

9.2.2 **Operation stage** - The following issues will be taken into account during operation and maintenance stage:

Physical environment

- Road slope stability and management
- Impact due to air, noise and water pollution

Biological environment

- Depletion of forest resources
- Disturbance to wild life and illegal hunting

Socio-economic and cultural environment

- New settlement along the road alignment
- Change in social behaviour
- Impact on livelihood and economic opportunities
- Road safety measures

10.0 BENEFIT AUGUMENTATION/MITIGATION MEASURES

The IEE study will propose site-specific benefit augmentation and mitigation measures to optimize the benefits expected from the sub-project and minimize/mitigate avoid or control of proposal's adverse impacts. The benefit augmentation and mitigation measures will be selected based upon appropriateness and cost analysis and these will be suggested for pre-construction, construction and post construction phase of the project. Mitigation measures will be proposed for the impacts on physical, biological, socio-economic and cultural environment.

11.0 ENVIRONMENTAL MANAGEMENT PLAN

The study will ensure the implementation and monitoring of mitigation measures for minimizing adverse impacts and maximizing the beneficial impacts. This plan will also identify the key environmental monitoring indicators with respect to activities, methods and responsibilities in order to monitor the environmental condition and adoption of suitable mitigation measures.

12.0 IEE report format

This format will be in line with provision made in the Schedule 5 of EPR, 1997 and should be adapted to project specific situation. The IEE report will contain the following sections:

- i. **Cover page with name of the proposal and proponent and address**
- ii. **Table of content**
- iii. **List of Abbreviation (acronyms)**
- iv. **Executive Summary that includes:**
 - Background
 - Project Proponent
 - Objective
 - Relevancy of the Proposal
 - Project Description

- Existing Condition
- Identification of Impacts and Benefit Augmentation/Mitigation Measures
- Environmental Management Plan
- Conclusions and recommendations

v. **Salient Features of the Project**

vi. **Introduction:** This section should describe the project in simple terms and concisely, without missing relevant points but avoiding unnecessary details. The project description should provide following information:

1. Background
2. Relevancy of the proposal
 - Objectives
 - Methodology adopted
3. Name and Address of the Proponent
4. Description of the Sub-project
5. Construction Approach
6. Proposed Schedule for Implementation of Sub-project

vii. **Public Consultation and Information Disclosure**

viii. **Review of Relevant Acts, Regulations and Guidelines:** During the study relevant policies, legislations and guidelines should be reviewed and their salient features should be mentioned in this section. Similarly related institutions should be consulted.

ix. **Existing Environmental condition:** Baseline information on the existing physical, biological as well as socio-economic and cultural resources of the proposed sub-projects is described here. Environmental features such as sensitive areas, population and settlements, forests should be shown in a map

x. **Project Alternatives:** This section summarizes the alternatives by environmental comparison. This may include the following sub-headings.

- a. Project alternative
- b. Alternative routes
- c. Alternative design and construction approach
- d. Alternative schedule and process
- e. Alternate resources
- f. Any other alternatives

xi. **Identification of Impacts and Benefit Augmentation/Mitigation Measures:** This section contains the process, findings and conclusions of analysis and interpretations. The impacts are predicted in terms of their magnitude (minor, moderate and high), extent (site specific, local and regional) and duration (short, medium and long term) and appropriate benefit enhancement and mitigation measures are suggested as following:

- a) **Physical Impacts:** such as land, air, water, noise, infrastructure impacts and other factors

(Handwritten signature)

Environment

b) **Biological Impacts:** such as flora, and fauna, population, and natural habitats and ecosystems

c) **Socio-economic-cultural impacts:** such as agricultural land, human health, social cultural and religious values, implications of physical and biological impacts and other relevant socio-cultural-economic impacts

This section also summarizes the recommended mitigation measures including basis for selection and cost if possible.

xii. **Environmental Management Plan:** This section summarizes the recommended implementation of IEE, monitoring parameters/indicators, activities, methods and responsibilities

xiii. **Conclusion and Recommendations:** This section should clearly indicate whether IEE report is sufficient or further assessment is needed. Likewise, it should also be recommended that what aspects should be covered if further environmental assessment is needed.

xiv. **Miscellaneous:** Reference materials should be mentioned here if used during IEE report preparation in standard format.

xv. **Annex**

- ToR of IEE
- Rapid Environmental Assessment (REA) Checklist
- Abstract of cost
- RRRSDP environmental checklist
- Public notice
- Deed of enquiry (*muchulka*)
- Name of the organizations
- List of person contacted
- Meeting minutes of community consultation
- Recommendation letters from municipality and VDC's
- Existing condition
 - a. Distribution of household by major occupation
 - b. Summary of public services and infrastructures according to settlement
 - c. Land holding pattern of settlements within ZoI
 - d. Number of households belonging to different food security category
- List of trees
- Maximization of slope cutting and preservation of vegetation cover
- Photographs

Annex II: Rapid Environmental Assessment (REA) Checklist

Rapid Environmental Assessment (REA) Checklist

Instructions:

- This checklist is to be prepared to support the environmental classification of a project. It is to be attached to the environmental categorization form that is to be prepared and submitted to the Chief Compliance Officer of the Regional and Sustainable Development Department.
- This checklist is to be completed with the assistance of an Environment Specialist in a Regional Department.
- This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB checklists and handbooks on (i) involuntary resettlement, (ii) indigenous peoples planning, (iii) poverty reduction, (iv) participation, and (v) gender and development.
- Answer the questions assuming the “without mitigation” case. The purpose is to identify potential impacts. Use the “remarks” section to discuss any anticipated mitigation measures.

Country/Project Title:

Nepal / RRRSDP

Name of the sub Project:

Pathari-Dainiya-Sikati Road

SCREENING QUESTIONS	Yes	No	REMARKS
A. Project Sitting			
Is the Project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		✓	
▪ Protected Area		✓	
▪ Wetland		✓	
▪ Mangrove		✓	
▪ Estuarine		✓	
▪ Buffer zone of protected area		✓	
▪ Special area for protecting biodiversity		✓	
B. Potential Environmental Impacts			
Will the Project cause...			
▪ Encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries?		✓	
▪ Encroachment on precious ecology (e.g. sensitive or protected areas)?		✓	

SCREENING QUESTIONS	Yes	No	REMARKS
<ul style="list-style-type: none"> ▪ Alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site? 		✓	
<ul style="list-style-type: none"> ▪ Deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction? 		✓	
<ul style="list-style-type: none"> ▪ Increased local air pollution due to rock crushing, cutting and filling works, and chemicals from asphalt processing? 		✓	
<ul style="list-style-type: none"> ▪ Noise and vibration due to blasting and other civil works? ▪ dislocation or involuntary resettlement of people 		✓	
<ul style="list-style-type: none"> ▪ Other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress? 		✓	
<ul style="list-style-type: none"> ▪ Hazardous driving conditions where construction interferes with pre-existing roads? 		✓	
<ul style="list-style-type: none"> ▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations? 		✓	
<ul style="list-style-type: none"> ▪ Creation of temporary breeding habitats for mosquito vectors of disease? 		✓	
<ul style="list-style-type: none"> ▪ Dislocation and compulsory resettlement of people living in right-of-way? 		✓	
<ul style="list-style-type: none"> ▪ Accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials and loss of life? 		✓	
<ul style="list-style-type: none"> ▪ Increased noise and air pollution resulting from traffic volume? 		✓	
<ul style="list-style-type: none"> ▪ Increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road? 		✓	

Source: field survey, July, 2009

Annex III: Abstract of Cost

**Office of District Development Committee
District Technical Office/District Project office
Morang**

**Rural Reconstruction and Rehabilitation Sector Development Program (RRRSDP)
Abstract of Engineering Cost**

**Road: Pathari-Dainiya-Sikati
Chainage: 0+000 to 30+901**

SN	Description of works	Unit	Quantity	Rate	Amount	Remarks
1	General Item					
1.1	Insurance works	PS			1,000,000.00	
1.2	Lab testing of materials and works	PS			1,000,000.00	
1.3	Maintenance of existing road	Km-month	370.800	2,481.43	920114.24	
1.4	Hire and supply two wheeler motorbike for supervision	Days	1,200.000	400.00	480,000.00	
1.5	Hire and supply four wheeler pick-up for supervision	Days	300.000	30,00.00	900,000.00	
1.6	Site office for supervising team	LS			400,000.00	
	Sub total (1)				4,700,114.24	
2	Earthworks					
2.1	E/W excavation in HS	m ³	6,660.544	131.10	873,197.32	
2.2	Embankment filling with excavated materials	m ³	5,660.731	54.63	309,245.71	
2.3	Embankment filling with materials supplied from quarry sites	m ³	6,439.188	307.63	1,980,887.25	
	Sub Total (2)				3,163,330.28	
3	Pavement Works					
3.1	Subgrade Preparation on existing graveled road	m ²	253,385.000	9.19	2,328,608.15	
3.2	0 to 150 mm regulating river bed gravel sub base course as required	m ³	18,176.403	1,536.63	27,930,406.14	
3.3	100mm crusher run aggregate base	m ³	9,654.879	2,225.56	21,487,512.51	
3.4	Bituminous prime coat at spray rate 1ltr per m ²	m ²	97,671.000	113.38	11,073,937.98	
3.5	Bituminous tack coat at spray rate 0.70 ltr per m ²	m ²	97,671.000	79.36	7,751,170.56	
3.6	20mm thick premix carpeting	m ³	1,953.420	10,260.08	20,042,245.47	
	Sub Total (3)				90,613,880.81	
4	Drainage Management Works					
4.1	E/W in excavation of HS in					
4.1.1	Side drain works	m ³	2,509.450	131.10	328,988.90	
4.1.2	RCC Pipe culvert works	m ³	278.191	131.10	36,470.84	
4.2	M5 grade stone masonry works in					
4.2.1	Side drain works	m ³	1,861.200	4,576.61	8,517,986.53	
4.2.2	RCC Pipe culvert works	m ³	162.403	4,576.61	743,255.19	
4.3	12.5 mm thick cement plaster works					
4.3.1	In 1:3 ratio in side drain on inner side	m ²	4,799.520	130.55	626,577.34	
4.3.2	In 1:4 ratio in parapets of culverts	m ²	560.500	119.21	66,817.21	

SN	Description of works	Unit	Quantity	Rate	Amount	Remarks
4.4	3mm thick punning in plastered area of side drain	m ²	4,799.520	12.02	57,690.23	
4.5	Supply NP3 RCC pipe of different sizes for pipe culvert works including trench excavation					
4.5.1	NP3 RCC pipe of 600mm dia	Rm	97.500	3,705.06	361,243.35	
4.5.2	NP3 RCC pipe of 900mm dia	Rm	37.500	5,984.37	224,413.88	
4.6	Providing and placing different classes of concrete					
4.6.1	Concrete Class M10/40 for foundation	m ³	22.422	5,304.49	118,937.27	
4.6.2	Concrete Class M15/20 for drain cover- slab and approach slab for bridges and slab culvert.	m ³	212.85	6,437.13	1,370,143.12	
4.7	Supply sand for laying in the bedding of RCC pipes including watering and compaction all complete.	m ³	43.761	1,276.50	55,860.92	
4.8	Backfilling and compaction with suitable material all complete in trench of pipe culverts					
4.8.1	With materials obtained from excavation	m ³	20.520	54.63	1,121.01	
4.8.2	With materials supplied from quarry sites	m ³	43.960	307.63	16,599.71	
4.9	Providing and placing of reinforcement bar of high yield for the RCC drain cover	MT	31.850	10,175.60	324,099.23	
4.10	Double coat snowcem painting works after cement paint on plastered surface of parapets of culverts	m ²	560.500	59.63	33,422.62	
	Sub Total (4)				12,883,627.34	
5	River Training Works					
5.1	E/W in excavation of HS in foundation	m ³	175.926	131.10	23,063.90	
5.2	Gabion boxes of different sizes all complete					
5.2.1	Box size 2x1x1	Nos	276.000	6,674.29	1,842,104.04	
5.2.2	Box size 1.5x1x1	Nos	208.000	5,005.01	1,041,042.08	
5.3	Supply and place geotextile sheets	m ²	790.000	110.11	86,986.90	
5.4	Backfilling and compaction					
5.4.1	With excavated materials	m ³	131.945	54.63	7,208.13	
5.4.2	With supplied materials	m ³	1,280.679	307.63	393,975.13	
	Sub Total (5)				3394380.17	
6	Miscellaneous works					
6.1	Dismantle, remove and stockpile RC Pipe	Rm	67.500	21.85	1,474.88	
6.2	Dismantle, remove and stockpile stone masonry	m ³	28.196	437.00	12,321.65	
6.3	Dismantle, remove and stockpile gabion masonry	m ³	56.000	437.00	24,472.00	

SN	Description of works	Unit	Quantity	Rate	Amount	Remarks
6.4	Dismantling the existing GI pipes, brick masonry posts and replacing them with new 50mm dia. MC GI pipe and M5 grade stone masonry posts in railings of bridges					
6.4.1	In Pahara River Bridge (CH: 3+264)	Nos	1.000	34,423.79	34,423.79	
6.4.2	In Dhadhara River Bridge (CH: 8+855)	Nos	1.000	58,885.71	58,885.71	
6.5	Extra lead for carriage of materials	m ³	2163.754	357.20	772,892.93	
	Sub Total (6)				904,470.96	
A	Total				115,659,803.80	
B	VAT 13% of A				15,035,774.49	
C	Contingencies (5% of A)				5,782,990.19	
D	Grand Total				136478568.48	
E	Cost per Km (without bridge)				4,416,610.63	

*Note: The contractor's overhaead 15% is already incorporated in the rates given.
Besides this 3% of total cost (A) i. e. NRs 3469794.11 has been estimated for Bio-Engineering and Replantation works.*

3.1	Cattle (cows & buffaloes)											
3.2	Horses, Mules											
3.3	Yak											
3.4	Goat											
3.5	Sheep											
3.6	Rabbit											
3.7	Pig											
3.8	Fisheries											
3.9	Poultry											
3.10	Bee-keeping											
3.11	Others											

A. _____ B. _____ C. _____
D. _____ E. _____ F. _____
G. _____ H. _____ I. _____

7. Migration for employment

(a) No. of HHs from where at least one person (may be HH head) is away from home for more than 6 months.

Settlement (No. of HH)									
A	B	C	D	E	F	G	H	I	J

(b) Seasonal migration in search of work.

Month	No. of Total HH	Destination	Purpose

8. Dominant off-farm occupation in the settlement in descending order

B. DEVELOPMENT POTENTIAL ACCORDING TO SETTLEMENT

B.1. Areas which have significant potential for development, for instance, high agricultural production, tourism development, local mines, etc. (indicate these areas in map/sketch).

S. N.	Name of Area	Description of Development Potential

B.2. Scope of the proposed linkage in view of promoting socio-economic development (communication, agricultural production, education and health).

S. No.	Sectors to get direct benefit	Describe how it will benefit

C. Historic and Cultural Resources Within The Settlement

Type of Resource	Name/specification	Affecting activities	Location from project

Annex V: Public Notice

नेपाल सरकार
स्थानीय विकास मन्त्रालय
जिल्ला विकास समितिको कार्यालय
जिल्ला प्राविधिक कार्यालय
मोरङ ०२१-५३३७५०

प्रारम्भिक वातावरणीय परीक्षण सम्बन्धी राय सुझावका लागि
सार्वजनिक सूचना

प्रथम पटक प्रकाशित मिति २०६६/२/२२

ग्रामीण पुनर्निर्माण तथा पुनर्स्थापना आयोजना (RRRSDP) अन्तर्गत एसियाली विकास बैंक, डिोफिड तथा स्वीस सरकार विकास नियोगको अनुदान सहयोग तथा ओफिडको ऋण सहयोग तथा नेपाल सरकार, जिल्ला विकास समिति र लामसहोसमेतको लगानीमा निर्माण गर्न प्रस्ताव गरिएको यस जिल्लाको पथरी-डायनिया-सिक्ती ग्रामीण सडक उपआयोजना प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन कार्यान्वयन गर्ने सिलसिलामा वातावरण सुरक्षण नियमावली, २०५४ (पहिलो संशोधन, २०५४) को नियम ७ (२) अनुसार यो सार्वजनिक सूचना प्रकाशित गरिएको छ।

प्रस्तावको नाम: जिल्ला विकास समितिको कार्यालय जिल्ला प्राविधिक कार्यालय, मोरङ।

प्रस्तावित सडकले प्रभाव पार्ने गा.वि.स.हरु: पथरी-डायनिया-सिक्ती ग्रामीण सडक अन्तर्गत; पथरी, हसनदह, अमरदह, गोविन्दपुर र डायनिया गा.वि.स.हरु।


प्रस्तावको विवरण

प्रस्तावित: पथरी-डायनिया-सिक्ती ग्रामीण सडक उपआयोजना हाल सञ्चालनमा रहेको सडकको स्तरोन्नतीको लागि प्रस्तावित गरिएको छ र यो सडक पथरी गा.वि.स. को मन्दिरलाइन टोलबाट शुरु भइ डायनिया गा.वि.स. को सिक्तीमा टुङ्गिन्छ। यो सडक मन्दिरलाइन टोल, बुढ चौक, लामा टोल, किरात टोल, भोटे धुम्ती टोल, किलाभार, हसनदह बजार, बराल टोल, अमरदह बजार, हौकरीया, सुरत टोल, पटियापाडा, छिबिरडाशी, डायनिया बजार, सिक्ती बस्तीहरु भएर जान्छ। यस सडकको जम्मा लम्बाइ २९.९५ के मी रहेको छ।

उक्त प्रस्तावको कार्यान्वयनबाट वातावरणमा पर्ने सक्ने प्रभावको बारेमा सम्बन्धित गा.वि.स., विद्यालय, स्वास्थ्य चौकी, वन उपभोक्ता समिति तथा अन्य सरोकारवाला, व्यक्ति वा संस्थाले यो सूचना प्रथम पटक प्रकाशित भएको मितिले १५ (पन्ध्र) दिनभित्र आफ्नो राय सुझाव तल उल्लेखित कार्यालयको ठेगानामा पठाई सहयोग गरिदिनुहुन अनुरोध गरिन्छ। साथै यसै बमोजिमको राय सुझाव स्थानीय पूर्वाधार विकास तथा कृषि सडक विभाग, जावत्ताखेल, ललितपुरमा पनि पठाउन सकिनेछ।

राय सुझाव पठाउने ठेगाना:


जिल्ला विकास समितिको कार्यालय, मोरङ। जिल्ला प्राविधिक कार्यालय, मोरङ।
टेलिफोन नं. ०२१५२५२०७ टेलिफोन नं. ०२१५३३७५०
फ्याक्स नं. ०२१५२३३७९ फ्याक्स नं. ०२१५३३७५०



सिवाज सरकारी मोम नं.:
 Government of Nepal
सिवाज विकास समितिको कार्यालय
 Ministry of Local Development
Office of the Village Development Committee

पत्र संख्या: **२१५८** पत्रको प्रकार: **पत्राचार** संकोच संख्या: **कोस/सं**
 पत्रको मिति: **२१/०५/२०७३** पत्रको स्थान: **पिपरी, कैलाल** दिनांक: **२१/०५/२०७३**
 Ref No: **२१५८** Date: **२१/०५/२०७३**

विषय: (संक्षेप) - सुचना सप्लाय सुचकमा पत्रको बारे

उक्त विज्जा आयोगको कार्यालय भित्रै विचार रण
 सुचक विवरणमा पत्र पढी गरी कि उक्त विवरणको पत्र नभएको
 को पत्र प्राप्त भै भित्रि २०७३/०५/२१ मा सुचना सप्लाय पत्रको
 भर्नापत्र सुचकमा भर्नापत्र भन्ने सुचना सप्लायको
 पत्र पढाउने कुराको प्रतिक्रिया भन्ने।



 सचिव
 सिवाज विकास समिति


सिवाज सरकारी मोम नं.:
 Government of Nepal
सिवाज विकास समितिको कार्यालय
 Ministry of Local Development
Office of the Village Development Committee

पत्र संख्या: **२१५८** पत्रको प्रकार: **पत्राचार** संकोच संख्या: **कोस/सं**
 पत्रको मिति: **२१/०५/२०७३** पत्रको स्थान: **पिपरी, कैलाल** दिनांक: **२१/०५/२०७३**
 Ref No: **२१५८** Date: **२१/०५/२०७३**

विषय: (संक्षेप) - सुचना सप्लाय सुचकमा पत्रको बारे

उक्त विज्जा आयोगको कार्यालय भित्रै विचार रण
 सुचक विवरणमा पत्र पढी गरी कि उक्त विवरणको पत्र नभएको
 को पत्र प्राप्त भै भित्रि २०७३/०५/२१ मा सुचना सप्लाय पत्रको
 भर्नापत्र सुचकमा भर्नापत्र भन्ने सुचना सप्लायको
 पत्र पढाउने कुराको प्रतिक्रिया भन्ने।


 सचिव
 सिवाज विकास समिति


सिवाज सरकारी मोम नं.:
 Government of Nepal
जिल्ला प्रशासन कार्यालय
 Ministry of Local Development
Office of the District Administration

पत्र संख्या: **२१५८** पत्रको प्रकार: **पत्राचार** संकोच संख्या: **कोस/सं**
 पत्रको मिति: **२१/०५/२०७३** पत्रको स्थान: **पिपरी, कैलाल** दिनांक: **२१/०५/२०७३**
 Ref No: **२१५८** Date: **२१/०५/२०७३**

विषय: सुचना सप्लाय सुचकमा पत्रको बारे

उक्त विज्जा आयोगको कार्यालय भित्रै विचार रण
 सुचक विवरणमा पत्र पढी गरी कि उक्त विवरणको पत्र नभएको
 को पत्र प्राप्त भै भित्रि २०७३/०५/२१ मा सुचना सप्लाय पत्रको
 भर्नापत्र सुचकमा भर्नापत्र भन्ने सुचना सप्लायको
 पत्र पढाउने कुराको प्रतिक्रिया भन्ने।


 सचिव
 जिल्ला प्रशासन कार्यालय


सिवाज सरकारी मोम नं.:
 Government of Nepal
जिल्ला प्रशासन कार्यालय
 Ministry of Local Development
Office of the District Administration

पत्र संख्या: **२१५८** पत्रको प्रकार: **पत्राचार** संकोच संख्या: **कोस/सं**
 पत्रको मिति: **२१/०५/२०७३** पत्रको स्थान: **पिपरी, कैलाल** दिनांक: **२१/०५/२०७३**
 Ref No: **२१५८** Date: **२१/०५/२०७३**

विषय: सुचना सप्लाय सुचकमा पत्रको बारे

उक्त विज्जा आयोगको कार्यालय भित्रै विचार रण
 सुचक विवरणमा पत्र पढी गरी कि उक्त विवरणको पत्र नभएको
 को पत्र प्राप्त भै भित्रि २०७३/०५/२१ मा सुचना सप्लाय पत्रको
 भर्नापत्र सुचकमा भर्नापत्र भन्ने सुचना सप्लायको
 पत्र पढाउने कुराको प्रतिक्रिया भन्ने।


 सचिव
 जिल्ला प्रशासन कार्यालय

Annex VII: Name of the Organizations

Name of the Organizations (notice pasted and deed of inquiry obtained)

SN	Name or Organization	Address	Remarks
1	Office of Village Development Committee, Dainiya	Rangeli	
2	Office of Village Development Committee, Gobindpur	Gobindapur	
3	Office of Village Development Committee, Hasandaha	Hasandaha	
4.	Office of Village Development Committee, Amardaha	Amardaha	
5	Office of Village Development Committee, Pathari	Pathari	

Source: Field Survey, July, 2009

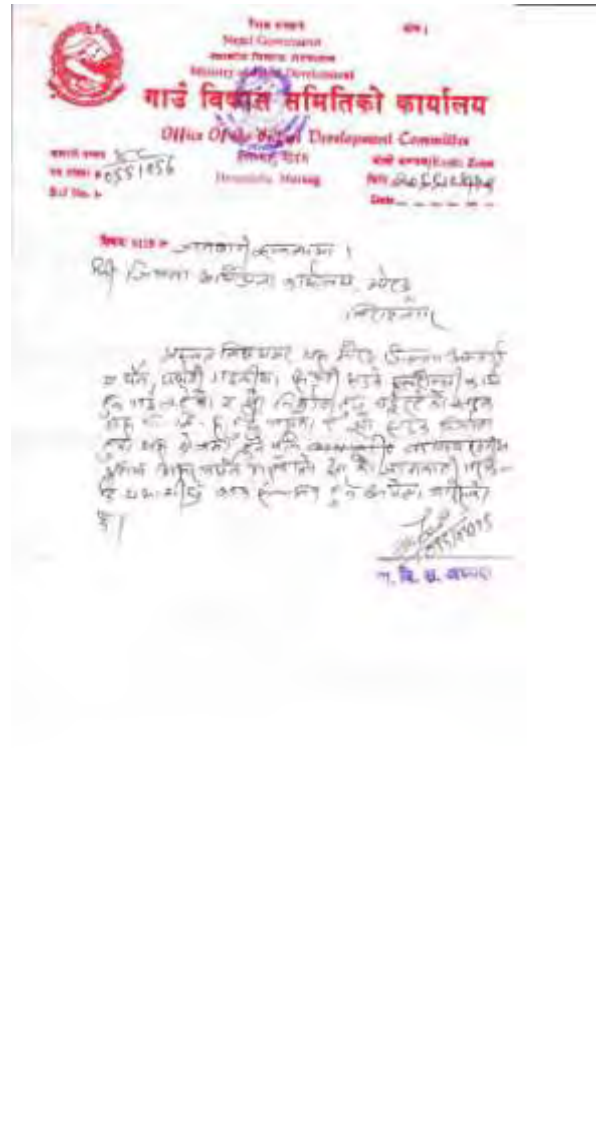
Annex VIII: List of Persons Consulted

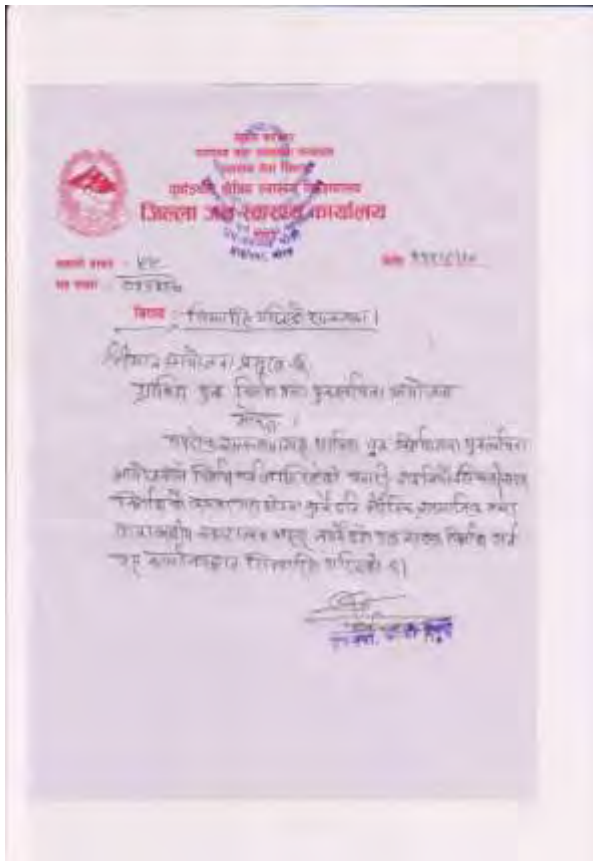
List of persons consulted

S.N.	Name	Address	Occupation
1.	Arun Sharma Poudyal	District Forest Office	DFO
2.	Kedar Bahadur Shrestha	District Agriculture Development Office	District Engineer
3.	Shyam Prasad Upadhaya	District Watershed and Soil Conservation Office	Officer
Dainiya VDC			
1	Mr Sugalal Singh	Dainiya-8	Farmer
2	Mr Lalit Kumar Pandit	Dainiya-5	Businesss
3	Mr. Kumbhlal Singh	Dainiya-6	Farmer
4	Mr. Sadanad Tatma	Dainiya-9	Farmer
5	Mr.Narayan Parsad Singh	Dainiya-5	Businesss
6	Mr. Anbar Minya	Dainiya-3	Farmer
7	Mr. Rameshwar Rajbansi	Dainiya-5	Businesss
8	Mr. Mahtab Alam	Dainiya-9	Farmer
9	Ms. Minadevi Shah	Dainiya-6	Businesss
Gobindpur VDC			
1	Mr.Umesh Pd. Das	Gobindpur VDC	Businesss
2	Mr. Khadag Mainali	Gobindpur VDC	Farmer
3	Mr. Anil Kumar Das	Gobindpur VDC	Businesss
4	Mr. Radhu Haruda	Gobindpur VDC	Farmer
5	Mr. Shiv shankar Nidhi	Gobindpur VDC	Farmer
Amardaha-VDC			
1	Mr. Tej Bahadur Dahal	Amardaha-VDC	Businesss
2	Mr. Yogendra Pd. Rajbanshi	Amardaha-VDC	Farmer
3	Mr. Tek Bahadur Bista	Amardaha-VDC	Businesss
4	Mr. Tek Bahadur Bhattarai	Amardaha-VDC	Businesss
5	Mr. Jumrati Manshuri	Amardaha-VDC	Farmer
Hasandaha-VDC			
1	Mr. Bishnu Bahadur Adhikari	Hasandaha-VDC	Farmer
2	Mr. Bir Bahadur Khatri	Hasandaha-VDC	Farmer
3	Mr. Pashuram Katuwal	Hasandaha-VDC	Businesss
4	Ms. Manita Tamang	Hasandaha-VDC	Farmer
Pathari-VDC			
1	Mr. Chandi Prasad Rai	Pathari-VDC	Farmer
2	Mr. Surya Kirati	Pathari-VDC	Businesss
3	Mr. Ishwari Prasad Ghimire	Pathari-VDC	Farmer
4	Mr. Devi Prasad Gautam	Pathari-VDC	Farmer
5	Mr. Milan Nalbo	Pathari-VDC	Businesss

Source: Field Survey, July, 2009

Annex X: Recommendation Letters from VDCs and suggestions





Annex XI

Annex XI a: Distribution of households by major occupation

Annex XI b: Summary of public services & infrastructures

Annex XI c: Land holding pattern of settlements within Zol

Annex XI d: Number of households belonging to different food security category

Annex XIa: Distribution of Households by Major Occupation

Settlement Name	Number of HH						Total HHs
	Agriculture & Livestock	Labour & Porter	Business/ Commerc e	Cottage Industry	Employee s	Others (specify)	
Sikati Bazaar	86	14	6	0	0		106
Miya Tole	69	96	3	0	2	5	175
Harchangadhi	199	100	5	0	3	2	309
Kudailee	38	25	5	0	0	0	68
Kadamgachhi	45	42	3	0	2	5	97
Dainiya Bazaar	184	61	15	2	10	5	277
Khuniyabari	95	82	3	1	3	5	189
Khikhirdangi	50	25	5	0	2	5	87
Patiyapada	356	92	4	1	2	2	457
Surat Tole	145	89	7	0	4	14	259
Narbam chowk	8	-	2	-	-	-	10
Dhokariya	150	39	15	0	5	-	209
Amardaha Bazaar	377	17	51	4	15	10	474
Hasandaha Bazaar	150	56	17	3	20	7	253
Jainghatta	30	18	5	3	3	4	63
Chilla Jhar	61	41	4	2	8	11	127
Bhoteghumati	10	5	4	0	3	1	23
Pratibha Chowk	32	25	10	1	15	2	85
Kirat Tole	120	68	11	0	18	6	223
Lama Tole	100	53	47	1	27	3	231
Budhha Tole	86	68	50	7	33	9	253
Mandirline Tole	35	17	25	3	13	7	100
Total	2426	1038	297	28	188	103	4075
Percentage	59.5	25.4	7.3	0.7	4.6	2.5	100

Source: field survey, July, 2009

Annex Xlb: Summary of Public Services & Infrastructures

Settlement Name/	School (no)	Health post (no)	Post office (no.)	Communication(no) CDMA/MOBILE	Hydro power (no)	Solar (no)	Shops/lodge (no)	Water supply (no)	Irrigation (KULO)	Mill (no)	Bridge (no)	Community organization (no)	Fin. Institution (no)	Community CENTRE	Industry (no)
Sikati Bazaar	-	-	-	25	-	-	6	-	-	2	-	-	-	-	-
Miya Tole	1	-	-	45	-	-	5	-	-	1	-	-	-	-	-
Harchangadhi	1	-	-	77	-	-	11	-	-	1	1	-	-	-	-
Kudailee	2	-	-	39	-	-	2	-	-	-	-	-	-	-	-
Kadamgachhi	1	-	-	69	-	-	2	-	-	1	-	-	-	-	-
Dainiya Bazaar	4	1	1	165	-	-	36	-	-	5	-	2	-	1	2
Khuniyabari	1	-	-	67	-	-	7	-	-	1	-	-	-	-	1
Khikhirdangi	1	1	1	60	-	-	4	-	-	2	1	-	-	1	-
Patiyapada	1	-	-	289	-	-	12	-	-	-	-	-	-	1	1
Surat Tole	-	-	-	125	-	-	19	-	-	2	-	-	-	1	-
Narbam chowk	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
Dhokariya	-	-	-	158	-	-	12	-	-	1	-	-	-	1	2
Amardaha Bazaar	4	1	1	300	-	-	45	-	-	4	-	3	-	5	2
Hasandaha Bazaar	2	1	1	167	-	-	25	-	-	5	-	1	-	4	2
Jainghatta	-	-	-	29	-	-	1	-	-	-	-	-	-	-	-
Chilla Jhar	1	-	-	89	-	-	3	-	-	1	-	-	-	-	1
Bhoteghumati	1	-	-	10	-	-	2	-	1	-	-	-	-	-	-
Pratibha Chowk	-	-	-	50	-	-	4	-	1	1	-	-	-	-	-
Kirat Tole	1	-	-	150	-	-	9	-	1	2	-	2	-	2	1
Lama Tole	1	-	-	146	-	-	3	-	1	-	-	-	-	1	-
Budhha Tole	6	-	-	200	-	-	15	1	1	3	-	1	2	3	2
Mandirline Tole	2	1	1	75	-	-	12	1	1	2	-	3	4	7	6
Total	30	5	5	2337			235	2	6	34	2	12	6	27	20

Source: field survey, July, 2009

AnneX XI c: Land Holding Pattern of Settlements Within Zol

Settlement Name	Number of HH							Total HHs
	Land less	<one Ropani	1-5 Ropani	5-10 Ropani	10-20 Ropani	20-50 Ropani	>50 Ropani	
Sikati Bazaar	2	30	54	5	10	5	-	106
Miya Tole	3	45	35	29	48	15	-	175
Harchangadhi	-	28	25	55	60	125	16	309
Kudailee	2	4	7	5	50	-	-	68
Kadamgachhi	-	5	55	5	25	5	2	97
Dainiya Bazaar	-	8	80	40	55	77	17	277
Khuniyabari	-	3	60	37	67	20	2	189
Khikhirdangi	2	40	15	10	20	-	-	87
Patiyapada	-	20	137	75	125	60	40	457
Surat Tole	-	19	67	82	50	30	11	259
Narbam chowk	-	-	2	6	-	2	-	10
Dhokariya	-	-	25	100	47	25	12	209
Amardaha Bazaar	-	25	65	136	74	21	34	355
Hasandaha Bazaar	-	14	81	65	35	43	15	253
Jainghatta	-	3	20	13	20	6	1	63
Chilla Jhar	-	13	27	35	21	28	3	127
Bhoteghumati	-	1	9	3	6	4	-	23
Pratibha Chowk	-	5	15	24	7	30	4	85
Kirat Tole	-	32	23	65	87	10	6	223
Lama Tole	-	29	44	58	36	53	11	231
Budhha Tole	-	34	53	101	19	37	9	253
Mandirline Tole	-	19	15	28	23	13	2	100
Total	9	382	914	977	885	609	185	4075
Percentage	0.2	9.36	22.40	23.94	21.69	14.92	4.53	100

Source: Field survey, 2009

Annex XI d: Number of Households Belonging to Different Food Security Category

Settlement Name	Surplus	Sufficient for whole year	Sufficient for 3-9 months	Sufficient for three months	Less than three months	Total
Sikati Bazaar	-	-	15	36	55	106
Miya Tole	-	20	38	57	60	175
Harchangadhi	5	40	50	100	114	309
Kudailee	-	-	10	20	38	68
Kadamgachhi	-	-	17	30	50	97
Dainiya Bazaar	30	47	74	69	57	277
Khuniyabari	2	10	60	90	27	189
Khikhirdangi	7	17	20	26	17	87
Patiyapada	11	15	200	100	131	457
Surat Tole	8	12	100	89	50	259
Narbam chowk	-	-	7	2	1	10
Dhokariya	9	45	70	50	35	209
Amardaha Bazaar	41	60	139	61	54	355
Hasandaha Bazaar	25	42	91	45	50	253
Jainghatta	-	10	35	10	8	63
Chilla Jhar	-	34	60	15	18	127
Bhoteghumati	2	6	10	4	1	23
Pratibha Chowk	4	19	50	10	2	85
Kirat Tole	5	28	110	50	30	223
Lama Tole	7	12	135	60	17	231
Budhha Tole	20	27	95	68	43	253
Mandirline Tole	35	44	10	7	4	100
Total	211	488	1396	999	867	4075
Percentage	5.17	11.96	34.21	24.48	21.25	100.0

Source: Field survey, 2009

Annex XII : List of Trees to be Removed

S.N	Chainage	Units	Numbers	Species
1	3+500	Nos.	1	Mango
2	3+900	Nos.	1	Peepal
3	5+000	Nos.	1	Peepal
4	5+560	Nos.	1	Coconut
5	6+255	Nos.	1	Peepal
6	10+000	Nos.	1	Peepal
7	18+495	Nos.	1	Peepal
8	18+500	Nos.	1	Peepal
9	22+425	Nos.	1	Peepal
10	22+525	Nos.	1	Bakaino
11	22+605	Nos.	1	Bakaino
12	27+660	Nos.	1	Bakaino
13	27+900	Nos.	1	Peepal
Total			13	

Source: field survey, July, 2009

➤ Detail about the loss of tree and their cost will be included in the resettlement plan.

Annex XIII: Photographs



Starting Point at Ch. (0+000)



Affected house at Ch 0+240



Affected small hut at Ch 0+500



Affected house at Ch 0+705



Affected Mango Tree at Ch 3+500



Affected Peepal tree at Ch 3+900



Affected Peepal tree at Ch 22+425



Affected Boundary wall and gate of school at Ch 5+385



Affected Small hut at Ch. 5+500



Affected Small hut at Ch. 5+515



Affected Peepal tree at Ch 6+255



Affected Bakaino tree at Ch 22+525



Public Consultation meeting



Public Consultation meeting



Dhadhara Khola Bridge (Ch 8+855)



Pahara Khola Bridge (Ch 3+264)



Detail survey Works



End of Road (Pathari VDC Ch: 30+900)

Annex XIV: Summary of Cross Drainage Structures

S.NO.	Description	Chainage	Length (m)	Diameter (cm)	Remarks
1	Bridges				
i	RCC bridge	3+264 to 3+273	9		Motor able, additional 4.5x2.0m 15 cm thick PCC approach slab on both sides
ii	RCC bridge	8+855 to 8+872	17		Motor able
2	Slab Culvert				
i	RCC SC	1+363 to 1+367	4		Additional 5cm PCC on slab and 4.5x2.0m 15 cm thick PCC approach slab on both sides
ii	RCC SC	19+362 to 19+369	7		Additional 4.5x2.0m 15 cm thick PCC approach slab on both sides
iii	RCC SC	20+981 to 20+987	6		Additional 4.5x2.0m 15 cm thick PCC approach slab on both sides
iv	RCC SC	21+920 to 21+926	6		Additional 4.5x2.0m 15 cm thick PCC approach slab on both sides
v	RCC SC	22+528 to 22+533	5		Additional 4.5x2.0m 15 cm thick PCC approach slab on both sides
3	Pipe Culvert				
1	Pipe Culvert	0+150	7.5	60	existing
2	Pipe Culvert	0+300	7.5	60	new
3	Pipe Culvert	0+700	7.5	60	new
4	Pipe Culvert	0+957	7.5	60	existing
5	Pipe Culvert	1+100	7.5	90	existing
6	Pipe Culvert	2+947	7.5	90	existing
7	Pipe Culvert	3+056	7.5	45	existing
8	Pipe Culvert	3+553	7.5	90	existing
9	Pipe Culvert	3+834	7.5	90	Existing to be replaced
10	Pipe Culvert	3+964	7.5	90	existing
11	Pipe Culvert	4+143	7.5	60	existing
12	Pipe Culvert	4+834	7.5	90	existing
13	Pipe Culvert	4+895	7.5	90	existing
14	Pipe Culvert	6+169	7.5	90	existing
15	Pipe Culvert	6+794	7.5	90	existing
16	Pipe Culvert	7+703	7.5	90	existing
17	Pipe Culvert	9+599	7.5	60	existing
18	Pipe Culvert	10+716	7.5	90	existing
19	Pipe Culvert	11+012	7.5	90	existing
20	Pipe Culvert	11+656	7.5	90	existing
21	Pipe Culvert	12+021	7.5	90	existing

S.NO.	Description	Chainage	Length (m)	Diameter (cm)	Remarks
22	Pipe Culvert	12+155	7.5	60	new
23	Pipe Culvert	12+288	7.5	60	Existing to be replaced
24	Pipe Culvert	12+755	7.5	90	existing
25	Pipe Culvert	12+924	7.5	60	Existing to be replaced
26	Pipe Culvert	13+300	7.5	60	Existing to be replaced
27	Pipe Culvert	13+935	7.5	60	existing
28	Pipe Culvert	14+105	7.5	60	Existing to be replaced
29	Pipe Culvert	14+578	7.5	60	Existing to be replaced
30	Pipe Culvert	14+828	7.5	60	existing
31	Pipe Culvert	16+191	7.5	60	Existing to be replaced
32	Pipe Culvert	17+189	7.5	90	existing
33	Pipe Culvert	17+550	7.5	90	existing
34	Pipe Culvert	17+942	7.5	90	existing
35	Pipe Culvert	18+831	7.5	45	existing
36	Pipe Culvert	19+599	7.5	90	existing
37	Pipe Culvert	20+807	7.5	60	Existing to be replaced
38	Pipe Culvert	21+508	7.5	90	existing
39	Pipe Culvert	21+992	7.5	60	existing
40	Pipe Culvert	22+361	7.5	90	existing
41	Pipe Culvert	23+240	7.5	60	New
42	Pipe Culvert	23+633	7.5	60	existing
43	Pipe Culvert	23+997	7.5	60	existing
44	Pipe Culvert	24+714	7.5	60	existing
45	Pipe Culvert	24+733	7.5	60	New
46	Pipe Culvert	24+950	7.5	60	New
47	Pipe Culvert	25+126	7.5	60	Existing to be replaced
48	Pipe Culvert	25+489	7.5	90	existing
49	Pipe Culvert	26+189	7.5	45	existing
50	Pipe Culvert	26+909	7.5	60	existing
51	Pipe Culvert	27+287	7.5	60	existing
52	Pipe Culvert	27+661	7.5	90	existing
53	Pipe Culvert	27+809	7.5	60	existing
54	Pipe Culvert	28+043	7.5	90	existing
55	Pipe Culvert	28+166	7.5	60	existing
56	Pipe Culvert	28+573	7.5	90	existing
57	Pipe Culvert	28+983	7.5	90	existing
58	Pipe Culvert	29+074	7.5	90	existing
59	Pipe Culvert	30+755	7.5	60	Existing to be replaced

Source: Field survey, July, 2009

Annex XV: Affected Houses and Structures along the Road Alignment

S.N	Type of structures	Chainage	Location	Remarks
1	Electric Poles (95 nos.)	Various Ch.	Dainiya to Pathari	Need to be relocated
2	House with galvanized roof	0+240	Dainiya VDC	2m from centre line
3	Small hut	0+500	Dainiya VDC	3m from centre line
4	House with galvanized roof	0+705	Dainiya VDC	2.2m from centre line
5	Boundry wall of Sikati Madarsah, Dainiya	1+000	Dainiya VDC	2.2m from centre line
6	House with galvanized roof	5+380	Dainiya VDC	2.5m from centre line
7	Boundry wall and gate of Adarsha HS school, Dainiya	5+385	Dainiya VDC	3m from centre line
8	Small hut	5+500	Dainiya VDC	2.5m from centre line
9	Small hut	5+510	Dainiya VDC	2.5m from centre line
10	Small hut	5+515	Dainiya VDC	2.5m from centre line

Source: field survey, July, 2009

Detail about the loss of structures along the road alignment and their cost will be included in the resettlement plan.

Annex XVI: Structure for Slope Stabilization

SN	Chainages	Civil structures/Mitgation Measures	Bio-engineering Measures
1.	3+330 -3+350	Gabion wall at upper side	Grass plantation, Tree, Shrub plantation
2.	8+800- 8+850	Gabion wall at upper side	Grass plantation, Tree, Shrub plantation

Source: Field Survey, July, 2009