and distance to be moved.

Rehabilitation Assistance

Apart from the provision of Displacement Allowances, the rehabilitation of PAFs severely impacted (SPAFs) and vulnerable groups in the vicinity of the Project area will be supported through the following measures:

Counselling regarding the Project impacts, compensation alternatives and risks and resettlement options (as required);

Counselling on saving schemes and cash management;

Assessment of current economic activities and potential for improvement of these activities, as well as alternative income-earning opportunities.

SPAFs over 18 years of age will be entitled to *skills to* help in obtaining employment and/or earning livelihood as specified in RP, and through the auspices of the SAP. Efforts will be made to tie training to definite employment

opportunities. SPAFs who undergo training as a form of rehabilitation assistance will be supported by the Project through the training period (see Table B.2.42). The Project will facilitate the assessment and, where feasible, establishment of *small-scale Income-Generating Schemes* for SPAFs. Similarly, the Project will investigate the potential for co-ordination with existing programs in order to provide assistance to gain *access to National Poverty Alleviation and Credit Programs.*

SPAFs will have access to *Agricultural Extension Services* to increase production on their remaining agricultural and forestry land. The Department of Agriculture and Forestry will be asked to assist, under the SAP. Any costs to this effect will be borne by the Project.

Other Assistance

Vulnerable groups and indigenous people (such as Tamangs and Chepangs in the Kulekhani III Project area) may require special assistance. They may lack formal representation and recognition of customary land usage. Vulnerable groups and those having serious impacts will be given *preferential access to Project construction employment opportunities* to the extent possible. Because people may not be qualified for the available jobs, a long-term benefit to needy PAFs and vulnerable groups will be the provision of training by the Contractors to qualify them for Project construction employment. Requirements for the Contractor to provide training and a hiring program will be included in the bidding documents and the contract specifications. The Project will undertake consultation with the Contractors and with local communities to establish mutually agreeable conditions for employment of the local population, especially those belong to vulnerable groups.

General Information Dissemination And Counselling will be provided to all persons within the Project areas to inform them about the Project impacts, construction schedules and acquisition dates, valuation, compensation and grievance resolution mechanisms, construction employment procedures, and local development initiatives. In particular a Due Process Brochure on Land Acquisition and Compensation will be prepared in Nepali for local distribution and in English for distribution to Project staff, consultants, and Contractors.

Finally, through the establishment of VACs and LCGs, local communities will be able to discuss the position of the severely affected and vulnerable people within their communities, monitor their rate of re-establishment, and recommend additional corrective measures where necessary.

Table B.2.42 Entitlement Matrix

Type of Loss	Entitlement Unit	Description of Entitlement & Implementation Procedures	Remarks
A. COMPENSATION			
1. Land under private ownership (agriculture, homestead, and private land)			
A. Loss of Private Land	Titleholder	1. For PAFs: compensation at full replacement cost. 2. Registered tenants will be entitled to 50% of the compensation payable to the titleholder for affected land and crops PAFs will have the option to relinquish the remainder of that parcel or landholding if they feel that remaining portion of land plot after acquisition is too small to be viable for cultivation or other use. The minimum land area for viability shall be 8 *ana* or as defined by the project in consultation with local VDC.[17]	The following categories of affected households will be considered as SPAFs: Households who lose 25% or more of their land (owned and operated) within the Project area. Households who lose residential/business house If any SPAF receives cash compensation for farmland & purchases farmland within 1 year from the date of receiving compensation, the land registration fees for the purchased land & all government taxes & duties related to the acquisition & registration of affected assets will be borne by the project. Compensation in all cases will be either by cash or cheque, depending on the PAFs' preferences. The composition of CDC as per this Policy will consist of: Chief District Officer (CDO) Chief/Land Revenue Officer (LRO) Representative from DDC Representative from Kulehani HEP III Representative from respective VDC/Municipality, preferably from the LCG Representative from PAFs, preferably from VAC
B. Loss of Tenancy Land	Non-registered tenant not-legalizable as a registered tenant	1. Non-registered tenants do not qualify for compensation for land losses, however they will be entitled to compensation for crops according to their lease arrangement. Such compensation will be based on 5 years annual net production for fruit &	Households who lose more than 50 percent of their operated land will be considered a SPAF Tenants will be assisted with the identification of other agricultural production opportunities in the area.

[17] Ana = 16th of a Ropani (19.655 ropani = 1 Ha)

Type of Loss	Entitlement Unit	Description of Entitlement & Implementation Procedures	Remarks
		fodder trees & 3 years annual net production for timber/fuel wood trees & other perennial crops. 2. If the landowner is not identified, the full compensation amount as per (1) above will be paid to the tenant cultivator (operator).	
C. Temporary Loss of Private Land	Titleholder	1. Compensation for crop losses for the duration of temporary occupation plus one more year necessary for the soil to be adequately prepared to its original productivity. PAFs will sign a temporary occupation contract specifying: Period of occupancy, Formula for the calculation of annual rent, e.g., market value of crops normally produced on the required land, and annual inflation adjustments; Form of payment, e.g., money or grain; Frequency of payment/delivery, e.g., quarterly Compensation for other disturbances & damages caused to property. Land protection measures during the lease; and Land will be returned to the owner at the end of temporary acquisition, restored to its original condition.	
2. Crops and Trees			
A. Loss of Trees & Perennial Crops	Titleholder Tenant Lessee/cultivators having agreement with the owner	1. Advance notice to harvest crops will be given. 2. Net value of crops where harvesting is not possible will be provided. 3. Compensation at market value on the basis of loss of future production, based on 5 years annual net production for fruit & fodder trees & 3 years annual net production for timber/ fuel wood trees & other perennial crops.	Crop market values will be determined by the CDCs & compensation prices will be finalized with active participation of PAF representatives, including VACs and LCGs. If the land is registered under tenancy, both the owner & the tenant will be entitled for 50 percent of compensation amount each. When a tenant/lessee & landowner have a non registered sharecropping arrangement, the compensation payable will be apportioned according to the arrangement.

Type of Loss	Entitlement Unit	Description of Entitlement & Implementation Procedures	Remarks
B. Loss of Non-perennial Crops	Titleholder	1. Advance notice to harvest crops will be given. 2. Where harvesting is not possible, the net value of crops will be provided.	Crop market values will be determined by the CDCs & the compensation process will be finalized with active participation of PAF representatives, VACs and LCGs. Where there is a registered tenant, the tenant & titleholder will each be entitled to 50% of the compensation payable. Where there is a non-registered tenant with a sharecropping arrangement with the titleholder, the compensation payable will be apportioned according to the arrangement.
3. Houses and Other Structures			
A. Loss of other privately-owned structures	Titleholder (Owner)	Compensation for full or partial loss at full replacement cost, according to structure type, without deduction for depreciation. Cash compensation for damages to structures resulting from temporary occupation of land at replacement cost.	Other structures include such items as: sheds, walls, fences, and water mills. Loss of structures other than houses does not entail payment of a Displacement Allowance. Compensation determination and compensation payment as per 1A above.
4. Damages Caused During Construction			
A. Public and Private Buildings And Structures, Infrastructure, Land, Crops, Trees	All categories of Entitled Persons	Extreme care will be taken by Contractors to avoid damaging public and private property unnecessarily. Where damages do occur to public or private property as a result of construction works, the PAF/SPAFs, groups, communities, or government agency shall be compensated for damages to crops and trees; damaged land, structures, and infrastructure shall be restored to their former conditions.	CDC will make compensation determination for the losses in consultation with VACs and LCGs, as per CCV procedures.
5. Community Facilities And Resources			
A. Loss of Buildings and Structures	Local community	Restoration of affected community buildings and structures to at least previous condition, or replacement in areas identified in consultation with affected communities and relevant authorities.	Community buildings and structures include: schools, temples, graves, *ghats*, waiting sheds, irrigation channels, water points, trails/foot paths and bridges.

Type of Loss	Entitlement Unit	Description of Entitlement & Implementation Procedures	Remarks
		Restoration before commencement of the Project where necessary, to be determined in consultation with the community.	
B. Loss of Land	Local Community or User Groups	1. Restoration of access to community resources.	The Departments of Agriculture and Forestry will be consulted and requested to assist communities so that impacts on grazing areas are adequately mitigated, and as necessary, measures will be paid for by the Project, as included in the SAP.
C. Loss of Community Forests due to Construction	Forest User Groups	Mitigation measures will be initiated to control erosion caused by tree cutting, and to stabilize and rehabilitate the slopes with suiTable B.ioengineering works and vegetation. Compensation for trees Advance notice to harvest resources from affected community forest areas.	Community Forests in various Project sites affected by construction will be rehabilitated.
D. Loss of Drinking Water Points due to Construction	Community that owns the Water Points	Replacement and restoration of the Water Points at suitable locations. Replacement will be made before construction damages the systems.	The down time between construction of the new system and transfer from the old will be minimized to minimize impact on households caused by disruption in water availability. As far as possible, alternate sources of water will be made available during the construction period. Loss of water due to tunneling will be determined according to baseline established during 2002-2004 field surveys and will be compensated if found to occur.
6. Group Losses			
A. Loss of Income Indirectly due to the Project (Employment For Porters and Other Laborers)	Persons in the Vicinity of the Project Area	1. Rehabilitation assistance as defined below.	Vulnerable social categories and losses actually affected by the Project will be identified in consultation with VACs and LCGs and may include: porters and other providers of non-vehicular transport.
B. REHABILITATION MEASURES			
7. Housing Displacement Allowances			

Type of Loss	Entitlement Unit	Description of Entitlement & Implementation Procedures	Remarks
A. Displacement of Households	Titleholder (Resident) Tenant Landless Squatter on Public Land (prior to cut off date)	Every SPAF household will be entitled to a Housing Displacement Allowance. Each displaced household will be entitled for a reasonable amount of Rental Stipend for six months.	Each member of a displaced household will receive a fixed amount of *Housing Displacement Allowance* for three months. Housing displacement allowance will be based on minimum wage as established at the national or local level, whichever amount is higher. Allowances will be paid prior to displacement.
B. Severe Disruption to Cultivation	Titleholder Lessee/Cultivator having Agreement with the Owner	SPAFs as defined in clause 1 A. column 4 in this *Entitlement Matrix* will be entitled to a *Cultivation Disruption Allowance* for severe disruption to household cultivation levels. 2. The *Cultivation Disruption* Allowance will be equal to one season's production on the area of cultivation land lost, based on the published District and VDC productions figures, land types and market prices for crops for the year in which the land is acquired, to be paid at the time of compensation payment.	SPAFs as defined in clause 1-A. Column 4 in this *Entitlement Matrix* will be entitled to a *Cultivation Disruption Allowance*
C.Transportation Allowance	Titleholder Tenant Persons living on rented accommodation Landless Squatters/ Encroachers on Public Land As per clause 4 of this Policy	1. Each displaced SPAF household will be entitled to Transportation Assistance to move their belongings.	
8 Other Rehabilitation Assistance			
A. *Severe Loss of Assets Directly due to the Project, and Severe Impact indirectly caused by the Project.*	SPAFs Seriously Affected Population over 18 years of age	1. Counseling regarding Project impacts, compensation alternatives and risks, and resettlement options (where required). 2. Counseling on saving schemes and cash management 3. Preferential access to project construction employment opportunities, to the extent possible. 4. Assistance with training in life skills that would help in obtaining employment and/or earning livelihood. 5. The Project will facilitate the assessment and (where feasible) establishment of small-scale income generating schemes for seriously affected households in the areas. 6. Assistance to gain access to National Poverty Alleviation and Credit Programs to SPAFs will be provided. 7. Households shall be entitled to Agricultural Extension Services to increase production on their remaining agricultural and forestry land.	The Rehabilitation Measures will be targeted to SPAFs and to other vulnerable groups in the vicinity of the Project area who may be adversely affected by the Project, even though they do not lose assets. Vulnerable groups include: porters and other non-vehicular transport providers who may lose jobs because of project interventions, Chepang (*praja*) households, and landless households. Specifications for training and hiring workers will be included in Contractors' contracts. The Project's Resettlement Unit (located in KESMU) will investigate the potential for coordination with existing programs. The respective Agriculture Institutions will be requested to assist in implementing the program. Any costs will be borne by the project, as part of the SAP.

Type of Loss	Entitlement Unit	Description of Entitlement & Implementation Procedures	Remarks
9. Government Property			
A. Loss of Infrastructure and Facilities	Relevant Agency	1. Facilities will be repaired or replaced.	To be undertaken in consultation with the relevant Department or Ministry.
B. Loss of Forest Areas	Department of Forest	1. Mitigation by means of afforestation.	To be undertaken in consultation with Department of Forestry and User Groups.
10.General Counseling			
A. All Project Impacts	Persons within the Project Areas	General Counseling on: Project Impacts, Construction Schedules Land Acquisition Schedules, Valuation, Compensation and Grievance Resolution Mechanisms, Construction Procedures Local Development Initiatives.	

B.2.8 Consultation, Participation, and Grievance Redress

(1) Consultation and Participation

The APs (inclusive of PAFs.SPAFs and other groups and institutions, such as HCIL) will participate throughout the various stages of the planning and implementation of the RP. They will be properly informed through issuance of *Due Process Brochures* in the Nepali language on all activities to be carried out. The information will include the specific activities, schedules, organization responsible, potential impacts, entitlements, compensation and resettlement, rehabilitation and mitigation measures.

To date, APs and other stakeholders are being consulted during the RP preparation through an explicit Consultation Strategy outlined as part of the EIA update. During Project Implementation, meetings with APs will be carried out to identify their needs and preferences pertaining to compensation and rehabilitation assistance in order to avoid and mitigate any negative impacts caused by the Project.

(2) Grievance Redress

All APs will have the right of appeal against any aspect of decisions made not in accordance with the RP or with commitments given to them, or on which they disagree with the level or manner of compensation.

The main objectives of the Grievance Procedure will be to provide a mechanism to ensure that the compensation and resettlement programs have been implemented accurately and fairly, alleviating any adverse effects on APs, to mediate conflict and to avoid lengthy litigation that is unfair to APs and can delay the project. It also will provide people who have objections or concerns about their assistance with an accessible and known procedure through which to raise their objections and have them resolved.

Attempts will be made to settle the issues at the village level through community consultation, involvement of social and resettlement experts, NGOs and mediators and facilitators if required. The concerned resettlement committees will properly document all complaints and resolutions.

The APs will be made fully aware of their rights to grievance and the procedures by doing so verbally and in writing during consultation, survey and time of compensation. The APs may present their complaints to the concerned local administrative officials and resettlement committees. The complaint will be filed first at the village level and will be elevated to the highest or provincial level if the

APs are not satisfied with the decisions made by the village and district levels/committees. *VACs and LCGs* at each level will settle the complaint within 15 days. APs will be exempted from all taxes, administrative and legal fees.

The affected households and persons will have access to Grievance Redress both through Project organization and through formal courts of appeal. The Resettlement Unit will handle initial grievances. Grievances related to land price fixation and compensation amounts will be handled by the CDC. The PAF/SPAFs may appeal for review of the compensation amount if felt very unsatisfactory compared with the market price of the adjoining plots. The VAC or LCG will facilitate APs to file a formal appeal and complaint if necessary to the CDC.

The Land Acquisition Procedures are specified in the LAA. The procedure will ensure public consultation, consensus building, adequate time of notification, adequate information on resettlement options and participation of APs in decision making as far as possible.

To ensure transparency of procedures, payment of compensation and other allowances will, as far as possible, be made in the presence of the PAF/SPAF's significant family member (spouse) and other local authorities. These witnesses will ensure that the AP (PAF/SPAF) understands and agrees with the compensation amount, and is informed of the Grievance Appeal Mechanisms made available through the Project. Certificates of Compensation will, in addition, be issued to each entitled AP.

All Government taxes and duties related to the acquisition and registration of affected assets will be borne by the Project.

Lessons learned from other development projects show that local officials or organizations often ask APs for 'donations' and/or 'service fees'. Thus, APs are obliged to share or contribute a portion of their compensation payment as part of the administrative requirements for their Compensation Payment. To avoid this, it will be clearly discussed during the meetings that APs are not allowed to give or donate a portion of their money to any officials or members of any other agencies or organizations or to Project Staff.

B.2.9 Relocation of Housing and Settlements

(1) Resettlement and Rehabilitation Measures

A number of measures are proposed in order to mitigate the Project's Resettlement Effects. The cut-off date for resettlement entitlement eligibility will be the Acquisition Notice as specified in the LAA.. Details of compensation and

rehabilitation measures are given in the *Entitlement Matrix* above. In general the main measures include:

- Compensation,
- Rehabilitation Support (Allowances),
- Rehabilitation Assistance, and
- Other Assistance (e.g. General Counseling)

(2) Compensation for Land and Property

All compensation for affected land and property will be based on the principle of replacement cost. Depending upon the type of land and asset affected and the ownership, either the individual or the community will be the unit of entitlement. A detail of the unit of entitlement is already discussed. The compensation measure will include:

Full compensation of land at market rate to the owner before construction work of project begins. If there are registered tenants they are eligible for 50 percent of the compensation for the affected plot operated by them.

Full compensation of house and sheds at replacement cost before the Project takes into possession of the structure i.e., allowing reasonable time to settle in the new site. Once the cost for the structures has been finalized some proportion of payment of their residential house can be given house-owners in advance if they demanded.

Full compensation of community structures or reconstruction at the site convenient to the affected community

Separate rates for compensation apply for *khet* and *bari* as *khet* is more valuable and productive than *bari*. At the time of field survey the average market rate for *khet* was NRs.100,000 per *ropani* which means approx. NRs. 2,000,000 per hectare.

The average rate for *bari* was NRs. 75, 000 per *ropani*, which means NRs.1,500,000 per hectare. The estimated total compensation for land is given in resettlement budget later.

The compensation for houses and other structures are based on the type of structure, *storeys*, and area covered (sq. ft.) including type of building material. The compensation estimate for house structure ranges from approximately NRs. 26,000 for *kachhi* to approx. NRs. 620,000 fro *pakki* house.

In addition to paying compensation for private land the Project will also negotiate with various agencies since construction of Project facilities is likely to affect

public land, institutional land and the Community Forestland. For example, negotiation with the District Department of Forest and the Forest User Committees of Kalia and Bokedaha community will be done for the 35.58 ha of forest land of Yangrang and Work Adit 1. Similarly for the headworks with 1.64 ha, dealing with Kulekhani II project is a must. Private and grassland of about 3.53 ha to be used for Work Audit 1 will be negotiated with HCIL. Moreover, likely to be affected the river areas and grassland of some 23.38 ha affected by different Project components and facility sites has to be negotiated with Department of Forest, DDCs and local VDCs. This issue will be dealt in detail in the Project's EMP.

B.2.10 Income Restoration Strategy

(1) General

Rehabilitation support will cover Displacement Allowances and other rehabilitation assistances to improve or at least restore the living standard of APs (inclusive of PAF/SPAFs) and affected communities. The Kulekhani III Project will adopt the following rehabilitation support measures for those who lose land and house structures due to the construction of Project facilities.

(2) Displacement Allowance

Household members affected due to displacement of residential house structure will be entitled for displacement allowances which include Displacement Allowance, Cultivation Disruption Allowance equivalent to one season's production (who lose land and house) and Transportation Allowance. Details are given in the *Entitlement Matrix* above.

(3) Rehabilitation Support

The Project will provide various rehabilitation assistance measures to restore the livelihood of APs and communities. This assistance will be largely focused on PAFs having serious impact (by loss of residential house and more than 25 percent of total land in the Project area) and vulnerable communities. Since the Detailed Design and DMS has not been done, the SPAFs due to loss of land greater than 25 percent of the total owned and operated land have not be identified. Once the detail design is done and a clear demarcation of area for Project work is available, all these details will be worked out. If possible, the Project may consider providing land plots for construction of houses for those who loose their residential house or a fixed sum of money can be provided in addition to other allowances.

A Transfer Fee for those who buy land with cost equivalent to the compensation amount received within a year will be provided by the Project as a rehabilitation measure. The skill training, preferential employment and other similar measures will provide assistance to the affected households. Details are given in *Entitlement Matrix* above

(4) Other Support

1) General

In addition to compensation, allowances and rehabilitation assistance, the affected households are entitled for general counseling on various aspects of economic and social life. Preferential access to employment for vulnerable groups, access to training provided by the contractors and utilization of other project related facilities by affected persons are some other assistance provisions.

In addition to the Resettlement Entitlements the affected families singly or collectively will benefit from various measures related to public health and sanitation, education, community support works, neighborhood support programs, life skill training and many others proposed by the Project's SAP.

2) Cage Fish Culture on Re-Regulating Pond

Cage fish culture is recommended for ten percent of the total available area of the Kulekhani III Regulating Pond. The cage fish culture will replace the loss of fish catch in Rapti River and its feeder streams. This is also helpful in maintaining the fish population and protein consumption of local people and also may designed as a rehabilitation measure for PAF/SPAFs to replace income lost due to land acquisition.

The Indrasarobar Reservoir, of Kulekhani I is the only reservoir, that has utilized cage fishery development. The Fisheries Development Center in Markhu initiated commercial fish culture from 2045 BS (1988), involving local people. The Center started cage fish culture with five households, and currently one hundred and seventeen households are involved in cage fish farming. Out of the total available potential of //, only an area of about 11,770m^3 has so far been exploited for cage fish culture. Artificial feeding is not required for the fish culture on the Indrasarobar Reservoir. Approximately 17,000 kg fish was sold last year, 12,972 kg from the private producers and 4,058 kg from Government cages established on the Indrasrobar Reservoir. (Kantipur Paush 2057 [2000]).

3) Commercial Development at Sanutar & Ghumaune

The SAP includes provision for vegetable produce collection centre and bus stop to take advantage of the construction of the new Kulekhani III's motorable bridge across the Rapti River.

It is likely that the new bridge and the Project's 'boomtown' effects will spur considerable economic activity in the area, probably leading to the development of a small bazaar town along the lines of what is observed near suspension bridges in other parts of Nepal.

A possibility that will be examined as part of the SAP will be the siting of the bus stop and produce collection facility on the spoil site at Sanutar, once construction is completed, laying out commercial and residential development plots that may be either given by lottery to the the local residents, PAF/SPAFs receiving first priority, or managed in a corporate way by these communities but with provisions in place for assuring the development is used as a rehabilitation measure benefiting PAF/SPAFs. Options will be further investigated during the Detailed Design Stage studies.

B.2.11 Institutional Framework

Since the Resettlement Effects are not very large, say compared to those of a reservoir hydro project, no separate institutional arrangement for resettlement is proposed. There will be a Resettlement Unit (RU) within the Kulekhani III Project's Environment and Social Monitoring Unit (KESMU) to handle resettlement implementation. The proposed organization chart of the Division is given in Figure B.2.1. The Resettlement and Rehabilitation Officer (RRO) in the Acquisition, Compensation and Resettlement Section (ACRS) will be responsible for all resettlement-related activities.

Within the umbrella of LAA there is a provision of CDC (discussed earlier with suggested improvements**)** to negotiate the price and facilitate land acquisition for the Project. The above *Entitlement Matrix* also specifies the composition of the CDC. The ACRS will work as a Secretariat for the CDC. However, if land and other assets can be acquired through negotiation with the owners, this will have priority, and the Project itself will negotiate the acquisition. In both situations the ACRS will play an important role for coming up in consultation with the APs with acceptable conditions and costs for lost land and assets.

The ACRS will have provision of Surveyors, Resettlement Assistants, Accountants and other lower level staff to facilitate the RRO.

To facilitate the resettlement implementation, VAC and LCG will be organized. The VAC/LCGs will consist of representatives from VDC (Chair), Ward Chair/s of affected Wards, two representatives of PAFs (one male and one female), a representative from local government institutions such as the High School, Health Post, Agriculture, or Forest Ministries, representatives of the S&E Division and a

local knowledgeable person or Social Worker, possibly from an NGO or CBO. The VDC Chair will Chair the meetings of the Committee. The RRO will attend the VAC/LGC meetings and keep minutes. These will be largely advisory bodies. They will function as liaison between the KESMU and the APs. Their establishment at the VDC level and in municipality Wards is to effectively address the social issues associated with the Project. The objectives of this participation program will be to (i) ensure ongoing dissemination of Project information to APs (PAF/SPAFs) and ii) to involve affected communities and local government structures in the social impact management, grievance resolution and monitoring, thereby promoting collective organization and decision-making.

For effective delivery of Resettlement Entitlements the coordination with other Government line agencies (e.g., Department of Forestry and Ministry of Agriculture) is important. The RU will work diligently with those in the community who may not be directly affected but who may have been affected indirectly, to handle issues related to social, as well as environmental impacts.

The resettlement activities of the Project will not end with delivery of compensation and direct assistance. The rehabilitation measures will continue for a longer period. The monitoring of APs (PAF/SPAFs) is also an important task of the RU. The resettlement activities will be considered as part of a set of comprehensive local development activities and not only as compensatory measures.

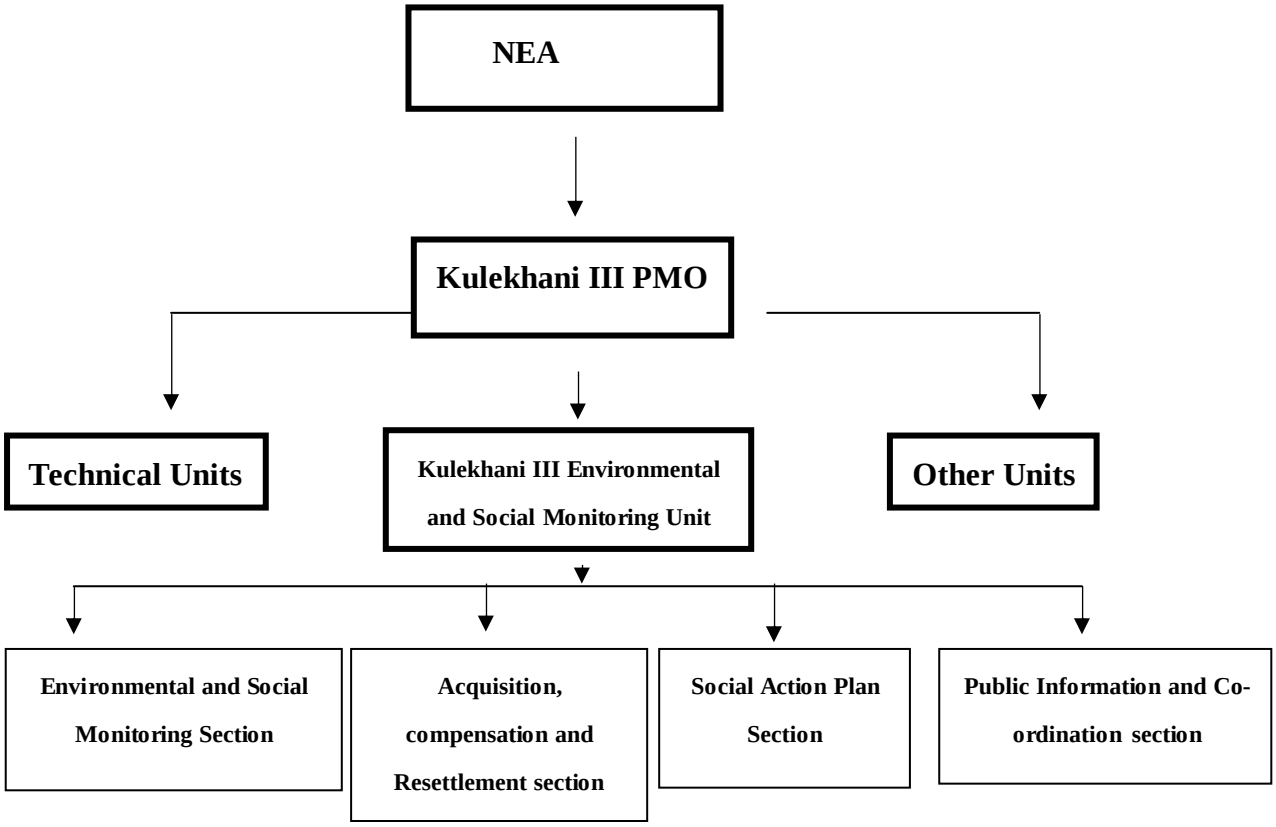

Figure B.2.1 Proposed Organizational Chart of Kulekhani III Social and Environment Division

B.2.12 Resettlement Budget and Financing

(1) Budget Estimate

The budget estimate for the RP is NRs. 41,742,960.00 [NOTE: also converted to US$ and mention of exchange rate used]. This includes both direct and indirect costs. The resettlement cost is calculated under several headings.

(2) Direct Cost

1) Compensation for Land

Two options are presented to calculate the compensation for land acquisition. Option one is based on the assumption of permanent acquisition of all land including construction campsite at Ghumaune. Option two considers permanent acquisition of all land except Ghumaune construction campsite, which can be negotiated for temporary acquisition with lump sum amount. The estimated cost for second option is lower by NRs.4,494,00. Table B.2.43 provides the estimated cost for land acquisition with both options. The estimated cost for permanent acquisition of 15 ha of land is NRs.25, 500,000.

Table B.2.43: Compensation for Land Acquisition

Land Type	Land in (ha)	Rate/ha (NRs)	Total Amount (NRs)
Option 1[18]			
Khet (irrigated land)	6	2,000,000	12,000,000
Bari (rain-fed land)	9	1,500,000	13,500,000
Total Option 1			25,500,000
Option 2			
Khet (irrigated land	4.944	2,000,000	9,888,000
Bari (rainfed land	7.412	1,500,000	11,118,000
Total Option 2			21,006,000

2) Compensation for Houses and Sheds

A total of 26 houses with 24 owners are affected by the project facilities, which need compensation. The total cost estimate for these houses is NRs. 5,900,700. Apart from houses a total of 29 sheds are affected which need to be compensated. The estimated cost for compensating these sheds is NRs. 304,000. Details of house owner, type of house, area of the house and the estimated cost is given in Table B.2.44.

3) Compensation for the Loss of Trees

In addition to the compensation for land and structures, the owners of fruit trees, fodder trees and plantation will be entitled for their losses. Pineapple, banana, Mango, guava, lemon, *lichhi* and papaya are the fruit trees grown in the land to be

acquired. The compensation amount for these fruit trees together with fodder trees and *sissou* plantation is given in Table B.2.45. Two households have planted *sissou* trees in a total of about 1.75 hectare. Since these plantations are in initial stage and will take several years to mature a lump sum estimate of the cost is made.

[18] Note: Option 1: Permanent acquisition of all land including construction campsite at Ghumaune. Option 2: Permanent acquisition of all land excluding Ghumaune construction camp site

Table B.2.44: Compensation to House Structures and Sheds (Sanutar and Ghumaune)

SN	Name of House Owner	Res. Stru.	Type	Area ft^2	Storey	Total Rooms	Cost (NRS)	Sheds	Area ft^2	Cost (NRs)
1	Shyam Bdr. Aale	1	Ka/P	258.2	1	1	71005	1	<100	8,000
2	Ram Bdr. Syangtan	1	Ka/P	129.1	1	1	25820	0	0	0
3	Lal Bdr. Lama (Syangtan)	1	Pa/S	376.6	2	2	338940	2	<100 & >100	20,000
4	Bir Bdr. Syangtang	1	Ka/P	258.2	2	2	103280	2	>100	24,000
5	Indra Kumari Karki	1	Pa/T	774.7	2	4	619760	1	>100	12,000
6	Laxman Sapkota	1	Pa/P	363.1	2	2	217860	1	>100	12,000
7	Nar Hari Sapkota	1	Pa/T	363.1	2	2	290480	1	>100	12,000
8	Narayan Prashad Sapkota	1	Pa/T	258.2	2	2	206560	1	<100	8,000
9	Dhan Prashad Sapkota	1	Pa/T	338.9	2	2	271120	1	>100	12,000
		1	Ka/P	258.2	1	1	51640	0	0	0
10	Som Bdr. Lama	1	Pa/s	484.2	2	2	435780	2	<100 & >100	20,000
11	Lal Bdr. Lama	1	Pa/P	376.6	2	2	225960	0	0	0
12	Krishna Bdr. Syangtang	1	Pa/T	301.2	2	2	240960	1	>100	12,000
13	Kaman Singh Syangtan	1	Ka/P	266.3	1	1	53260	1	>100	12,000
14	Sabitri Singtang	1	Pa/P	352.4	2	2	211440	1	>100	12,000
		1	Pa/P	322.8	1	1	64560	1	<100	8,000
15	Jit Bdr. Syangtang	1	Pa/P	258.2	2	2	154920	2	<100	16,000
16	Buddhi Man Gole	1	Pa/P	430.4	2	2	258240	1	>100	12,000
17	Raj Kumar Gole	1	Pa/S	279.7	2	2	251730	2	<100	16,000
18	Ram Bdr. Gole	1	Pa/S	279.7	2	2	251730	3	<100 & >100	32,000
19	Purna Bdr. Thing	1	Pa/T	516.4	2	4	413120	0	0	0
20	Ganesh Kumari Gole	1	Pa/S	387.3	3	4	522855	1	>100	12,000

SN	Name of House Owner	Res. Stru.	Type	Area ft^2	Storey	Total Rooms	Cost (NRS)	Sheds	Area ft^2	Cost (NRs)
21	Binda Adhikari	1	Pa/T	258.2	2	2	206560	1	>100	12,000
22	Sita Gurung	1	Ka/P	258.2	1	1	51640	0	0	0
23	Rajendra Syangtan	1	Pa/P	258.2	2	4	154920	1	<100	8,000
24	Binod Syangtan	1	Pa/T	258.2	2	2	206560	1	>100	12,000
25	NI	0					0	1	>100	12,000
	Total	0					5,900,700	0		304,000
Contingency 10%										
Grand Total		26						29		6,204,700

Note: Ka/P – *Kachi* House with Thatched Roof, Rate NRs 200/ft^2. Pa/T – *Pakki* House with Tin Roof, Rate NRs 400/ft2. Pa/P – *Pakki* House with Thatched Roof, Rate NRs 300/ft^2. Pa/S – *Pakki* House with Slate roof, NRs 450/ft^2. Shed <100 sq.ft. Rate Rs 8,000. Shed >100 ft^2, Rate NRs 12,000

Table B.2.45: Compensation for the Loss of Fruit Trees, Fodder Trees and *Sissou* Plantation in Private Land at Sanutar, Ghumaune, and Tailrace Outlet

Description	Number of Trees			Rate NRs/Trees		Total NRs.		Grand Total
	Fruit Bearing	Not Bearing	Total	Fruit Bearing	Not Bearing	Fruit Bearing	Not Bearing	
Mango	38	30	68	3,000	1,200	11,4000	36,000	150,000
Banana	209	158	367	150	30	31,350	7,900	39,250
Lemon	10	0	10	2,500	1,000	25,000	0	25,000
Guava	20	3	23	1,000	400	20,000	1,200	21,200
Pineapple	265	58	323	50	20	13,250	1,160	14,410
Papaya	2	4	6	2,500	1,000	5,000	4,000	9,000
Lichhi	3	2	5	1,500	600	4,500	1,200	5,700
Orange	0	1	1	2,500	1000	0	1,000	1,000
Other Fruit Trees	15	12	27	500	250	7,500	3,000	10,500
Fodder trees	350	150	500	1,000	200	350,000	52,500	402,500
Sissou Plantation*	0	1925	1925	0	2,500	0	4,812,500	4,812,500
	912	2,343	3,255	-	-	570,600	4,920,460	5,491,060

Note: Losses of trees are estimated based on the preliminary survey of the households whose structures and land were affected. Compensation rates for the fruit bearing plants and fodder trees are based on the average number of fruits/tree or fodder/tree times cost NRs/fruit or fodder multiplied by production life of the fruit bearing tree (e.g. 5 years). For trees/plants not bearing fruit or for fodder trees compensation is estimated for the production life of 2 years after three years of acquisition. About 1.75 ha of land is under *sissou* plantation (Mr. Chandra Lal Dong with 1.24 ha and Indra Kumari Karki with 0.51 ha). Compensation for *sissou* trees are lump sum estimation, it is assumed that *sissou* plant will take at least further 10 years to be sold as timber.

(3) Cost of Rehabilitation Measures

1) Housing Displacement Allowance

Housing displacement allowances are based on a fixed sum of NRs1,500 per month for each member of the displaced household for three months. Considering 6 persons per household this amount comes out to be (1,500/p/m*6 persons/hh*3 months*24 hh) NRs. 648,000.

2) Rental Stipend

Rental stipend estimate is based on NRs 3,000 per month for 6 months (3,000/month* 24hh*6 months) and it is estimated to be NRs. 432,000.

3) Cultivation Disruption Allowance

The Cultivation Disruption Allowance is based on one season's production on the area of cultivation land lost, types and market prices for crops for the in which the land is acquired. For the purpose of this budget the allowance has been based on average production figures as reported in the field survey. The total land loss for is 14.88 ha from among 46 households. This means average loss of 0. 323 ha (approx. 6.5 *ropani*) per household. Assuming about one-fourth households losing more than 25 percent of their land who could be entitled for this allowance a lump sum of NRs. 144,000 is estimated (12 hh* annual production of paddy in 0.323 ha in kg * NRs 20 price/kg).

4) Transportation Allowance

Assuming a lump sum of NRs 5,000 per displaced household to transport their salvaged materials for 24 households, this amounts to be NRs. 120,000.

5) Other Rehabilitation Measures

One person each SPAF household will be provided life skill training and for this a lump sum of 360,000 (36 person month @ 10,000/month). For other rehabilitation measures such as support for agricultural extension, support to small income generating activities and miscellaneous activities an equivalent amount is estimated. Table B.2.46, provides a summary estimate of resettlement cost for the Kulekhani III Project.

Table B.2.46: Resettlement & Rehabilitation Cost

Description	Cost estimate
Direct cost	
Compensation for Private Land (Negotiated cost for temporary acquisition of private land)	25,500,000
Transfer Fee (to be paid if affected HH buy land of equivalent value)	1,897,200
Privately owned trees (fixed sum at this time)	5,491,060
Private Structures	
Houses	5,900,700
Sheds	304,000
Community Structures (provisional)	100,000
	39,198,960
Indirect Cost	
Displacement Allowance	
(HH * monthly allowance * 3)	648,000
(HH * monthly rental * 6)	432,000
Cultivation Disruption Allowance	144,000
(Transportation Allowance)	120,000
House plot grant to 24 residential house owners @ NRs. 50,000.00	1,200,000.00
TOTAL	41,742,960.00
Rehabilitation Measures Skill training Agriculture extension Support to small income generating activities	 Refer SAPF Refer SAPF
Implementation & Management	Refer EMP
Monitoring and Evaluation	Refer EMP
Administrative Cost	Refer EMP

Table B.2.47: Environmental Costs

Items	Cost	
Environmental Mitigation and Monitoring	NRs	US$
Studies in detailed design phase	3,596,725	
Resettlement and rehabilitation, Environmental Mitigation, including part of Social Action Plan Framework	108,809,760	
KESMU consultants, administration and Public Information centers etc.	43,585,300	
Frontline baseline and impact monitoring during pre-construction and construction	5,819,000	
Independent Monitoring	1,160,000	
Environmental Audit	250,000	
Monitoring for the first 4 years of operation phase for downstream agriculture productivity, fishery etc.	2,530,000	
Total Cost	165,750,785	
Annual mitigation cost for fishery	121,000	
Annual water quality monitoring in operation phase	88,000	
Total recurrent costs	209,000	

B.2.13 Implementation Schedule

The implementation schedule closely follows the overall project schedule (see EMP). It is dependent upon the start of the construction work of the project. However, it is recommended that full payment of compensation to structure owners will be made at least three month prior to the initiation of construction work to give time for demolition, transportation of salvaged materials, construction of new residence etc. For other property, full compensation shall be made prior to occupancy. The rehabilitation schedules will be consistent with the project activities and will be the focus of pre-construction part of project

B.2.14 Monitoring and Evaluation

(1) General

Resettlement activities do not end with compensation payment and payment of necessary allowances. The internal and external monitoring is essential to examine the delivery of resettlement entitlements and to find out if the affected families were able to improve or at least restore their living standard to pre-Project status.

(2) Internal Monitoring

Monitoring takes place against the activities, entitlements, timeframe and budget set out in the resettlement plan. The socio-economic survey conducted for the environment and social action plan will provide basic information of the affected population. Internal monitoring of activities and entitlements will be done periodically. The Environmental and Social Monitoring Unit could do this. However, an external agency is desirable to conduct such surveys. During the payment of compensation a short information format will be filled with the affected household. This can be used as baseline to which changes can be assessed in the future surveys. At least after three years of entitlement delivery a survey of the affected households is desirable so that affected household's change can be monitored. Monitoring indicators will be developed after the detailed design and survey is over. However, monitoring of timeframe, budget and entitlements will be part of regular project process. Since complete recovery from resettlement impact can be protracted monitoring sometimes requires well after Project activities are completed.

(3) External Monitoring & Evaluation

Post evaluation of resettlement is an integral part of project cycle. An external agency (independent consultant) is needed for external monitoring and evaluation. The tasks of external monitor is to verify results of internal monitoring; assess whether resettlement objectives are met; assess resettlement efficiency,

effectiveness, impact and sustainability; ascertain if the resettlement entitlements were appropriate to meeting the objectives and whether the objectives were suited to the conditions of project affected households. A Panel of Expeerts (POE) may be appointed to follow the progress of the RP, SAP, and EMP and to make recommendations as required.

CHAPTER B.3 SOCIAL ACTION PLAN (SAP) FRAMEWORK

B.3.1 Introduction

(1) Background to Social Action Plan (SAP)

Implementation of a Project of the scale of Kulekhani III requires careful planning for managing a number of social impacts of diverse nature, aside from the acquisition of land and relocation of houses. These include the disruption of social infrastructure such as irrigation canals, water supply systems, and health and education facilities. This also includes the direct and indirect de-capitalization of Affected Persons (APs), who may risk losing capital in all its forms: natural capital and man-made capital, as well as human and social capital.

The Resettlement Plan (RP) addresses the de-capitalization issues in its various forms for the APs losing their land or house. However, the Project indirect impacts on those whose land and property will not be directly affected by the Project, but who are living by the side of Project activity areas are often poorly addressed. Past project experiences have revealed this to be an issue of dissatisfaction of most of the project area peoples in Nepal.

Among the general population, projects such as the Kulekhani III are seen as a potential wheel of development in the Project area. In fact most of the projects, national or donor funded, have a basic underlying objective of poverty reduction and improvement of the quality of life of the Nepalese people. While this may be realized in the national context, if viewed in terms of revenue generated from the Project, in most of the cases people of the project area have little or no access to the project benefits. In a number of instances, the loss of local area resources has not been compensated in any way, and the local people may suffer from the outcome of the project induced losses in various unrecognized ways.

If the Kulekhani III Project is implemented, there will be a number such de-capitalization risk issues potentially leading to impoverishment of households in the project area. For example, reduction and fluctuation of water discharges in the Rapti River may impart the existing irrigation canal intakes ineffective for water diversion, with adverse effects on agricultural production. Similarly diversion of the Yangran River's water will risk the agricultural production of Sanutar and Ghumaune villages. Loss of the Yangran catchment vegetation, forming a part of Bokedaha and Kalika community forests will be not only a community loss but also a loss of natural resources, and this will particularly affect the livelihood of the poorer peoples of the area, who traditionally depend on

forest resources to make up for lack of agricultural. Increased access to the hinterland due to project's access roads and the motorable bridge to be constructed across the Rapti River is likely to bring competition for natural resource extraction between local sand outsiders entering the project area for economic gain. This Project induced encroachment to the local people's communal property will be an indirect Project impact.

There will be a number of other impacts besides these examples given above. The Construction Phase impacts will include a number of *'boom town'* effects due to outsiders entering the project area. Housing complexes may be constructed to house the project laborers and their families, and new business enterprises and various other services will spontaneously be established nearby the the construction camps. The implications are a decline in sanitary conditions, increase in solid waste, pressure on existing water supply facilities, as well as on the existing education and health institutions. The carry over effects for health could be the spread of diseases such as cholera and malaria, and HIV AIDS. Girl trafficking will very likely increase. It is also likely that around the construction sites outsiders will actually out number the local villagers, and this will have possibly adverse impacts on local culture, and social institutions. Thus a number of impoverishment risks of marginalization, increased morbidity and mortality, food insecurity, loss of access to common property, and social (community) disarticulation may become potential issues for local people, and these may surface in various negative forms that will potentially disrupt the project construction and even its long term operation.

To reverse these impoverishment risks due to the project construction and operation, a package of social action s were broadly suggested for implementation in the previous EIA (NEA 2001). These included an Agricultural Development Program, Skill Development Training, a Community Development Program, a Rural Electrification Program, and Priority for Local Employment. In the context of the upgrading the feasibility study, the enhancement programs proposed in the NEA EIA study were reviewed and improved. These are now proposed as a Social Action Plan (SAP) in this section, which lays out the framework for the detailed design of the proposed SAP in the next study phase.

(2) Basis of SAP Formulation

The formulation of the SAP Framework is based on the evaluation of the Project's potential social impacts, through field surveys in the various Project-affected areas. Interaction with the various APs, including individuals, groups, and user

communities, has provided valuable input into the selection of programs, which were further strengthened by the deliberation of the various interest groups and stakeholders, expressing their felt needs for project-sponsored development programs, during public consultation meetings (see Public Consultation Program). Lessons from Kaligandaki 'A', Middle Marsyangdi, and other projects in Nepal were of importance particularly in framing the implementation strategy learned.

B.3.2 Glossary

ADB	Asian Development Bank
AP	Affected Person
CBO	Community Based Organization
EA	Executing Agency
INGO	International Non-Governmental Agency
Km	Kilometer
NGO	Non-Governmental Agency
NRs	Nepali Rupees
PIC	Public Information Center
Project	Kulekhani III Hydrodevelopment Project
RP	Resettlement Plan
RUPP	Rural-Urban Partnership Program
SAP	Social Action Plan
TLO	Tole/Lane Organization

B.3.3 Social Action Plan (SAP) Components

(1) Summary

The following ten components are proposed for inclusion in the SAP:

- Restoration of Project Impacted Infrastructure Outside the Construction Sites
- Awareness Program for Accident Risks Downstream of the Tailrace and along the *Tribhuvan Rajpath* (Tribhuvan Highway)
- Agricultural Development Program
- Community/Public Health & Education Enhancement in Areas Close to the Construction Camps
- Skill Development & Project Employment of Local Population
- Rural Electrification Program
- Yangran Watershed Management Program
- Neighborhood Support Programs
- Women's Development Program
- Information Dissemination and Feedback

The total allocated cost for the SAP is estimated at NRs 19,250,000. This will be

revised during the Detailed Design Phase, as NGOs, agencies, and contractors are consulted and, as appropriate, brought into the detailed planning for each component. It is understood, however, that the program designers, while preparing the detailed programs, will not exceed these allocated costs, which are based on previous project experience in Nepal. The costs, as finally 'allocated' will be the budgets within which contracting parties will bid to implement the SAP programs. Although considered to be 'ceiling' estimates, at this time, these allocated costs must still be considered tentative estimations based the current level of understanding of Project activities and about the Project impact areas.

It is important to reiterate that the SAP, as presented in this Framework, is still a very generalized 'Program of Activities.' Tentative cost allocations are made to ensure that the costs are included in the Project. However, the Project in its Detail Design Phase will carry out an exercise to fill in the details of the individual programs through the use of extensive public consultations and the use of experts from NGOs and other agencies, including from government and private sources.

It is proposed that a Fund be established of NRs 1,550,000 for preparing the details of the SAP activities and costs with implementation and manning schedules, including support materials, and program output in the Detail Design Phase. This will involve a number of International Non Governmental Organizations and Non Governmental Organizations (INGOs/NGOs), as well as Community Based Organizations (CBOs) in the Hetauda area identified during the current fieldwork as key players in local development activities, as well as government organizations and NEA, where within their proposed fields of activity, described below.

(2) Description of SAP Components

1) Restoration of Project Impacted Infrastructure Outside the Construction Sites

The following programs have been proposed for the reduction of project implementation risks to the local area people who are not directly adjacent to the Construction Sites.

The reduction and fluctuation in Rapti River flow in the Project operation period is likely to impact five water mill canals, and eight irrigation canals. Restoration of these canal intakes for the diversion of water requirements during the different seasons for different crops and other uses is a priority program to reduce risks to food security, marginallization, and increased morbidity and mortality to the APs who depend on the water mills and/or the irrigated fields. The impacts and mitigation programs are discussed in some detail in the section Downstream

Consequences And River Maintenance Flow. Table B.3.1 presents the itemized programs and cost allocations.

Table B.3.1: Allocated Costs for Restoration of Project Impacted Infrastructures Outside Construction Sites

Itemized Programs	Costs NRs	Implementation Schedule
Improvement of Water Intakes for Five Water Mill Canals	125,000	Concomitant to Operation. Estimated at 25,000/Canal
Design and Construction of Five Irrigation Canals (Maintar Canal, Satghatte Canal, and Ghatte Canal, Nawalpur - Basamadi Canal And Simaltar- Golpingtar) and Required Canal Extension Located Downstream of the Tailrace	(0)	Before Operation. Design Engineer to Make Cost Estimate
Improvement of Intakes of Three Irrigation Canals Upstream of the Tailrace, on the Rapti and Keasadi Rivers	100,000	Concomitant to Operation. Estimated at 33,000/Canal
Total	(225,000)	

2) Awareness Program for Accident Risks Downstream of the Tailrace and along the *Tribhuvan* Rajpath (Tribhuvan Highway)

To reduce the accidental risks related to tailrace water release downstream tailrace and traffic accidents in the *Tribhuvan Rajpath* corridor and other access corridors due to increase in traffic a special program on environmental awareness against accidental risks is proposed for the people of tailrace downstream areas. The program details are elaborated in section "Downstream Consequences and River Maintenance Flows" and "Environmental Risks". Table B.3.2 presents the itemized allocations of costs for the proposed programs.

Table B.3.2: Allocated Costs for Awareness Program for Accident Risks Downstream of the Tailrace and along the *Tribhuvan Rajpath*

Itemized Programs	Costs (NRs)	Implementation Schedule
Community Awareness Programs for Accident Risks Due to Increased Traffic through the Communities along *Tribhuvan Rajpath* and within the Project Construction Sites	300,000	Every Six Months During Construction
Placing of Traffic Signs Along the Highway	275,000	Before Construction
Placement of Display Boards and Warning Signs (Tailrace Downstream Areas)	300,000	Before Operation
Community Awareness Programs for Accident Risks of Daily Tailrace Water Releases (Hetauda Ward 1, Maintar and Laljhundi and Downstream Communities along the *Tribhuvan Rajpath*)	500,000	Just Before Operation and Every Six Months After Operation for Two Years
Sanitation Program For The River Bank Communities Downstream of the Tailrace (Chaukitole, Maintar, Laljundi)	1,500,000	Before Operation
Total	2,875,000	

3) Agricultural Development Program

The Agricultural Development Program will be focused on minimizing any adverse impacts on the agricultural productivity of the about 208 ha of agricultural land irrigated by the irrigation facilities downstream tailrace and on increasing their productivity. The Program shall also include impact minimization and enhancement of the irrigated rice fields at the directly Project impacted villages of Sanutar, Ghumaune, and Ghumaune Pari villages. In addition, the Program will launch activities to enhance the agricultural production and diversification of agricultural crops, including vegetables and fruit, of the Yangran catchment area, including the villages of Kisedi, Nakhudanda, Kamitole, Machhebas, Shikharibas, Nayagaon, Kitni, Yangran, and Amdanda. This component will also include animal husbandry enhancement activities.

A site-specific Agricultural Development Program will be decided upon through detailed consultation with the local area people and by assessment of the agricultural production potentials. However, at this stage, it is clear that the agricultural development components will entail, among other things, hands on training for agricultural intensification, animal husbandry, and horticulture. The Program will also explore various options of production increment such as the distribution of improved seeds, alternative crops, improved livestock, improved fodder production, and vegetable cultivation.

Currently, the *Rural-Urban Partnership Program (UNDP)* is assisting local communities in Makawanpur District to establish Micro-Enterprise Groups. This NGO has already established over 200 Micro-Enterprise Groups in the District. One of the activities supported is creation of market linkages between towns and the rural hinterlands. In similar fashion, and possibly through coordination with this NGO's activities or directly contracting with it, the Agricultural Development Program will be a support program for additional income generation for the project area communities to take advantage of the Project constructed motorable, all-weather bridge across the Rapti River. The constitution of Micro-Enterprise Groups will be helpful in organizing Collection Depots for local agricultural produces and for improving marketing arrangements at the Hetauda Township. The co-ordination of the Agricultural Development Program particularly in Sanutar and Yangran hinterland with the *Rural-Urban Partnership Program* will open venues of sustainable agricultural development and income generation in the rural areas. In the context of the Project's all-weather bridge across the Rapti River, and extension of the Project's Access Roads deep into the Yangran hinterland, the Program will provide needed social capital for improving

rural-urban market linkages.

Since the details of Agricultural Development Program will be worked out only after consultations with the local communities, only cost allocations are proposed at this juncture. It is understood that the program designers, while preparing the detailed Agricultural Development Program in the respective areas will not exceed these allocated costs.

Strengthening the Urban-Rural Linkage in Rural Development of the Kulekhani III Project Area

A proposed study, for one of the key sub components of the Agricultural Development Program, will be the *Strengthening the Urban-Rural Linkage in Rural Development of the Kulekhani III Project Are*a. This will explore both existing and potential economic activities related to rural-urban linkage development, particularly as a spur to agricultural development in the Project Affected Area and its surroundings.

Components to be covered

- Identification of potential activities and resource use
- Backward and forward linkages of local produce, services, and people
- Magnitude, type, cost and direction of flows of goods
- Identification of villages (origin places) and destination centers for goods and services
- Identification of potential entrepreneurs both in villages and Hetauda town to undertake economic and social activities, and their development needs or constraints
- Identification of town-based enterprises (both formal and informal urban sectors) involving in marketing of goods, as well as other rural development services.
- Designing measures to be adopted for improving rural-urban linkage activities

Survey Methods

Following data acquisition methods will be adopted:

Information on type of produce and their volume, consumption and marketing pattern, flow, destination places, problems, etc from villagers through administering questionnaire sheets

Participatory method in data gathering from key informants (local elites)

Sample selection of rural households by village-wise

Use of existing data sources such as the environmental impact study for this

project, PLAN International, Rural-Urban Partnership Program (RUPP) and other relevant sources

Use of analogue map information of land capability of Makawanpur District (1:50,000 prepared in 1986 by Survey Department) to analyze capability of land units for different agricultural crops and other uses for GIS analysis.

Methods of Analysis

- Use of GIS to analyse origin and destination places and level of linkages, and identify areas (VDCs) for specific agricultural and other primary production activities
- Backward and forward linkage analysis of magnitude of flow of local produce, people and services, and their types
- Potential analysis of flow of local produce
- Identify priority areas and village settlements for further development
- Collaborative organizations at local level may include RUPP, PLAN International, and other relevant NGOs.

Expected Outputs

- GIS mapping analysis to show interacting pair of places and linkages
- GIS mapping analysis for agricultural capability and suitability
- Identification of potential activities, entrepreneurs, constraints and measures of linkage activities
- Formulation of action-oriented measures to bring on local area development activities and surplus marketable produce, and for sustainable development

The estimated time for this study would be about four months, for field survey, data analysis, GIS mapping analysis, and GIS output and report.

The study would be keyed to not only the Kulekhani III's motorable bridge across the Rapti River for construction for enhancing rural-uban linkages but also the suspension bridge planned across the Rapti at Mainetar (included in the Project costs) and the study of the feasibility for a bridge at Choke Tole, possibly by shifting the present suspension bridge at Sanutar.

Table B.3.3: Allocated costs for Agricultural Development Programs

Itemized Programs	Costs (Nrs)	Implementation Schedule
Agricultural Development Program for the Affected Irrigated Lands Downstream of the Tailrace	1,000,000	Later half of the Construction Phase
Agricultural Development Program for the Directly Impacted Landowners and Farmers of Sanutar, Ghumaune and Nakoligaon	550,000	From the Start of the Construction phase
Agricultural Development Program for the Yangran hinterland and adjoining settlements of the project	2,000,000	From the Start of the Construction Phase
Total	3,550,000	

4) Community/Public Health & Education Enhancement in Areas Close to the Construction Camps

The influx of outside workers, their families and various entrepreneurs providing services, including shopkeepers, hotel and restaurant owners, consumable item dealers, and vegetable grocers will not only put pressure on existing institutions such as schools, health care centers, and telecommunications in the directly affected villages and more generally in the Hetauda area. In particular they will create increasing pressure on the existing water supply and sanitation conditions. Experience in the construction camps and labor camps of other development projects in Nepal reveals a general decline in sanitary conditions, with implications for the community and public health of the Project impacted area.

Though the Project envisages locating the labor camps away from the rural settlements of Sanutar, Ghumaune, Ghumaune Pari and Bhaise to minimize these impacts to on communities nearby the Project construction sites, it will be difficult to avoid boomtown settlements that generally spring up spontaneously close to Project construction sites. There are no legal mechanisms under prevailing HMG legislation to control such boomtown settlements.

Considering the likelihood of the boomtown impacts, a targeted support Program for public health, sanitation, water supply, health and education institutions are proposed at Sanutar, Ghumaune, Ghumaune Pari, and Bhaise.

The Program will also focus on support for improved schooling accommodations, including more classroom space and provision of new teachers, at Sanutar and Bhaise. Sanitation facilities (water supply taps, toilets and waste management) will be planned based on an informed estimation of the likely influx of outsiders. A health clinic facility manned by a medical doctor will be established at Sanutar and Bhaise on a rotational basis during the construction phase. Also a preventative health program will be designed and implemented. To prevent fecal-borne diseases such as cholera and other gastro-intestinal diseases from becoming a

problem in the construction areas environmental sanitation and water education will be part of the Program. A focused program on public awareness and education about HIV-AIDS and its prevention will be launched. Due to the influx of population and poor wastewater management, malaria is likely to be a health issue and will be addressed through proper education about sanitation, proper water management, and other appropriate measures to control and prevent Malaria vectors.

Though the details of the program sub-components will be designed at the later stage during Detail Design Phase, tentative estimations of the costs have been made based on the present understanding of Project activities and the Project impact areas. Table B.3.4 presents the itemized allocation of funds for the proposed Program itemized by sub-component.

Table B.3.4: Itemized Allocated Costs for Community/Public Health and Education Enhancement Programs

Program Sub-Components	Costs (NRs)	Implementation Schedule
Extension and Improvement of Water Supply Systems and Taps, Construction of Public Toilets and Waste Management Systems in the Boomtowns at Sanutar, Ghumaune, Ghumaune Pari, Bhaise, and Nibuwatar	750,000	Start of the Construction Phase and As The Construction Works Progress
Support for Educational Institutions at Sanutar, Bhaise, And Nibuwatar to Cater Additional School Going Children (Room Space, Teachers)	450,000	Start of the Construction Phase and As The Construction Work Progress
Rotational Clinical Facility Manned by a Medical Doctor during the Construction Phase at Sanutar and Bhaise	(0)	Throughout the Construction Phase. Will Be Costs will be incorporated Into the Civil Contract Provisions
Education and Prevention Programs for Environmental Sanitation, Water Related Disease, STD, HIV AIDS, and Malaria at the Construction Camps, Labor Camps, Boomtowns and Settlements Close to Project Camp Sites	800,000	Throughout the Construction Phase
Total	2,000,000	

5) Skill Development & Project Employment of Local Population

Construction projects such as the Kulekhani III require a large pool of workers, skilled and semi-skilled, as well as a general labor force. Public consultation meetings clearly reflect the employment expectations of the people from the Project area for jobs with the Project.

Providing maximum job opportunities to the local people is by itself a mitigation measure to lessen the diverse social, cultural and public health risks that come with the influx of a large outside work force. Work with the Project is also a key

Income restoration option that a Project can provide to local communities.

Experience from completed and ongoing projects in Nepal show that local people frequently have little or no skills suited to Project work that draws higher salaries. Kulekhani III Project area is not an exception. The only opportunity availed to local people from the Project area is expected to be employment as general laborers. In the existing social environment, common laborer work in front of their kith and kins is below dignity of many who would otherwise be qualified for these jobs. Also, local agriculture labor rates are higher than the district rates for common laborers, and most local populace prefers not to become laborers unless no other option is available.

To provide access to the better paying jobs, skill enhancement suited to the Project construction works for those local people who are interested and eligible is a necessity for achieving a higher local employment rate in the Project, and the quality of the training needs to meet the Project's employment requirements. Such training will also provide certification at the level of training taken and according to the quality of trainee performance. Such training will take longer, however, it will provide life long skills that can be used in other locations or may be adapted for self-employment.

There are also many in the Project area who have working skills but due to lack of certificates, or accreditation from recognized institutions, will not be eligible for jobs at their potential. A pre-project skills and testing of skills, certification and accreditation of skills will also help getting project employment.

In both ongoing and upcoming projects in Nepal, provisions for maximizing local employment are one of the contractual obligations. Accordingly, contractors have employed many locals in preferential order, from SPAF to PAF to Project VDC inhabitants, to those from the adjoining VDCs, to employing from the affected Districts, to employing Nepalese nationals. Even so, the rate of local employment is considerably below desired levels due to a number of factors. Among these is the lack of stringent contractual clauses to ensure that the principal contractors and their sub-contractors establish transparent employment mechanisms. Often employment is made without prior public notice and local people have no opportunity to know about the availability of Project job opportunities. Often too, local people are never been told the reasons why they have been judged not eligible for specific higher-level jobs.

Therefore, contractual clauses will need to be incorporated into the civil contracts whereby the contractors and their sub-contractors are responsible to set up a

transparent employment mechanism to provide skilled job opportunities to the local people in preferential order from SPAF, PAF, Project VDC, Adjoining VDCs, Project District, to hiring Nepalese in general. The civil contract clauses will also need to include employment of only Nepali Citizens for unskilled and semi-skilled jobs. For skilled jobs, the civil contract clauses need to required proof of non-availability of qualified person in Nepal as a condition for employment of foreigners by the contractor or sub contractor. Table B.3.5 provides the Allocated Costs for Skill Enhancement and Training.

Table B.3.5: Itemized Allocated Costs for Skill Enhancement

Program Sub-Components	Costs (NRs)	Implementation Schedule
Training for Skilled Employment Required For Project Construction Works, including Electrician, Plumber, Mechanical Welder, Scaffolding, Jack Hammer Operation, Tunnel Excavations.	1,000,000	Pre-Construction Phase
Skill Survey and Certification of Skilled And Semiskilled Persons by Recognized Institutions after Testing	250,000	Pre-Construction
Total	1,250,000	

6) Rural Electrification Program

Rural electrification is one of the expectations of residents in the Kulekhani III Project area. Currently, being close to the Hetauda township and more over to Kulekhani I and Kulekhani III hydropower Projects, Wards 6 and 8 of Bhaise VDC and Ward 9 of Basamadi VDC are not connected to the domestic electricity supply despite being directly affected by these Projects. And Kulekhani exploratory audit work is supported in Sanutar and Ghumaune by an electric connection that goes directly over the heads of the village houses. It is recommended to connect the affected VDC Wards to the National Electricity Grid in line with making APs direct project beneficiaries and as a development gesture on the part of the Kulekhani III Project. Table B.3.6 presents the allocated costs for Rural Electrification of these areas.

Table B.3.6: Allocated Costs for Rural Electrification

Program Sub-Components	Costs (NRs)	Implementation Schedule
Rural Electrification Of Settlements of Yangran Catchment In Wards 6 and 8 of Bhaise VDC and Settlements of Ward 9 and 8 of Basmadi VDC, Approximately 20 Km Of TL Length	5,000,000	Construction Phase
Total	5,000,000	

7) Yangran Watershed Management Program

The Yangran Khola Watershed is relatively untouched, with a forest cover area of about seventy four percent The Kulekhani III Project will put pressure on the Yangran Watershed forests, not only by direct clearance of vegetation in the

Regulating Pond Check Dam, and Access Road areas but also by improving access into the forested areas.

Since the Kulekhani Regulating Pond is located on the middle reaches of the Yangran Khola, increased erosion in the Watershed due to increasing forest exploitation also presents a risk to the long-term capacity Reservoir by increasing siltation. Though two Check Dam structures upstream of the Reservoir are included in the Project for control of Reservoir sedimentation, given the nature of Nepal's high intensity monsoon rains, additional preventive measures to control erosion in the watershed are highly desirable.

In this context, the Yangran Watershed Management Program is proposed as a key social program. The envisaged Watershed Management Program will be a community-based program that will include the communities within the Watershed generally and the Community Forest User Groups of Bokedaha and Kalik Community Forests in particular. The Watershed Management Program will extend Community Forestry into forest areas of the Yangran Watershed presently not covered by the Bokedaha and Kalika Community Forests and will improve the management capacity of these already existing Forest User Groups. The Program will help the communities design Community Forest Master Plans, prepare Forest Resource Inventories, form new Forest User Groups, register Community Forests, and more effectively manage forest resources for community development. It will also train Forest User Groups in the development of nurseries, sapling plantations, and improved lopping and topping of forest vegetation for better production and for more effective use of forest based resources. Table B.3.7 presents the allocated costs for the Yangran Watershed Management.

Table B.3.7: Allocated Costs for Yangran Watershed Management

Program Sub-Components	Costs (NRs)	Implementation Schedule
Extension of the community forests in the other areas of Yangran watershed including formation of forest user groups, preparation of forest management master plans, resource inventories, and training to the forest user groups	1,000,000	From start of construction Phase
Establishment of forest nurseries in the old and new community forests including nursery development and management training	500,000	From start of Construction Phase
Total	1,500,000	

8) Neighborhood Support Programs

The local people have many expectations from the Project. Their expressions in the Public Consultation Meetings so far held reflect these desires and expectations, and it will not be possible for the Project alone to fulfill these aspirations for local

development. However, the Project can be a catalyst in providing some assistance to meet local development needs on priority basis, in order to make the APs and others in the vicinity direct beneficiaries of the Project, and also in attracting other available resources to these communities. For instance, Sanutar residents expressed the desire for a post office, and the Project may exert its influence in this regard at little expense to the Project itself, especially as Sanutar will be a nexus for the expected boomtown development, and the likelihood of its developing over time into a small bazaar town is high once the motorable bridge is constructed across the Rapti River.

The Neighborhood Support Program will be designed to provide financial assistance in particular to the project affected communities of Bhaise Wards 1, 6 and 8; Basamadi Ward 9 and Hetauda Municipality Ward 1.

This Program will allocate development funds to each of the affected Wards. The Ward and its constituent communities will select development programs and will use the allocated funds for these programs on the condition that the Ward or community will contribute about twenty five percent of the estimated cost (in cash or in kind) of the selected program. From this financial assistance, large development works may not be possible, but the Program will help in executing a number of medium and small sized community development projects, such as the repair and expansion of schools, student hostels, and teacher's quarter; improvement or construction of water supply systems, irrigation systems, trails, temples, and health posts. The allocated costs for the Neighborhood Support Program are presented in Table B.3.8.

Table B.3.8: Allocated Costs for Neighborhood Support Program

Program Sub-Components	Costs (NRs)	Implementation Schedule
Support Funds for Bhaise Ward 1	750,000	Start of Construction
Support Funds for Bhaise Ward 6	750,000	Start of Construction
Support Funds for Bhaise Ward 8	750,000	Start of Construction
Basamadi Ward 9	750,000	Start of Construction
Hetauda Municipality Ward 1	750,000	Start of Construction
Total	3,750,000	

9) Women's Development Program

Women are the among the more vulnerable sections Nepalese society. The Kulekhani III Project area is not an exception to this, and the women of indigenous 'tribal' Tamang, Magar, and Chepang (*Praja*) communities are especially vulnerable to impoverishment risks due to economic conditions and their low level of literacy. Girl trafficking, in particular, is high among these groups, and early marriage practices are also prevalent. Recently the two NGOs

Plan International and *Mira* Samstha have been active in the formation of womens groups and in the upliftment of women, especially in these communities. Some of the current ongoing activities are provision of maternal health checkups, skill training, and support of entrepreneurship through operation of micro-credit funds.

A specially designed Women's Development Program will focus on improved family and preventative health, household sanitation, income generation skills, STD, HIV AIDS education, family planning, and girl trafficking. Inclusion of micro-credit funds in the Project affected areas is also proposed. The program will be launched in Bhaise Wards 1, 6, 8; Basamadi Ward 9 and Hetauda Municipality, Ward 1.

Allocated costs for the Women's Development Program are presented in Table B.3.9.

Table B.3.9: Allocated Costs for Women Development Program

Program Sub-Components	Costs (NRs)	Implementation Schedule
Education Program for Family Health, Household Sanitation, STD, HIV AIDS, Family Planning, and Girl Trafficking	350,000	Start of Construction
Livelihood Skill Training to Women	750,000	Start of Construction
Micro-Credit Funds for Women	500,000	Start of Construction
Total	1,600,000	

10) Information Dissemination and Feedback

Timely and proper dissemination of information by responsible authorities through various means, including the media, is an essential part of the Project implementation and operation strategy. No information, or misinformation, some times create problems in Project execution that otherwise would be avoidable. To avoid such instances, and to strengthen the Project planning and execution through feedback from local and outside stakeholders, it is proposed to institute an Information Dissemination And Feedback Program as a part of the SAP.

This Program will include the establishment of Public Information Centers inside and outside the Project, dissemination of information through the local FM radio station and by use of Internet services for establishing a Project Webpage. The Program shall also include Stakeholders Meetings within the Project area on regular basis.

Allocated costs for the Information Dissemination And Feedback Program are included in the administrative and management of KESMU in the EMP section.

(3) Estimated Budget

The Estimated Costs Allocated for the SAP are Summarized in Table B.3.10.

Table B.3.10: Cost Summary for SAP

Social Program Heading		Allocated Costs (NRs)	Remarks
1	Restoration of Project Impacted Infrastructures Outside the Construction Sites	225,000	Costs for Reconstruction of the Sanutar Irrigation Canal are not included
2	Awareness Program for Accident Risks Downstream of the Tailrace and along the *Tribhuvan Rajpath*	2,875,000	Costs for fencing of the Rapti River downstream of the Tailrace, construction of two suspension bridges across the Rapti River and Provision of a Warning Siren System are not included. These are included separately in the EMP
3	Agricultural Development	3,550,000	
4	Community/Public Health & Education Enhancement in Areas Close to Construction Camps	2,000,000	Does not include cost Referred for Civil Contract (Health Clinic Facility Manned by Medical Doctor)
5	Skill Development & Project Local Employment	1,250,000	
6	Rural Electrification Program	5,000,000	
7	Yangran Watershed Management Program	1,500,000	
8	Neighborhood Support Programs	3,750,000	
9	Women's Development Program	1,600,000	
10.	Information Dissemination and Feedback	(0)	Included in EMP
	Total	21,750,000	

(4) SAP Design and Administration

1) SAP Design

Introduction

The SAP, as presented in this Framework, is still a very generalized 'Program of Activities.' Tentative cost allocations are made to ensure that the costs are included in the Project. However, the Project in its Detail Design Phase will carry out an exercise to fill in the details of the individual programs through the use of extensive public consultations and the use of experts from NGOs and other agencies, including from government and private sources.

INGO/NGOs

There are a number of International Non Governmental Organizations and Non Governmental Organizations (INGOs/NGOs), as well as Community Based Organizations (CBOs) in the Hetauda area who have long experience in planning and executing social programs of the kind proposed for the Project.'s SAP. To not include these organizations could be a costly mistake, as their cooperation and goodwill will be necessary for the Project to proceed without costly delays

brought about, as has happened in many other Projects not only in Nepal but in many other countries as well, by social discontent over inadequate handling of Project social impacts and their mitigation.

During the Detail Design Phase, it is recommended to mobilize the NGOs and CBOs working in the area to design the specific social programs as to the concepts presented within the allocated budget framework presented here.

Specific NGOs proposed for involvement include the following:

- ***Plan International*** has an eight year history in the Project area in a variety of programs including Education, Sanitation, Integrated Forest Management Groups, Plantation, Forestation, and Rejuvenating Degraded River Banks. Plan International is increasingly working through local NGOs, and its local NGO partners can be involved for the design of the Agricultural Development, Skill Development, and Yangran Watershed Management Programs.
- ***Rural-Urban Partnership Program (RUPP)***. Has created 200 micro-enterprise groups, linkages between Hetuada, Bhaise-Dhoban, Bhimpedi – collection points for vegetable and other produce, to urban markets. The NGO is active in eleven Wards of Hetauda, creating 10 Tole/Lane Organizations (TLOs) that, for instance, meet monthly in Ward 1 for various community development activities, such as improving drains, sanitation, and drinking water facilities. The Rural-Urban Partnership Program and its TLOs can be involved in the protection of water mill and irrigation facilities in the downstream tailrace area, the Awareness Program against Accidental Risks Downstream Tailrace and along Tribhuvan Rajpath, and in the Agricultural Development Program, particularly in respect to taking advantage of the new motorable bridge across Rapti River to choose a collection point for marketing of vegetables in Hetauda, and for a produce nitration program along Rapti River area.
- ***Samaja Jagaran Mancha***, Hetauda, Ward 1: This local NGO has number of environmental related projects along the Rapti River in Hetauda, Ward 1. It is involved in Income Generation Projects. This NGO can be involved in the Awareness Program against Accidental Risks Downstream Tailrace and along the Tribhuvan Rajpath and in the Community/Public Health & Education Enhancement in Areas Close to Construction Camps.
- ***Maiti Nepal*** has an awareness program on women trafficking and for HIV/AIDS prevention in Bhainse and Basamadi VDCs. It also has income generating and skill training programs for women. This organization can be involved in the Women's Development Program and in the

Community/Public Health & Education Enhancement in Areas Close to Construction Camps.

- ***HIV/AIDS STD Swiss Technical Development*** has extensive education materials and condom distribution program. This NGO can be involved in the Community/Public Health & Education Enhancement in Areas Close to Construction Camps.

Other Agencies and Organizations

The **District Development Committee** and the local VDCs have the main role of planning of the local development needs in consultation with the people. They can be involved in the Neighborhood Support Program for the affected VDCs. In particular, their role in conjunction with the various user groups for the Restoration of Project Impacted Infrastructure Outside Construction Sites will be very important.

For the planning and execution of the Rural Electrification Program, **Nepal Electricity Authority** has the expertise. The Rural Electrification Division of the NEA can be involved in the preparation of the Rural Electrification program for the proposed electrification areas.

Dissemination of information and seeking feedback is the sole responsibility of **Nepal Electricity Authority**, through the Kulekhani III Project Management. Establishment of a Public Information Center, holding regular stakeholders meetings, and dissemination of information to the media will lie within their purview. Other media organizations which can play roles in planning and executing information dissemination are Manakamana FM Radio Station and Vianet,s Internet Club on Hetauda. The possibility of a short video presentation on Nepal TV may also be weighed.

For the details of the proposed SAP components within the Allocated Budget Framework, a Fund (Table B.3.11) is proposed for preparing the details of the SAP activities and costs with implementation and manning schedules, including support materials, and program output in the Detail Design Phase.

Table B.3.11: Allocated Costs for Preparation of Details of Social Programs

SAP Individual Programs		Costs (NRs)
1	Restoration of Project Impacted Infrastructures outside Construction Sites (The engineers will prepare the costs during the Detail Design Phase)	(0)
2	Environmental Awareness Program against Accidental Risks Downstream Tailrace and Tribhuvan Rajpath	150,000
3	Agricultural Development	200,000
4	Community/Public Health & Education Enhancement in Areas Close to Construction Camps	150,000
5	Skill Development & Project Local Employment	125000
6	Rural Electrification Program	250,000
7	Yangran Watershed Management Program	150,000
8	Neighborhood Support Programs	250,000
9	Women's Development Program	125,000
10	Information Dissemination and Feedback	150,000
	Total	1,550,000

Note: Program Preparation costs are estimated between 5 to 10% of the allocated budget.

2) SAP Administration

As has been the practice in Nepal, the Project itself will be responsible for planning and implementing the SAP. In this context, the Kulekhani III Project Management will be responsible for the implementation through its line offices (the Environmental Division of NEA) or through a separate project specific office. Since the NEA Environmental Division is short of manpower and resources and is actively involved in the preparation of EIA and IEE for upcoming electricity development projects, and involved in most of the ongoing projects, a project specific unit will need to be established to carry out day to day environmental, social and resettlement activities. This Project specific unit will include one Environmental Division staff with the responsibility to streamline Project activities as per NEA Environmental Division Policy. Various names have been given to such units, such as the Environmental and Social Management Unit (KESMU) for the Kaligandaki 'A' Project and the Resettlement and Rehabilitation Unit (RERU) for the Middle Marsyangdi Project.

As with other hydropower development projects, for the Kulekhani III Hydroelectric Project a Project specific Environmental and Social Management Unit (KESMU) is proposed. One member from the NEA Environmental Division will head the proposed KESMU. The KESMU will be responsible for day-to-day environmental and social program management. It will be located under the Project Director/Manager's office, and logistic facilities will be provided by the Project. There will be a full time staff delegated from NEA and a contingent of short-term consultants for managing the various programs that are proposed.

The KESMU will have a Socio-economist/Community Liaison Expert for full time and also a Community Development Expert (CDE) as a short-term consultant, under the KESMU's Unit Chief, from NEA's Environmental Division. The CDE will work with local development NGOs contracted to assist in implementing the several SAP components.

Internal monitoring of the SAP will be carried out by the KESMU. Little or no use has been made in Nepal of external Monitoring and Evaluation (M&E) by independent domestic institutions, although this is one of the main requirements of Donors including JIBC. The Melamchi Water Supply Project has included an independent monitoring of the Project activities once a year, and this is also proposed for the Kulekhani III Project (see Environmental Management Plan). It is envisaged that this M&E function will help assess ongoing SAP implementation and assist in making necessary adjustments in strategies if the adopted ones require reorientation. The KESMU will have included in its staff a Liaison member, haing a natural and/or social environmental background, from the Managing Engineer to assure that maximum coordination is achieved overall and that, especially, contractors are observant of KESMU directives during the Project's construction period.

CHAPTER B.4 PUBLIC CONSULTATION PROGRAM

B.4.1 Background

Discussions with the project affected people on the matters of project, its adverse and beneficial impacts, and on the matters of mitigation and monitoring options including environmental enhancement opportunities and programs in order to come into a consensus understanding through Public Consultations, is a legal requirement of Nepal's Environmental Protection Act (1996) and Environmental Protection Rules (1997). JBIC (2002) Guideline for Confirmation of Environmental and Social Consideration also emphasize on the need of public consultation to strengthen the environmental and social aspects of the Project.

The Nepal Electricity Authority (NEA), in the process of the Environmental Impact Assessment (EIA) of the Kulekhani III Hydropower Project (2001) had held a series of public consultation meetings both at the field and central levels.

During this Upgrading Feasibility Study Phase, the Study Team has carried out two Stakeholder's Meetings, the first on May 5th in Bhaise VDC and the second one in Hetuada Municipality on June 24th.

B.4.2 First Public Consultation Meeting

About 40 persons, including affected VDC officials, teachers, and a number of villagers from Nayagaon village, Bhaise VDC, Ward 8, attended the first Public Consultation Meeting of May 5th 2002. Details of the meeting outcome and member attendee are presented in Annex 12. One of the key issues discussed was the type and nature of assistance from the project to the local communities to minimize the project-related impacts and to maximize the Project benefits. Most of the members present expressed that it would be very difficult to list the type of assistance without further discussions with the other members of communities not present in the meeting. Further they would like to know more from the technical experts on the type and nature of the Project direct and indirect impacts. They wanted more time for discussion with the other members of the affected communities so as to give their suggestions. They emphasized on the need of such consultation meetings at the grass root village levels. However, members of Nayagoan Village presented a list of 'felt needs,' below, for which it would seek Project assistance:

- Provision of Drinking Water Facilities;
- Employment for Local People in the Project, According to their Qualifications;

- Construction of a School;
- Construction of a Road;
- Compensation for Houses Cracked or Damaged by Project Activities, Particularly by Blasting;
- Electrification of Ward No.8 as a Whole; and
- Housing Facilities for the Schoolteacher

The general mood of the attendee was positive towards the Project. Though agreed areas were not identified for Project assistance, there was consensus among the present members that project should also look positively for the social development of the communities of the Project area and not only of the directly project affected people. Local employment, education, rural electrification, and health and hygiene were among the issues raised by most of the members where the communities need project assistance for the overall development of the Project area.

B.4.3 Second Public Consultation Meeting

The second stakeholder's Public Consultation Meeting was held at Hetauda Municipality, in the Avocado Motel's conference hall on 24th June 2002. Approximately 130 attendees representing a wide cross section of officials, military, NGOs, and affected communities were present in the meeting. The Study Team, introduced by its NEA counterpart, presented a PowerPoint presentation of the Project proposed design and its expected social impacts. Attendees were registered and issues recorded, after a long and lively discussion following the presentation (Annex 12).

Key issue raised in this consultation meeting were:

- Effect to the downstream irrigation facilities and measures to ensure the water supply in the irrigation canals
- Effect to the Sanutar irrigation canal and measures to ensure the water supply to irrigate Sanutar - Ghumaune agricultural fields
- Measures to ensure local employment in the proposed Project
- Downstream effect to the communities using river area of Rapti for various purpose and mechanism to ensure public safety in the event of high water discharges from the tailrace
- Effects to community forest and measures to compensate the Community Forest User Groups.
- Compensation and rehabilitation issues for the people whose land and property will be acquired by the Project.

Based upon the past experiences of promises and its implementation practices by

the Project proponents, many of the members doubted on the sincerity of the Project proponent in dealing with the local issues once the project is approved for implementation. They also warned that without addressing the local people's aspirations, it would be difficult to launch the Project.

However, the general consensus was positive for the Project in the context of current energy demand, but were in view that the Project should not disregard the contribution of the local people of their personal and community resources for Project implementation. All the communities and people who have contributed to the Project should be compensated adequately by the project. Besides, Project should also launch programs for the development of the local area and help for the betterment of the local people's quality of life.

B.4.4 Consultation with Individual and Groups

The Study Team has held numerous meetings with the several Project Stakeholders in the Hetauda and Project area, particularly with Government officials, the military camp at Suparitar, local formal and informal leaders, and the numerous NGOs that are based in Hetuada. The Study Team has also met with a wide variety of officials and affected peoples, including the Chief District Officer of Makwanpur, the Mayor of Hetauda, the Chairman of Hetauda's Ward 1 (the ward most affected), Irrigation User Group members of possibly affected schemes, and others. Annex B.10 lists the individuals and groups consulted and issues discussed and observations made by the Study Team.

During the socioeconomic studies, the Study Team has asked Sanutar villagers for their development priorities. Priority list expressed by the local communities are presented below:

Sanutar Village's Felt Needs

- Electrification
- Telephone service
- Post office (*local students who go to Bhaise and Hetauda bring letters from the post office)*
- Health post *(nearest health post is Bhaise and Hetauda, Common disease of the area is fever, Pneumonia, dysentery)*

Similarly, the Heatuda Mayor and chairman of municipality ward 1 have expressed the following priority lists as project enhancement measures (Box 3).

Hetauda Ward 1 Felt Needs

- Embankment Chauki Tole to the High way bridge
- Suspension bridge to link Hetauda with Maintar

- Sanitation program in Ward No. 1
- Improvement of facilities of Jyoti Primary school at Chauki Tole
- Improvement of Maranghat [Cremation] Ghats at Hetauda Highway Bridge

Other issues discussed in these meetings with the diverse stakeholders were:

- Modalities of public consultation process in the context of the present security situations, Chief District Officer (CDO), Makawanpur District)
- Security provisions during construction phase (Military officials and Police)
- Impacts to the Trikhandeshwor Mahadev Temple by diversion of Kulekhani II discharges, *Pujari* (priest) of the Temple)
- Downstream Impacts to irrigation canals, Water User Committee and beneficiary farmers
- Flood effects to the low lying irrigation lands of Maintar, Chaukitole, Laljhundi and downstream areas, current practices adopted by the farmers, and status of land registration, Farmers of the said areas
- Areas of activities launched by various NGOs, CBOS and private organization in the project areas and their interest to work with the project's SAP Framework, Plan International, *Maiti* Nepal, *Smaj Jagaran Manch*, Rural-Urban Partnership Program, HIV/AIDS STD Swiss Technical Development, and HCIL.

The Public Consultation Meetings in the future will need to be arranged with the approval of the CDO with prior notice to the security authorities in the present security context. Regular interaction with the security authorities is envisaged to monitor security problems during the construction period. Discussion with the *pujari* (priest) of the Trikhandeshwor Temple revealed no impact to the temple's religious activities due to Project operation. All the downstream Water User's Committees and farmers expressed concern about the Project's water regulation impacts on their irrigation intakes and on their agricultural productivity. They emphasized the need to ensure irrigation water requirements are met, so as to maintain their agricultural productivity during the Project operation period.

The farmers of the low-lying irrigation canal revealed the effect of floods to their agricultural lands in every 5 to 15 years. They were not sure about the increased effect of the Tailrace release but wanted some kind of protection against the monsoon floods. The agricultural land on the island like sand bar of the Rapti River has not been irrigated since 1993 flood, though subsequent floodwaters have not inundated the sand bar. The farmers who own the land have heard about the numbering of cadestral plot number by the land registration office, but the office has not issued the land registration certificates to the land owners. When asked

about their future plan to irrigate the land, they said they are not sure of the next flood and are afraid that their land development labor may be a waste.

Consulted NGOs, CBOs and the private parties were willing to co-operate the project in the implementation of Social Action Plan Framework during the Project implementation phase. But when requested to provide Social Action programs in their field of expertise and work area only few could come up with some kind of proposal.

B.4.5 Public Consultation Strategy

Although there has been considerable progress made by the Study Team in public consultation, the effort has somewhat insufficient due to various reasons such as monopolizing of discussion by Hetauda political elites, frequent electric stoppages during the Powerpoint presentation, lack of resources for assisting villagers from the affected VDCs to reach consultation venue, lack of budget for important materials such as brochures, posters, flip chart equipment, lack of sufficient advance notice of meetings, especially for going through formal channels to make the stakeholder meetings in any way 'official,' and the like.

It is important to carefully plan for and budget the next phase of the Public Consultation, during the Detailed Design Study. It is recommended to have three stakeholder Public Consultation Meetings held in Hetauda. One should be at the beginning and reiterate the findings of the feasibility stage studies. The second meeting should come approximately six months into the next phase studies to present inception findings and obtain public feedback. The third and final meetings should present the final study findings.

The Hetauda stakeholder Public Consultation Meetings will need to be set up through the Chief District Officer's (CDO's) office and sufficient time allotted both to accommodate this formal process and to assure all attendees have adequate advance notice. It is recommended that sufficient budget is allotted to produce brochures and posters, as well as to have flip chart equipment, for these meetings to properly record issues and recommendations. Preparation of PowerPoint presentations is recommended. However, it will be a good idea to rent a small back up generator for assuring an uninterrupted supply of electricity during the presentations. Adequate budget for refreshments is recommended for about 200 attendees per meeting, as well as for conference hall rental. Finally, it will be an important courtesy to the village attendees to rent at least one van or small bus to assist the villagers in coming to and returning from Hetauda.

Experience in other development projects has shown the importance of a

continuing and complete documentation of the public consultation process. Therefore, it is recommended to maintain documentation files of the consultation meetings that will include a detailed account of public meetings and other stakeholder interactions, including photographs, issues discussed, decisions reached and the like in chronological order from now on words. Such chronological recordings should continue not only in the detail design phase but also during project construction and operation.

Future consultation meeting in the detail design phase should plan to include peoples from all walks of life from the following affected VDCs:

- Bhaise VDC Wards 1, 3, 8 and 6
- Nebuwatar VDC (Kulekhani II Camp Area)
- Basamadi VDC Wards 9 and 8
- Hetauda VDC Wards 1 and 11

Other stakeholders that need to be included are:

- Chairman and other public elected representatives Bhaise VDC
- Chairman and other public elected representatives Nibuwater VDC
- Chairman and other public elected representatives Basamadi VDC
- Mayor and other public elected representatives Hetauda Municipality
- Chairmen Irrigation Water User's Committee at Sanutar, Maintar, Chaukitole, and Basamadi
- Chairmen Community Forest User's Committee, Kalika and Bokedaha Community Forest
- Chairman and public elected *Elaka* representatives of the above VDCs Makawanpur District Development Committee (DDC)
- CDO, Makawanpur District
- Local Development Officer (LDO), Makawanpur DDC
- Officer In Charge, District Forest Office, District Education Office, District Agricultural Office, District Health Office, District Water Supply Office, and District Irrigation Office
- General Manager, and Mines Manager, Hetauda HCIL
- INGOs/NGOs working in Hetauda, such as Plan International, *Maiti* Nepal, *Smaj Jagaran Manch*, Rural-Urban Partnership Program, HIV/AIDS STD Swiss Technical Development
- CBOs working in the Project affected VDCs, Lane/Tole Organizations (LTOs), and Village Advisory Groups (VACs)

- Representatives of the News media, National Daily News Papers and Television, Local News Papers, and Hetauda based Manakamana FM, Internet Service providers
- Chief of Army Staff Suparitar Military Camp
- Chief of Armed Police Makawanpur District
- Chief of Police Makawanpur District

As women are among the more vulnerable of the Nepalese society, so special consultation programs will need to be organized for the women. This is not just to protect them from adverse Project impacts but also to gain their support for the Project's activities, as experience with other Projects shows that often this is where public discontent begins, when women are not properly informed and their understanding and support obtained. At least female staff member will be required during the next study phase for organizing such programs, to ensure that these critical stakeholders are fully informed and allowed sufficient opportunity to voice their concerns and to provide feedback to the Project. Without this, social problems may arise unexpectedly later on in the Project construction and operation, when it will be more difficult to address them.

Presentations of issues to be discussed in the Public Consultation Meetings will need to be prepared in advance. Some of the key issues for discussions in the next phase of consultation are as follows:

Project Layout – The Mapping/GIS illustrating the Final Design layouts. Local communities will be interested in knowing what the Project will 'look like,' as well as how it will operate and to what benefit for Nepal.

Project Design Schedule and Process – A question that arises frequently is 'when will construction begin?' The consultation will explain the processes of feasibility, basic, and final design phases, and especially how long these design phases will take, so that the APs, stakeholders and the communities at large understand that the process is still in an early stage and that at some point – 3-4 years – The Project activities will become more definite. The Public will need to know what to expect and when.

Possible Project Impacts – These need to be explained in mass and in person with graphic displays and feedback sought.

Land Acquisition and Resettlement - Peoples are interested to know whose land and property is likely to be impacted and what are the modalities of compensation and rehabilitation. Brochures explaining the Land Acquisition Act (LAA) and the proposed Community Consensus Valuation (CCV) and its methodology will be

prepared for distribution to APs including other rehabilitation packages to the Aps and feedback sought.

SAP Framework - People will be interested to know what other development benefits will the project offer to them. How these development plans will be implemented. Brochures explaining type of development programs, area coverage, co-ordination with the beneficiaries and local institutions, and type of development program and process of program design and implementation need explanations and feedback.

In addition to the above formal consultation process, it is recommended to disseminate information to the local area people and outside by the use of media. The consultation media type and its placement for maximum public consultation is recommended as below:

Vianet's Internet Club on Hetauda's Main Road – This commercial establishment provides services for developing a web page, a CD presenting the Project in an illustrated PowerPoint format, brochures, on annual fee basis for the use of their facilities. The establishment has good accessibility and using a local, Hetauda firm for developing such multimedia materials may provide good public relations. This multimedia approach fits the requirements of many of Hetauda's municipal stakeholders, where a *'wired'* community is considered a valued community attribute. Hetauda's existing web pages, for instance, advertise the community's environmental awareness and achievements, and free community Internet access was a featured part of a recent festival held in the city.

Posters, Photos and CD may be placed at Vianet and at DDO's District Information Center, as well as in PICs in Sanutar and Bhainse-Dhoban. The District's official Web Page currently under construction and existing private ones may be linked to Project's Web Page. A PIC at NEA in Kathmandu may be explored

Manakamana FM Station provide commercial service to disseminate information and awareness programs related to Project, potential environmental impacts and precaution measures to be adopted by affected communities.

TV – Hetauda receives two Nepal TV channels, and there are battery-operated village TVs, for instance at least one observed in Sanutar

Physical Model –Construction of a to the scale physical model to illustrate the Project. The Melamchi Water Project had such a scale model at a recent international water resources conference held in Kathmandu and other Projects have effectively utilized such models. This may provide a highly mobile way to demonstrate Project's workings to the affected municipal and rural communities, especially to those who are not literate.

Normally public consultations are arranged in one central location. Due to various reasons, participation in such meetings from the common walks of life is not always possible. Their concerns and feedback are usually left out and only the concerns of the village elite and rich are reflected in such central location meetings. While central location meetings are important to get consent of the HMG officers, INGOs, DDC and VDC office bearer's, the village level consultation meetings are very important to get feedback from the directly affected communities and persons. Hence besides central level consultations at Kathmandu and at Hetauda, it is recommended to conduct consultation meetings at the following location at village levels:

Sanutar/Gumaune/Shikarbas Villages – These three villages will bear the most direct construction effects, from the Access Road to construction camps.

Kisedi Village – This is also a part of Bhainse, Ward 6, is probably where the Reservoir Area will impinge.

Bhainse-Dhoban and Nibuwatar – A number of Construction 'footprints' such as head works, work aadit, construction camps, store yards etc locates in this area. Construction traffic between the Intake Area and Nibuwater, where NEA will put its construction camp in the existing NEA facilities used for Kulekhani II, will be greatly increased.

Bokheda – The Community Forest in Bhokhada is affected by the project, and some land will be acquired for the Tailrace Outlet. Besides irrigation water issue is a major concern of the area.

Hetauda Ward 1 – About 4 km stretch of the Rapti River will be affected by the Tailrace Outlet water releases, up to the Hetauda Bridge. Also, irrigation intakes and the erosion of agricultural land will be an issue of concern in this area.

Last but not the least it is recommended to establish a Public Information Center (PIC) at various locations of the Project site. Recommended sites for such PICs are:

District Information Center, District Development Committee (DDC) Office, Hetauda

Commercial Internet providers on the main road, Hetauda

Sanutar School, Sanutar

Bhaise VDC Office at Bhaise

Basamadi VDC School at Ward 9

In addition to the above, NEA's PIC at Kathmandu will also provide information with regard to the Project. The PICs at local level will display project layouts, posters, photographs and will supply, as requested, relevant brochures.

The Study Team has also noted that there is an ADB Urban and Environmental Improvement Project expected to be implemented in Hetauda during the Kulekhani III detailed design and construction phases, and efforts have already been made to liaise with the designers and implementers of this project to assure maximum compatibility in project components that closely overlap with the SAP.

The following Figure B.4.1 is a graphic representation of the proposed Consultation Strategy.

B.4.6 Cost for Public Consultation

The cost proposed here is for the public consultation during the Detail Design Phase. As mentioned before at least three Public Consultation Meetings will be arranged during the Detail Design Phase.

The first Public Consultation Meeting will present the feasibility stage findings. The feedback obtained will be incorporated in the Final Design RP, SAP Framework, and EMP.

The second Public Consultation Meeting will present the proposed modifications of the Project's Final Design, again for constructive feedback to be taken into account during the final stages of the Detail Design Phase fieldwork for incorporation into the Final Design and Planning documents.

The third Public Consultation Meeting will present the final study findings, in particular the proposed final versions of RP, SAP, and EMP.

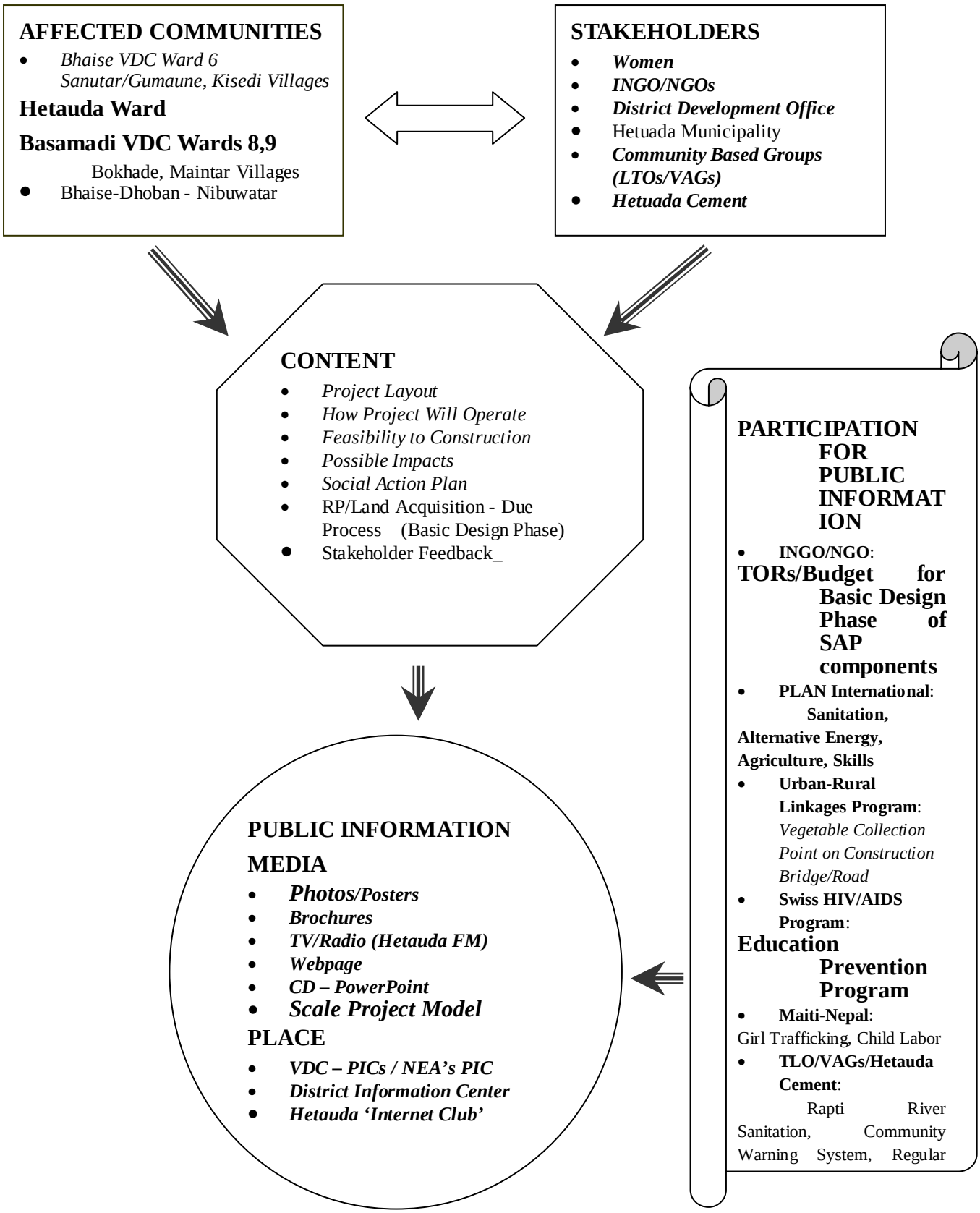

Figure B.4.1 Consultation Strategy

As discussed before, the public consultations shall be held at three levels during each round of Public Consultation Meetings. At local, village and community level, in the Project impacted area itself, the consultations will be held at five locations, *i.e.*, at the Sanutar/Ghumaune/Shikharibas; at Kisedi and the other Upper Yangran Catchment communities; at Bhaise, Nayagaon, and Nibuwatar; at Nakoligaon, Maintar and Bokedaha of Basamadi Ward 9; and at Hetauda Municipality Ward 1.

Second Level Consultation will be held at the Hetauda DDO and will involve HMG officers, DDC, VDC representatives, INGOs and National Level NGO representatives.

Central Level consultations will be at Kathmandu and will involve NEA, MOWR, DoED, MOFSC, DOI, NPC and MOPE officials, as well as other stakeholders.

Table B.4.1 presents the estimated costs for the proposed Public Consultation Program during the Design Phase.

Table B.4.1: Estimated Costs for Public Consultation in the detail Design Phase

SN	Particulars	Rate (NRs)	Amount (NRs.)
1	Brochure Preparation and Printing In Nepali for Distribution (Approximately 20 pp) 2000 Copies	15/per copy	30,000
2	Interactive Page Web Hosting Designing and Registration for One Year		100,000
3	Manakamana Broadcasting FM Radio Station, every Month including Material Preparation and Broadcast Time (15 Minutes) for One Year	7,000/month	84,000
4	Village Level Consultations (Three Sessions) in Five Places	37,000/once/ place	555,000
5	Hetauda Consultation (Three Session, One Place)	47,000/0nce/ place	141,000
6	Kathmandu Consultation (Three Sessions, One Place)	63,250/once/ place	189,750
	Total		969,750

Basic costs for Village Level Consultation is calculated as below:

Rental for power point battery operated system for presentation = NRs 15000

Refreshment for 200 persons = NRs 10,000

Transportation = NRs 5,000

Consultant/Presenter = NRs 7,000

Total for one location/one time = *NRS 37,000*

Basic Costs for Hetauda DDC Consultation, as below:

Rental for power point battery operated system for presentation – NRs 15,000

Refreshment for 200 persons - NRs 20,000

Transportation – NRs 5,000

Consultant/Presenter – NRs 7,000

Total for one time = 47,000.00

Basic Costs for Kathmandu Consultation, as below:

Hotel Rental for half day with launch for about 75 persons @rate of NRs 750/person = NRs 56,250

Consultant/Presenter – NRs 7,000

Total for one time = NRs 63,250

Cost for web media ,based on the costs of Vianet (refer Annex 12)

Cost for Manakamana, based on discussions with the Manakamana

CHAPTER B.5 Further Studies – Detailed Design Phase

The following are studies required for the next stage, under categories of RP and SAP.

Resettlement Plan

- Plane Table Survey of Agricultural Plots & updating of household records & GIS *Natural and Social Environment Map*, also using records obtained from Tax Office (*Mal Addha*) and District Survey Office, to prepare for Detailed Measurement Survey
- Detailed Measurement Survey (DMS) when Detailed Design is completed, for updating and finalizing the RP

Social Action Plan (SAP) Framework

*Strengthening the Urban-Rural Linkage in Rural Development of the Kulekhani III Project Are*a, to explore both existing and potential economic activities related to rural-urban linkage development, particularly as a spur to agricultural development in the Project Affected Area and its surroundings. Includes GIS Tracking survey of foot traffic for proposed Choki Tole suspension Bridge (and for feasibility of relocation of Sanutar's suspension Bridge) and for assessing economic impact of Project's motorable bridge over Rapti River, possible development commercial nucleus (produce collection center, bus stand) on spoil site at Sanutar

Survey of irrigation and water mill water diversion downstream Tailrace, updating information from July 2002 floods, including survey of type and volume of agricultural produce in downstream irrigation. And economies of water mills

Preparation of Social Program Details, with NGO involvement

B.5.1 COSTS

Table B.5.1: Social Environmental Mitigation and Monitoring Plan – Summary of Costs – Kulekhani III HEP, Preparation and Construction Phases

Description	Frequency/Unit	Unit Costs	Costs NRs
1. PROJECT DESIGN & PRE-CONSTRUCTION PHASE			
1.1 Resettlement Plan (RP)			
Plane Table Survey – Agri. Plots & updating HH records & GIS map, from Tax Office (*Mal Addha*) to prepare for DMS	1.5 mos.	Lump Sum	50,000
Detailed Measurement Survey (DMS) – when Detailed Design is completed & Updating RP	3 mos.	Lump Sum	500,000
Sub Total			550,000
1.2 Social Action Plan (SAP)			
GIS Tracking survey of foot traffic for proposed 2 susp. Bridges and for econ. Impact of Project's motorable bridge – Rapti River	1 month Dry & 1 month Wet Season	Lump Sum	75,000
Survey irrigation and water mill water diversion downstream Tailrace	1 month Dry & 1 month Wet Season	Lump Sum	50,000
Survey type and vol. Of agri. Produce – downstream irrigation.	1 month Dry & 1 month Wet Season – Harvest periods	Lump Sum	50,000
Preparation of Social Program Details		5-10% of SAP Allocated Costs	1,550,000
Sub Total			1,725,000
1.3 Public Consultation			
Brochure Preparation & printing in Nepali for distribution	Approximately 20 pages, 2,000 copies	15NRs/copy	30,000
Interactive Web page hosting designing & registration	One year		100,000
Manakama FM Radio Broadcasting, Incl. Material preparation.	12 Mo/15 min	7,000/Mo	84,000
Village Consultations	3 sessions in 5 VDCs	37,000/once/Place	555,000
Hetauda Consultation	3 sessions, 1 place	47,000/Once/Place	141,000
Kathmandu Consultation	3 sessions, 1 place	63,250/Once/Place	189,750
Sub Total			1,099,750
Total			**3,374,750**

(To be continued)

(Continued)

2.CONSTRUCTION PHASE – 4 YEARS			
2.1 Resettlement Plan (RP)			
Compensation for private land	6 Ha. *Khet* (Irrig) Land 9 Ha *Bari* (Non-Irrig) Land	*Khet* (Irrig) land 2,000,000NRs/Ha *Bari* (Non-Irrig) 1,500,000 NRs/Ha (Negotiated cost for any temporary acq.)	25,500,000
Transfer fee for buying replacement land		Provisional Lump Sum	1,897,200
Compensation for Privately Owned Trees	3,255 trees – 11 varieties	Rates calculated for each variety of tree	5,491,060
Compensation for Houses	26 Houses	226,950 NRs average/House	5,900,700
Compensation for Sheds	29 Sheds	10,483 Nrs average/Shed	304,000
Compensation for Community Structures		Provisional Lump Sum	100,000
Displacement Allowance	24 HHs	1,500 Nrs/Person @ 6 Person/HH	648,000
Rental Stipend	24 HHs	NRs 3,000/mo*6mo	432,000
Cultivation Disruption Allowance	12 HHs	12HH*annual paddy 0.323 kg/ha*NRs 20/kg	144,000
Transportation Allowance	24 HHs	NRs5,000/HH	120,000
House Plot Grant	24 HHs	NRs 50,000/HH	1,200,000
Sub Total			41,736,960
2.2 Social Action Plan (SAP)			
Improvement of intakes for 5 water mill canals	5 Canal Intakes	25,000/canal	125,000
Design & construction 3 Irrigation Canals	3 Irrigation Canals	2,000,000/canal	6,000,000
Improvement intakes for 3 irrigation canals downstream tailace	3 Canal Intakes	33,000/canal	100,000
Constr. of 2 Susp. bridges @ Maintar & Chaukitole - Rapti River	1 Suspension Bridges on Rapti	NRs 15,000,000 each	15,000,000
Awareness Program – Accidental Risks Downstream Tailrace, Tribhuvan Highway	Riverbank sanitation, traffic signs; traffic and tailrace public education	Provisional Lump Sum	2,875,000
Agricultural Development – Veg. Produce Pickup Center & Bus Stop	3 Components - Downstream Tailrace, Project Area at Sanutar, Yangran Hinterlands	Provisional Lump Sum	5,000,000
Community/Public Heath & Education Enhancement	Water Supply, Schools, Clinic, STD/Aids, Malaria Education	Provisional Lump Sum	2,000,000
Skill Enhancement	Skill Survey & Training	Provisional Lump Sum	1,250,000
Rural Electrification	20 Km TL length – 4 Wards	Provisional Lump Sum	5,000,000
Neighborhood Support	Matching Community Development Funds – 5 Wards	Provisional Lump Sum	3,750,000
Women's Development	Skill Training, Micro-Credit Funds, Public Health Education	Provisional Lump Sum	1,600,000
Sub Total			42,700,000
2.3 Public Consultation			
Information Dissemination & Feedback	Public Information Center, Radio, Internet	Provisional Lump Sum	1,286,000
Total Costs			**85,722,960**
3. TOTAL COST OF SOCIAL IMPACTS & MITIGATION PROGRAM - NRs			**89,097,710**

Explanation of Results of the Supplemental EIA Survey compared with the Check Sheet in the JBIC Guideline

	Check Items for ODA Loan Dam Construction Project	Results of the Supplemental Environmental Impact Assessment Survey (the Supplemental EIA Survey)
I.	Gaining stakeholders' participation and understanding of the project	• The impacts on the social environment by implementing the Project are resettlement and land acquisition in Sanutar and Gumaune Villages, the Yangran regulating pond area, and the tailrace outlet. Resettlement and land acquisition are estimated at 25 households and 15 ha. The direct project affected families (PAFs) are 97 households, and 604 persons, while ethnic minorities are included in the direct PAFs. • During the Upgrading Feasibility Study of the Project, two Public Consultation Meetings were held on May 5 2002, and June 24, 2002 by attendance of 40 and 130 concerned persons (direct affected families, affected VDC officials, teachers, and local NGOs). The main features, implementation schedule, and impact on social environment by the Project are explained in these meetings. As a result of these public consultation meetings, three Stakeholder' meetings are recommended during next stage of detailed design for implementing the Public Consultation Program (Refer to Section 4.6) • As a result of two Public Consultation Meetings, it was concluded that three Stakeholders' meetings should be carried out during the detailed design.
II.	Examination of comprehensive alternatives, consultation with stakeholders	• Through the project optimization study of the Project, three alternatives are studied: Alternative 1 is the regulating dam type pond + underground powerhouse, Alternative 2 is the underground type pond + underground powerhouse, and Alternative 3 is the dispersion type regulating pond + underground powerhouse. The results of the study on the optimum project layout selects Alternative 1 of the regulating dam type pond and underground powerhouse (refer to Section 6.3). Resettlement is a livestock house only in the regulating pond. • The optimum project layout of main structures in the Project is selected so as to minimize the resettlement and land acquisition. As a result, the major impact on the social environment is led by construction of the access road. • The Environmental Impact Assessment carried out by NEA in 2001 was approved by the MoPE in March 2002 through evaluation of NEA's evaluation committee. The Supplemental Environmental Impact Assessment (Supplemental EIA) aims at supplementing the existing NEA's EIA. • The result of the supplemental EIA reports that there is a local information of existence of Leopard in the basin area of the regulating pond. Though this existence is not verified by the supplemental EIA, it will be surveyed by the Environmental Monitoring Plan (EMP) proposed by this Draft Final Report. Common Langur (Cites I), Yellow throated marten (Cites III), Rhesus macaque and Rat snake (Cites II) and Otter (IUCN/K) are common to all areas surveyed and similar habitats throughout Nepal, frequenting the agriculture fringe areas. It is noted that Cites I: threatened with extension, Cites II: species not threatened with extinction but could become so, and Cites III: species requiring international cooperation to control trade.
III.	Setting maintenance flow, maintaining productive fisheries, and preparing reservoir operating rules	• The study of the river maintenance flow in the Yangran River, on which the regulating dam will be constructed, referred to the existing concepts in the Medium Hydropower Project Study and the Melamchi Water Supply Project. A guideline in Nepal, 'Aquatic Animals Protection Act, 2001', and several related standards in Japan were also referred. As a result, the maintenance flow was proposed to be 0.1 m^3/s in the dry season and 0.3 m^3/s in the wet season by applying the 90 % dependable discharge in each season as the minimum requirement for keeping the aquatic life in addition to the irrigation water use of 0.04 m^3/s.
IV.	Analysis of and consideration of impacts on project affected people (PAP)	• An inventory survey was carried out to identify households and land acquisition in the project area as a part of the supplemental EIA survey fieldwork. The Resettlement Plan (RP) was developed and proposed in accordance with principles of the 'Land Acquisition Act 2034, 1977' (LAA) in Nepal and ADB's guidelines, 'Handbook on Resettlement' (refer to section 4.5.2 and Table 4.5.3). • Also the Social Action Plan (SAP) was formulated to mitigate the anticipated several impacts on the communities affected by the Project (refer to section 4.5.3 and Table 4.5.4).
V.	Ensuring compliance	• On the implementation of the Project, the Nepal Electricity Authority (NEA) will take the responsibility for social environmental and natural environmental matters. The Environmental Management Plan (EMP) was proposed to implement the four major plans smoothly, namely resettlement, social action plan, monitoring, and mitigation measures. The EMP will be conducted for the Pre-Construction and Construction Phases by coordination of the Kulekhani Environmental and Social Management Unit (KESMU) with NEA, the Project's supervising consultant, stakeholders of the Project including NGOs.
VI.	Agreement among relevant nations for projects involving an international river	• The Project is of a run-of-river scheme without involving of an international river and also not causing changes of the reservoir basin.

Annex

Part B

Annex B1 References

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Annex B2 Castes and Ethnic Groups of Nepal – Population 18.5 Million (1991 Census)

Main Categories	Caste & Ethnic Groups	Percent
(1) PARBATIYAS (Hill People, Hindu-Caste)		***(40.3)***
Twice-Born:	BRAHMAN	12.9
	THAKURI	1.6
	CHETRI (formerly KHAS)	16.1
Renouncers:	Dashnami Sanyasi & Kanphata Yogi	1.0
Untouchables:	Kami (Iron-Workers)	5.2
	Damai (Tailors)	2.0
	Sarki (Cobblers)	1.5
(2) NEWARS		***(5.6)***
Entitled to full initiation (Hindu-Caste)	BRAHMAN	0.1
	BAJRACHARYA/SHAKYA	0.5
	SHRESTHA	1.0
	Uray	0.3
Other pure castes:	MAHARJAN (JYAPU)	2.3
	'Ekthariya' etc.	0.5-0.7
Impure castes:	Khadgi (Kasai), Dyahla (Pore), etc.	0.3
(3) OTHER HILL OR MOUNTAIN ETHNIC GROUPS ('TRIBES')		***(20.1)***
	MAGAR	7.2
	TAMANG	5.5
	RAI	2.8
	GURUNG	2.4
	LIMBU	1.6
	SHERPA	0.6
	Chepang	0.2

Main Categories	Caste & Ethnic Groups	Percent
	Sunuwar	0.2
	Bhotiya	0.1
	Thami	0.1
(4) MADHESHIS (Terai Dwellers)		***(32.0)***
(a) Castes		[16.1]
Twice-Born:	BRAHMAN	0.9
	RAJPUT (Kshatriya)	0.3
	Kayastha (Kshatriya)	0.3
	Rajbhat (Kshatriya)	0.2
	Baniya (Vaishya)	0.6
Other pure castes:	YADAV/Ahir (Herdsmen)	4.1
	Khushawaha (Vegetable Growers)	1.1
	Kurmi (Cultivators)	0.9
	Mallah (Fishermen)	0.6
	Kewat (Fishermen)	0.5
	Kumhar (Potters)	0.4
	Halwai (Confectioners)	0.2
Impute, but		
Touchable:	Kalawar (Brewers, Merchants)	0.9
	Dhobi (Washermen)`	0.5
	Teli (Oil-pressers)	1.4
	Kanu (Oil-pressers)	0.4
Untouchable:	Chamar (Leather-workers)	1.1
	Dushadh (Basket-makers)	0.5
	Kharawe (Laborers)	0.4
	Musahar	0.8
(b) Ethnic Groups		[9.0]
Inner Tarai:	Kumal	0.4

Main Categories	Caste & Ethnic Groups	Percent
	Majhi	0.3
	Danuwar	0.3
	Darai	0.1
Tarai Proper:	THARU	6.5
	Dhanuk	0.7
	Rajbanshi	0.4
	Gangai	0.1
	Dhimal	0.1
(c) Muslims		[3.5]
(d) Marwaris		[0.2]
(e) Sikhs		[0.1]
(5) OTHERS	(Tarai origin and below 0.1%)	(4.7)

Source: John Whelpton. '*Political Identity in Nepal: State, Nation, and Community*,' in David N. Gellner, Joanna Pfaff-Czarnecka, and John Whelpton, Eds. 1997. *Nationalism and Ethnicity in a Hindu Kingdom: The Politics of Culture in Contemporary Nepal*. Amsterdam: Harwood Academic Publishers, pp. 39-78.

Annex B3 Summary Table List of HHs Surveyed, Social Impact Assessment

The Study Team has inventoried all houses in the likely Project impact areas around the Sanutar community. The list of households, which are now being surveyed through a detailed socioeconomic questionnaire, is as follows:

1. Household information

Location: Gumaune

SN	Plot No.	HH No.	House Owner's Name	Address VDC-Ward	Building Size			Registered/ Unregistered	Type of Bulding (Kachhi, Pakki , Wooden, Stone mortar etc)	No. of Story	Family Size	Remarks
					Length (m)	Breadth (m)	Height (m)					
1		1	Krishna Bdr. Sayangtan Wife: Phul Maya Sayangtan	Bhaise –6	7	4	5	R	Pakki	2	6	
2		2	Kaman Sing Syangtan Wife: Maya Syangtan	Bhaise –6	5.5	4.5	3.5	R	Kachhi	2	6	
3		3	Dil Bdr. Singtan	Bhaise - 6	6	5	4	R	Kachhi	2	8	Sahu ko Jagga
4	512	4	Jit Bdr. Syangtan	Bhaise –6	6	4	4	R	Pakki	2	8	
5		5	Buddhi Man Gole Wife: Buddi Maya Gole	Bhaise –6	8	5	5	R	Pakki	2	13	
6		6	Raj Kumar Gole Wife: Kali Maya Gole	Bhaise –6	6.5	4	4	R	Pakki	2	9	
SN	Plot No.	HH No.	House Owner's Name	Address VDC-Ward	Building Size			Registered/ Unregistered	Type of Bulding (Kachhi, Pakki , Wooden, Stone mortar etc)	No. of Story	Family Size	Remarks
					Length (m)	Breadth (m)	Height (m)					

7	177	7	Ram Bdr. Gole Wife: Bhim Maya Gole	Bhaise –6	6.5	4	4	R	Pakki	2	12	old
8		13	Dil Bdr. Syangtan Wife: Sabitri Gole	Bhaise -6	7.5	4	5	R	Pakki	2	8	
9		14	Binod Syangtan Wife: Sarita Syangtan	Bhaise –6	6	4	4.5	R	Pakki	1	4	
10		12	Raju Syangtan Wife: Bishnu Maya Syangtan	Bhaise –6	6	4	4.5	R	Pakki	1	3	
11		11	Amar Bdr. Gurung Son: Sankar Bdr. Gurung	Bhaise –6	6	4	5	R	Pakki	2	8	
12		10	Prem Adikhari Wife: Binda Adikhari	Bhaise –6	6	4	5	R	Pakki	2	6	
13		9	Krishna Bdr. Gole Wife: Prem Kumari Gole	Bhaise –6	9	4	5	R	Pakki	2	11	
14	503	8	Purna Bdr. Thing Wife: Suk Maya Thing	Bhaise –6	12	4	2	R	Pakki	1	4	
15	******		Sayauri Pakhrin	Bhaise –6 Sikari Bas							15	

Location: Gumaune Pari

SN	Plot No.	HH No.	House Owner's Name	Address VDC-Ward	Building Size			Registered/ Unregistered	Type of Bulding (Kachhi, Pakki , Wooden, Stone mortar etc)	No. of Story	Family Size	Remarks
					Length (m)	Breadth (m)	Height (m)					
1		1	Nar Bdr. Gole Wife: Bishnu Gole	Bhaise –6	6	4	4	R	Pakki	2	5	
2		2	Bhim Bdr. Gole Wife: Nani Maya Gole	Bhaise –6	8	5.5	5.5	R	Pakki	2	7	
3		3	Dev Bdr. Gole	Bhaise –6	7	5	5.5	R	Kachhi	2	5	
4		4	Krishna Bdr. Gole Wife: Santi Maya Gole	Bhaise –6	5	3.5	4	R	Kachhi	2	6	
5		5	Hari Bdr Gole Wife: Bindu Gole	Bhaise –6	8	5	4	R	Wooden	2	9	

Location: Sanotar

SN	Plot No.	HH No.	House Owner's Name	Address VDC-Ward	Building Size			Registered/ Unregistered	Type of Bulding (Kachhi, Pakki , Wooden, Stone mortar etc)	No. of Story	Family Size	Remarks
					Length (m)	Breadth (m)	Height (m)					
1		1	Shyam Bdr. Aale Wife: Kumari Aale	Bhaise –6	6	4	4.5	UR	Wooden	1	5	
2		2	Ram Bdr. Syangtan Wife: Kumari Syangtan	Bhaise –6	4	3	3.5		Kachhi	1	5	
SN	Plot No.	HH No.	House Owner's Name	Address VDC-Ward	Building Size			Registered/ Unregistered	Type of Bulding (Kachhi, Pakki , Wooden, Stone mortar etc)	No. of Story	Family Size	Remarks
					Length (m)	Breadth (m)	Height (m)					
3	190	3	Kanchhi Maya Syangtan Husband: Lal Bdr. Syangtan	Bhaise –6	8	5	5	Ram jee Gorkhari	Pakki	2	14	
4		4	Bir Bdr. Syangtan Wife: Thuli Maya Syangtan	Bhaise –6	6	4	4.5	Ram jee Gorkhari	Kachhi	2	10	
5		5	Tek Bdr. Thing Wife: Mailee Maya Thing	Bhaise –6	5.5	4	3		Kachhi	1	9	
6		6	Ram Kumar Thing Wife:Ram Maya Thing	Bhaise –6	6	4.5	3		Kachhi	1	6	
7		7	Purna Bdr. Thing Wife: Thulee Maya Thing	Bhaise –6	4	2.5	3.5		Kachhi	1	8	
8		8	Chandra Bdr. Titung Wife: Phool Maya Titung	Bhaise –6	6	4	4.5	UR	Wooden	2	3	Last 10 years

SN	Plot No.	HH No.	House Owner's Name	Address VDC-Ward	Building Size			Registered/ Unregistered	Type of Bulding (Kachhi, Pakki , Wooden, Stone mortar etc)	No. of Story	Family Size	Remarks
					Length (m)	Breadth (m)	Height (m)					
9	359	9	Ram Saran Karki Son: Gopal Karki	Bhaise –6	11	4	5.5	R	Pakki	2	9	
10	439	10	Laxman Sapkota Wife: Laxmi Sapkota	Bhaise –6	7.5	4.5	4	R	Pakki	2	5	
11	222	11	Nar Hari Sapkota Wife: Bhim Maya Sapkota	Bhaise –6	7.5	4.5	4	R	Pakki	2	15	
12	435	12	Hem Kumari Sapkota Son : Raju Sapkota	Bhaise –6	8	4.5	5	R	Pakki	2	5	
13	200	13	Dhan Prasad Sapkota	Bhaise –6	6	4	4	R	Kachhi	1	7	Land of Ramjee Gorkhali
14	362	14	Narayan Sapkota Wife: Laxmi Sapkota	Bhaise –6	6	4	4	R	Pakki	2	5	
15	362	15	Dhan Prasad Sapkota Wife: Yadu Maya Sapkota	Bhaise –6	7	4.5	4.5	R	Kachhi	2	7	
16	375	16	Lata Aale	Bhaise –6	5	4	2	R	Kachhi	1	2	Bimlal's land
17	375	17	Thuli Maya Pulami Magar	Bhaise –6	5.5	4.5	3	R	Kachhi	1	5	Bhim Lal's land
18	416	18	Sita Ram Aale Magar Father : Shyam Bdr.Aale Magar	Bhaise –6	6	5	3.5	R	Kachhi	1	7	
19	375	19	Surya Bdr. Rakhal Son: Raj Kumar Rakhal	Bhaise –6	7	4.5	3	R	Kachhi	2	6	Bhim Lal's land
20	415	20	Dhan Bdr. Aale Magar	Bhaise –6	12	5	5	R	Pakki	2	13	

			Wife: Sani Maya Aale Magar									
21	376	21	Man Bdr. Thapa Magar Wife: Seti Maya Thapa Magar	Bhaise –6	8.5	5	5	R	Pakki	2	10	
22	430	22	Bhabhuk Aale Magar Father: Shyam Bdr. Aale Magar	Bhaise –6	9	5	4	R	Kachhi	1	5	
23	426	23	Prem Bdr Tamang Wife: Jamuni Tamang	Bhaise –6	11.5	7	5.5	R	Pakki	2	11	
SN	Plot No.	HH No.	House Owner's Name	Address VDC-Ward	Building Size			Registered/ Unregistered	Type of Bulding (Kachhi, Pakki , Wooden, Stone mortar etc)	No. of Story	Family Size	Remarks
					Length (m)	Breadth (m)	Height (m)					
24	426	23	Prem Bdr. Tamang Wife: Jamuni Tamang	Bhaise –6	10	5.5	5	R	Pakki	2	11	
25	426	24	Keshav Ghalan Wife: Ranju Ghalan	Bhaise –6	6	4	3	R	Pakki	1	4	
26	425	25	Dev Bdr. Thing Wife: Hira Maya Thing	Bhaise –6	7	5	4.5	R	Pakki	2	6	
27		26	Ram Bdr. Gole	Bhaise –6	7	5	4	R	Pakki	2	12	Bhim Lal Gorkhali's land
28		27	Sumita Tamang Husband: Ram Bdr. Bomjan	Bhaise –6	6	5	3	R	Kachhi	1	4	
29		28	Ganesh Kr. Gole	Bhaise –6	6	5	3	R	Pakki	2	1	
30		29	Bishnu Maya Gole	Bhaise –6	9	5.5	5.5	R	Pakki	2	21	

			Husband : Bir Bdr. Gole									
31		30	Bishnu Maya Gole Husband : Bir Bdr. Gole	Bhaise –6	8	5	5	R	Pakki	2		
32		31	Ganesh Shyantan	Bhaise –6	5	3.5	3	R	Kachhi	1	5	
33		32	Purna Bdr. Lama	Bhaise –6	8	4.5	5	R	Pakki	2	5	
34		33	Lal Bdr. Lama	Bhaise –6	7	5	5.5	R	Pakki	2	2	
35		34	Som Bdr. Lama	Bhaise –6	9	5	5	R	Pakki	2	2	
36		35	Dev Lal Gole Wife: Thuli Maya Gole	Bhaise –6	8	4.5	5.5	R	Pakki	2	4	
SN	Plot No.	HH No.	House Owner's Name	Address VDC-Ward	Building Size			Registered/ Unregistered	Type of Bulding (Kachhi, Pakki , Wooden, Stone mortar etc)	No. of Story	Family Size	Remarks
					Length (m)	Breadth (m)	Height (m)					
37		36	Hari Bdr Gole Wife: Buddhi Maya Gole	Bhaise –6	10	4.5	5	R	Pakki	1	8	
38		37	Chandra Lal Dong Wife: Suku Maya Dong	Bhaise –6	16	5	5	R	Pakki	2	9	
39		37	Chandra Lal Dong Son: Gyan Bdr. Dong	Bhaise –6	10	5	4	R	Pakki	1		
40		38	Purna Bdr. Lama Wife: Padam Maya Lama	Bhaise –6	8	4	3	R	Pakki	1	5	

Location: Bokedaha

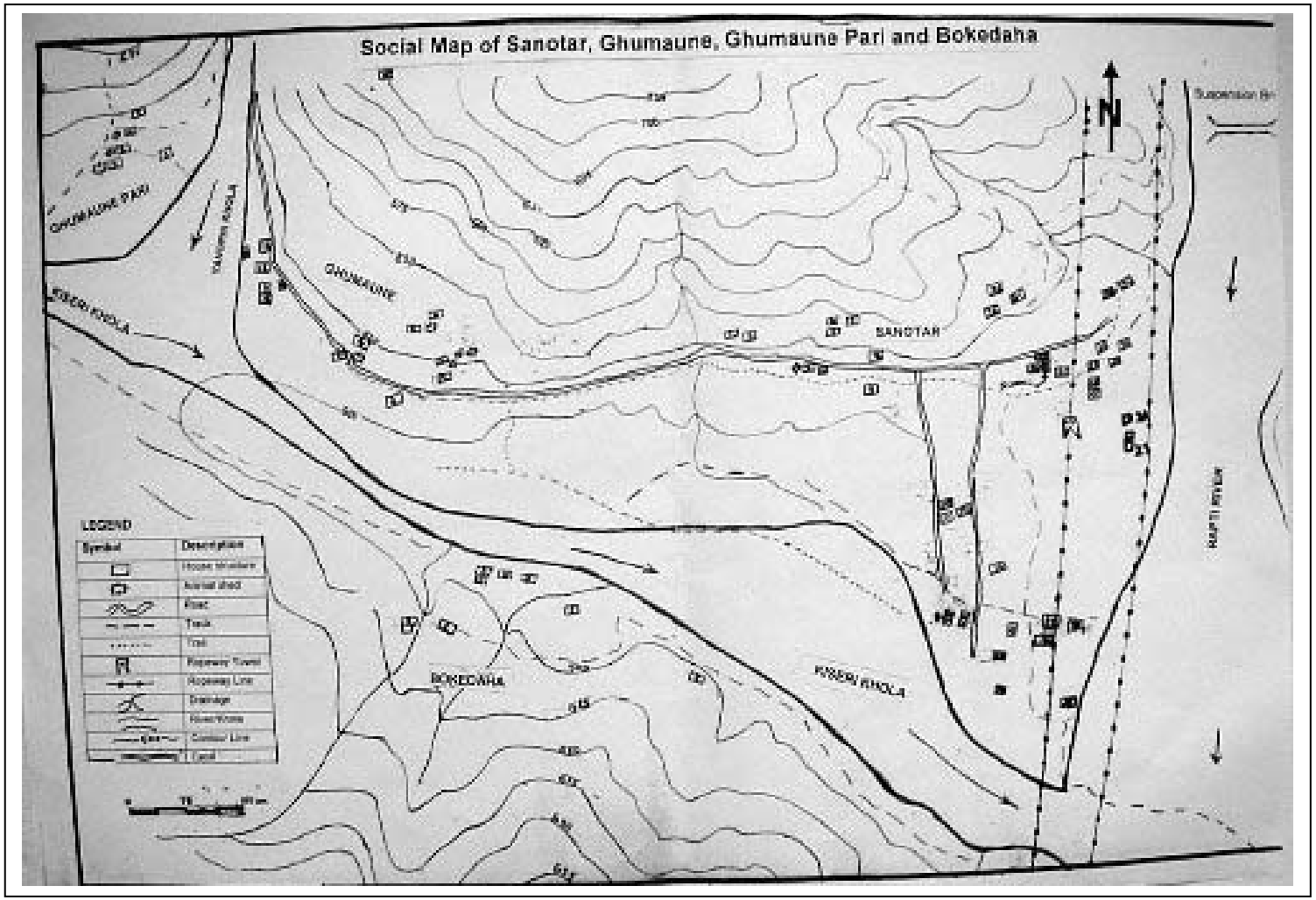
SN	Plot No.	HH No.	House Owner's Name	Address VDC-Ward	Building Size			Registered/ Unregistered	Type of Bulding (Kachhi, Pakki , Wooden, Stone mortar etc)	No. of Story	Family Size	Remarks
					Length (m)	Breadth (m)	Height (m)					
1	294	1	Dhan Bdr. Tamang Wife: Hira Maya Tamang	Basmadi-9	9	5	5.5	R	Pakki	2	8	
2	4	2	Santa Maya Moktan Son: Gunja Man Moktan	Basmadi-9	9	5	5.5	R	Pakki	2	10	
3	3	6	Purna Bdr. Thing Wife: Kami Thing	Basmadi-9	9	5.5	7	R	Pakki	2	4	
4		4	Prem Bdr. Thing Wife: Tara Maya Thing	Basmadi-9	6	4	5	R	Pakki	2	5	
5		5	Rameshowr Thing Wife:Jog Maya Thing	Basmadi-9	6.5	5	5	R	Pakki	2	5	
6		7	Radha Thing Kushina Thing	Basmadi-9	5	3	3	R	Kachhi	1	3	
7		3	Lok Bdr. Gishing Wife: Mhendu Maya Gishing	Basmadi-9	8	5	5.5	R	Pakki	2	6	
8		3	Lok Bdr. Gishing Wife: Mhendu Maya Gishing	Basmadi-9	6	5	5	R	Kachhi	2		
9		8	Hasta Bdr. Rakhal Thapa (Gandane Budha) Wife: Thuli Maya Thapa	Basmadi-9	6	4	4.5	R	Kachhi	2	2	

Location: Nakauli (Tailrace Outlet)

SN	Plot No.	HH No.	House Owner's Name	Address VDC-Ward	Building Size			Registered/ Unregistered	Type of Bulding (Kachhi, Pakki , Wooden, Stone mortar etc)	No. of Story	Family Size	Remarks
					Length (m)	Breadth (m)	Height (m)					
1	305	1	Gauri Kanta Dhital Wife: Krishna Maya Dhital, Pabitra Dhital	Basmadi-9	7	4	4		Pakki	2	7	

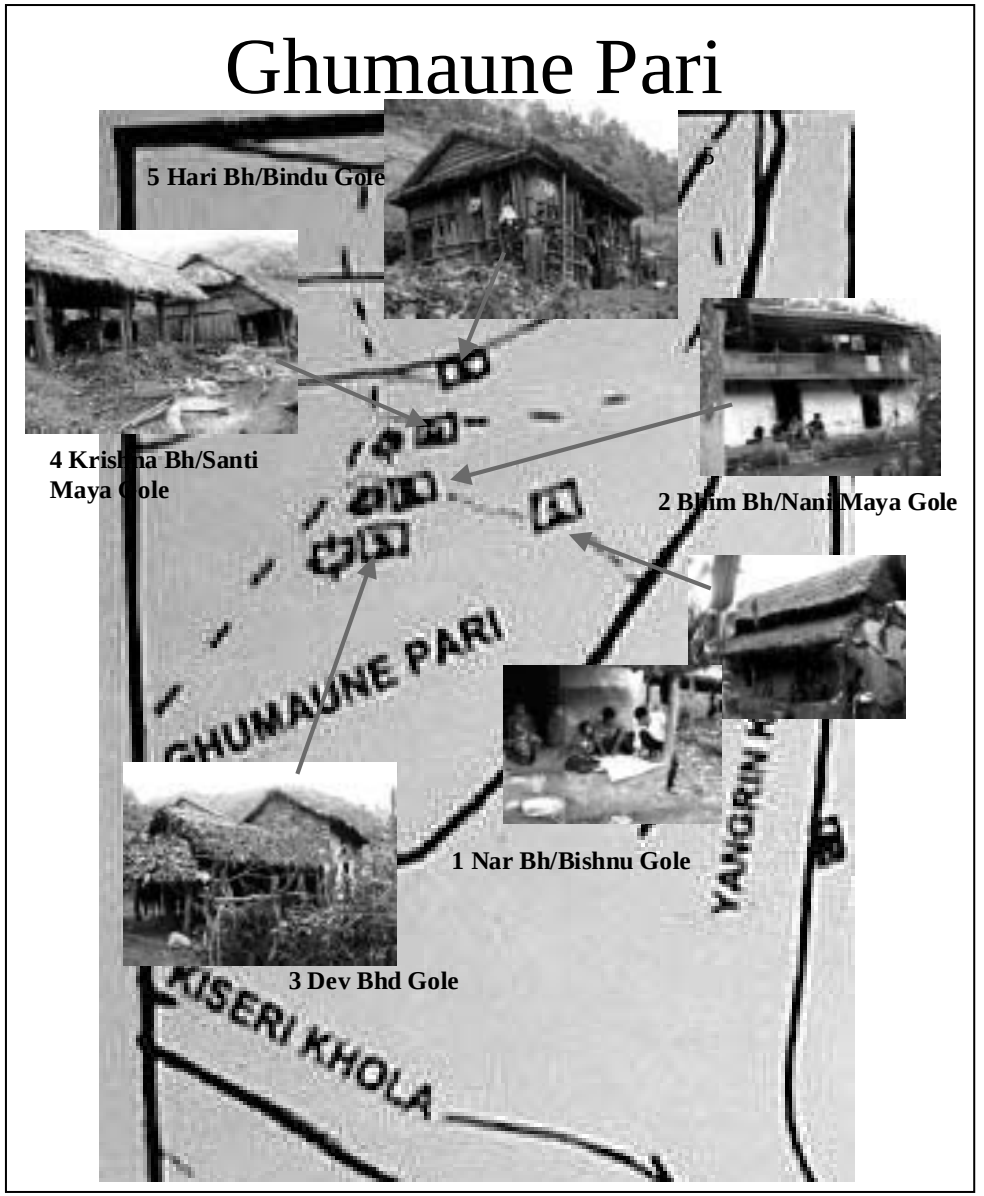
The Study Team prepared a sketch map of all of these households and took photographs of each one.

Sketch Map of Sanutar Project Affected Area Houses



The example of Ghumane Pari illustrates the photographs taken of each household.

House Photos in Ghumaune Pare



Annex B4 Questionnaire for Socioeconomic Study

Family Details that will be included in this questionnaire will be secret according to Statistical Rule 2015

1. General Information about Project Area

a. Zone: Narayani b. District: Makawanpur

c. VDC:……. d. Ward No: ……

e. Village/Tole:……..

2. Information about the Family

2.1 General

a. Name of house owner/Head of household……

b. Sex Male ☐ Female ☐

c. Surname [Jati]……

d. Occupation: ……..

e. Religion: …….

f. Education: ……..

2.2 Since when did your family settle here?

a. Are from this village.

b. Came some years ago [Specify how many years]…….

c. Transition……..

d. Other ……..

2.3 From where did your ancestors come here?

a. Nepal : District ……

b. India or any other country or area…….

2.4 Type of Family

a. Single (Live separated) ……...

b. Joint Family ……..

2.5 Information about members of family who live together without separating their kitchen (Including name of head of household).

Ser. No.	Sex	Age	Education.	Occupation.	Skill/ Training	If Stay Away More than 6 Months			Remarks
1						Time	Reason	Place	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Code:

2. Sex

1. Male
2. Female

4. Education

0. Illiterate
1. Literate but no schooling
2.Primary (Class 1-5)
3. Pre-Secondary Level (Class 6-7)
4. Secondary (Class 8-10)
5. SLC (School Leaving Certificate)
6. Intermediate Level
7. Bachelors or Graduate
8. Higher Education

5. Occupation

1. Agriculture (Livestock)
2. Business/Service
3. Student
4. Service (Job)
5. Laborer
6. Disabled
7. Other

6. Skill/Training

1. Laborer (Wall Maker)
2. Carpenter
3. Sewing/Knitting
4. Driver/Light or Heavy
5. Suchikar?
6. Construction (Seed production, Steel, Work for Factory)
7. Blacksmith
8. Cobbler [Sarki]
9. Other ……

7. Time/Reason/Place

1. Service/Job
2. Studies
3. Health cure
4. Other …….

3. Agriculture and Livestock

3.1 Agriculture

3.1.1 Have you any land in your name or in your family member's name?

Yes ☐ No ☐

3.1.2 If you have land, how many Ropani/Bigha?

Ownership	Rice Field [khet]	Dryland [Bari]	Grass [Kharbari]	Remarks
Own				
Joint				
Self-Farming				
Others Work				
Total				

3.1.3 What is the main harvest on your land? How much income do you get from it?

		Farming Land (Ropani/Bhiga)		Production		Sale		Total
Food Crops		Riceland	Dryland	Unit	Quantity	Unit	Quantity	
	Paddy							
	Wheat							
	Maize							
	Millet							
	Grain [Dal Gedragudi]							
	Others							
Cash Crops	Potato							
	Mustard [Tori]							
	Sugar cane							
	Other							

3.1.4 Have you any kind of fruit tree/plants at your house? Yes ☐ No ☐

3.1.4 If yes, give the following information.

Name of Fruit	No. of Plants	Last Year's Production		
		Unit	Quantity	Selling Price
a. Lemon				
b. Orange				
c. Mango				
d. Papaya				
e. Guava				
f. Lichi				
g. Pineapple				
h. Banana				
i. Other				
Total				

3.1.6 Did your family produce enough to feed your family last year? Yes ☐ No ☐

3.1.7 If not, for how many months was it not enough? ……. Months

3.1.8 At the time of food insufficiency, how did you manage to feed your family?

a. Taking out a loan……

b. By daily labor…….

c. Selling Household goods……..

d. Forest Food

e. Portering or other Heavy Labor

f. Other……

3.2 Livestock

3.2.1 Do you have any livestock? Yes ☐ No ☐

3.2.2 If you have livestock, give the following information.

Ser. No	Type of Animal	Number	Milk liter/day	How Much in a Year month/day	Remarks
1.	a. Cow				
	b. Cow (Milk)				
	c. Ox				
2.	a. He/She Buffalo				
	b. Buffalo (Milk)				
3.	Sheep/Goat				
4.	Pig				
5.	Chicken				
6.	Duck				
7.	Other				

4. Statement of Income and Expenditure.

4.1 Expenditure. Please give a statement of your expenditure for the last month.

Ser. No.	Type	Unit	Quantity/Rate	Price	Cash NRS
1.	Rice	20	45	20x45	=
2.	Pulse				
3.	Maize				
4.	Vegetables [Tarkari]				
5.	Milk/curd				
6.	Fish/Meat				
7.	Oil/Ghee				
8.	Spices				
9.	Salt				
10.	Sugar				
11.	Tea				
12.	Firewood (Daura)				
13.	Electricity				
14.	Kerosene				
15.	Medicine/Whole Year				
16.	Education/Whole Year				
17.	Cloth [kapara]/Whole Year				
18.	Other				

4.2 Income. Please tell your income and income source for the past year.

Ser. No.	Type	Unit	Quantity/Rate	Price per unit	Price NRS
1.	Agricultural Income				
1.1	Food				
	a. Paddy				
	b. Maize				
	c. Wheat				
	d. Millet				
	e. Soybean				
	f. Pulse				
	g. Other				
1.2	Vegetable [Tarkari]				
1.3	Fruit				
2.	Livestock				
2.1	Milk Production				
	a. Milk				
	b. Curd				
	c. Ghee				
	d. Cheese				
2.2	Eggs/Chickens				
2.3	Meat				
2.4	Fish				
3.	Other Sources	Daily/Monthly/Yearly		Rate	Remarks
3.1	Job/Service				
3.2	Labor/Work				
3.3	Pension				
3.4	Service				
3.5	Cottage/Domestic Industry				
3.6	Related Service				
3.7	Fishing				
3.8	Other				
	Total Income				

5. Energy and Water Resources

5.1 What is the source of drinking water here?

a. Brook/Stream b. River

c. Well d. Pipe (Distribution System)

5.2 What do you use mostly for Lighting?

a. Kerosene b. Oil Lamp

c. Electricity d. Fuel [Jhari]

e. Other

5.3 What do you use mostly for cooking?

a. Firewood b. Kerosene

c. Guetha? [Dung?] d. Straw

e. Gas f. Other

5.3.1 If you use firewood, how much do you need in one month?

Quantity ( ) Imaginary Weight ( )

5.3.2 From where do you bring the firewood for your home?

a. From nearby forest (government or local authority)

b. Own private forest……..

c. Buy the firewood…….

d. Other……

6. Affected by the Project

6.1 Land

6.1.1 If your land is affected to the this Project, then please give the following statement.

Ser. No.	Plot No.	Place Name	VDC/ Ward No.	Area Ropane/Bhiga and Rate in Thousands NRS					
				Rice Fields	Price	Dryland	Price	Thatch *Kharbari*	Price
1.									
2.									
3.									
4.									
5.									

6.2 House/Cowshed [goth]

6.2.1 Is this your own house? Yes ☐ No ☐

6.3 If it is your own house, please give the following information.

Serial No. of House	1	2	3
Type of House	1 2 3	1 2 3	1 2 3
Storeys	1 2 3 4	1 2 3 4	1 2 3 4
No. of Rooms	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Roof	1 2 3 4	1 2 3 4	1 2 3 4
Materials Used	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
Length (feet)			
Area (square feet)			
Year Built	Nepali Calendar		
Estimated Price	Present Condition		

Code:

Type of House

1. Hut, simple Hut
2. Kuccha., Thatched roof, Mud and Stone Walls and bamboo
3, Concrete House [Pukkha]
a. Metal Roof, Mud & Stone Wall
b. Slate/Metal sheets/RCC, stone, brick, cement

Construction Materials

1. Mud
2. Stone
3. Brick, Concrete Block
4. Wood
5. Concrete
6. Cement
7. Sand
8. Iron Rod

Roof

1. Thatch
2. Slate
3. Tile
4. Metal (Jaitu Pata)
5. Cement, Concrete
6. Other

6.4 Do you have a cowshed for livestock? If you have, how many? ……..

6.5 Will your cowshed be affected by the Project? Yes ☐ No ☐

6.6 If yes, please give the following information.

Shed No.	Length in Feet	Width in Feet	Area in Sq Ft	Estimated Price
1.				
2.				
3.				

7. Regarding Land Compensation

7.1 What do you want for Land Compensation?

a. Cash b. Land for Land c. Other

7.2 If you get cash for land compensation, what will you do with it?

a. Buy land b. Construct house c. Repayment of loan

d. Business 3. Other

8. Information about common property which will be affected by the Project.

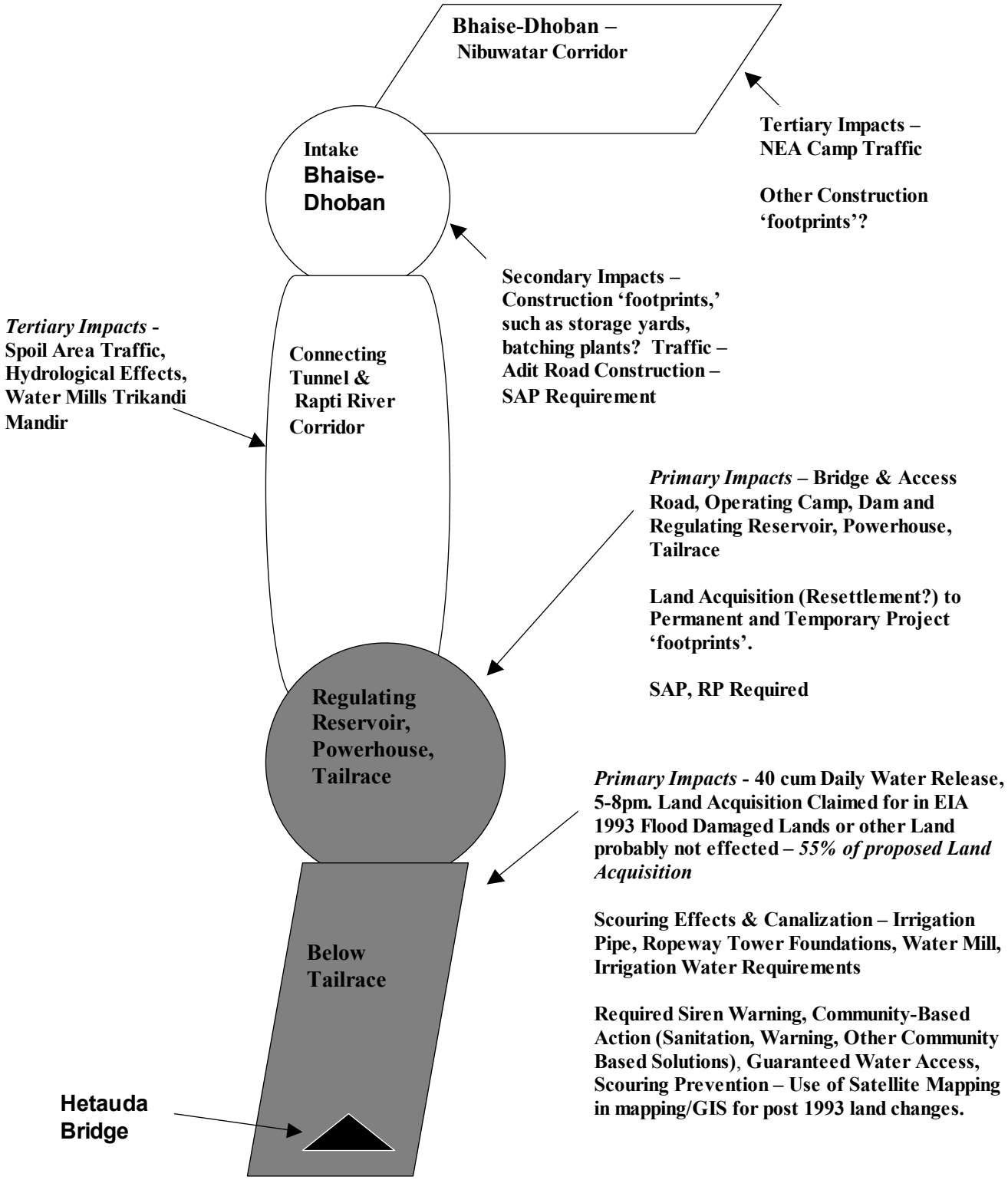
8.1 What will be the general, cultural and common property?

1. Grazing Land 2. Temple 3. Community Forest

4. Guthi Land 5. Common Rest House 6. Other

9. Enumerator's Comment ……. Name, Place, Date of Questionnaire & Answers

Annex B5 Conceptualized Project Affected Area Social Impacts



Annex B6 Kulekhani III Impoverishment Risks and Reconstruction (IRR) Model – June 2002 Draft for Discussion

Impoverishment Risks	Risk Assessment	Rationale for Assessment	Risk Reversal & Reconstruction
Landlessness. Expropriation of land removes the main foundation on which many people build productive systems, commercial activities and livelihoods. Often land is lost forever; sometimes it is partially replaced, seldom fully replaced or fully compensated. This is the main form of de-capitalization and pauperization of the people who are displaced. Both natural and man-made capital is lost (from ADB Operational Directive *Risks Assessment and Risks Reduction in Resettlement*, Oct 2000).	**High-Very High**	Nepal does not have a good history of providing land for land resettlement. Virtually always cash is the sole credible offer, with land being given only if unused or Government Land is available, which means in effect that no credible land for land offer in the past has been made to resettlers. Are differential risks: In Kulekhani I, those ethnic groups (e.g., Newar) with long experience in the cash economy benefited from cash compensation, whereas those ethnic groups (e.g., Tamang) with lesser experience tended to suffer landlessness and poverty consequences. Gumaune, which is predominantly Tamang, will be affected by placement of temporary construction facilities (cement batching, storage, limited contractor's housing) and permanent land acquisition of access road. Sanutar, which is largely Jaise Brahmin and Chhetri but also includes some Tamang, as	**From landlessness to land-based resettlement** First Principle will be to avoid land acquisition. 1. Placing construction camps in Hetauda, in a) NEA's diesel power station and adjacent properties, b) Defunct Ktm-Hetauda Ropeway facility, c) Nepal Food Corporation storage facility. a. *Highly important to get high-level agreement on this as early as possible*. b. Suparitar Military Camp is critical stakeholder to make use of Hetauda sites possible. Need to (1) keep them regularly informed, (2) obtain passes for construction period, (3) assist them in building explosives bunker. 2. Place temporary construction facilities in Gumaune, with rental allowances for houses temporarily acquired and lease payment for agricultural land, equal or greater than annual lost production. 3. Taking care in placement of spoil disposal

Impoverishment Risks	Risk Assessment	Rationale for Assessment	Risk Reversal & Reconstruction
		well as Magar, with about 5 families having their house structures on government land, precluding formal compensation under Nepal's Land Acquisition Act. These may be affected by placement of partially underground powerhouse and by excavation of tailrace channel, as well as by the access road. *Risk of an Inadequate definition for PAFs/.SPAFs*. Providing a clear definition of SPAF and PAF for objective evaluation needs to be based not only on percentage of land lost, as was done in Kali Gandaki A but also on reliance of a family on agricultural income, poverty levels, and to some extent ethnic risk factors. Reliance on percentage of property lost only can lead to well-off absentee landowners being declared SPAFs. However, property holdings, income and expenditure data based on the social survey can also unrealistic, as expenditures are usually exaggerated and income are stated on lower side. Risk of, in defining SPAFs, not taking into account lands held outside the Project area,	areas to avoid houses and agricultural land. 4. Carefully factoring in resettlement costs to Project – both financial and political – in placement decision for powerhouse. Where land acquisition is unavoidable, making sure that there is a viable and credible land for land option offered in the Project's policy framework, especially taking into account ethnic factors in experience with handling large sums of cash, something that NEA has not provided in the past. *Creating a Land for Land Option*: (a) carrying out field assessment (soil fertility, water availability, access to public services, etc.) of the considerable Government land within the District for suitability of relocation and land for land options including some 246.84 hectares of public land (*Ailani Pakho*) within the Kulekhani III affected VDCs and mumicipalities; (b) in parallel, exploring open market viability for purchasing land for land for land options; (c) exploring options for land development in the area and for improving agricultural productivity (see below, Joblessness); (d) placing of spoil in degraded areas and later develop them into productive land; (e) flood plain

Impoverishment Risks	Risk Assessment	Rationale for Assessment	Risk Reversal & Reconstruction
		which may result in relatively well off families receiving SPAF status on the pretext of being poor. Much of land acquisition identified by EAI was below Tailrace outlet, within the Rapti riverbed, at Hetauda Ward 1 and Basamadi Ward 9. The need for acquiring these lands, and the impact of doing so on the affected families, needs to be assessed. Also below the Tailrace outlet are 4 potentially vulnerable irrigation schemes that may be undermined by water released from the Project: 1) *Maintar Village's irrigation scheme*, which has an irrigation pipe crossing a slide area just below the tailrace area that could be eroded by released waters, as well as in intake from the Rapti River for lower lying fields; 2) *Chauki Tole Irrigation Project*, serving Hetauda Ward 1; 3) *Nawalpur Basamadi Irrigation Scheme*, also serving Hetauda Ward 11 and Basamadi Ward 9, and 4) *Simaltar-Golpingtar Irrigation Scheme*, serving Hetuada Ward 11	rehabilitation for land development. Exploring the option to provide house plots within the Project area for those households having their house structures on Government Land. For this experience may be had from the Middle Marsyangdi: Hydro-electric Project (70Mw). The NEA provided gift land plots for those whose houses are demolished, more than 65 families, the majority of whom are were businessmen & traders. NEA purchased the lands for resettlements from private owners. Many of the land recipients have constructed the houses on the land area provided by NEA. They were also compensated for their business losses. Experience may also come from the Government's recently launched *Kamaiya* (bonded laborers) settlement program in the western region. Similarly experience may be gained from many districts where the Government has formed High Level Landless People Settlers Commissions (*Sukumbasi Ayoga*).. *Better SPAF Definition.* Provision of Seriously Projected Affected Family (SPAF) status for those losing greater proportion of their income due to land acquisition. Making sure the definition for SPAF is adequate, taking into account percentage of household income affected by land acquisition, the

Impoverishment Risks	Risk Assessment	Rationale for Assessment	Risk Reversal & Reconstruction
			preexisting poverty level of households and relevant ethnic factors (such as the vulnerability of the *Praja* community). Giving priority in land for land options, priority for Project employment, training, income generation, etc. Exploring cross check methodologies for identifying household landholdings outside the Project area, for better assessment of SPAF status for individual households. Better assessment of land acquisition requirements and situation of the affected families listed in EIA for below Tailrace outlet. GIS Mapping, impact assessment, interviews with HHs to determine their dependence on these lands and likely impacts. During this study phase, a community-wide, rather than household by household, evaluation will be made of impacts, to avoid raising false expectations of compensation. GIS and field surveys will clarify the impacts on plots listed in NEA's EIA. Better assessment of irrigation schemes likely to be impacted below Tailrace Outlet and design of underground inlets for four of them, protection works for the Maintar irrigation pipe that crosses over slide area just below the outlet. Maybe some technical assistance other ways for Maintar to

Impoverishment Risks	Risk Assessment	Rationale for Assessment	Risk Reversal & Reconstruction
			manage this slide area and irrigation pipe.
Joblessness. Loss of wage employment occurs both in rural and urban displacement. People losing jobs may be landless agricultural laborers, service workers, or artisans. The unemployment or underemployment among resettlers may linger long after physical relocation. Creating new jobs for them is difficult and requires substantial investment, new creative approaches, and relying more on sharing project benefits.	**Medium – High**	Few job opportunities exist in the most impacted area of Sanutar and Gumaune, though these communities may serve as a base for employment in nearby Hetauda and even in Kathmandu. However, there are a few absentee landowners and many tenants working the land. Loss of land can lead to loss of agricultural work, especially for unregistered tenants, who will not be eligible to receive compensation under Nepalese law. There is considerable risk that these non-registered may not be identified accurately, and others who are not really qualified may claim any benefits the Project wishes to extend to non-registered tenants.	**From joblessness to reemployment** Need to carefully assess Tenant situation and make provision for compensation and social programs for both registered and unregistered tenants. The Project will need to establish an independent research and verification mechanism for accurately identifying genuine non-registered Tenants who may be affected by land acquisition. Involvement of Hetauda-based NGOs in formulation of a *Social Action Framework* (SAF) to reverse this risk, through obtaining their collaboration in preparing a detailed *Social Action Plan* (SAP) during the next, design phase: 1. *Plan International* is increasingly working through local NGOs. Has had 8-year history in the Project area. Education, Sanitation, Integrated Forest Management Groups, Plantation, Forestation, Rejuvenating Degraded River Banks, Integrated Forest Management Groups. Possible application in KL III for (a) agricultural development to

Impoverishment Risks	Risk Assessment	Rationale for Assessment	Risk Reversal & Reconstruction
			provide new winter vegetable (Hydroponics) and other produce to take advantage of new bridge across Rapti and collection points for Hetauda markets, (b) alternative energy, e.g., briquettes for construction camps. 2. *Samaja Jagaran Mancha.* Has number of environmental related projects along Rapti River in Hetauda, Ward 1. Involved in Income Generation Projects. KL III application possibly in: (a) Income Generation program in Ward 1, assuming any loss of income from effects on land of Tailrace water release (still to be determined) 3. *Rural-Urban Partnership Program.* Has created 200 micro-enterprise groups, linkages between Hetuada, Bhaise-Dhoban, Bhimpedi – collection points for vegetable and other produce, to urban markets. Are active in eleven wards of Hetauda, creating 10 Tole/Lane Organizations (TLOs) meeting monthly in Ward 1 for various community development activities, such as drains, sanitation, drinking water. Application to KL III – (a) Protection of Hetauda irrigation facilities, (b) Income Generation program in Ward 1, assuming any loss of income from effects on land of Tailrace water release (still

Impoverishment Risks	Risk Assessment	Rationale for Assessment	Risk Reversal & Reconstruction
			to be determined), (c) Taking advantage of new bridge across Rapti to choose a collection point for Hetauda marketing of vegetables, produce. Linking this to agricultural development program for Sanutar/Gumaune and other communities now better linked to Hetauda because of bridge. 4. *Maiti Nepal*. Has awareness program on women trafficking, HIV/AIDS in Bhainse and Basamadi VDCs, also income generating and skill training programs for women. Application to KL III – (a) income generation and skills training for women. Provision of skills training – short and long (3 months) term. Based on assessment of existing skills and education levels in project affected communities, likely Project requirements, and priority for PAF/SPAF and affected VDCs. Provision of an explicit system of targeted hiring and priority rankings for employment eligibility resulting in a high percentage of affected families receiving income-generating employment (one job per family). Tender documents asked the principal contractors for all lots of the KG Hydroelectric Power that:

Impoverishment Risks	Risk Assessment	Rationale for Assessment	Risk Reversal & Reconstruction
			" . . . to the extent that is practicable and reasonable , to employ staff and labor with the required qualifications and experience from the surrounding districts of the Project… The employer suggests that to the extent that the contractor has suitable options for recruiting labor locally, and that other factors are equal, recruitment should be done according to the following list of priorities, in this order: *1. Seriously Project Affected Families (SPAFs)* *2. Project Affected Families (PAFs)* *3. Persons from villages directly affected by land take for the Project.* *4. Residents of Districts of Syangja and Gulmi, in which the project is located* *5. Residents of the Kali Gandaki basin.* *Other citizens of Nepal* *(From: Tender Documents for KG HEP,* *Section 18.1. Engagement of Labor)* Middle Marsyangi Project had Tender provision that no workers from outside Nepal would be hired without prior permission [Need to find language from this Tender]. Provision of 1% of Project's generated income from

Impoverishment Risks	Risk Assessment	Rationale for Assessment	Risk Reversal & Reconstruction
			energy sales towards local rural electrification (Existing NEA policy).
Homelessness. Loss of housing and shelter may be only temporary for many people, but for some it remains a chronic condition and is felt as loss of identity, and cultural impoverishment. Loss of dwelling may have consequences on family cohesion and mutual help patterns if neighboring households of the same kinship group get scattered. Group relocation of related people and neighbors is therefore preferable over dispersed relocation.	**High-Very High**	This risk is heightened do to Tailrace Outlet Culvert, which requires taking of houses in Sanutar. Also the placement of the construction camp at Ghumaune, Because the numbers of households likely to lose housing is relatively small, provision for replacement should not be difficult. Risk could be more for houses built on Government land, above the Sanutar irrigation canal, if acquired. Below Tailrace outlet and in inlet area near Kulekhani II Powerhouse, there is no loss of housing.	**From homelessness to house reconstruction** Providing housing grants to and relocation assistance to Sanutar households, rental to Ghumaune households and restoration of their land after lease period. Assistance to relocate as a community, as required. Careful placement of spoil disposal areas to avoid taking of houses. Taking full account of the full financial, social and political implications of possible house displacement in decision to opt for partially underground power station. Provision of rent allowances in Gumaune for use of houses within temporary facilities area, rather than destruction of houses.
Marginalization. Marginalization occurs when relocated families lose economic power and slide down towards lesser socio-economic positions: middle income farm-households become small landholders;	**High – Very High**	The risk could be high for any unregistered tenant farmers in Gumaune and Sanutar, if lands are temporarily or permanently acquired. Resulting loss of income could	**From marginalization to social inclusion** Activities of NGOs in Risk Reversal for landlessness and joblessness will also be applicable

Impoverishment Risks	Risk Assessment	Rationale for Assessment	Risk Reversal & Reconstruction
small shopkeepers and craftspeople lose business and fall below poverty thresholds, and so on.		lead to marginalization. The risk is also high for land holders due to loss of property holdings and related productivity. Very high influx of outsiders, boomtown effects, could greatly outnumber locals.	to risks of martinalization and food insecurity. Land distribution from land developed from spoil disposal sites or land for land option can also reverse the risk of marginalization. Activities of Maiti Nepal in preventing child labor, women trafficking, prostitution and in HIV/AIDs prevention important for risk reversal of marginalization.
INCREASED MORBIDITY & MORTALITY. Vulnerability of the poorest people to illness is increased by forced relocation, because tends to be associated with increased stress, psychological traumas, and the outbreak of parasitic and vector-born diseases. Serious decreases in health levels result from unsafe water supply and sewage systems that proliferate epidemic infections, diarrhea, dysentery, etc.	**Medium-High**	Risk is less from forced relocation than from influx of labor force and of attendant service population, putting strain on sanitation and health environment. Construction impacts from noise, dust, traffic accidents. Danger downstream from Tailrace outlet of water releases to Rapti river use – defecation along river banks, collection of construction materials, seasonal river crossing, bathing, washing vehicles, ghats, water mills, grazing, children playing. Social dangers associated with construction	**From increased morbidity to improved health care** Proactive planning to provide sanitation, drinking water, etc. for any informal service communities likely to occur in Project area, such as along access roads, particularly on Government land above Sanutar irrigation canal, where some shop construction already underway in seeming anticipation of the Project. Contract provisions governing traffic, safety, noise and dust abatement, child labor. Involvement of Hetauda-based NGOs in formulation of a *Social Action Framework* (SAF) to

Impoverishment Risks	Risk Assessment	Rationale for Assessment	Risk Reversal & Reconstruction
		activities, such as HIV/AIDS, child labor, women trafficking, prostitution, and alcoholism.	reverse this risk, through obtaining their collaboration in preparing a detailed *Social Action Plan* (SAP) during the next, design phase: 1. *Plan International.* Possible application in KL III (a) sanitation and drinking water for any service community that might grow up within Project area. 2. *Samaja Jagaran Mancha.*. KL III application: (a) Community-based Warning System for Tailrace water release, (b) Sanitation program along Rapti lessening defecation along riverbanks. 3. *Rural-Urban Partnership Program*. Application to KL III – (a) Community-based Warning System for Tailrace water release, (c) Sanitation program along Rapti. 4. *Maiti Nepal.* Application to KL III – (a) HIV/AIDS awareness, (b) program for direct intervention in women trafficking, prevention of child labor (monitoring contractors), (c) providing income generation alternatives to prostitution for vulnerable women. 5. *HIV/AIDS STD Swiss Technical Development* - Have extensive education materials, condom distribution program. - (a) HIV/STD education and prevention program before and during

Impoverishment Risks	Risk Assessment	Rationale for Assessment	Risk Reversal & Reconstruction
			construction period.
Food Insecurity. Forced uprooting diminishes self-sufficiency, dismantles local arrangements for food supply, and thus increases the risk that people will fall into chronic food insecurity. This is defined as calorie-protein intake levels below the minimum necessary for normal growth and work.	**Medium-High**	Risk will be for any unregistered tenants who lose access to land they are tilling without adequate compensation – resulting in both land access and job loss. Not the same level of risk as found in large reservoir forces relocation of large populations, which creates a highly vulnerable situation, difficult for authorities to manage.	**From food insecurity to adequate nutrition** Activities of NGOs in Risk Reversal for landlessness and joblessness will also be applicable to risks of martinalization and food insecurity.
Loss of Access to Common Property. Poor farmers, particularly those without assets, suffer a loss of access to the common property goods belonging to communities that are relocated (e.g., loss of access to forests, water bodies, grazing lands, etc.). This represents a form of income loss and livelihood deterioration that is typically overlooked by planners and therefore uncompensated.	**Medium-High**	Access road will require acquisition of community forest, which may be a loss to formal user groups and possibly also to poorer sections of the community who do not have formal and recognized access to the forest but nevertheless depend on it for their livelihood. Such situations are often 'tolerated' by communities, in recognition of the need of these families.	**From loss of access to restoration of community assets and services** Project will work with Forest User Groups to assist in forest management, with assistance in developing program by Plan International. Assuring proper compensation to Forest User Groups, communities, or private owners for trees acquired by Project. Identification of any vulnerable groups dependent of forest resources who are likely to be affected by acquisition of forest lands. Provision of social programs to assist them, particularly income

Impoverishment Risks	Risk Assessment	Rationale for Assessment	Risk Reversal & Reconstruction
			generation.
Social Disarticulation. The dismantling of community structures and social organization, the dispersion of informal and formal networks, local associations, etc. is a massive loss of social capital. Such disarticulation undermines livelihoods in ways usually not recognized and not measured by planners, and is a cause of disempowerment and impoverishment.	**Medium-High**	Again, this risk is more likely for unregistered tenants who might lose access to land/jobs through acquisition of the land they till, which belongs to absentee landlords. Risk moderated by relatively low numbers of people affected, compared to large reservoir projects, and by wider kin-networks beyond the immediate project area.	**From social disarticulation to rebuilding Strengthen Networks and Communities** Involvement of Hetauda-based NGOs in formulation of a *Social Action Framework* (SAF) to reverse this risk, through obtaining their collaboration in preparing a detailed *Social Action Plan* (SAP) during the next, design phase: Plan International, *Samaja Jagaran Mancha,* Rural-Urban Partnership Program, Maiti Nepal will all assist in maintaining a social support system for communities during Project construction period, as they are already currently doing. Any uavoidable relocation will be to the extent possible to nearby locations, so that community linkages and bonds are kept at parand any relocates may look after their remaining lands and other property without difficulty.

Risk Assessment = Very Low, Low, Medium, High, Very High