

Environmental Assessment Document

Initial Environmental Examination

Grant Number: 0093 NEP

July 2009

Nepal: Rural Reconstruction and Rehabilitation Sector Development Program

Naduwa- Radijyula Road Subproject, Rukum District

Prepared by the Government of Nepal

The Environmental Assessment is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

Government of Nepal
Ministry of Local Development
Department of Local Infrastructure Development and Agricultural Roads
Rural Reconstruction and Rehabilitation Sector Development Program
[ADBGrant 0093NEP]

Initial Environmental Examination (IEE)

of

Naduwa-Radijyula Road Sub-Project **(Rukum District, Nepal)**

Submitted to:

Ministry of Local Development
Government of Nepal

Proponent:

District Development Committee/
District Technical Office
Rukum District

Prepared By:
Cemeca Consultant (P.) LTD
01-4783060

TABLE OF CONTENTS

ABBREVIATIONS	i
NAME AND ADDRESS OF THE PROPONENT	ii
EXECUTIVE SUMMARY (NEPALI)	iii
EXECUTIVE SUMMARY (ENGLISH)	vi
1.0 INTRODUCTION	1
1.1 Background:	1
1.2 The Name and Address of Proponent	1
1.3 Relevancy of the Proposal	1
1.4 Needs and Objectives of the IEE Study	1
1.5 Methodology Adopted for IEE Study	1
1.6 Description of Proposal:	2
1.7 Construction Approach and Activities	3
1.8 Proposed schedule for implementation of sub-project	3
2.0 PUBLIC CONSULTATION AND INFORMATION DISCLOSURE	6
2.1 Public Consultation	6
2.2 Information Disclosure	6
3.0 REVIEW OF RELEVANT ACTS,REGULATIONS AND GUIDELINES	8
4.0 EXISTING ENVIRONMENTAL CONDITIONS	10
4.1 Physical Environment	10
4.2 Biological Environment	11
4.3 Socioeconomic and Cultural Environment	12
5.0 PROJECT ALTERNATIVES	16
5.1 No Action Alternatives:	16
5.2 Project Alternatives:	16
5.3 Alternative Route	16
5.4 Alternative Design and Construction Approach	16
5.5 Alternative Schedule and Process	16
5.6 Alternative Resources	16
6.0 IDENTIFICATION , PREDICTION AND EVALUATION OF IMPACTS; BENEFICIAL AUGMENTATION AND MITIGATION MEASURES	17
6.1 Beneficial Impacts	19
6.2 Adverse Impacts	20
7.0 ENVIRONMENTAL MANAGEMENT PLAN	25
7.1 Institutions and Their Roles	25
7.2 Reporting and Documentation	26
7.3 Environmental Management Plan	26
7.4 Mitigation Cost	31
7.5 Implementation of Mitigation Measures	31
7.6 Environmental Monitoring	32
8.0 CONCLUSION AND RECOMMENDATION	38
8.1 Conclusion	38
8.2 Recommendation	38
10.0 MISCELLANEOUS	39

ANNEXES

- 1) ToR of IEE
- 2) Rapid Environmental Assessment (REA) Checklist
- 3) Abstract of cost
- 4) RRRSDP environmental Checklist
- 5) Public notice
- 6) Deed of inquiry (*muchulka*)
- 7) Name of organization
- 8) List of persons consulted
- 9) Summary of Meeting minutes with local people
- 10) Recommendations Letters
- 11) Existing Condition
 - a. Distribution of household by major occupation
 - b. Summary of public service and infrastructures
 - c. Land holding pattern of settlement within Zol
 - d. Number of household belonging to different food security category
- 12) Vegetation and Wildlife found in the project area
- 13) Photographs
- 14) Recommended structures necessary for slope stabilization.
- 15) Purposed Cross Drainage and Side Drainage for water management
- 16) Religious and Cultural sites of the project area
- 17) School and campus along the road alignment
- 18) Summaries of Resettlement and Rehabilitation Cost
- 19) Details of affected structures and summary of resettlement cost

LIST OF TABLES

1.1	Sub-project implementation schedule	3
2.1	Summary of meeting minutes	6
3.1	Review of Environmental Acts, Regulations and Guidelines	8
4.1	Geological Features along the Road Alignment	10
4.2	Summary of Land use pattern along the road alignment	10
4.3	Rivers and Kholsi in the alignment	11
4.4	List of Plant species recorded during the field survey	11
4.5	Non timber forest product found in the road alignment and project area	12
4.6	Birds found in project area	12
4.7	Demographic Profile of VDCs	13
6.1	Potential Spoil Disposal Sites	20
6.2	Recommended Quarry Sites	21
7.1	Concerned Institutions and Their Roles	25
7.2	Beneficial Impacts and Proposed Enhancement Measures	27
7.3	Adverse Impacts and Proposed Mitigation Measures	28
7.4	Cost Estimate for Environmental Enhancement and Mitigation Measures	31
7.5	Environmental Monitoring Cost	32
7.6	Compliance Monitoring for Naduwa-Radijyula Road Subproject	34

LIST OF FIGURE

1.1	Map of Nepal Showing Naduwa-Radijyula Road	3
1.2	Topo Map showing the alignment of Naduwa-Radijyula road	5
8.1	Environmental Management Organization Structure	26

ABBREVIATIONS

ADB	Asian Development Bank	IUCN	International Union for Conservation Nature
amsl	Above mean sea level	Km	Kilometer
AP	Affected Person	LDO	Local Development Officer
BG	Building Group	LEP	Labour based, Environment friendly and Participatory
Ch	Chainage		
CBO	Community Based Organization		
CDC	Compensation Determination Committee	LEST	Livelihood Enhancement and Skill Training
CDO	Chief District Officer		
CEA	Country Environmental Analysis	LRMP	Land Resource Management Project
CGI	Corrugated Galvanized Iron	M	meter
CF	Community Forest	MoU	Memorandum of Understanding
CFUG	Community Forest Users Group	MoE	Ministry of Environment
CISC	Central Implementation Support Consultant	MoST	Ministry of Science and Technology
CITES	Convention on International Trade in Endangered Species of Flora and Fauna	MI	Milliliter
DADO	District Agriculture Development Office	MLD	Ministry of Local Development
DDC	District Development Committee	NGO	Non-Governmental Organization
DFID	Department for International Development	NRs	Nepali Rupees
DFO	District Forest Office/Officer	NTFPs	Non timber forest products
DG	Director General	OFID	OPEC Fund for International Development
DIST	District Implementation Support Team	OP	Operational Plan
DIT	District Implementation Team	OPEC	Organization of Petroleum Exporting Countries
DoLIDAR	Department of Local Infrastructure Development and Agricultural Roads	PAM	Project Administrative Memorandum
DPO	District Project Office	PCC	Plain Cement Concrete
DPCC	District Project Coordination Committee	PCU	Project Coordination Unit
DRSP	District Road Support Programme	RBG	Road Building Group
DSCO	District Soil Conservation Office	RCC	Reinforced Cement Concrete
DTO	District Technical Office	RCIW	Rural Community Infrastructure Works
DTMP	District Transport Master Plan	REA	Rapid Environmental Assessment
EA	Environmental Assistant/Assessment	RES	Rapid Environmental Screening
EARP	Environmental Assessment and Review Procedures	RIDP	Rural Infrastructure Development Project
ES	Environmental Specialist	RP	Resettlement Plan
EIA	Environmental Impact Assessment	RRRSDP	Rural Reconstruction and Rehabilitation Sector Development Program
EMP	Environmental Management Plan	RS	Resettlement Specialist
EMS	Environmental Management Section	SAP	Social Action Plan
EPA	Environmental Protection Act	SF	Social Funding
EPR	Environmental Protection Rules	SA	Social Appraisal
ESD	Environment Screening Document	SDC	Swiss Agency for Development and Cooperation
FGD	Focus Group Discussion	SM	Social Mobilizer
GAP	Gender Action Plan	SMC	Social Mobilization Coordinator
GoN	Government of Nepal	SMO	Social Mobilization Officer
GIS	Geographical Information System	TA	Technical Assistance
Ha	Hectare	ToR	Terms of Reference
HH	Household	TWS	Technical Walkover Survey
IEE	Initial Environmental Examination	VDC	Village Development Committee
IPDP	Indigeneous People Development Plan	VICCC	Village Infrastructure Construction Coordination Committee
		ZoI	Zone of Influence

NAME AND ADDRESS OF THE PROPONENT

The District Development Committee (DDC)/ District Technical Office(DTO),Rukum is the implementing agency at the district level under DoLIDAR and the Ministry of Local Development (MLD) is the concerned authority for the approval of IEE study report of Naduwa-Radijyula Road sub-project .

Address

Musikot,Khalanga,Rukum

Phone number: 088-680063/019-657004

Fax number: 088-649091/019-657005

Consultant

Cemeca Consultant (P.) LTD

District Implementation Support Team (DIST)

Rukum, Khalanga

Phone number: 9748520528

Name of the preparer

Pradimna Pokhrel

Environmental Specialist

Data collection support

Ranjit Kumar Singh Team Leader

Kedar Ghimire Social Development Specialist

Dipendra Yadav Sub-Engineer

Chandra Bdr.Roka Sub-Engineer

Bharat Dange Asst.Sub-Engineer

Nita Sharma Social Mobilizer

Anita KC Social Mobilizer

Swarswati KC Social Mobilizer

नदुवा-राडीज्यूला सडकको प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन कार्यकारी सारांश

पृष्ठभूमि

नेपाल सरकारले लामो दृष्टिकोणमा गरी भएका ग्रामीण पूर्वाधारहरूको पुनःनिर्माण र पुनःस्थापना को कार्य एशियाली विकास बैंक (ADB), स्विस् सरकार (SDC), ब्रिटिस सरकार (DFID) तथा ओपेक फण्ड (OFID)को आर्थिक सहयोगमा ग्रामीण पूर्वाधार पुनःनिर्माण र पुनःस्थापना आयोजना नेपालको विसवटा जिल्लाहरूमा संचालन गरिरहेको छ । रुकुम जिल्लामा अवस्थित प्रस्तावित नदुवा-राडीज्यूला सडकको पुनःस्थापना सोही कार्यक्रम अन्तर्गत संचालन गर्न लागिएको एक उप-आयोजना हो । यो सडक खण्डको कूल लम्बाई १६.५०० कि.मि छ । उक्त सडकको शुरूको ३ कि.मी खण्ड को निर्माण कार्य जिल्ला विकास समिति, रुकुमबाट शुरू गरिएको छ । बाँकी १३.५०० कि.मी. नयाँ निर्माण कार्यको लागि ग्रामीण पुनर्निर्माण तथा पुनस्थापना आयोजना कार्यक्रम अन्तर्गत निर्माण गर्न प्रस्ताव गरिएको छ ।

प्रस्तावक

प्रस्ताव (प्रस्तावित सडक उप-आयोजना) को प्रारम्भिक वातावरणीय परीक्षणको प्रस्ताविक जिल्ला विकास समिति र जिल्ला प्राविधिक कार्यालय, रुकुम हुन् । प्रस्तावकको प्रारम्भिक वातावरणीय परीक्षण स्विकृत गर्ने सम्बन्धित निकाय स्थानिय विकास मन्त्रालय हो ।

उद्देश्य

प्रारम्भिक वातावरणीय परीक्षण अध्ययनको मुख्य उद्देश्य प्रस्तावित उप-आयोजना निर्माण तथा संचालन बाट उक्त क्षेत्रको भौतिक, जैविक, सामाजिक, आर्थिक तथा सांस्कृतिक वातावरणमा पर्न सक्ने प्रभावहरू पत्ता लगाई नकारात्मक प्रभावको न्यूनीकरण र सकारात्मक प्रभाव बढाउने उपायहरू बारे सुझाव दिनु, वातावरणीय अनुगमन योजना बनाई कार्यान्वयन गराउनु, तथा प्रस्तावित सडक आयोजनाको लागि प्रारम्भिक वातावरणीय परीक्षण गरे पुग्छ भन्ने कुराको यकिन गर्नु हो ।

प्रस्तावको सार्वभिकता

प्रस्तावित आयोजना स्थल रुकुम जिल्लाको दुर्गम र अविकसित मध्य पश्चिम क्षेत्रमा पर्दछ। यो क्षेत्र मुख्यतया दुध, तरकारी र कृषि उत्पादनमा प्रमुख मानिन्छ । सडकको निर्माणले यस क्षेत्रमा उत्पादित चिज वस्तुलाई बजार सम्म पुर्याइ जनताको आर्थिक क्षमतामा अभिवृद्धि गर्ने छ । सडकको पहुचले यस क्षेत्रका जनताको आर्थिक र सामाजिक विकासमा सहयोग पुग्ने छ । समग्रमा सडकको पहुच संगै यस क्षेत्रमा विकासका पूर्वाधार र दूरगामी विकासका अवसरका ढोकाहरू खुल्ने छन ।

अध्ययन प्रकृया

जुलाई २००९ मा फिल्ड सर्वेक्षणबाट लिइएका तथ्याङ्क तथा अन्य उपलब्ध तथ्याङ्कहरूको साथै सामाजिक तथा प्राविधिक टोलीबाट पुनर्वास कार्यको सर्वेक्षणको लागि संकलन गरेका तथ्याङ्कहरू केलाएर प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन तयार गरी निष्कर्ष तथा सुझावहरू दिइएका छन् ।

यो प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन नेपाल सरकारको वातावरण संरक्षण ऐन २०५३, वातावरण संरक्षण नियामावली २०५४ अनुसार तथा स्थानिय विकास मन्त्रालयबाट मिति २०६६/०२/२५ मा स्विकृत गरिएको यसै प्रस्तावको कार्यसूची अनुसार तयार गरिएको छ । साथै, एशियाली विकास बैंकको Environmental Assessment Guideline, 2003 तथा Safeguard Policy Statement, 2009 को समेत अनुसरण गरिएको छ ।

विद्यमान वातावरणीय स्थिति

यो सडक नदुवाबाट नजिक समुद्री सतहदेखिको २१०० मी. को उचाईबाट शुरू भएर समुद्री सतहदेखिको १२०० मी. उचाईको गिजा भएर जान्छ । यस सडक खण्डमा विभिन्न प्रकारका चट्टानहरू जस्तै क्वार्टजाइट, सिष्ट आदि पाईन्छन् । प्रायः एलुभियल तथा रेजीड्यूल प्रकारका बालुवा र पाँगे मिसिएको माटोहरू सडक खण्डमा पाईन्छन् । सडक खण्डमा पर्ने पानीका मुख्य श्रोतमा सेरी खोला पर्दछ । प्रस्तावित सडक क्षेत्रको वायु तथा पानीको स्तर सफा नै रहेको देखिन्छ साथै ध्वनि प्रदूषणको समस्या छैन । यो सडक प्रायः खेती गरिएको जमीन तथा बाँझो जमिन र वस्तीहरू भएर जान्छ ।

यस सडक खण्डमा पाइने मुख्य रुखहरूको प्रजातिहरूमा सल्ला, साल, बाँस, धुपी, आँप, तथा गैह्र काष्ठ वन पैदावारमा चिरइतो, हरो, आरू, ओखर, चिउरी, लप्सी आदि पर्दछन् । स्याल, वनबिरालो, लोखर्के, मलसार्पो आदि वन्य जन्तुका साथै काग, ढुकुर, मयूर, भ्याकुर, हुटिट्याउ आदि पंक्षीहरू यस सडक खण्ड भएर जाने वनमा पाईन्छन् । यो सडक खण्ड संरक्षित क्षेत्र वा मध्यवर्ती क्षेत्रमा पर्दैन ।

यो सडक खण्डको प्रभावित क्षेत्र भित्र मगमा, आठवीसकोट र आठवीसडाडाँ गा.वि.स.का ६ वटा प्रमुख वस्तीहरू पर्दछन् । जसको जम्मा घरधुरी संख्या १०१३ र जनसंख्या ५६५३ रहेको छ र सरदर परिवार संख्या ५.५८ छ । यहाँ बसोबास गर्ने विभिन्न जात जातिका मानिसहरूमा मुख्य गरी क्षेत्री, ठकुरी, ब्राहमण, मगर तथा दलित पर्दछन् ।

यहाँका बासिन्दाहरूको मुख्य पेसा कृषि र पशुपालन हो । यातायातको राम्रो सुविधा नभएको तथा पहाडी क्षेत्र भएकोले कृषि उब्जनीले मात्र पर्याप्त नहुने हुँदा यहाँका अधिकांश मानिसहरू श्रम रोजगारीका अन्य पेशामा काम गर्ने तथा केही मानिसहरू सरकारी तथा अन्य संस्थामा काम गर्ने, थोरै मानिसहरूले व्यापार व्यवसाय गर्ने गर्दछन् । साथै जनसंख्याको उल्लेखनीय प्रतिशत मानिसहरू जीविकोपार्जनको सिलसिलामा हिउँदमा तराई र काठमाडौँ तथा भारत लगायतका विभिन्न ठाउँमा रोजगारीको लागि जाने गर्दछन् ।

सकारात्मक प्रभाव:

यातायातको सुविधाले स्थानीय बासिन्दाहरूको जीवनमा थुप्रै सकारात्मक प्रभाव पर्दछन् । सडक निर्माण गर्दा स्थानीय बासिन्दाहरूले श्रमिकको रूपमा रोजगारीका अवसरहरू प्राप्त गर्ने र प्राविधिक शीप तथा ज्ञान समेत प्राप्त गर्ने छन् । सडक निर्माण गर्दा स्थानीय रोजगारीका १८००० दक्ष श्रमिक र ५४००० अदक्ष श्रमिक) अवसरहरू स्थानीय बासिन्दाको श्रमिकको रूपमा प्राप्त गर्ने र प्राविधिक शीप तथा ज्ञान समेत प्राप्त गर्ने छन् ।

सडकको नया निर्माण भई संचालनको अवस्थामा त्यस क्षेत्रमा खाद्यानको आपूर्तिमा सुधार भई आर्थिक तथा सामाजिक स्थायित्व बढ्न जानेछ । साथै सडक यातायातले गर्दा ग्रामीण भेगबाट बजार क्षेत्र र बजार क्षेत्रबाट ग्रामीण भेगमा सेवा तथा सामानहरूको ओसार पसार छिटो, छरितो, सुलभ तथा सस्तो हुन जानेछ । बजारमा पहुँच भएको कारण कृषि उत्पादन बढाउन कृषकहरू उत्साही हुनेछन् । यसले गर्दा उत्पादकत्वमा वृद्धि भई अन्ततोगत्वा ग्रामीण भेगका बासिन्दाको जीवन स्तरमा सुधार हुन जाने छ । सडक संचालन हुँदा व्यापार व्यवसायमा वृद्धि हुन जानेछ । नदुवा, गैरीखोला, बाँसखोला, गिजा, भाकीसल्ला, राडीज्यूला आदि बस्तिहरूमा व्यापार क्षेत्रको विकास भई यहाँका बासिन्दाहरूको जीवन स्तरमा सुधार हुन जानेछ । यसका साथै बजार क्षेत्रको विकासले गर्दा जग्गाको मूल्यमा समेत वृद्धि हुन जानेछ ।

नकारात्मक प्रभाव:

सडक निर्माण गर्दा भौतिक वातावरणमा पर्ने नकारात्मक प्रभावहरूमा भू-स्वामीत्वको प्रयोगमा वदलाव, भिरालो जग्गामा पहिरो जाने, वायु तथा पानीमा प्रदूषण, खनेको माटो फालिदा पर्ने प्रभावहरू मुख्य छन् । सडक निर्माणको क्रममा कुनै पनि रुखहरू काटिने छैन ।

सडक संचालनको दौरान भौतिक वातावरणमा पर्ने नकारात्मक असरहरूमा भिरालोपनको स्थायित्व र यसको व्यवस्थापन, वायु तथा ध्वनी प्रदूषण तथा सडक सुरक्षाका समस्याहरू पर्दछन् । यसै प्रकार जैविक प्रभावमा वन्य श्रोत घट्नु, वन्य जन्तुहरूलाई अप्ठेरो पर्नु भने सामाजिक तथा आर्थिक प्रभावहरूमा नयाँ वस्ती र बजारको अव्यवस्थित विस्तार, सामाजिक व्यवहारमा परिवर्तन आदि पर्दछन् । प्रस्तावित सडक प्रमुख वस्तीहरू भएर जाने हुनाले यस आयोजनामा ०.५७५ हेक्टर खेतिजन्य भूमि, २.५२५ हेक्टर बाँझो जमिन र ३.३ हेक्टर वस्ती ओघट्छ । बाटो निर्माण गर्दा १३ निजी घरहरू, १३ पानी घट्ट र १ वटा गोठहरूमा असर पर्दछ र जसको क्षतिपूर्ति पूनर्वास योजना अनुरूप दिइनेछ ।

न्यूनीकरणका उपायहरू

यस उप-आयोजनालाई वातावरण मैत्री बनाउनका लागि सकारात्मक प्रभावलाई बढावा गर्ने तथा नकारात्मक प्रभावहरूलाई नियन्त्रण या न्युनिकरण गर्ने थुप्रै उपायहरू यस प्रतिवेदनमा प्रस्तावित गरिएको छ । जनताले राजी खुशीले बाटोको लागि दिएको बाहेक आयोजनाले गरिवीको रेखामुनि परेका परिवारहरूको अधिग्रहण गर्ने सबै जग्गाको प्रचलित मूल्य अनुसार क्षतिपूर्ति दिनेछ । सडक मानव-श्रम प्रविधिमा आधारित हुनेछ तथा LEP (श्रम मुलक, वातावरण मैत्री, सहभागीता मुलक) ढंगले निर्माण गरिने छ । उप-आयोजनाले प्रभावित जनतालाई

निर्माण कार्यमा रोजगारीमा तथा शिपमुलक तालिममा प्रथमिकता दिनेछ । उप-आयोजना निर्माणको क्रममा जग्गा फँडानी गर्दा, जमिन काट्दा, खानी सञ्चालन गर्दा, खन्दा निस्किएका माटो, ग्रेगर थुपार्दा तथा अन्य कार्य गर्दा त्यस क्षेत्रको संवेदनशील वातावरणलाई सुरक्षित राख्न विशेष ध्यान दिनेछ । निर्माण कार्यमा कार्यरत श्रमिकहरुको विमा गरिने छ तथा सुरक्षाका सम्पूर्ण सामग्री श्रमिकहरुलाई प्रयोगमा ल्याउन दिइने छ । जीवजन्तुको संरक्षण गर्न तथा सामाजिक अक्षुण्णतालाई कायम राख्न जनचेतनामूलक कार्यक्रमहरु तथा तालिमहरु सञ्चालन गरिनेछ । निर्माण स्थलहरुमा प्राथमिक उपचारको सामग्रीहरुको व्यवस्था गरिने छ । सडकको अधिकार क्षेत्र भित्र बाटो छेउछाउ वृक्षारोपण गरिनेछ । वृक्षारोपणमा संरक्षित तथा स्थानिय प्रजातिहरुलाई प्राथमिकता दिइनेछ । सडक सञ्चालनका क्रममा सडकमा देखिएका अस्थिरताहरुलाई नियमित रुपमा मर्मत संभार गरिनेछ । सडकमा तथा सडकको कारण नजिकैको खेतवारीमा पानी जम्मा हुन नदिन उचित निकासको व्यवस्थापन गरिनेछ । सडक दुर्घटना बाट बचाव गर्ने उपायहरु अवलम्बन गरिनेछ ।

सडक बनिसके पछि पनि सडक छेउमा जथाभावी अतिक्रमण रोकन र पहिरोको खतरा, हावा ,पानी प्रदुषण तथा ध्वनीको मात्रालाई घटाउनकालागि जिविस तथा गाउँ विकास समिति (गाविस) हरुलाई सडक छेउका बस्तीहरुको गाम्भीर्यतालाई अनुगमन गरि त्यसलाई नियन्त्रण गर्न सहयोग एवं तालिम दिनु पर्दछ ।

वातावरण व्यवस्थापन योजना

यस प्रतिवेदनमा वातावरण व्यवस्थापन योजना अन्तर्गत उप-आयोजनाबाट पर्ने संभावित असरहरु, असरहरुको प्रभाव, न्युनिकरण विधि, अनुगमन विधि तथा कार्यतालिका प्रस्तावित गरिएको छ । यसका साथै न्युनिकरणका उपायहरुको तथा अनुगमन कार्यको कार्यान्वयन गर्ने जिम्मेवार निकायहरुको पनि पहिचान गरिएको छ । अनुगमनका लागी आवश्यक भौतिक, जैविक, सामाजिक-आर्थिक तथा साँस्कृतिक वातावरणका विभिन्न अनुगमन सुचाङ्कहरुको पनि पहिचान गरिएको छ । वातावरण व्यवस्थापन योजना कार्यान्वयन गर्न निम्नानुसार खर्च हुने अनुमान गरिएको छ:

क्र. सं.	विवरण	रकम (ने.रु.)	कैफियत
१.	वातावरण सम्बन्धी जनचेतनामूलक तालिम तथा अन्य तालिम	२००,०००.००	आयोजनाको बजेटमा समावेश गरिने ।
२.	श्रमिकहरुको विमा	३००,०००.००	BoQ मा समावेश गरिने ।
३.	बायो-इन्जिनियरिङ्ग र बाटो छेउछाउ वृक्षारोपण	२,१०५,३८३.५४	BoQ मा समावेश गरिने ।
४.	पुनर्वास तथा जग्गा अधिग्रहण	६,८३३,०५५.५६	पुनर्वास योजनामा समावेश गरिने ।
५.	पुनर्निर्माण तथा अन्य	५००,०००.००	BoQ मा समावेश गरिने ।
७.	सामाजिक कार्य लागत	१,०७२,०००.००	आयोजनाको वातावरण व्यवस्थापन बजेटमा समावेश गरिने ।
८.	पेशागत स्वास्थ्य सुरक्षा तथा जानकारीमूलक सूचनापाटी	५५०,०००.००	BoQ मा समावेश गरिने ।
९.	अनुगमन तथा मुल्यांकन	२००,०००.००	आयोजनाको वातावरण व्यवस्थापन बजेटमा समावेश गरिने ।
	जम्मा :	११,७६०,४३९ .००	

निष्कर्ष तथा सुझावहरु:

परिचान गरिएका प्रायः वातावरणीय प्रभावहरु कम महत्वका तथा मुख्य गरी निर्माणकार्यका वखतमा सिमित रहेको पाइएको छ । वातावरण व्यवस्थापन योजना अन्तर्गत उल्लेख गरिएको उपायहरुको कार्यान्वयन गरिएमा यस नदुवा-राडीज्यूला सडक आयोजनाको कार्यान्वयनले आयोजना क्षेत्रको भौतिक, जैविक, सामाजिक - आर्थिक तथा साँस्कृतिक वातावरणमा उल्लेखनीय नकारात्मक प्रभाव नपर्ने देखिन्छ । यस प्रारम्भीक वातावरणीय अध्ययनको आधारमा यस प्रतिवेदनमा उल्लेख गरिएको वातावरणीय व्यवस्थापन योजनालाई पूर्ण रुपमा लागु गरी प्रस्तावित उप-आयोजना कार्यान्वयन गर्न सिफारिश गरिन्छ । उप-आयोजनाको 'वातावरणीय प्रभाव मुल्याङ्कन' स्तरमा अध्ययन गर्न आवश्यक नरहेको सिफारिश समेत गरिन्छ ।

EXECUTIVE SUMMARY

Background

Government of Nepal has received financial assistance from ADB, DFID, SDC and OFID for implementation of the Rural Reconstruction and Rehabilitation Sector Development Program (RRRSDP). The RRRSDP aims for reconstruction and rehabilitation of rural infrastructures damaged in the twenty conflict affected districts of the country. The Proposed 38.8 km long Naduwa-Radijyula Rural Road in Rukum District is one of the Subprojects selected under the RRRSDP. Total length of this road section is 16.500 Km. This Road upto 3 km Section is constructed by DDC Rukum. Further 13.5 km is proposed under (RRRSDP) for new construction in earthen standard.

The Proponent

The District Development Committee (DDC)/District Technical Office(DTO), Rukum is the implementing agency at the district level under RRRSDP and the proponent of the Initial Environmental Examination (IEE) study for the construction of Naduwa-Radijyula road sub-project.

Objectives of IEE Study

The objectives of the IEE study is to identify the impacts on the physical, biological, socio-economic and cultural environment of the project influence area from construction and operation of the Proposal, and recommend site-specific adverse impact mitigation measures and beneficial impact augmentation measures. The Study will assess if the IEE level study is sufficient for the Subproject.

Relevancy of the Proposal

The project area lies in remote and underdeveloped Mid-Western part of the Country within Rukum District, the area has high potential in production of vegetable, milk and other Agricultural Product. The proposed road will enhance access to market and social services to the people of the area, and will significantly contribute in their socio-economic development. Better access will also open door to new development opportunities.

Methodology

The IEE study has been conducted through review of secondary information collected from relevant agencies, and primary information collected from the field survey in July 2009. The survey methods included walk-through survey along the proposed alignment with checklists, conduction of sample household survey, organizing focus group discussions (FGD) in the related VDCs, and information supplemented by the resettlement and technical team of the Subproject.

The IEE report has been prepared following the Environmental Protection Act, 2053 BS (1997 AD) and Environmental Protection Rules, 2054 BS (1997 AD) (second amendment 2007) of the Government of Nepal (GoN); and Environmental Assessment Guidelines, 2003 and Safeguard Policy Statement, 2009 of ADB. The report follows the Terms of Reference for IEE Study approved by MoLD on 25/02/2066 BS.

Existing Environmental Condition

The road starts from Naduwa of Magma VDC at 2100 m amsl and passes through Gija at 1200 m amsl. Various kinds of rock such as quartzite, schist etc.were observed along the road alignment. Generally, alluvium, residual and clay mixed sandy soil are found along the road alignment. Main waterbody found across the road alignment is Shere khola river. Ambient air and water quality in the proposed subproject area is found to be good and there's also no noise pollution. The road mainly passes through cultivated land, barren land and settlements.

The dominant forest species found in the road alignment are Sal (*Shorea robusta*), Salla (*Pinus roxburghii*), Bamboo (*Bambusa spp*s), Dhupe (*Juniperus communis*), Mango (*Mangifera indica*) and the main NTFP species found along the road alignments are Chiraito (*Swertia chirayta*), Harro (*Terminalia chebula*), Okhar (*Juglans regia*), Aaru (*Prunus Persica*), Banana (*Musa Nepalensis*), Cheure (*Bassia butyracea*) and Lapsi (*Choerospondias axillaries*). Jackal (*Canis aureus*), Squirrel (*Ratufa Indica*), Ban biralo (*Felis Chaus*), Malsapro (*Martef Flabigula*) are the wild animals reported in the forests of proposed road area. Similarly birds are Laughing

Dove, Crow (*Corvus splendens*), Bhyakur (*Turdus obscurus*), Peacock (*Hubaropsis Bengalensis*), Hutoryau (*Tringa hypoleucos*). The road does not fall under any protected or buffer zone area.

There are 6 major settlements along the Zol of Magma, Aathbisdadagaun and Aathbiskot VDCs total population of 5653 persons (1013 households) and average family size of 5.58. Diverse ethnic groups such as Chhetri, Brahman, Thakuri, Dalit and Magar live along the Zol of road alignment.

The main occupation of all people residing within the Zol of the proposed road alignment is agriculture and livestock. Due to limited transportation facilities and high altitude, agriculture farming is not enough for subsistence level. Therefore, people are carrying out other economic activities like majority of the people work as labour and porters while some people work in government and non government organizations and a few are doing business. Moreover, significant section of the economically active male population also migrates to various places of Terai and other places like Kathmandu and foreign country like India seasonally during slack farming season for employment.

Beneficial Impacts

The development efforts particularly the development of transportation network will have multifold beneficial impacts. The immediate beneficial impacts from road development are apparent in the construction phase like there will be various employment opportunities (18000 skilled and 54000 unskilled person days) for the local population, supports for the transfer of construction work skills and technical know-how to the local workers.

During operation stage, an improved road access will bring an improvement of food security situation and overall economic and social stability. The road will also provide cheap, safe and fast transport of goods and services from rural areas to urban centers and vice versa. The farmers will be more interested to increase agricultural production due to market accessibility. This will contribute significantly to increase the productivity in rural areas and eventually improve the overall socio-economic condition of the people. Once this road is on operation, trade and business activities will be further promoted. There is a possibility of increased economic opportunities and significant growth and extension of the local markets along the road alignment like in Naduwa, Gharekhola, Banskhol, Gija, Jhakrisalla, Radijyula. In addition, construction of road will lead to appreciation of land values particularly near the market and settlement areas.

Adverse Impacts

The physical adverse impacts during construction will be due to change in land use, slope instability and air, dust and water pollution, quarry sites and spoil disposal. No trees will be affected during construction of road.

The adverse physical impacts during road operation are slope instability and management, air and noise pollution, road safety. Likewise, biological impacts are depletion of forest resources and disturbance to wildlife. Socioeconomic impacts are due to new settlement and market center development, change in social behavior etc. Construction of road will convert agricultural land (0.575 ha), barren land (2.525 ha) and built up area (3.3 ha) into road structure. The construction of road will affect 13 residential houses, 13 Water Mills and 1 Shed which will be compensated according to resettlement plan,

Mitigation Measures

The various benefit augmentation measures and adverse impact mitigation measures have been proposed in the report to make this project environment friendly. Other than land donated by local people for the projects, adequate compensation will be provided to affected poor and marginalize household for all the lands that need to acquire. The construction of road will be based on Labour-based, Environment friendly and Participatory (LEP) Approach. Affected families will be given high priority for employment and skill development trainings. Necessary measures will be taken to reduce the adverse effects that might arise from site clearance, cutting of slopes, disposal of spoils and quarrying activities. Necessary trainings and awareness programs will be conducted. Necessary measures will be adopted for protection of flora and fauna. At construction site, the workers will be provided insurance, first aid facilities and safety equipments. Roadside plantation shall be done along the RoW. Proper maintenance and proper drain system will be provided to prevent accumulation of water on the nearby agricultural lands during operation. Adequate road safety measures will be provided to minimize road accident.

The study recommends the site-specific protection of slopes at landslide and erosion affected sites, DDC and Village Development Committees (VDCs) should be facilitated and trained in monitoring and controlling the emergence of roadside settlements to avoid haphazard encroachment along the road alignment, and to minimize the risk of landslides and air (dust), water pollution and noise level.

Environmental Management Plan

Environmental management plan is prepared to ensure the implementation and monitoring of mitigation measures for minimizing adverse impacts and maximizing the beneficial impacts. The necessary mitigation measures together with environmental monitoring process and responsible bodies for environmental monitoring have been identified. Similarly, for environmental monitoring various sections of physical, biological, socio-economic and cultural environment have been identified to generate useful information and improves the quality of implementation of mitigation measures.

The cost for implementing environmental management plan has been identified as follows:

SN.	Description	Amount (NRs.)	Remarks
1	Environmental awareness raising training and other training	200,000.00	To be included in project cost
2	Insurance of workers	300,000.00	To be included in BoQ
3	Bio-engineering and Roadside tree plantation cost	2,105,383.54	To be included in BoQ
4	Resettlement and Land Acquisition	6,833,055.56	To be included in Resettlement plan
5	Restoration or relocation of affected infrastructures, Spoil management, Reinstatement of quarry, stockpiling etc.	500,000.00	To be included in BoQ
6	Social Action Plan Cost	1,072,000.00	To be included in Environment management cost.
7	Occupational health and safety, Information signboard	550,000.00	To be included in BoQ
8	Monitoring	200,000.00	To be included in Environment management cost
	Total	11,760,439.00	

Conclusion and Recommendation

The identified environment impacts will be seen in limited small areas and mainly during construction period. The implementation of proposed mitigation measures for identified adverse impacts will minimize as well as mitigate the adverse impacts on environment. The Resettlement Plan and compensation to the affected households should be ensured. The implementation of measures as described in environmental management plan will mitigate the negative impacts on physical, biological, socio-economic and cultural environment. Therefore, this IEE is sufficient for approval of the proposed sub-project, and recommended for implementation with incorporation of mitigation measures and environmental monitoring plan. Therefore, the proposed Subproject does not require Environmental Impact Assessment.

1. INTRODUCTION

1.1 Background

1. The Rural Reconstruction and Rehabilitation Sector Development Program (RRRSDP) covers 20 districts spread over the country, which focuses on immediate post conflict development priorities for accelerated poverty reduction and inclusive development, thereby enhancing the effectiveness and efficiency of the delivery of public services, and improving access of rural people to economic opportunities and social services. The RRRSDP is financed by the Government of Nepal (GoN), Asian Development Bank (ADB), Department for International Development (DFID), Swiss Development Cooperation (SDC), Nepal and OPEC Fund for International Development (OFID). Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR) under the Ministry of Local Development (MLD) is the executing agency (EA). The DDCs are the Project Implementing Agencies and the DTO of each respective DDC is responsible for technical and project management. The DTO will be supported by District Implementation Support Team (DIST) which includes engineering, safeguards and social mobilization. Rukum District is one of the project districts under RRRSDP. This proposal is for new construction of Naduwa - Radijyula in Rukum District.

1.2 The Name and Address of Proponent

Name of Proposal : (New Construction of) Naduwa - Radijyula District Road, Rukum District, Nepal
Name of Proponent : District Development Committee, District Technical Office, Rukum
Address of Proponent : Khalanga, Rukum District
Phone No: 088-680063/019-657004
Fax No: 088-649091/019-657005

1.3 Relevancy of the proposal

2. Despite the project area being in remote and underdeveloped Mid-Western part of the Country within Rukum District, the area has high potential in production of vegetable, milk and other Agricultural Product. The proposed road will enhance access to market and social services to the people of the area, and will significantly contribute in their socio-economic development. Better access will also open door to new development opportunities.

1.4 Needs and Objectives of the IEE Study

3. **Need:** An IEE study of the Proposal is a legal requirement according to the Environment Protection Act, 1997; and Environment Protection Rule, 1997 (Amendment 2007) of GoN; and according to the provisions of the Environmental Assessment Guidelines, 2003; and Safeguard Policy Statement, 2009 of ADB.

4. **Objectives:** The main objective of the IEE study is to identify the impacts from the construction and operation of the Proposal on the physical, biological, socio-economic and cultural environment of the Subproject area. The IEE study recommends practical and site specific environmental mitigation and enhancement measures, prepare and implement environmental monitoring plan and make sure that IEE is sufficient for the proposed road sub-project.

1.5 Methodology adopted for IEE study

5. The IEE study has followed the provisions of the EPA, 1997 and EPR, 1997, the provisions of ADB and approved ToR for IEE Study by MoLD on 2066/02/25 BS. It follows methodology suggested in the approved Terms of Reference for IEE Study (please refer Annex I). For the collection of environmental features related to bio physical environment, maximum 100 meter distance observable from the centre of the road alignment was taken as an influence area and socio-economic and cultural environment was taken of Zol (one and half hour walking distance from the centre line of the road) information of the Subproject area. The IEE study has been conducted through review of secondary information collected from relevant agencies, and primary information collected from the field survey in July, 2009. Field survey, sample household survey, organization of Focus Group Discussions in the related VDCs was carried out and necessary information was collected. The DDCs officials, VCDs and Community Groups were also contacted to verify information to solicit their concerns. Based on the

analysis of information the impacts have been predicted, mitigation measures prepared and monitoring plan has been developed.

1.6 Description of proposal

6. The proposed Naduwa-Radijyula road sub-project lies in Rukum district of Mid Western Development region. Total length of this road is 16.5 km. Naduwa-Radijyula road starts from Naduwa of Magma VDC and ends at Radijyula of Aathbiskot VDC. The alignment passes through different settlements like Gharekhola, Banskhol, of Magma VDC and Gija, Jhakrisalla, Radijyula of Aathbiskot VDCs. Its first 3 Km section is under construction by DDC, Rukum. Remaining road section is proposed for new construction by Rural Reconstruction and Rehabilitation Sector Development Project (RRRSDP), Rukum. This road is the shortest possible corridor which link project area with the district headquarter, Khalanga at the nearest road head at Gilibang. Earthen road was constructed from Khalanga to Gilibang under GTZ in 2065 B.S. and from Gilibang to Naduwa is under construction by DDC. This Road is given Priority no. 20 in class A Road in DTMP of Rukum district (code no.54A004R).

Salient Features of the Subproject:

1. Name of the Project	: Naduwa - Radijyula Road Sub-Project
1.1 Project Activities	: <i>Construction Stage:</i> Site clearance, Earthwork, Camber Correction, Structural work (Toe wall, retaining wall, breast wall, Gabion, Masonry Wall), Bio-engineering, Cross drainage works (Culvert, Hume Pipe) and Side drain works. <i>Operation Stage:</i> Maintenance Works
2. Location	
2.1 Geographical Location	
2.1.1 Start Point	: Naduwa, Magma VDC
2.1.2 End Point	: Radijyula, Aathbiskot VDC
2.2 Geographical Features	
2.2.1 Terrain	: Mountainous
2.2.2 Altitude	: 2100 m amsl at Naduwa to 1200 m amsl at Radijyula
2.2.3 Climate	: Cool, Temperate
2.2.4 Soil	: Colluvial soil, residual soil and alluvial soil
3. Classification of road	: District road
4. Length of road	: 16.5 km
5. Standard of Pavement	: Earthen Road
6. Design Speed	: 20 Km/hr.
8. Lane	: Single
9. Major settlements	
9.1 Major settlements	: Naduwa, Gharikhola, Bansthala, Gija, Jhakrisalla, Radijyula
9.2 No. of households	: 1013HH
9.3 VDCs along the road	: Magma, Aathbisdadagaun and Aathbiskot VDCs
10. Cross-section	
10.1 Right of Way	: 10 m on either side of the road
10.2 Formation Width	: 5.0m having 5% outward slope
10.3 Carriage Way	: 4.0 m
11. Structural Works	
11.1 Drain Work	: 1882.40 Cum.
11.2 Hume Pipe	: 75 Rm
11.3 Retaining Structures	
11.3.1. Dry Stone Wall	: 1,240.92 Cum
11.3.2. Gabion wall	: 1,400.00 Box
11.3.3. Bioengineering	: Cost will be finalized after detail design
12. Earthwork	
12.1 E/W in Excavation	: 69,066.85 Cum

12.2 Embankment Filling	: 7397 Cum
13. Project Cost	
13.1 Net Cost (NRs.)	: 79,085,280.49
13.2 Costs per km. (NRs.)	: 4,793,047.30
14. Employment Generation	
14.1. Skilled	: 18000
14.2. Unskilled	: 54000

1.7 Construction Approach and Activities

7. The construction approach will be Labour-based, Environment-friendly and Participatory (LEP) approach. The important features of the LEP approach are (i) phased construction with balanced cut and fill; (ii) manual work and use of hand tools and small equipment rather than heavy machinery; (iii) bio-engineering for slope stabilization; (iv) avoid blasting; (v) use soft engineering structures; and (vi) use of contractors only in the works that cannot be done through manual labor.

8. Activities to be carried under this subproject are Site clearance, Earthwork, Camber Correction, Structural work (Toe wall, retaining wall, breast wall, Gabion, Masonry Wall), Bio-engineering, Cross drainage works (Culvert, Hume Pipe) and Side drain works.

1.8 Proposed Schedule for Implementation of Sub-project

9. Following table shows the proposed implementation schedule for Naduwa-Radijyula road sub-project:

Table 1.1: Sub-project implementation schedule

SN	Activity	2008 IV	2009				2010				2011			
			I	II	III	IV	I	II	III	IV	I	II	III	IV
1	Detailed survey and design													
2	Preparation of resettlement plan													
2.1	Life skill and income generation training													
3	Environment Assessment and Monitoring													
3.1	IEE report preparation and approval													
3.2	Implementation of EMP													
3.3	Environmental monitoring													
4	Construction Work													
4.1	Civil construction work by contractors													
4.2	Civil construction work by RBGs													

Note:

- I - January, February, March
- II - April, May, June
- III - July, August, September,
- IV - October, November, December

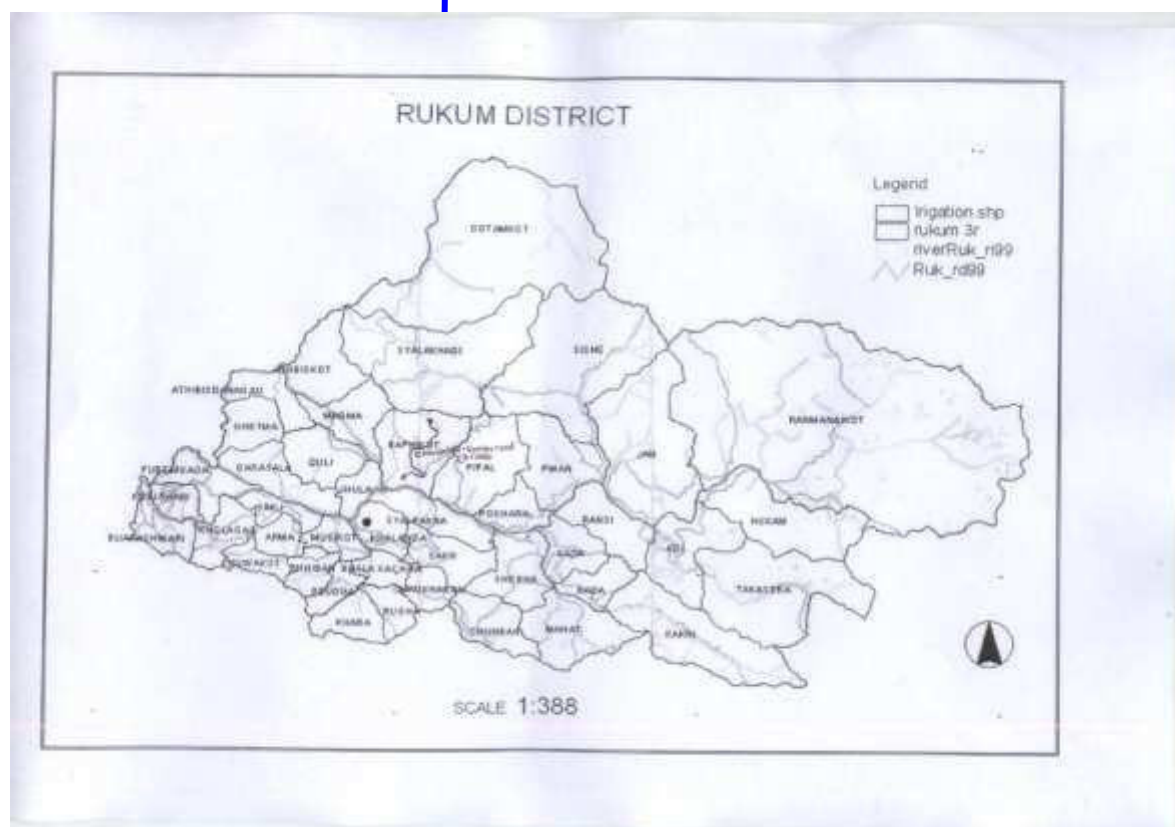
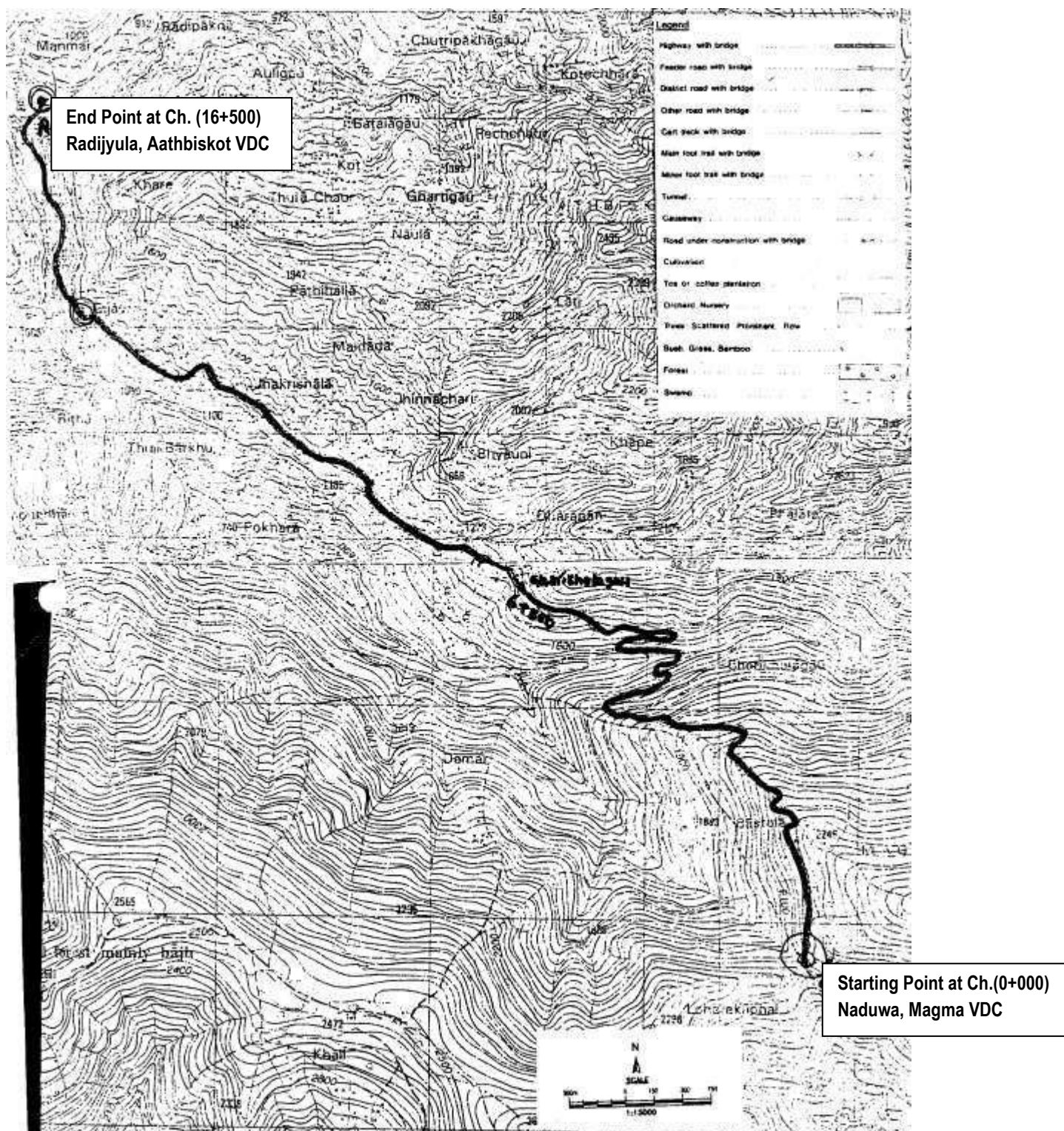


Figure 1.1 Map of Nepal Showing Naduwa-Radijyula Road



Rukum District

Naduwa-Radijyula Road
(Total Length=16.500 km)

Figure 1.2. Topo Map showing the alignment of Naduwa-Radijyula road

2. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

2.1 Public Consultation

10. In order to ensure the public involvement, the following procedures were followed during IEE report preparation:

- Publication of notice- A 15 days public notice was published on 1st of Shawan 2066 in the Gorkhapatra, a national daily newspaper seeking written opinion from concerned VDCs, DDC, schools, health posts and related local organizations (see **Annex V**). A copy of the public notice was also affixed in the above mentioned organizations and deed of enquiry (*muchulka*) was collected (see **Annex VI** for deed of inquiry and **Annex VII** for the names of organizations).
- Recommendation letters from Magam, Aathbiskot and Aathbisdadagaun VDCs were also obtained.
- IEE team also carried out interaction with local communities and related stakeholders during field survey to collect the public concerns and suggestions (see **Annex VIII** for the list of persons consulted). Moreover, Focus Group Discussions were conducted in all three VDCs to collect and solicit their suggestion on protection of bio-physical and socio-economic and cultural Environment in the Zone of influence (ZOI) of the road. Summary of minutes of meeting with local people is given in **Annex IX** and following table 2.1.
- Draft IEE report will be sent to Magam, Aathbiskot and Aathbisdadagaun VDCs for public Disclosure. Recommendation letters were also obtained from above mentioned VDCs as given in **Annex X**. A copy of draft IEE will also be kept in information center of DDC, Rukum for Public disclosure. After reviewing draft IEE report and incorporating the suggestions from the concerned stakeholders, final IEE report will be prepared and sent to PCU for approval from MLD and ADB.

Table 2.1: Summary of meeting minutes

Location	Date	No of participants		Issues/Suggestions	Decision
		Male	Female		
Radijyula	2066/4/2	25	5	<ul style="list-style-type: none"> • During the road construction measures should be taken to minimize land slide. • Affected physical structure like irrigation canal, water mills shall be relocated. • Income generation activities need to be implemented in affected areas. • Historical, Religious places should be preserved. • Survey and design of the road should be carried by protecting Community structures along the road alignment. • Training for income generating activities should be provided. 	<ul style="list-style-type: none"> • Bioengineering will be done for the adverse impacts due to slope instability. • Compensation will be given for affected houses and water mills. • Various income generating and skill enhancement training will be given according to Social Plan of the project. • Community structures along the road alignment will be protected.
Gija	2066/4/2	14	6		
Gharikhola	2066/4/4	9	8		
Naduwa	2066/4/6	8	2		
Banskholra	2066/4/6	3	13		

2.2 Information Disclosure

11. Draft IEE will be kept in information center of DDC Rukum for public Disclosure. Information was also disseminated through person to person contacts and interviews and group Discussions. However, available institutions at the local level were informed through notice distribution or posting at concerned VDC, school, health posts and public places within the road alignment corridors. The approved IEE report will be accessible to interested parties and general public through information center of DDC Rukum and websites of ADB, DoLIDAR and RRRSDP. Following offices will get the IEE report:

1. District Development Committee, Rukum
2. District Technical Office, Rukum
3. District Project Office, Rukum
4. District Implementation Support Team, Rukum
5. Magma, Aathbiskot and Aathbisdadagaun VDCs
6. Ministry of Local Development
7. Department of Local Infrastructure Development and Agricultural Roads
8. Project Coordination Unit, RRRSDP
9. Asian Development Bank, Nepal Resident Mission

3. REVIEW OF RELEVANT ACTS, REGULATIONS AND GUIDELINES

12. The IEE study has followed the provisions of following acts, regulations and guidelines of Government of Nepal and ADB to ensure development and conservation of environment.

Table 3.1: Review of Environmental Acts, Regulations and Guidelines

SN	Environmental Acts, Regulations and Guidelines	Description of Requirements
1	Three Years Interim Plan, 2007/08-2009/10, GoN	Requires all projects will be formulated and constructed based on methods that optimally utilize the local skill and resources and generate employment opportunities.
2	Environmental Protection Act, 2053 BS (1997 AD), GoN	Any development project, before implementation, shall pass through environmental assessment, which will be either IEE or an EIA depending upon the location, type and size of the projects.
3	Environmental Protection Rule 2054 BS (1997 AD) (amendment, 2007), GoN	The EPR and its schedules clearly provide various step-wise requirements to be followed while conducting the IEE study. It also obliges the Proponent to timely consult and inform the public on the contents of the proposal and IEE study.
4	Forest Act, 2049 BS (1993 AD) (amendment, 2007), GoN	Requires decision makers to take account of all forest values, including environmental services and biodiversity, not just the production of timber and other commodities. It includes several provisions to ensure development, conservation, management, and sustainable use of forest resources based on approved work plan.
5	Forest Rules, 2051 BS (1995 AD), GoN	Elaborates legal measures for the conservation of forests and wildlife. Expenses incurred for cutting trees and transportation shall be borne by proponent.
6	<i>Batabaraniya Nirdesika</i> (Nepal; MLD), 2057, GoN	The directive is focused in the practical implementation of small rural infrastructures through the minimization of environmental impacts. This directive includes the simple methods of environmental management in the different phases of the project cycle.
7	National Park and Wildlife Conservation Act, 2029 BS (1973 AD), GoN	Addresses for conservation of ecologically valuable areas and indigenous wildlife. The Act prohibits trespassing in park areas, prohibits wildlife hunting, construction works in park area, damage to plant and animal, construction of huts and house in park area without permission of authorized person. It lists 26 species of mammals, 9 species of birds, and 3 species of reptile as protected wildlife.
8	Local Self Governance Act 2055 BS (1999 AD) (1999) and Regulation 2055 BS (1999 AD), GoN	Empowers the local bodies for the conservation of soil, forest and other natural resources and implements environmental conservation activities
9	Land Acquisition Act, 2034 BS (1977 AD) and Land Acquisition Rules, 2026 BS (1969 AD), GoN	Specifies procedural matters on land acquisition and compensation
10	National Environmental Impact Assessment Guidelines, 1993 (2050 BS), GoN	Provides guidance to project proponent on integrating environmental mitigation measures, particularly on the management of quarries, borrow pits, stockpiling of materials and spoil disposal, operation of the work camps, earthworks and slope stabilization, location of stone crushing plants etc.
11	APPROACH for the Development of Agricultural and Rural Roads, 1999 (2055 BS), GoN	Emphasizes labor based technology and environmental friendly, local resource oriented construction methods to be incorporated actively in rural infrastructure process.
12	RRRSDP Environmental Assessment & Review Procedures (EARP), 2007, GoN	For preparation of environmental assessments of future subprojects under Rural Reconstruction and Rehabilitation Sector Development Program (RRRSDP), this EARP includes: i) The process to be adopted while preparing environmental reports, ii) the potential environmental impacts that could result from undertaking the Project based on the Initial Environmental Examinations

		(IEEs) of sample core subprojects; iii) the proposed mitigation measures to avoid the identified impacts; iv) institutional capacity assessment and strengthening arrangements; v) legal framework for environmental assessment, domestic and the Asian Development Bank (ADB) environmental assessment and review procedures; and finally vi) the approaches to be adopted during implementation of the Project in order to ensure that environmental aspects are dealt with in a comprehensive manner.
13	Reference Manual for Environmental and Social Aspects of Integrated Road Development, 2003 (2060 BS), GoN	Suggests stepwise process of addressing environmental and social issues alongside the technical, financial and others
14	Green Roads in Nepal, Best Practices Report: An Innovative Approach for Rural Infrastructure Development in the Himalayas and Other Mountainous Regions, 1999 (2055 BS), GoN	Focuses on participatory, labor based and environment friendly technology with proper alignment selection, mass balancing, proper water management, bioengineering and phased construction
15	Environmental Assessment Guidelines, 2003, ADB	Requires that environmental considerations be incorporated into ADB operations where environmental assessment is the primary administrative tool to integrate environmental considerations into decision-making of all types of development initiatives
16	Safeguard Policy Statement, 2009, ADB.	ADB's Safeguard Policy Framework consists of three operational policies on the Environment, Indigenous people and Involuntary resettlement. It requires that (i) impacts are identified and assessed early in the project cycle, (ii) plans to avoid, minimize, mitigate or compensate for the potential adverse impacts are developed and implemented and (iii) affected people are informed and consulted during project preparation and implementation.
17	The Interim Constitution of Nepal, 2063 (2007).	Has provision of right regarding environment - Every person shall have the right to live in clean environment.
18	The Labor Act, 2048 BS (1992 AD)	Regulates the working environment and deals with occupational health and safety.
19	Child Labor (Prohibition and Regulation) Act, 2056 (2000)	No child having not attained the age of 14 years shall be engaged in works as a laborer.

4. EXISTING ENVIRONMENTAL CONDITION

13. Baseline information on the existing physical, biological as well as socio-economic and cultural environment of the proposed sub-project are described here.

4.1 Physical Environment

4.1.1 Topography

14. The proposed road alignment starts from Naduwa and passes towards west to Gharikhola, Banskhola, Gija, Jhakrisalla and Radijyula. The altitude of the project area varies from 1200 m amsl to 2100 m amsl. The latitude of the project area varies from 28° 29' to 29° 00' and longitude of the project area varies from 82° 12' to 82° 53'.

4.1.2 Geology and soil type

15. The road section comprises of different types of rocks. The road corridor falls in the Lesser Himalayan Sediments zone that comprises rocks such as quartzite and schists. Generally, alluvium soil is found along the road alignment.

Table 4.1: Geological Features along the Road Alignment

Chainage	Location	Terrain slope	State of Land	Geological Problem
0+000 - 1+500 Km	Magma	Moderate	Moist	Gully erosion
1+500 - 4+000 km	Magma	Moderate	Dry	Gully erosion
4+000 - 6+000 km	Atthabiskot	Moderate	Moist	Small scale landslide
6+000 - 8+000 km	Atthabiskot	Steep	Dry	Gully erosion
8+000 - 12+500 km	Atthabiskot	Moderate	Dry	Small scale landslide

Source: Field survey, July, 2009

4.1.3 Land use

16. Land use pattern of the area through which the road passes have been classified into four types: cultivated land, built up area and barren land which is listed in the **Table 4.3** below.

Table 4.2: Summary of Land use pattern along the road alignment

Type of Land	Chainage		Length (m)	Existing Width(m)	Additional Width (m)	Existing Area(ha)	Additional Area (ha)
	From	To					
Cultivate land	0+000	1+700	1700	5	0	0.85	0
	4+200	5+000	800	0	5	0	0.4
	16+300	16+500	200	0	5	0	0.1
	14+050	14+200	150	0	5	0	0.075
Sub-Total						0.85	0.575
Barren and Pasture Land	1+700	4+200	2500	4	1	1	0.25
	12+500	14+050	1550	0	5	0	0.775
	5+000	5+200	200	0	5	0	0.1
	5+200	8+000	2800	0	5	0	1.4
Sub-Total						1	2.525
Built up area	8+000	8+500	500	0	5	0	0.25
	8+500	12+500	4000	0	5	0	2
	14+200	16+300	2100	0	5	0	1.05
Sub-Total						0	3.3
Total			16500				

Source: Field survey, July, 2009

4.1.4 Climate

17. Naduwa - Radijyula road lies in Cool, Temperate climatic zone. Generally, rainy season starts from May and ends in August. The meteorological record shows unevenly distributed monsoon rain in the project area with the total average annual rainfall is 2000 mm. The maximum recorded temperature in Rukum district is around 34.40° Celsius and minimum temperature is 0.40° Celsius. (Source: District Profile of Rukum, 2061)

4.1.5 Hydrology and Drainage System

18. The main river in the project area is Badkai River. Other rivers & kholsi along the road alignment are as follows:

Table 4.3: Rivers and Kholsi in the alignment

SN	Chainage	Water stream name	Location
1	1+300	Pamnipo	Magma
2	1+800	Basthala	Magma
3	2+300	Naduwa	Magma
4	5+250	Kharamkhola	Magma
5	8+600	Sherekhola	Radijyula

Source: Field survey, July, 2009

19. The alignment of the road has been selected through safe route so that no erosion and flooding can affect the road stability. Furthermore, adequate number of cross drainage structures has been provisioned to have safe and fair weather mobility.

4.1.6 Soil Erosion and Sedimentation

20. The stability of slopes along the road corridor depends upon slope angle, the material constituting the slope, rock discontinuities, and hydrological conditions. Proposed alignment does not pass through major landslides or erosion-prone areas but many small slides and erosions area are found along the road. The locations are Ch 1+000, 1+700, 3+000, 5+200, 5+900, 7+800, 8+600, 9+100, 9+500 and 11+700.

4.1.7 Air, Noise and Water Quality

21. The air, noise and water quality are not tested, but are observed to be within acceptable limit. Only water in the local streams gets polluted with flash flood, which carries sediments with it during rainy season.

4.2 Biological Environment

4.2.1 Vegetation

22. The dominant species found in the forest area along the road alignment is Sal (*Shorea robusta*). The list of Plant species recorded during the field survey is listed in the **Table 4.4** below:

Table 4.4 List of Plant species recorded during the field survey

S.N.	Local Name	Botanical Name
1	Sal	<i>Shorea robusta</i>
2	Salla	<i>Pinus roxburghii</i>
3	Bamboo	<i>Bambusa spp</i>
4	Dhupe	<i>Juniperus communis</i>
5	Mango	<i>Mangifera indica</i>

Source: Field Survey, 2009

4.2.1.1 NTFPs

23. Non timber forest products (NTFPs) are important resources of the country and play important role in changing the socio-economic condition of the rural people. The species of non-timber forest products available within the project area are presented in **Table 4.5**

Table 4.5: Non timber forest product found in the road alignment and project area

S.N.	Local Name	Scientific Name	Plant part Use
1	Chiraito	<i>Swertia chirayta</i>	Whole Plant
2	Harro	<i>Terminalia chebula</i>	Fruit
3	Okhar	<i>Juglans regia</i>	Fruit
4	Aaru	<i>Prunus Persica</i>	Fruit
5	Banana	<i>Musa Nepalensis</i>	Fruit
6	Cheure	<i>Bassia butyracea</i>	Fruit
7	Lapsi	<i>Choeros pondias axillarias</i>	Fruit

Source: Field Survey, 2009

4.2.1.2 Forest

24. The road alignment does not passes through any type of forests.

4.2.2 Wildlife

25. The forest within the road corridor is sparse and managed by communities and DFO office. These forests provide habitats for several wildlife and bird species.

Mammals

26. Mammal species noted during IEE field survey includes Jackal (*Canis aureus*), Squirrel (*Ratufa Indica*), Ban biralo (*Felis Chaus*), Malsapro (*Martef Flabigula*) etc.

Birds

27. The major bird species in the project area are Dhukur, Crow, Bhyakur, Peacock, Hutityau.

Table 4.6: Birds found in project area

SN	Local Name	Common Name	Scientific Name
1	Dhukur	Laughing Dove	<i>Streptopelia senegalensis</i>
2	Crow	Crow	<i>Corvus splendens</i>
3	Bhyakur	Eye – browned Thrush	<i>Turdus obscurus</i>
4	Mayur	Peacock	<i>Hubaropsis Bengalensis</i>
5	Hutityau	Common Sandpiper	<i>Tringa hypoleucos</i>

Source: Field survey, 2009

Reptiles and Amphibians

28. According to the local people, species of snake named as Shirishe is found.

Fishes

29. Fish species are found mainly in Badkai Khola where the proposed road alignment intercepts. Sometimes migratory fishes species have been found in the project area.

Endangered and protected species

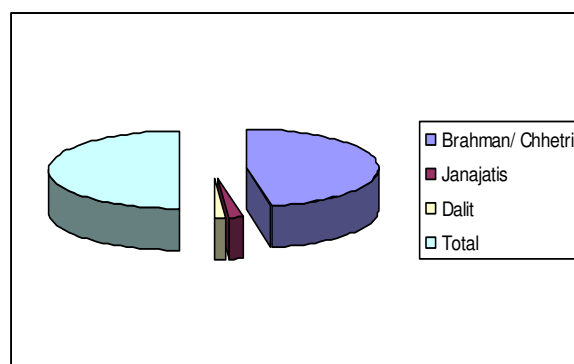
30. *Faunal species*: Among the fauna present in the forest area along the road alignment, Jackal (*Canis aureus*) is listed in Appendix III, Squirrel (*Ratufa Indica*) is listed in Appendix II of CITES.

31. *Floral Species*: Okhar (*Juglans regia*) and Sal (*Shorea robusta*) are protected plant species according to Forest Act 1993 which is categorized into timber trees banned for felling, transportation and export for commercial purposes, Lapsi (*Choerospondias axillaries*) is listed as Rare Species in IUCN Red Data Book.

4.3 Socio-economic and Cultural Environment

4.3.1 Population, Household and Ethnicity

32. The total HHs and population within Zol along the road corridor 1013 and 5653 respectively. The major ethnic groups found on the project area are Chhetri, Brahman, Thakuri, Dalit and Magar.



Distribution of population by caste and ethnicity

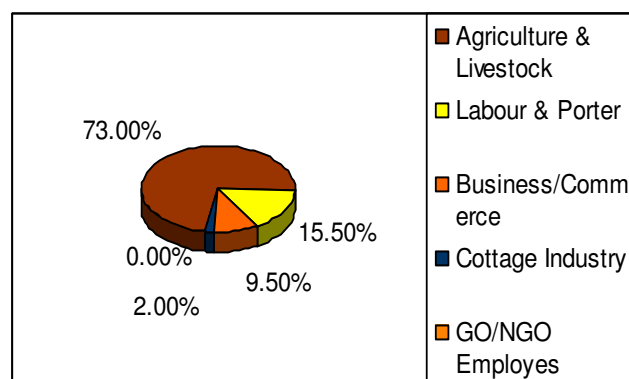
Table 4.7: Demographic Profile of VDCs

SN	Influenced VDCs/MC	Population distribution by caste and ethnicity			
		Brahman/ Chhetri	Janajatis	Dalit	Total
1	Magma	1337	42	43	1422
2	Aathbiskot	2872	217	672	3761
3	Aathbisdada	122	172	176	470
Total		4331	431	891	5653

4.3.2 Main occupation

33. The main occupation of the people residing within the Zol of the proposed road alignment is agriculture and livestock. Due to limited transportation facilities and higher altitude, agriculture farming is not enough for subsistence level. Therefore, people are carrying out other economic activities like working in collection of herbal (most of local people), involved in government and non government organizations, business, employment in foreign countries, labour and porters and cottage industries.

34. The main occupation of the area is agriculture & livestock (73%), business & commerce (9.5%), labour & porter (15%), and GO/NGO (2%). However, agriculture farming is not enough for subsistence due to small landholding size and low productivity. Therefore people also depend on seasonal labour in Nepal and India.



Source: Field survey, July 2009

4.3.3 Public Services and Infrastructures

35. There are various social sector facilities and infrastructure in different settlements. Details about public services and infrastructures according to the settlements are as follows:

Education

36. The proposed project area consists of a total of 10 educational institutions ranging from primary level to college level education. Primary schools are found in majority of the settlements. The alignment access to school & campus are given in **Annex XI b**.

Health Facility

37. In health sector, there are 2 Health Post within Zol. For serious health problem, people go to district hospital in Khalanga & Nepalgunj also.

Communication

38. Regarding communication, telephone facilities are available in Naduwa, Gharekhola, Banskhola, Gija, Khakrisalla, Radijyula etc.

Electricity

39. Electricity facilities are not available in Project area. For the electric use to small power people have Solar power system in almost all households and for higher power people use people overthere has no option.

Business Facilities

40. There are grocery shops, tea stalls and lodges available in the majority of the settlements and number is more in potential market centers like Naduwa, Gija, Radijyula etc.

Water Supply

41. Piped drinking water supply is available to all settlements.

Irrigation

42. Local farmers have managed themselves for the irrigation of their land on the basis of traditional technique, that is, from the irrigation channel originated from the seasonal springs and most part of the land depends upon the monsoon rain.

Other Infrastructures

43. The man made infrastructure within the project area includes trails, mule tracks, irrigation systems, drinking water systems, bridges, schools, health posts, and drinking water systems

Financial Institutions

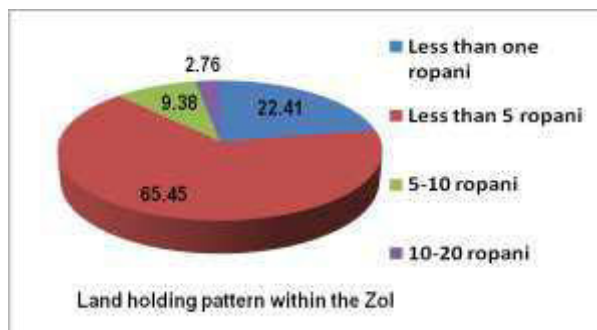
44. There is a Nepal Bank Ltd in Khalanga, District headquarter.

Community Development Facilities

45. Community based organizations particularly, women saving and credit groups are found in three settlements. Play grounds, ghat (cremation site) and community centers are found in majority of the settlements.

4.3.4 Land holding pattern

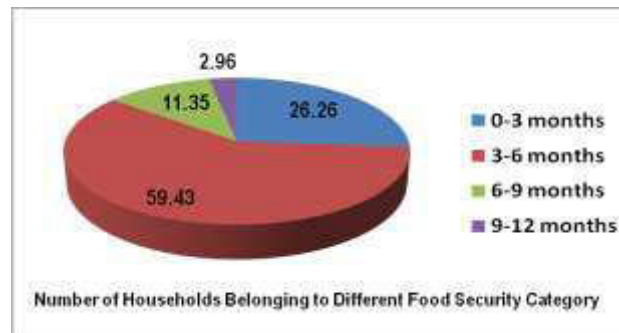
46. Land holding pattern within the Zol of the road project demonstrates that 65 % households have less than 5 ropani, 22.41 % households have less than one ropani, 9.38 % households have 5-10 ropani and 2.76 % households have 10 – 20 ropani of land (approximately 1 ha = 19.8 ropani).



Source: Field survey, July 2010

4.3.5 Food Security

47. Out of total HHs (1013), more than 97% HHs were not found to be food sufficient enough. 26.26 % household have food security for 0-3 months, 59.43 % household have food security for 3-6 months, 11.35 % have food security for 6-9 months and 2.96 % have food security for 9-12 months.



Source: Field survey, July 2010

4.3.6 Migration pattern

48. Permanent migration takes place in limited scale towards Terai and other places like Kathmandu. However, people migrate to foreign countries like India, Qatar, U.A.E, and Malaysia in search of employment opportunity almost from all the settlements. Seasonal migration occurs during slack farming season from Mangsir to Poush mainly in various parts of India. This shows poor economic status of the people in the proposed road corridor. This could be reduced by providing employment opportunities at the local level.

4.3.7 Potential Development area

49. The proposed road passes through a potential area for Rice cultivation and also potential for the production of different type of Herbal, Chhiraito, Ritha etc. All settlement are potential for tourism development.

4.3.8 Religious, Cultural and Historical Sites

50. There are Laxminarayan temple, Kuripani temple, Bhagwati temple within ZoI of the the road alignment but not any temples are affected during road construction. Details of Historical and religious sites within ZoI of the proposed project area are given in **Annex XVI**. This site is visited, and used for worship, by the local residents. However, they are not popular or famous outside the locality and this temple and religious site don't fall in the proposed road alignment and there displacement is not needed.

5. PROJECT ALTERNATIVES:

51. The various alternatives to achieve the project objectives with minimum environmental impacts are discussed as in the following subsections.

5.1 No action alternatives

52. This alternative does not allow the implementation of the Proposal. As the proposed road connects few major settlements with high potential in vegetable and milk products, the no action option will increase the transportation time and cost for the local people to the district headquarter and markets and vice versa resulting into low level of productivity and prevalence of poverty. The no action option will conserve some of the environmental adverse impacts at the cost of poverty and hardship of the people.

5.2 Project Alternatives

53. Construction of other supporting roads could be the options for achieving the transportation and access. Considering other project alternatives, the proposed road project can be the best option to serve the purpose of efficient transportation requirement.

5.3 Alternative Route

54. During the course of Feasibility survey and design the following three alternative routes were assessed in the terms of technical, environmental, financial and social aspects. The three routes are:

Alignment I: Naduwa-Gharekhola-Banskhola-Gija-Jhakrisalla-Radijyula

Alignment II: Naduwa-Kafal ghaur-Sundarpani-Radijyula

Alignment III: Naduwa-Sunsari-Damar-Aakche Kafal-Radijyula

55. Among above three, **Alignment I** is most appropriate for technical as well as socio-economic & Environmental point of view due to following regions.

- This alternative alignment passes through mostly stable land.
- Centre line of the road can be placed carefully to balance cut and fill in comparison with two remaining alignments.
- Minimum damage of vegetation & trees during construction in comparison with other two
- Have not large scale and highly unstable fragile zone along the route in comparison with two remaining alignments.
- This alignment touches more village settlements than other two alignments.

5.4 Alternative design and construction approach

56. The proposed road has been designed considering the LEP approach for works possible through manual labour.

5.5 Alternative Schedule & Process

57. During the rainy season, the construction work is stopped to allow the natural compaction of the road and construction work will be carried out during the remaining months. The construction period is more appropriate from October to June as the local people are generally free from farming activities.

5.6 Alternative Resources

58. The physical resources consumed for the construction of the proposed road will mainly include boulders for gabions and stone for dry masonry wall, which will be available from identified quarry sites. The proposed construction will optimally use the local labor force and hence, the benefits will also be distributed locally.

6. IDENTIFICATION, PREDICTION AND EVALUATION OF IMPACT; BENEFICIAL AUGMENTATION AND MITIGATION MEASURES

59. The identification and assessment of impacts has been carried out by considering the proposed proposal activities in terms of construction and operation stage. The impact of the activities will be on physical, biological, socio-economic and cultural resources within the Zol. The impacts generated are both beneficial as well as adverse. The environmental impacts have been identified for a number of issues based on the analysis of the environmental baseline information and activities that are to be undertaken (during construction, rehabilitation and subsequent operation phase). Most of the identified impacts have been quantified to the extent possible.

60. The impacts have been predicted in terms of their nature, magnitude, extent and duration. The possible impacts from the proposal during the construction and operation stages are presented as following:

6.1 Beneficial Impacts

6.1.1 Construction Stage

Employment Generation and Increase in Income

61. *Impacts:* One of the major direct beneficial impacts during road construction stage is the creation of employment opportunity to the local community. 18000 person days of skilled and 54000 person days of unskilled manpower will be required for construction work. The amount of money earned as wages will directly support various economic activities of the people, and assist towards enterprise development with multiplier effect if wage is used for economic investments. This is one of the direct and significant impacts of the project but it is of short-term and local in extent.

62. *Measures:* Work will be implemented manually through the local Road Building Groups (RBGs). Priority for employment will be given to local poor, dalit, vulnerable groups and women. They will be given training to do the job. Livelihood Enhancement Skills Training (LEST) program will be conducted (which include Agriculture Training, Forestry Training, Life Skilled Training and Empowerment Training) and awareness programs. The costs of LEST program is allocated as NRs. 500,000 which is included in cost of Social Plan of the subproject.

Skill Enhancement

63. *Impacts:* Although many people in the project area are unskilled at present, the construction of road is likely to enhance their skills during construction works. Trainings on construction and maintenance of structures will further enhance their skill. The skill and knowledge thus acquired will make them find employment opportunities in future projects. This impact is indirect, medium, local and for long-term.

64. *Measures:* Members of the Road Building Group will be given training on masonry, netting wires and construction of gabion wall, slope cutting, bioengineering works. Proponent will conduct different trainings under Livelihood Enhancement Skills Training (LEST) program.

Enterprise Development and Business Promotion

65. *Impacts:* During construction period, different types of commercial activities will come into operation in order to meet the demand of workers. Since they will have good purchasing power, they will regularly demand for different types of food, beverage and other daily necessary items. To meet these demands, many local and outside people may operate a number of small shops and restaurants around the vicinity of the construction sites at Naduwa, Bansthala, Gharikhola, Gija and Radijula. Various farm based enterprises including wide range of agricultural and livestock products will also gain momentum as a result of increased demand by labors during construction period. This will increase local trade and business in the area. This impact is direct, low significance, local and for short term.

66. *Measures:* Livelihood Enhancement Skills Training (LEST) program will be conducted (which include Agriculture Training - Goat rising, Maize Seed production, Vegetable seed production; Forestry Training - NTFPs

Training; Life Skilled Training – Carpentry, Advanced Tailoring, Computer Training, Driving Training and Empowerment Training - Leadership Training, Health and Sanitation) and awareness programs. The costs of these training under LEST program are allocated as NRs. 500,000 which is included in cost of Social Plan of the project.

Community Empowerment and Ownership

67. *Impacts:* During construction various road construction coordination committees and road building groups will be constituted in order to facilitate in implementation of the road. In this process, they will be oriented and trained to build and safeguard community infrastructures which will result in community empowerment and feeling of ownership. This impact is indirect, low, local and for short term.

68. *Measures:* The coordination committees will be constituted and training will be given to them.

Women Empowerment

69. *Impacts:* Women in particular may be benefited more from improved access to the market centers and various service providing agencies like health centers, banks, training institutes, women development office etc. Frequency of visit to such agencies will increase awareness level and empowerment. The impact will be indirect, significant, local and for long-term.

70. *Measures:* Assist to organize women groups, provide training and social mobilization, provide micro-finance and encourage cooperatives to undertake commercial scale farming activities. Training will be organized according to Gender Action Plan (GAP), which includes trainings such as Legal and women human right literacy classes, Reproductive cum maternity health care orientation classes and Women leadership development training, Gender and social inclusion training. The budget allocated for GAP is NRs. 282,000 which is included in Social Plan of the project.

6.1.2 Operation Stage

71. Following beneficial impacts of the proposed road project are anticipated during the operational stage:

Improvement in Accessibility and Saving of Time and Transportation Cost

72. *Impacts:* Access to inputs and services is expensive and not regular at present due to earthen road. Once the road is in operation, people would have cheaper and improved access to many inputs such as seeds, chemical fertilizer and technology leading to increased agricultural production and diversification. The transportation cost is expected to come down heavily for many of the inputs that are used by farmers in the farm and other goods. This impact is direct, high, regional and for long term.

73. *Measures:* Proponent will undertake regular maintenance of the road.

Increase in Trade, Commerce and Development of Market

74. *Impacts:* When completed, road will bring more opportunities for the promotion of trade and business. Productivity will increase due to cheaper transportation of agricultural inputs. Sale of farm and livestock products will increase in the bigger markets of district headquarter of Rukum. This will ensure continuous flow of products and commodities to Naduwa, Gharekhola, Banskhol, Gija, Jhakrisalla, Radijyula market centers along the road. The major areas for the production of Rice, amilo, vegetables and seed production are Naduwa, Radijyula etc. The impact will be indirect, high, local and long term.

75. *Measures:* DDC/VDCs shall manage planned growth with required infrastructure facilities in the market areas. Agriculture extension services, market linkages and networking for better market price will be coordinated with district agriculture office.

Appreciation of Land Value

76. *Impacts:* The construction of road will leads to appreciation of land values particularly near the market and settlement areas. The land price would increase due to the availability of reliable transportation facilities. Mainly the land value will increase in Naduwa, Bansthala, Gharikhola, Gija and Radijula. There will be rapid increase in the commercial production of agricultural crops due to road accessibility which is also a major factor to raise the land value. Financial institutions may accept their land as mortgage for lending. The impact is indirect, medium, local and for long term.

77. *Measures:* Promotion of land development activities and control of encroachment within RoW. Awareness program shall be organized on use of high value land to get bank loans for setting up enterprise ventures.

Enhancement of Community Development Services

78. *Impacts:* Local people may spend more on health and sanitary facilities, education facilities and other community services due to reduced transportation cost. Improved access will contribute in improvement of social services in the area such as education, health, government offices, saving and credits. Improved access will facilitate stay of extension workers, teacher, and doctor to their rural duty areas. This will also encourage students to enroll in campuses for higher studies. People will get health services easily due to the regular and cheaper transportation facilities. This is indirect, significant, regional and long-term impact of the proposed project.

79. *Measures:* The access will be kept maintained so that other services will follow in the area.

6.2 Adverse Impacts

80. The proposed road project activities during construction and operation will create following adverse impacts on the local environment:

6.2.1 Construction Stage

81. The proposed road will be constructed according to LEP approach. The likely impacts on physical, biological, socio-economic and cultural resources of the proposed road area and respective mitigation measures are presented here under.

Physical Impacts

Change in Land Use

82. *Impacts:* Construction of road will convert agricultural land (0.575 ha), barren land (2.525 ha) and built up area (3.3 ha) into road structure. The impact will be high, direct, local and for long term.

83. *Measures:* Compensation will be given for affected private properties. Plantation of trees will be done to increase greenery in the area.

Spoil Disposal

84. *Impacts:* Unmanaged disposal of spoil may cause: gullying and erosion of spoil tips especially when combined with unmanaged surface water runoff, damage to farm lands, and destruction of vegetation, crops and may threat settlements. The impact from spoil disposal will be direct, high, local and for long term.

85. *Measures:* Spoil will be safely disposed and managed at designated site with minimum environmental damage. Engineer will give approval for disposal site of spoil. Balanced cut and fill and re-use of excavated materials will be given emphasis. Spoil will be used to reclaim land or eroded areas. Compaction and trimming the slope of disposed spoils and use of Bioengineering measures (Grass, Shrubs, Tree plantation). Potential safe spoil management areas are given in Table 6.1.

Table 6.1 Potential Spoil Disposal Sites

SN	Chainages	Location of Spoil disposal sites
1	1+450	Naduwa
2	2+500	Lower side of Gharekhola
3	5+584	Gija
4	9+257	Radijyula
5	12+300	Radijyula

Slope Instability

86. *Impacts:* Removal of vegetation and open cuts with exposed soil to rain will cause soil erosion as well as landslide. The stability of slopes along the road corridor depends upon slope angle, the material constituting the slope, rock discontinuities and hydrological conditions. The degree of sliding increases during the road excavation and it may cause regular sliding during operational phase. These slides are still active and will undoubtedly cause more problems during monsoon period. The areas of concern are Ch 1+000, 1+700, 3+000, 5+200, 5+900, 7+800, 8+600, 9+100, 9+500 and 11+700. The impact is direct, medium, site specific and medium term.

87. *Measures:* Cut slope will be maintained depending upon the soil type; use of Bio-engineering techniques (Shrub/Tree plantation, Grass plantation, Brush layering); no construction work during rainy season; and use of soft engineering structures (dry wall, gabion wall) before disposing spoil. Recommended civil engineering structures and bioengineering measures necessary at various chainages for slope stabilization have been given in Annex XIV.

Drainage Management

88. *Impacts:* Water from the roadside drain outlets may cause erosion and landslide affecting the stability of the road. Natural drainage may get blocked due to construction of road. The impact will be indirect, medium, site specific and for medium term.

89. *Measures:* The mitigation measures will be to provide adequate numbers of drainage structures in order to have minimum interference with natural drainage pattern of the area; channelize surface water discharge from side drains; do not block or divert water away from natural watercourse. Details about necessary structures required to mitigate the water induced adverse impacts are as given in Annex XV.

Air, Noise and Water Pollution

90. *Impacts:* The ambient air quality data of the project area is not available at present. The road construction work is carried out manually by the local labour. For rock cutting, hand tools will be used and if the rock is hard, drilling machine will be used. The road side dwellers and workers may be affected by emission of dust during road construction. This may affect the health of the labourers and people living nearby areas. Impact on air quality will be direct, low, local, reversible and for short term.

91. The project area at present does not experience higher levels of noise pollution. However, the increased construction activities like rock cutting may cause noise pollution to some extent to the workers and people living in nearby areas. The impact of road construction on the noise level will be direct, low, site specific, reversible and short term.

92. The water quality in the project area appears to be fairly clean and not polluted. During construction these waterbodies may be polluted by spoil and construction wastes. The impact will be direct, low, local, short term and reversible.

93. *Measures:* The mitigation measures will include use of face mask by the workers working in the areas of high dust generation; avoid disposal of excavated materials in the waterbodies; use of ear muffs, helmet to lessen noise pollution during rock breaking and quarrying. Both the sides of the road alignment will be planted with trees, as far as possible which will act as sound and noise barrier.

Quarrying and Borrow Pit

94. *Impacts:* The construction of road requires large quantity of stones and boulders and other type of construction materials for retaining structures. Stones will be extracted using optimum rock cutting techniques like chiseling and hammering, heating and breaking and drilling and breaking. Blasting will not be done for quarrying purpose. Potential adverse impacts are accelerated land erosion, landslides, disturbance in natural drainage patterns, water logging and water pollution. The likely impact will be direct, medium in magnitude, site specific in extent and short term in duration.

95. *Measures:* The mitigation plan for quarry and borrow operation will be prepared and approved by Engineer; unstable sites, erosion prone area, forest area, settlements, fertile farm land will be avoided for quarry / borrow operation; quarry sites will be rehabilitated by providing appropriate civil engineering structures and bioengineering measures after the extraction is complete. Recommended quarry sites in the area are given in Table 6.2.

Table 6.2: Recommended Quarry sites

SN	Chainages	Places of recommended quarry sites
1.	0+000	River, 200 m far from the Ch 0+000 of proposed road.
2.	2+500	Stone quarry site, 300 m far from the road
3.	5+250	Stone collection from Kharamkhola
4.	8+600	Stone collection from Sherekhola

Source: Field Survey, 2009

Biological Impacts

96. The following are possible identified impacts based on baseline information related with the implementation of the proposed project.

Loss or degradation of Forest and Vegetation

97. *Impacts:* Road alignment does not pass through any type of forest. Not any trees will need to be cut down during road construction.

98. *Measures:* Road side tree plantation shall be done along the RoW. The cost of roadside plantation will be included in Bioengineering.

Impact on Wildlife Due To Loss of Habitat and Poaching

99. *Impacts:* The construction of road may disturb wildlife and bird species present along the road corridor due illegal poaching and increased noise level. The impact will be indirect, low, local and long term.

100. *Measures:* The mitigation measures to be adopted will include limiting work within road width;; workers shall be strictly discouraged from collecting fuel wood or poaching/harassing of wildlife.

Impacts on flora and fauna (as listed in CITES and IUCN Red data book)

101. *Impacts:* The construction of road may disturb wildlife like Jackal (*Canis aureus*) due to increased level of noise but this is less likely and no Lapsi, Okhar and Sal plants will be affected from constructing this road. The impact will be indirect, low, local and long term.

102. *Measures:* Mitigation measures are not warranted. However, workers shall be strictly discouraged from collecting fuel wood or poaching/harassing of wildlife.

Socio-economic Impacts

Loss or degradation of farm land and productivity

103. *Impacts:* There will be loss of 0.575 ha of farm land due to road construction. This will lead to loss of food grain production among the families losing lands to the project. Moreover, spoils on farm land will also affect the production of agricultural crops. Consequently, it will affect the livelihood of the households residing near the road alignment. The impact will be direct, medium, local and long term.

104. *Measures:* Productive land acquisition for the road alignment will be minimized as far as possible. Compensation for the loss of property will be provided to the affected people. A separate Resettlement Plan will be prepared to address land acquisition and compensation issues.

Loss of private properties and community infrastructure

105. *Impacts:* The proposed road alignment passes through nearby the settlements of Naduwa, Gharekhola, Banskhola, Gija, Jhakraisalla and Radijyula. During the construction phase, the people of such settlements suffer by their property losses and damage by road construction works in some extent. 13 residential houses, 13 Water Mills and 1 Shed will be affected during road construction.

106. The impact will be direct, high significance, site specific, and long term.

107. *Measures:* Compensation for the loss of property will be provided to the affected people. A separate Resettlement Plan has been prepared to address land and property acquisition as well as compensation issues. Budget for resettlement plan is allocated as NRs. 6,833,055.56. Furthermore, Livelihood Enhancement Skills Training (LEST) program under Resettlement plan will be provided for affected families whose budget is allocated as NRs. 579,500 and included in resettlement plan cost.

Impacts on cultural, religious and archaeological sites

108. *Impacts:* There are Laxminarayan temple, kuripani temple, Bhagwati temple within ZoI of the the road alignment. However, they are not affected due to the construction of the road. There will be likely no impact on local culture and tradition during construction stage.

Decline in Aesthetic Value

109. *Impacts:* Landscape degradation and scar on topography due to the road; quarrying operations; and indiscriminate dumping of spoil on open land and hill slopes. The likely impact will be direct, low in magnitude, local in extent and short term in duration.

110. *Measures:* Discourage indiscriminate dumping of spoil material; quarry sites will be properly closed to suit the local landscape and cover by plantation of local species trees.

Health and safety matters

111. *Impacts:* During construction, workers will be exposed to respiration and eye diseases due to exposure to dust, risk of accident during work, polluted drinking water, unhygienic sanitary facilities. Increased contact between local and migrated workers can cause spread of serious health risks like STDs and HIV/AIDS. This impact is direct, high in magnitude, short term and local.

112. *Measures:* Make mandatory the use of helmets, safety belts, masks, gloves and boot by workers depending on nature of work; provide clean drinking water at sites and camp; pit toilets at sites and camp; first aid facilities at sites and camp with training to use them; provide group accidental insurance for workers. Awareness generation to local people and workers on HIV/AIDS and other communicable diseases.

6.2.2 Operation stage

113. The following are possible identified impacts based on baseline information related with the operation of the road:

Physical Environment

Road Slope Stability and Management

114. *Impacts:* The destabilization of slope may also be expedited due to human activities in the road neighbourhood such as quarrying stones or soil, animal grazing, irrigated cultivation. This may cause damage to road section, disruption to transportation and other social impacts in the nearby areas. The inadequate maintenance of the road due to the blockage of drains damages the road surface that can lead to slides and slope failure. Sensitive areas for possible slope stability problems are Ch 1+000, 1+700, 3+000, 5+200, 5+900, 7+800, 8+600, 9+100, 9+500 and 11+700. The impact will be direct, medium local and long term nature.

115. *Measures:* The mitigation measures to be adopted include immediate clearance of slides and restoration of slopes; clear drainages; restoration of rill and gully formation; and conservation of soil.

Impact due to air noise and water pollution

116. *Impacts:* Dust will be generated from the earthen road and vehicles emit gaseous pollutants. Continued dust pollution may cause adverse health impact to the people living in the vicinity. As the road is of district road category and the vehicular movement is not expected to be very high. Thus, the impact will be direct, low, local and long term. Noise during operation of road will increase. However, due to low traffic volume, the impact due to noise pollution will be direct, low, local and long term.

117. The disposal of spoil and household wastes, washing of vehicles in water bodies may degrade the water quality. The impact will be direct, low, local and long term.

118. *Measures:* Measures to be adopted will include plantation of trees along RoW on both sides of road as far as possible; restrict horn near forest, health posts, schools and settlements; provide speed limit for vehicle at sensitive areas.

Biological Environment

Depletion of Forest Resources

119. *Impacts:* The road alignment does not pass through the forest area. Therefore there will no impact on forest resources.

120. *Measures:* The mitigation measures are not warranted.

Disturbance to the wildlife and Illegal Poaching

121. *Impacts:* Although the wildlife population is reported low, however, they may be disturbed due to the frequent movement of the vehicles. Vehicular flow, horn blowing in the forest area will have impact on the wildlife and bird species. Furthermore, illegal poaching may also increase due to rapid flow of people. The impact will be indirect, low, local and long term in nature.

122. *Measures:* Mitigation measure will be to erect appropriate sign boards informing drivers on prohibition of blowing horns in the forest areas. Community and authorities will remain vigilant and alert on illegal felling of timber and killing of wildlife.

Socioeconomic and Cultural Impacts

Unplanned New Settlement and Market Center Development

123. *Impacts:* Expansion of settlement area and market can be observed at Naduwa, Bansthala, Gharikhola, Gija and Radijuila. Encroachment of RoW may take place. This will reduce road capacity, increase road accidents, and adversely impact road. The impact will be direct, medium, local and long term in nature.

124. *Measures:* The mitigation measures to be adopted include regulation of settlement with proper planning; plantations of trees in the RoW so that it is not encroached; provide sewerage in market areas. Authorities and VDCs will control encroachment of road.

Change in Social behaviour

125. *Impacts:* Access facilities may bring social nuisance like increase in alcohol consumption, gambling, prostitution, and may increase girl trafficking. The impact will be indirect, medium, local and long term in nature.

126. *Measures:* Support awareness raising programs and strengthen communities against such nuisances.

Road safety Measures

127. *Impacts:* Movement of vehicles and inadequate road safety measures may invite accidents. The impact will be direct, medium, local and long term in nature.

128. *Measures:* The mitigation measures to be adopted will be applying appropriate road safety measures with the help of 3-Es i.e. Engineering, Enforcement and Education; and required safety signs will be used along the road.

7. ENVIRONMENTAL MANAGEMENT PLAN

129. The EMP is prepared to guide implementation of mitigation measures and monitoring requirements.

7.1 Institutions and Their Roles

Table 7.1: Concerned Institutions and Their Roles

Institution	Role	Responsibility in the Project	Remark
Ministry of Environment	Mandated to formulate and implement environmental policies, plans and programs at national level	Facilitate when needed on environmental safeguards	No direct responsibility in the project
Ministry of Local Development (MLD)	It is concerned line ministry and concerned agency as per EPA/EPR. Environment Management Section is responsible to look into safeguard matters for the ministry.	<ul style="list-style-type: none"> To review IEE ToR and Report, and give approval. Conduct environmental monitoring from central level. 	
Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR)	Department under MLD responsible to execute infrastructure projects under MLD. Provides back-up support to DDCs in technical matters through DTO.	RRRSDP is being executed under overall coordination and supervision of the Department for the Ministry. It is also supporting DDCs through DTOs to implement the project.	
RRRSDP- Project Coordination Unit	Project specific unit.	Technical Unit to support and coordinate all activities for implementation of RRRSDP. Review, comment, and forward IEE ToR and Report for review to ADB and for approval to MLD	First Class Officer / DDG of DoLIDAR has been heading the PCU.
District Development Committee / District Technical Office	DDC/DTO is Project Implementing Agency.	<ul style="list-style-type: none"> Prepare IEE ToR and submit for approval to PCU/MLD Conduct IEE Study, Public Consultation, and prepare IEE Report Receive comments from PCU/ADB/MLD and modify accordingly. Get final approval from MLD. Conduct environmental safeguard monitoring Reporting 	District Technical Officer is the Project Manager
District Project Office	Project implementation office working directly under DDC/DTO.	Responsible for overall activities related to implementation of the works at field level.	Implementing Agency
Central Implementation Support Consultant (CISC)	Support consultants at central level	Technical and management support to PCU	Consultant
District Implementation Support Team (DIST)	Support consultants at district level	Technical and management support to DPO	Consultant

130. To support for smooth implementation of the project, there are various district level committees and groups including District Project Coordination Committee (a sub-committee of DDC), Village Infrastructure Construction Coordination Committee (to coordinate at VDC level). Road Building Groups are formed under participation of local people from ZoI. They carryout the manual construction works.

7.2 Reporting

131. Monitoring checklist will be developed as per the Environment Management Action Plan (EMP). The checklist will be used for regular monitoring. Trimersearly EMP compliance report will be prepared and submitted to the DDC, and DDC will forward it to PCU / DoLIDAR.

132. The monthly reports will be based on recurrent site inspections and will report on the effectiveness of the mitigation measures; the compliance with the environmental specifications; measures recommended in the events of non-compliance, and recommendations for any other corrective plan.

133. The trimester environment monitoring report will be submitted for the first year of operation of the road by the Proponent (DDC/DTO) to Executing Agency (PCU/DoLIDAR), who will forward the report to ADB.

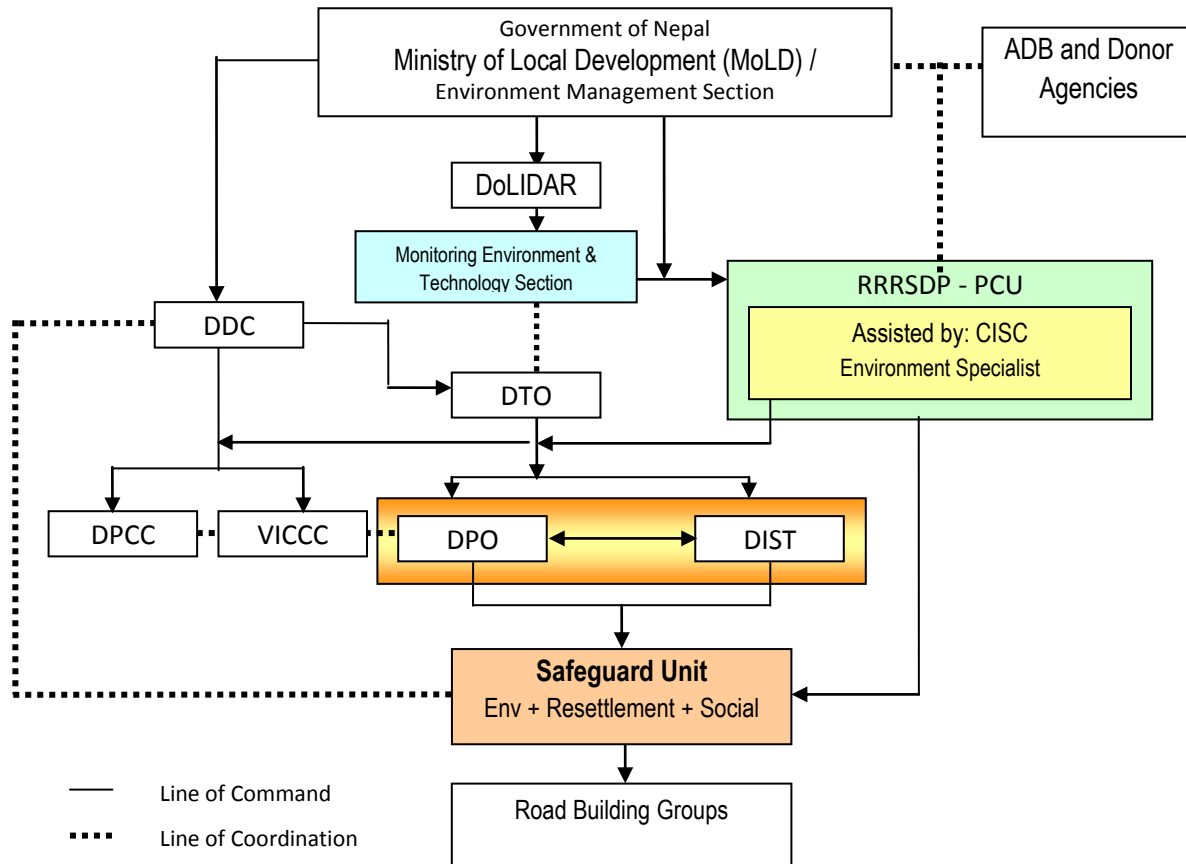


Figure 7.1: Environmental Management Organization Structure

7.3 Environmental Management Plan

134. The DDC/DTO with support of DPO/DIST at local level and PCU/CISC at central level will be responsible for conducting careful and routine monitoring of EMP compliance. Overall implementation of the EMP will be the responsibility of the Proponent. Framework for implementing environmental management plan is shown in Table 7.2 & 7.3

Table 7.2: Beneficial Impacts and Proposed Enhancement Measures

Activity	Effect	Related Beneficial Impacts	Type of Impact *)				Benefit Augmentation Measures	Responsible Agencies		
			Nat	Mag	Ext	Dur		Executing Agency	Supporting Agency	
Construction Stage										
Construction of road	Employment Generation and Increase in Income	Increase in income level	D	H	L	ST	Maximize manual work through local, poor, vulnerable and women. Training in income generation and skill enhancement. Skilled 18000 person days, unskilled 54000 person days. LEST programs under Social Plan of the subproject will be conducted.	DDC/DTO/ DIST	DPCC / VICCC / CISC/ PCU	
On the job training to local labour	Skill Enhancement	Increase in income generating activities, employment opportunities	IN	M	L	LT	Priority to Affected Peoples (APs) and vulnerable groups, job training on various constructions works. LEST programs under Social Plan of the subproject will be conducted.	DPO/DIST	DDC/DTO / CISC/PCU	
Construction of road	Enterprise Development and Business Promotion - <i>mainly at Naduwa, Bansthala, Gharikhola, Gija and Radijula</i>	Enhancement in local economy	D	L	L	ST	Training in cooperatives, and promote use of local products by the construction crews.	RBG	DIST/ CISC/PCU	
Construction coordination committee and RBG program	Community Empowerment and Ownership	Increase in income and ownership.	IN	L	L	ST	Coordination committees will be constituted and training will be given to them.	DPO/DIST	DDC/DTO / CISC/PCU	
Trainings and road construction	Women Empowerment	Women will have easy and frequent access to social services (education, health, community development, bank, training, CBOs and networking)	IN	H	L	LT	Assist to organize women's groups, provide training in enterprise development, organize cooperatives, provide micro-financing to undertake production of commercial products, provide market services. Training under Gender Action Plan (GAP) of Social Plan will be organized.	VDC / DDC	VDC / DDC	
Operation Stage										
Operation of Road	Improvement in Accessibility and Saving of Time and Transportation Cost	Saving in travel time and travel cost	D	H	R	LT	Proper maintenance (regular, emergency) , continuation of bioengineering	DTO/DDC	DoLIDAR	
Operation of Road	Increase in Trade, Commerce and Development of Market centers	Minor local markets like Naduwa, Gharekhola, Banskhola, Gija, Jhakrisalla, Radijyula will grow. Production such as Rice, amilo, vegetables and seed will increase in Naduwa, Radijyula.	IN	H	L	LT	Manage planned growth with required infrastructure facilities in the market areas. Agriculture extension services, market linkages and networking for better market price.	DPO	DDC/VDC	
Operation of Road	Appreciation of Land Value - <i>Mainly the land value will increase in Naduwa, Bansthala, Gharikhola, Gija and Radijula.</i>	Improvement in local economic condition	IN	M	L	LT	Promotion of land development activities and control of encroachment within RoW. Awareness program shall be organized on use of high value land to get bank loans for setting up enterprise ventures.	DDC/DPO	DDC/VDC	
Operation of Road	Enhancement of Community Development Services	Ease of access to social service and raise in quality service	IN	H	R	LT	Keep road maintained to ensure access facility that will attract development of other social services facilities	Local people, DDC, VDC	DDC, VDC	

Table 7.3: Adverse Impacts and Proposed Mitigation Measures

Activity	Potential Negative Effects	Related Adverse Impacts	Type of Impact *)					Mitigation Measures	Responsibility for Mitigation Measure		
			Nat	Mag	Ext	Dur	Rev		Executing Agency	Supporting Agency	
Construction Stage											
Physical Environment											
Construction of Road, site clearance, drainage work	Change in land use	Agricultural land (0.575 ha), barren land (2.525 ha) and built up area (3.3 ha) need to be acquired.	D	H	L	LT	IR	Compensation will be given for affected private properties. Plantation of trees will be done to increase greenery in the area.	DDC/DTO	DIST	
Site clearance, slope excavation	Slope instability	Major instability areas along the road alignment are at Ch. Ch 1+000, 1+700, 3+000, 5+200, 5+900, 7+800, 8+600, 9+100, 9+500 and 11+700..	D	M	SS	MT	Re	Civil structures with bio-engineering application (Such as Grass plantation, Tree/Shrub plantation, Brush layering etc.) shall be used to stabilize the slopes.	DDC/DTO	DIST	
Construction of Road, earth works	Spoil Disposal	Gully erosion, landslide, disruption of road, damage to farmland, water pollution etc.	D	L	L	LT	Re	Proper site selection and management of spoil at designated areas approved by Engineer; provision of proper drainages, toe walls; Proposed spoil disposal sites are 1+450, 2+500, 5+584, 9+257, 12+300	DDC/DTO	DIST/VIC CC/ VDC	
Construction of Road, drainage works	Drainage Management, generation of large volume of surface runoff	Erosion, landslide, damage to farmland	IN	M	SS	MT	Re	Proper drainage structures and proper spoil disposal, Avoid blockage or diversion of natural channels due to construction of road and disposal of spoils.	DDC/DTO	DIST	
Construction works, (Earthworks, spoil and waste disposal)	Air pollution due to dust from exposed surface	Affect on local people and workers health and affect on agriculture.	D	L	L	ST	Re	Use of face mask while working on dust prone areas, covering of dust sources. Plantation of local species trees along the RoW on both sides of road	DDC/DTO / RBGs	DIST	
	Noise pollution	Disturbance and annoyance.	D	L	L	ST	Re	Restrict horn near school, health posts, settlement, and forest areas. Plantation of local species trees along the RoW on both sides of road.	DDC/DTO	DIST	
	Water pollution due to sediment level, open defecation	Risk of water borne diseases	D	L	L	ST	Re	Proper spoil management and restriction in urination and defecation in open areas	DDC/DTO/ RBGs	DIST/VIC CC	
Quarrying and borrow pit operation	Quarry/borrow operation and its potential effect on instability, landslide	Change in river regime, instability, land slide; damage to forest, farmland and property; water pollution	D	M	SS	ST	Re	Proper selection and management of quarry sites, rehabilitation of quarry/borrow sites after completion of work. Recommended quarry sites are Ch 0+000, 2+500. 5+250, 8+600.	DDC/DTO/ RBGs	PCU/CISC /DIST/ VICCC	
Biological Environment											
Construction of road	Impact on Wildlife Due To Loss of Habitat and Poaching	Killing and harrasing of wildlife; Loss of biodiversity and valuable species of wildlife	IN	L	L	LT	IR	Work only in day time, do not disturb wildlife, Workers will be given orientation and strict instructions not to harm wild flora and fauna, as well as ensure their own safety from wildlife attack.	DDC/DTO/ DFO	DFO/CFU Gs/DIST	

Activity	Potential Negative Effects	Related Adverse Impacts	Type of Impact *)					Mitigation Measures	Responsibility for Mitigation Measure	
			Nat	Mag	Ext	Dur	Rev		Executing Agency	Supporting Agency
Construction activity	Impacts on flora and fauna (as listed in CITES and IUCN Red data book)	Loss of biodiversity and valuable species of wildlife.	IN	L	L	LT	IR	Work only in day time, do not disturb wildlife, Workers will be given orientation and strict instructions not to harm wild flora and fauna, as well as ensure their own safety from wildlife attack.	DDC/DTO/DFO	DFO/CFUGs/DIST
Social-economic Environment										
Acquisition of land for maintaining road width	Loss or Degradation of Farm Land and Productivity (0.575 Ha)	Reduced production, hardship, food shortage	D	M	L	LT	IR	Minimize productive land acquisition through alignment selection, Compensation for affected people	DDC/DTO	CFC DIST/VICC
Acquisition of land and property for maintaining road width	Loss of Private Properties	Displacement of people, hardship, 13 residential houses, 13 Water Mills and 1 Shed will be affected	D	H	SS	LT	IR	Compensation and resettlement to the owner as described in resettlement plan. Budget for resettlement plan is NRs. 6,833,055.56, and LEST program for APs will be provided whose budget is NRs. 579,500 and included in RP Cost.	DDC/DTO	CFC/DIST
Construction of road	Occupational Health and safety matters	Injury, fatal accidents, outbreak of epidemics and diseases, decline in capacity to work	D	H	L	ST	IR	Occupational health and safety regulations, first aid facility at sites with health treatment arrangements, contingency planning; Proper drinking water and toilet facility for construction crew	DDC/DTO / Contractors	DIST/CISC
Quarry operation, earthworks, spoil disposal	Decrease in aesthetic value	Disturbances in working areas and scar on topography.	D	L	L	ST	Re	Discourage indiscriminate dumping of spoil material; quarry sites will be properly closed to suit the local landscape and cover by plantation of local species trees.	DPO in assistance by DIST / Contractors	PCU / CISC / Users Committee / VDC
Operation Stage										
Physical Environment										
Operation of road	Road Instability	Destabilization of slope, embankment erosion, water logging. Disturbance to traffic flow, pollution of water bodies, impacts on agriculture land, loss of vegetation. Sensitive areas for possible slope stability problems are Ch 1+000, 1+700, 3+000, 5+200, 5+900, 7+800, 8+600, 9+100, 9+500 and 11+700	D	M	L	LT	Re	Regular maintenance of slope protection structures, Selection of healthy upland farming techniques.	DDC/DTO/VDC	DoLIDAR , DFO, Water Induced Disaster Control Division Office (WDCCDO)
Operation of vehicles, Inadequate drainage	Air, Noise and Water Pollution	Disturbance to students, patients, wildlife, effect to nearby agriculture land and crops	D	L	L	LT	Re	Speed limit for vehicles, no horn signs, use vegetation barrier; Regular maintenance of drainage.	DDC/DTO	DoLIDAR/ Local administrat

Activity	Potential Negative Effects	Related Adverse Impacts	Type of Impact *)					Mitigation Measures	Responsibility for Mitigation Measure	
			Nat	Mag	Ext	Dur	Rev		Executing Agency	Supporting Agency
										ion
Biological Environment										
Road operation	Disturbance to the Wildlife and Illegal Poaching	Loss of biodiversity	IN	L	L	LT	IR	Warning traffic signal, Awareness training to driver to limit speed and horn use	DTO/CFUGs	DDC/CDO / DFO
Social-economic Environment										
Easy Access by road operation	Unplanned New Settlement and Market Center Development	Encroachment of Row, increased accidents, delay in traffic movement, depletion of local resources, water pollution	D	M	L	LT	IR	Awareness program, enforcement of law, planning of land development, plantation of trees.	DDC/DTO	CDO / VICCC
Operation of Road	Change in Social behavior	Social and cultural conflicts	IN	M	L	LT	IR	Awareness, Enforcement of law and order, Provision of training for skill.	DTO	DDC/DoLI DAR
Operation of Road	Road Accidents	Increase in accidents	D	M	L	LT	IR	Appropriate road safety measures, Safety signs along the road.	DTO	DDC/DoLI DAR

* Legend Value in parenthesis is level of significance:

Nature- IN= Indirect ; D= Direct

Magnitude- L= Low; M= Medium; H= High;

Extent- SS= Site Specific ; L= Local; R= Regional; N= National; CB=Cross-boundary

Duration- ST= Short Term; MT= Medium Term ;LT= Long term

Re=Reversible; IR= Irreversible

7.4 Mitigation cost

135. The estimated cost for beneficial augmentation measures like awareness raising program, skill training, promotion of small scale industries, and income generation activities will be covered by RRRSDP. Costs for income generation and awareness programme activities for Affected Persons (APs) are included in Resettlement Plan. The design and cost estimate for most of the suggested mitigation measures such as slope stabilization, quarry site management, spoil disposal, supply of face masks, helmets, muffles, accidental insurance, bioengineering measures, plantation, land slide rehabilitation, supporting CFUGs shall be incorporated in the design and cost estimates. Therefore, most of the mitigation measures suggested would be a part of road design and construction without additional cost. All proposed mitigation measures will be integrated in the project design so that these measures may automatically form part of the construction and operational phases of the project. The indicative cost for environmental enhancement and mitigation is presented in the **Table 7.2**.

Table 7.4: Cost Estimate for Environmental Enhancement and Mitigation Measures

SN.	Environmental Protection Measures	Estimated Budget (NRs.)	Remarks
1. Benefits Augmentation Measures			
1.1	Training to DDC/DTO/DPO/DIST to conduct environmental monitoring and reporting	50,000.00	To be included in project cost
1.2	Training to Naika of RBGs	50,000.00	To be included in project cost
1.3	Enhancement in Technical Skills (Bio-engineering)	100,000.00	To be included in project cost
	Sub-Total (1)	200,000.00	
2. Adverse Impacts Mitigation Measures			
2.1	Bio-engineering + Road Side Tree Plantation	2,105,383.54	To be included in BoQ
2.2	RBG Insurance	300,000.00	To be included in project cost
2.3	Information Signboard (6 nos)	50,000.00	To be included in BoQ
2.4	Resettlement and Rehabilitation Cost (Compensation/rehabilitation of properties, structures; LEST program for APs)	6,833,055.56	To be included in Resettlement plan
2.5	Restoration or relocation of affected infrastructures, spoils disposal site management and rehabilitation, reinstate of quarry etc.	500,000.00	To be included in BoQ
2.8	Social Cost (Social Action Plan, Gender Action Plan)	1072000.00	To be included in Social plan, project cost
2.9	Occupational health and safety; First aid boxes, campsite sanitation (Pit latrine); solid waste management, Safety measures for workers (Helmets, gloves, masks, boots, etc.)	500,000.00	To be included in BoQ
	Sub-Total (2)	11,360,439.10	
	Total	11,560,439.10	

7.5 Implementation of Mitigation Measures

136. The mitigation measures will be integrated into project design and tender documents. Using this approach, the mitigation measures will automatically become part of the project construction and operation phase. By including mitigation measures in the contract or in specific items in the Bill of Quantities, monitoring and

supervision of mitigation implementation could be covered under the normal engineering supervision provisions of the contract. The project contractor will be bound by the parameters identified in the environmental assessment pertaining to specific mitigation measures in the contract. The final acceptance of the completed works should not occur until the environmental clauses have been satisfactorily implemented.

137. The tender instruction to bidders will explicitly mention the site-specific mitigation measures to be performed, the materials to be used, labor camp arrangements, and waste disposal areas, as well as other site specific environmental requirements. Action to be taken against failure to comply with EMAP requirements will also be clearly agreed in the contract agreement document.

7.6 Environmental Monitoring

138. The IEE prescribes the mitigation measures in order to minimize adverse impacts and to enhance beneficial impacts. Environmental monitoring plan is an important tool to ensure the implementation of mitigation measures for minimizing adverse impacts and maximizing the beneficial impacts. Environmental monitoring generates useful information and improves the quality of implementation of mitigation measures.

7.6.1 Monitoring Responsibility

139. Monitoring is an integral part of the project proponent so as to know the unlikely impacts and implement corrective measures. The proponent, DDC/DTO Rukum will develop in-built monitoring mechanism to show its additional commitment for environmental improvement and mitigate undesirable environmental changes, if any during construction and operational stage. DDC/DTO will be supported by DPO and DIST team in the district and Environmental team from the DIST for environmental monitoring. There is a need to support these organizations to carry out environmental monitoring effectively. Therefore, environmental monitoring training will be conducted together with technical, social, resettlement and project performance monitoring and evaluation training.

140. According to EPR, 1997, the MLD/DoLIDAR is responsible for monitoring and evaluation of the impact due to implementation of the project. The MLD/DoLIDAR checks whether the DDC/DTO is carrying out monitoring activities as per the IEE, and if the prescribed mitigation measures are being implemented. Total cost estimated for central level environmental monitoring is NRs. 50,000.

141. DDC/DTO with RRRSDP PCU support should make arrangements for sub-project level monitoring. It should constitute a monitoring team, which must be independent from the implementation team and should consist of relevant persons in the context of a sub-project being monitored, for example persons from the forest, agriculture, social and NGO sectors. The monitoring team will be constituted separately for each monitoring event. Project's district management team should be responsible for forming the monitoring team, financing the monitoring works, providing logistics and other necessary support. Thus, it is recommended that an external team hired by DDC/DTO takes responsibility for periodic monitoring of the environmental performance, in addition to the regular supervision and guidance provided by the DIST at the site. The sub-project specific monitoring plan as given in **Table 7.5** shall be followed. DIST team will conduct regular environmental monitoring. The sub-project level monitoring team should submit its report to RRRSDP district management, which should forward a copy to the RRRSDP Project Coordination Unit. Total cost of environmental monitoring (field visits, observation, review of reports and report preparation) is estimated NRs. 505,000 as given in **Table 7.5**.

Table 7.5: Environmental Monitoring Cost

S. No.	Detail	Unit	Quantity	Rate	Total (NRs.)
1	Environmental Management Specialist	Man-month			Included in the Cost of DIST
2	Sociologist / Public Relation Expert	Man-month			Included in the Cost of DIST
3	Report Preparation		LS		100,000.00
4	Transportation		LS		50,000.00
5	Cost for Monitoring by MoLD/DoLIDAR		LS		50,000.00
	TOTAL				200,000.00

142. Thus, total environmental monitoring and management cost is NRs. **11,760,439.00**, including cost of resettlement and bio-engineering.

7.6.2 Types of Monitoring and Monitoring Parameters

143. There will be basically three types of monitoring baseline, compliance and impact monitoring. But the Naduwa-Radijyula Road Subproject will follow compliance and impact monitoring:

- a. Compliance Monitoring – that verifies whether the EMP provisions are properly implemented in the field. The framework for compliance monitoring is given in the Table 7.6.
- b. Impact Monitoring - that confirms the result of implementing mitigation measures. The framework for impact monitoring is given in the Table 7.7.

Table 7.6: Compliance Monitoring for Naduwa-Radijyula Road Subproject.

Parameters/Issues	Responsible Implementing Agency	Verifiable Indicators	Verification Methods	Schedule	Responsible Monitoring Agency
Final alignment selection as per IEE recommendation	DIST	Incorporation of IEE recommendations into alignment selection process and design document	Walkthrough along final road alignment, verifying sensitive areas	Initial stage preconstruction phase	DDC/DTO through PCU-CISC, DoLIDAR
Land and property acquisition and compensation	Proponent with assistance of DIST	Cadastral records, land and properties acquisition procedures; Procedures followed during voluntary donation of Land; Preparation of inventory of infrastructures likely to be affected	Public consultation, photos; geo-referencing; Check inventory against cadastral records and discuss with people	Initial stage pre-construction phase - well ahead of construction	CDC/PCU - CISC/ DOLIDAR
Resettlement, assistance and compensation	Proponent / DIST	Legal provisions by GoN; Compensations paid	Check compliance to legal procedures	Well ahead of construction	CDC/PCU - CISC/ DOLIDAR
Site selection and preparation of construction logistics	Proponent / VICCC	Project's arrangement for materials storage, and construction activities	Site observation, geo-referencing and photographic documentation	Beginning of construction period	DIST/DTO
Use of local labour, particularly vulnerable groups and women	DPCC/ VICCC / DIST	Specifications which obligate the RBG to observe certain quotas for employing local labour, specially vulnerable groups and women, use of child labour	Records and coordinates the process for local people's employment, interviews	During the entire period where labour work is contracted, trimester	DDC/DTO
Awareness and orientation training on road construction to technicians, and locally employed labourers	DIST/VICCC	Training programmes for skill development, occupational safety and environmental protection associated with road construction works	Specifications; training records, check training programme reports, assess feedback from participants	Beginning of construction and during construction	DDC/DTO/DIST
Compliance to Occupational health and safety matters	DIST	Health and safety regulations, first aid and medical arrangements, contingency plan, number and type of safety equipments such as mask, helmet, glove, safety belt	Spot checks at work sites, photos, accident records, interviews	throughout construction activities, trimester	DDC/DTO
Compliance to environmental protection measures, including pollution prevention, water and soil management, slope	RBG/DIST	Records and observations on pollution, waste management, spoil deposit. Training programmes for labourers to prevent impacts on wildlife sensitive habitats, forests and	Site inspection, discussion with Project management, consultants, and local people. Quantifying site-specific impacts, photos, laboratory tests where required.	Before and during construction period	DPO/Proponent

Parameters/Issues	Responsible Implementing Agency	Verifiable Indicators	Verification Methods	Schedule	Responsible Monitoring Agency
stabilisation, cut and fill, waste management, spoils, sensitive habitats and critical sites, protection of fauna and flora		fuel wood use.	Existing patrol, control and enforcement mechanisms, enforcement records		
Vegetation clearance	RBG / DIST	Actual number of trees felled during construction works	Record, inspection and interview with local people and CFUGs	After detail design and before construction work	CFUGs/DTO/D DC/DFO
Measures to avoid pressure on forest and wildlife	RBG/DIST	Use of firewood or fossil fuel by construction crew, events of poaching of wildlife	Inspection, interview with local people and CFUGs	Once a month during construction	DDC/DTO/ CFUGs
Measures to protect environment from air & noise pollution	RBG/DIST	Dust level and noise level at work sites, major settlements and sensitive spots like health centres and schools	Visual observation and discussion with residents and workers	Once in a month during construction	DDC/DTO
Measures to protect water bodies from pollution	RBG/DIST	Visual observation, observation of open defecation and waste disposal around water sources near construction sites	Site inspection, test of site-selected samples of local streams water using standard field kit, interview	Once in a month during construction; upon demand for testing with field kit	DDC/DTO
Restoration, rehabilitation, reconstruction of all infrastructure services disrupted or damaged by the proposal activities	RBG/DIST	Continued services by the facilities and functional public life	Site observation; VDC/DDC records; public consultation meetings; photos	Once in 15 days during construction	DDC/DTO
Adequate technical and environmental supervision	DIST	Adequate number of technicians regularly at site with ability to implement labour based road construction concept	Check number and type of technicians available at site; skill of work carried out; discussion	Twice a month during construction	DDC/DTO
Clean up and reinstatement of the construction sites (camps, quarries)	RBG /DIST	Decommissioned sites indicate no adverse/residual environmental impacts, and are rehabilitated to the satisfaction of the supervisor and land owners	Site observation; comparing photos; consultation with land owners and community based organizations	At the end of construction period	DDC/ DTO

Table 7.7: Impact/Effect Monitoring for the Naduwa-Radijyula Road Subproject.

Parameters /Impacts	Verifiable Indicators	Verification Methods	Location	Schedule	Responsible Implementation and Monitoring Agency
Slope stability and erosion	Inclination, slope failures, causes; drainage facilities such as catch drain, side drains and functionality of cross drainage structures; fresh gullies and erosion; success/failure of bio-engineering solutions	Site observation, photos discussion with people and technicians	Near steep slopes and at landslide areas and sites	Continuously during construction and operation	DIST during construction; DDC/DTO/Soil Conservation Office during operation
Bio-engineering of disturbed slopes	Re-vegetation through bio-engineering application on disturbed slope; establishment of nursery	Site observation; inspection of nursery and its production rate, photos, measurements	Cut slope area, where vegetation is cleared; nursery siyes	During and at end of project construction	DIST/DDC/DTO
Disposal of spoils and construction wastes	Affected aesthetic value, affected forest and agriculture, initiated land erosion by local blocked drainage, hazard to downhill slope residents and agricultural lands	Site observation and interviews, photos, geo-referencing sites	At specific locations where such sites occur	During construction	DIST/DDC/DTO
Quarrying of construction materials	Initiated erosion, changes in river regime, erosion by river systems, landslide due to quarrying, degradation of vegetation, water logging, waterborne diseases	Site observation, photos, records from local health centres	Quarry site areas	During construction	DIST/DDC/DTO
Disruption of drainage system	Status of rehabilitation, service status of irrigation and water supply system; operation and maintenance requirement	Observation and interviews, photos, records	Irrigation schemes and water supply system	During construction	DIST/DDC/DTO
Loss or degradation of farmland, houses and properties	Status of road side land; Production / yield; Status of road side houses; Status of standing crop along alignment	Observation, data collection and analysis and interview with stakeholders	Road side land and houses	During construction	DDC/DTO/DIST/VICCC
Water pollution	Observation of open defecation and waste disposal around water sources near construction sites	Visual observation, measurement of water sample using field kit	Local streams	During construction; upon demand for testing with field kit	DDC/DTO/DIST/VICCC
Dust pollution	Dust cloud in work sites. Dust collected on leaves of nearby vegetation	Visual inspection	At construction sites and at sensitive spots (schools, health spots, major settlements)	During construction	DDC/DTO/DIST
Deforestation and	Numbers of trees, presence of ground	Observations, DFO	In and around the	During construction and	DIST/ CFUGs/DFO

Parameters /Impacts	Verifiable Indicators	Verification Methods	Location	Schedule	Responsible Implementation and Monitoring Agency
illegal logging	vegetation, signs of illicit logging and extraction of NTFPs	records, photos; interview with CFUGs members	construction sites, markets,	operation	during construction; CFUGs/DFO/DDC during operation
Killing/Poaching of wildlife	Wildlife poaching trapping and poaching by work force, trade of wildlife, road accidents inflicting wildlife	Interview with local people/ DFO/CFUGs members, photos, observations	Forest areas at roadside	Twice a year during construction and routine during operation	DIST during construction; CFUGs/DFO/DDC during operation
Change in economy	Numbers of people employed by the project during construction, numbers of women in work forces	Records kept by the project management, discussion with stakeholders	Project area	Trimester during construction phase	DDC/DTO/DIST
Trade and commerce	Numbers of shops increased or decreased, rental of houses and land spaces	Records, interviews, observations, photos	Throughout project area	Once in a year	DDC/DTO/DIST/VDC
Occupational safety and hazard	Type and number of accident occurred during construction; adequacy of occupational safety measured provided; compensation provided in case of fatal accidents or invalidity	Observations, photos, spot checks, contractors' and health centre records interview with workers	Throughout project area	During construction	DIST/Proponent
Change in socio-economic structure	No and extent of new settlements/types and ethnic groups; nos and extent of new businesses; nos and extent of new services and utilities, social conflicts	Observations, interview with local people, DDC Police and VDC records	Throughout project area	During operation	DDC/DTO/VDC
Ribbon Settlement along, alignment	Congestions to road users nos. of accidents, RoW encroachment	Records, observations	Throughout project area	During operation	DDC/DTO/Local administration

8. CONCLUSION AND RECOMMENDATIONS

8.1 Conclusion

144. The IEE study of the proposed Naduwa-Radijyula Road Subproject does not pass through any environmentally sensitive area, and have minimal adverse impact associated with loss of agricultural land. Most of the adverse impacts predicted are of low significance and short term as well as reversible. The rehabilitated road will provide better access to market and social services, and is expected to enhance productivity and improving quality of life of the people. Local people will get direct employment opportunity as workers during construction works, which will contribute in improving their income. The beneficial impacts from the implementation of the proposed road are more significant and long term in nature against the adverse impacts most of which could be avoided or minimized or compensated.

145. The IEE has shown that none of the anticipated environmental impacts of constructing the proposed road is significant enough to need a detailed follow-up EIA or special environmental study. Therefore, this IEE is sufficient for approval of the sub-project.

8.2 Recommendation

146. The proposed road project is recommended for implementation with incorporation of mitigation measures and environmental management plan.

147. A key consideration in selecting the road alignment is to minimize the acquisition of valuable agricultural and forest land. However, some agricultural and forest land will have to be acquired for the upgrading of the proposed road. A Resettlement Plan will be required to ensure that the persons affected by these losses are properly compensated.

9. MISCELLANEOUS

References

- ADB, 2003 **Environmental Assessment Guidelines**. Asian Development Bank, Manila, The Philippines
- ADB, 2007, Summary Initial Environmental Examination, RRRSDP Project, ADB TA 4919 NEP, Final Draft Report
- Center I, 1997 "Environmental Impact assessment, Mac-Grw Hill Inc. USA"
- District Profile of Rukum District
- Department of Roads, 1998 "Nepal Road Statistics"
- Department of Roads, 2002, Reference Manual for Roadside Bioengineering
- Department of Roads, 2002, Site Handbook for Roadside Bioengineering
- Department of Roads, 2003, Reference Manual for Environmental and Social Aspects of Integrated Road Development
- Department of Roads, 2003, Reference Manual for Environmental and Social Aspects of Integrated Road Development
- Department of Roads, GEU. 1996 "Bio-Engineering Information"
- Department of Roads, GEU. 1997 "Environmental Impact Assessment Guidelines for the Road Sectors"
- DoLIDAR 1999 **APPROACH for the Development of Agricultural and Rural Roads**. Department of Local Infrastructure Development and Agricultural Roads, 1999
- DoLIDAR Green Road Approach Manual
- DRILP 2006 **Environmental Guidelines (Draft)**, Decentralized rural Infrastructure and Livelihood Project, GoN, DoLIDAR.
- GoN 2006 **Environmental and Social Management Framework**. Road maintenance and Development Project, Department of Roads, Ministry of Physical Planning and Works, November 2006
- GoN/DoLIDAR, 2007 Environmental Assessment and Review Procedures for RRRSDP (Draft)
- GTZ, SDC, 1999 **Green Roads in Nepal, Best Practices Report – An Innovative Approach for Rural Infrastructure Development in the Himalayas and Other Mountainous Regions**.
- GTZ/SDC, 2000 Green Road: Best Practices
- ICIMOD, 1998 Access Improvement and Sustainable Development, Rural Road Development in Nepal, Durga P. Poudyal
- IUCN, 1996 "EIA Training Manual for Professional and Managers"
- PROJECT GRANT AGREEMENT (GRANT NUMBER 0093-NEP (SF)) (Special Operations) for (Rural Reconstruction and Rehabilitation Sector Development Program) between NEPAL and ASIAN DEVELOPMENT BANK, January 2008
- RAP 2001 **Initial Environmental Examination Guidelines (Draft)**. Department for International Development (UK) Rural Access Programme Nepal
- RAP, 2000 "Brief Paper on Environmental Guidelines For Road Corridor Alignment, WSP, GOECE and CDG"
- RAP, 2001 "Initial Environmental Examination Guidelines , WSP, GEOCE, and ODG"
- Uprety B K 2003 **Safeguarding the Resources ENVIRONMENTAL IMPACT ASSESSMENT Process and Practice**
- RRRSDP, 2008 Project Administrative Memorandum

ANNEX

Annex I: Terms of Reference



फोन नं. २२१८२१२
फ्याक्स नं. २२१८२११
वेब पृष्ठ: www.mrd.gov.np
ईमेल: mrd@mrd.gov.np
वेब: www.mrd.gov.np

पत्र संख्या ०६४/०६६

च.नं. २६३

मिति: २०६६/२/२४

१२६४
२०६६/११/२६

विषय:- प्रारम्भिक ज्ञातावरणीय परीक्षण (IIE) को कार्यसूची (TOR) स्वीकृत भएको ।

स्थानीय पूर्वाधार विकास तथा कृषि सडक विभाग,
जाबलासेत ।

राष्ट्रिय पुर्ननिर्माण तथा पुनर्स्थापना आयोजना (RRRSIP) अन्तर्गत निम्न जिल्ला विकास समितिको कार्यालयबाट निम्नानुसारका सडकहरूको प्रारम्भिक ज्ञातावरणीय परीक्षणको कार्यसूची (IIE) कार्यसूची (TOR) तयार गरी त्यही विभाग भर्खर ज्ञातावरणीय संरक्षण विभागबाट, २०४४ अनुसार स्थैतिको लागि यस मन्त्रालयमा पेश भएकोमा नेपाल सरकारको मिति २०६६/२/२४ को निर्णय (सचिवालय) अनुसार स्वीकृत भएको प्रतिवेदन गान-२/२ यसै पत्रसाथ पठाइएको अवरोध अनुसूच गरिन्छ ।

निम्न

१. निस्वाथनी-हवास बगर चौर, रोभिन्ता-फलोवास, पुन्नान-सलिया, काकीनेटा-तुडथु सडक खण्ड(पर्वत जिल्ला) ✓
२. नवुवा-राडीविडला, काकीडोल-दुकुम मार्गकोट, धिन्धेल-रुपु सडक खण्ड (सकुम जिल्ला) ✓
३. सल्लोचरी-विडरोह-सौधु-जर्दिह पौवा-फटकेरवर-जर्दिहपौवा-भोटेचौर, छाम्पेडोल-बागभञ्ज्याङ (काठमाण्डौ जिल्ला) ✓
४. नाम्दु-मार्बु-छाल (सोलुखा जिल्ला) ✓
५. तेलकोट-छुल्लेङ-बागु, च्यामासिब-बमालडोल-नाला (भक्तपुर जिल्ला) ✓
६. पिपल भञ्ज्याङ-हेतार (सिन्धुली जिल्ला) ✓
७. काले मुढौली-सिम्बा, चोरखेसरी-आहाल ढोडा-चरी भञ्ज्याङ-जोनास, किदिम-रानी गौड-वाशोक, काले मुढौली-दुर्दिम्बा (पौनधर जिल्ला) ✓
८. फागम-बहचौर-हर्जब-सिउरी (सिन्धु) ✓

(विजयराम सुवेदी)
सहायक अधिकृत

०/८

सवीकृत मिति: २०५५/२/२६

Terms of Reference (ToR)
for
Initial Environmental Examination (IEE)
of
**Naduwa-Radijyula
Road Sub-Project**

Submitted to:
**Ministry of Local Development,
Government of Nepal**

Proponent:
**District Development Committee (DDC)/
District Technical Office (DTO)
Rukum**

Telephone No. – 088-680063/019-657004
Fax No. – 088-649091/019-657005

May 2009

[Signature]

TABLE OF CONTENT

1.0	NAME AND ADDRESS OF THE PROPONENT.....	1
2.0	INTRODUCTION	1
2.1	GENERAL INTRODUCTION.....	1
2.2	BACKGROUND OF THE SUB-PROJECT	2
2.3	OBJECTIVES	5
2.4	RELEVANCY OF THE SUB-PROJECT	5
3.0	REVIEW OF RELEVANT LAWS, RULES AND GUIDELINES	5
4.0	PROCEDURE TO BE ADOPTED WHILE PREPARING THE REPORT	6
4.1	DESK REVIEW.....	6
4.2	PUBLIC CONSULTATION AND INFORMATION DISCLOSURE.....	6
4.3	FIELD WORK	7
5.0	ALTERNATIVES FOR THE IMPLEMENTATION OF THE PROPOSAL.....	7
6.0	REQUIREMENT OF THE IEE STUDY	7
6.1	TIME SCHEDULE	7
6.2	ESTIMATED BUDGET AND STUDY TEAM	8
7.0	ENVIRONMENTAL BASELINE	8
8.0	ANALYSIS AND INTERPRETATION.....	8
9.0	IDENTIFICATION, PREDICTION AND EVALUATION OF IMPACT.....	8
9.1	BENEFICIAL IMPACTS	9
9.2	ADVERSE IMPACTS	9
10.0	BENEFIT AUGUMENTATION/MITIGATION MEASURES.....	10
11.0	ENVIRONMENTAL MANAGEMENT PLAN	11
12.0	IEE REPORT FORMAT.....	11

TABLE

Table 1. Proposed Work Schedule for Conducting IEE Study.....	7
---	---

FIGURE

Figure 1. Map Showing Location of Naduwa-Radijyula Road Sub-Project in Rukum District	3
Figure 2. Map of Rukum District Showing Naduwa-Radijyula Road Sub-Project	4

ABBREVIATIONS

ADB	Asian Development Bank
Ch	Chainage
CF	Community Forest
CISC	Central Implementation Support Consultants
CITES	Convention on International Trade in Endangered Species of Flora and Fauna
DDC	District Development Committee
DG	Director General
DIST	District Implementation Support Team
DoLIDAR	Department of Local Infrastructure Development and Agricultural Roads
DPO	District Project Office
DPCC	District Project Coordination Committee
DTO	District Technical Office
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management Section
EPA	Environmental Protection Act
EPR	Environmental Protection Rules
FGD	Focus Group Discussion
GoN	Government of Nepal
IEE	Initial Environmental Examination
IUCN	The World Conservation Union
Km	Kilometer
LEP	Labour based, environment friendly and participatory
MLD	Ministry of Local Development
NGO	Non-Governmental Organization
PAM	Project Administrative Memorandum
PCU	Project Coordination Unit
REA	Rapid Environmental Checklist
RRRSDP	Rural Reconstruction and Rehabilitation Sector Development Project
SF	Social Funding
SDC	Swiss Agency for Development and Cooperation
SDS	Social Development Specialist
SM	Social Mobilizer
TA	Technical Assistance
ToR	Terms of Reference
VDC	Village Development Committee
ZoI	Zone of Influence



1.0 NAME AND ADDRESS OF THE PROPONENT

The District Development Committee (DDC)/District Technical Office (DTO), Rukum is the implementing agency at the district level and the proponent of the Initial Environmental Examination (IEE) study for the construction of Nadua-Pasthala-Matedanda-ChhanChhari-GhariKhola-Radijyula road sub-project. The Ministry of Local Development (MLD) is the concerned authority for the approval of IEE study report.

Address of the Proponent:

District Development Committee/District Technical Office, Rukum Musikot
Telephone No. - 019-657004, 088-680063
Fax No. - 019-657003, 088-649091

2.0 INTRODUCTION

2.1 GENERAL INTRODUCTION

Government of Nepal has received a grant from ADB, DFID (Department for International Development) and loan assistance from OPEC, Fund for International Development to finance the Rural Reconstruction and Rehabilitation Sector Development Project (RRRSDP). The project goal is to reduce rural poverty in 20 very poor remote Terai, Hill and Mountain districts affected by the conflict. RRRSDP focus on immediate post conflict development projects for accelerate poverty reduction and inclusive development, thereby enhancing the effectiveness and efficiency of the delivery of public service and improving access of rural people to economic opportunities and social services. The purpose is to achieve sustainable increased access to economic and social services, and enhanced social and financial capital for people in the project area, particularly poor and disadvantaged groups. Labour-based, environmentally friendly, and participatory approaches (LEP) will ensure that the investment in construction and rehabilitation of infrastructure results in sustainable, improved access to economic and social services, and enhanced social and financial capital.

Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR) is the executing agency. The implementing arrangements are as following: DoLIDAR has established a project coordination unit (PCU) in Kathmandu, headed by a project coordinator to coordinate all project activities. The PCU will be responsible for guiding and monitoring district development committees (DDCs) as they implement project components. At the district level, project implementation will be the responsibility of the district project office (DTO) within the district technical office of each DDC. A local engineering consultant (DIST) to cover technical issues and social mobilization and support for rural infrastructure building groups, will support the DTO.

This Terms of Reference (ToR) is prepared to conduct an IEE of Nadua-Pasthala-Matedanda-ChhanChhari-GhariKhola-Radijyula road sub-project in Rukum District. This road has been selected after the walkover survey of Nadua-Pasthala-Matedanda-ChhanChhari-GhariKhola-Radijyula roads from the sub-list on the basis of prioritization

criteria. This is a high priority road in DTMP of Rukum district and is proposed for construction under RRRSDP.

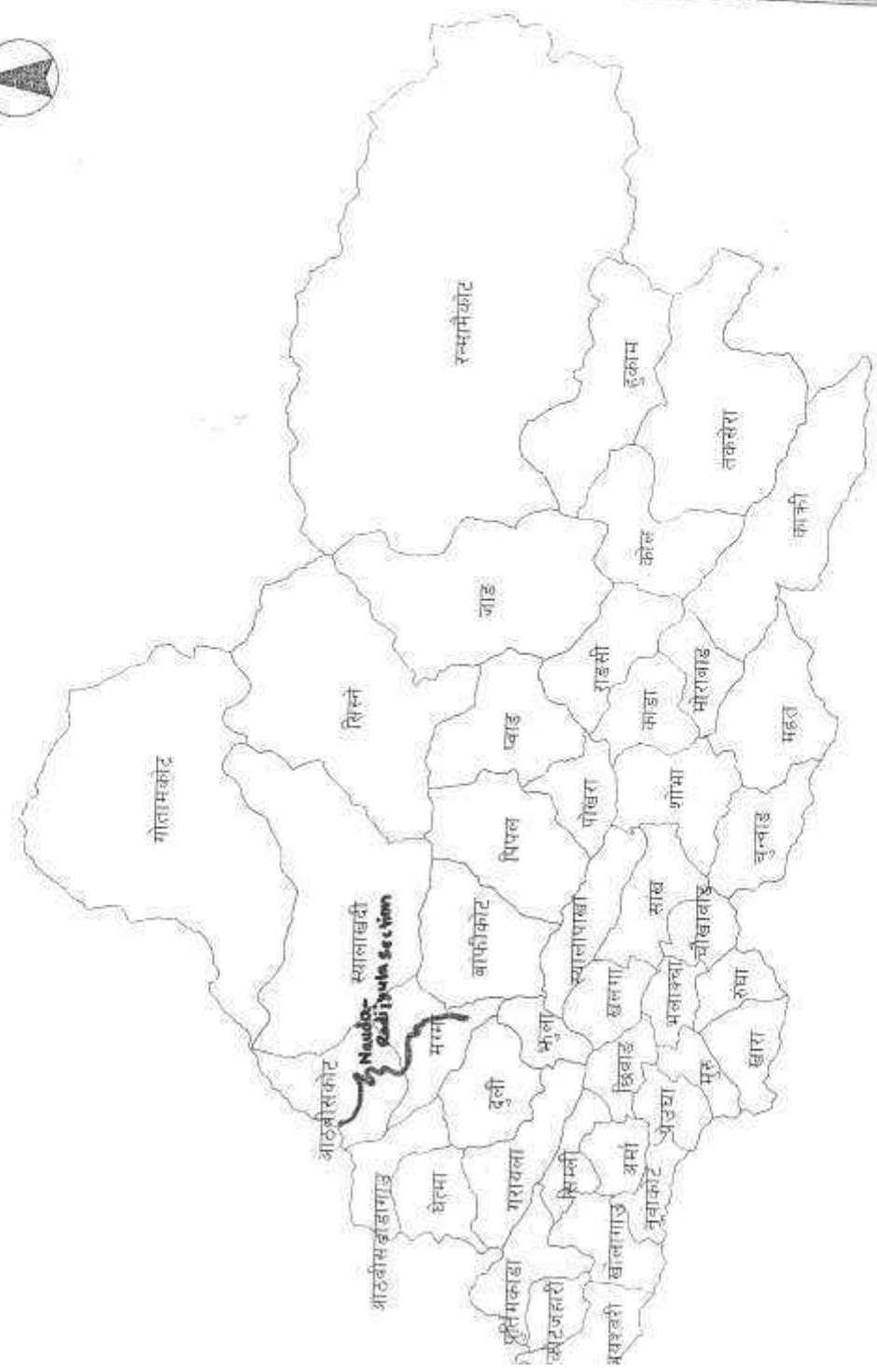
2.2 BACKGROUND OF THE SUB-PROJECT

The proposed road is the shortest possible corridor to link the district with the nearest road head at Naduadanda of Rukum District. Earthen Road from Khalanga to Naduwadada is under construction by DDC and from Naduwadada-Radijyula is not connected by motorable road but there is a mule road from Khalanga, is under progress extending along so that Naduwadada will be near to Road link in future. The Naduwadada-Radijyula section is about 12+500 km. in length. This road corridor passes from different settlements of Magma and Athbiskot VDCs. About eight percent people of Rukum will be directly benefited by this road. It provides services to the people of upper villages like Athbiskot, Radijula, Gotamkot, Syalakhadi, Sisne VDCs of Rukum and Jajarkot, Dolpa Districts.

The location and alignment of the road is given in Figure 1 and 2.

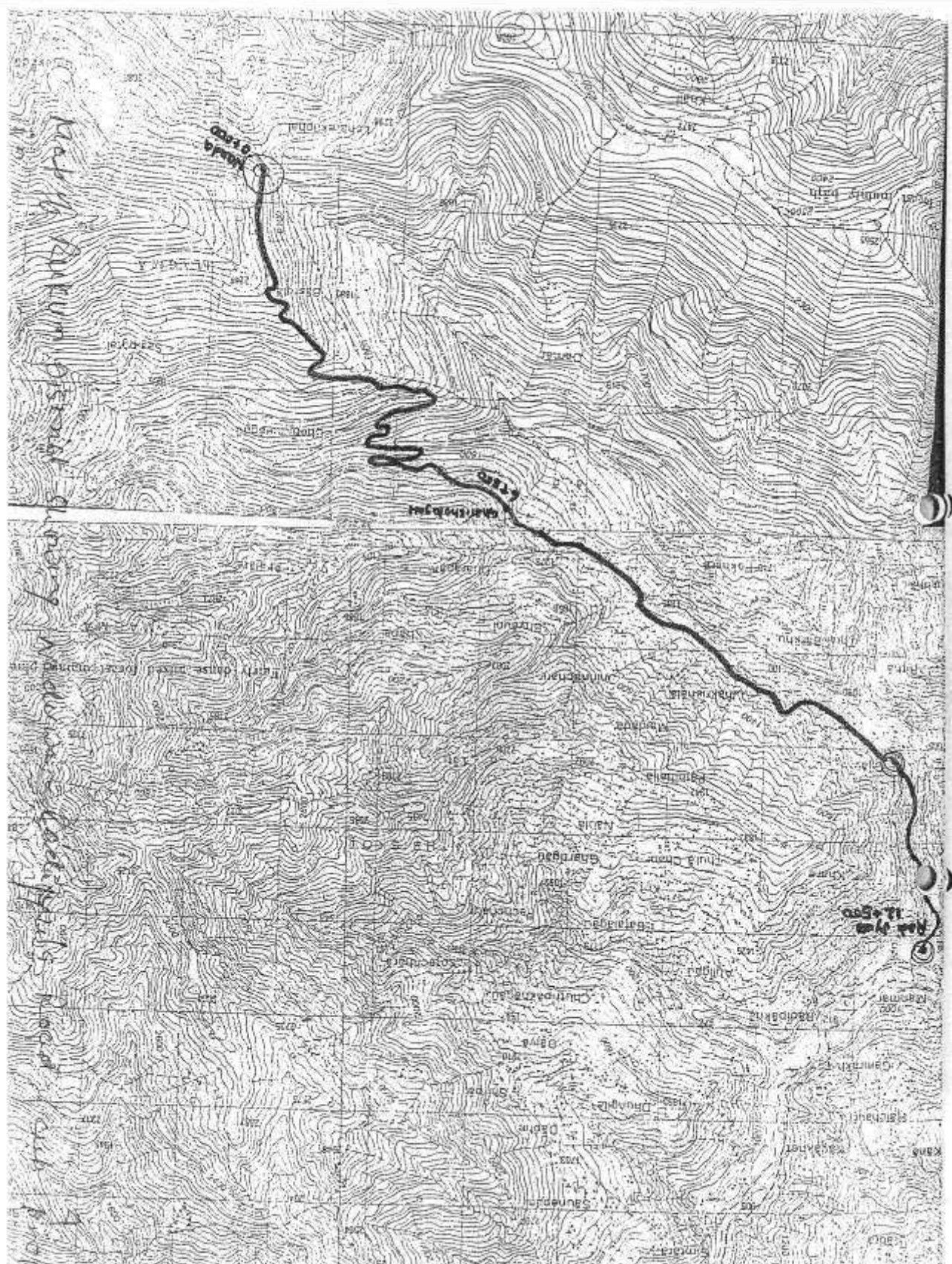
1:50,000 (Scale of Map)

RKUKM DISTRICT



25 0 25 Kilometers 3

up showing Nauda-Radiyula Road Sub-division in District



2.3 OBJECTIVES

The objectives of the proposed IEE study includes to:

- identify the major issues that may arise as a result of proposed works on bio-physical, socio-economic and cultural environment of the project area,
- recommend practical and site specific environmental mitigation and enhancement measures, prepare and implement environmental monitoring plan for the sub-project,
- make sure that IEE is sufficient for the proposed road sub-project, and
- provide information on the general environmental setting of the sub-project area as baseline data.

2.4 RELEVANCY OF THE SUB-PROJECT

The Naduwadada-Radijyula road links many Village Development committees of Rukum District to district headquarter. This road is considered as an important road for the people of Rukum district. This road is given Priority No. 1 in Class A Road in DTMP of Rukum District (code no 54A004R). This road further can be extended to Jajarkot and Dolpalpa districts.

An IEE of the proposed road is necessary in order to assess the environmental consequences of the proposed rural road construction activities and suggest appropriate, practical and site specific mitigation and enhancement measures. An IEE of a district road is a legal requirement according to Environmental Protection Act, 1996 (EPR, 1996) and Environmental Protection Rules, 1997 (EPR, 1997). Preparation of IEE report by concerned District Development Committee (DDC) and approval of IEE report by the Ministry of Local Development (MLD) according to Nepali legal provision is considered sufficient by the ADB.

3.0 REVIEW OF RELEVANT LAWS, RULES AND GUIDELINES

Government of Nepal has adopted various acts, regulations and guidelines to ensure the integration of development and conservation of environment. The IEE study will be guided by the requirements and provisions of the following acts, rules and guidelines as applicable.

- Environment Protection Act, 1997 and Environment Protection Rules, 1997 (amended 1999)
- Forest Act, 1993 and Forest Rules, 1995
- *Batabaraniya Nirdeśika* (Nepal; MLD), 2057
- National Park and Wildlife Conservation Act, 1973
- Local Self Governance Act, 1999 and Local Self Governance Rules, 2000
- Land Acquisition Act, 1977 and Land Acquisition Rules, 1969
- National Environmental Impact Assessment Guidelines, 1993

- APPROACH for the Development of Agricultural and Rural Roads, 1999 (DoLIDAR)
- RRRSDP Environmental Assessment & Review Procedures (EARP) Guidelines, 2007
- REFERENCE MANUAL for Environmental and Social Aspects of Integrated Road Development, 2003, Department of Road.
- Green Roads in Nepal, Best Practices Report – An Innovative Approach for Rural Infrastructure Development in the Himalayas and Other Mountainous Regions. GTZ, SDC, 1999.
- ADB Environmental Assessment Guidelines, 2003
- Three Years Interim Plan, 2007/08-2009/10

4.0 PROCEDURE TO BE ADOPTED WHILE PREPARING THE REPORT

The IEE approach, methodology and procedure should generally follow the provisions of the EPA and EPR. In this connection, following approach and methodology will be adopted during the IEE report preparation.

4.1 DESK REVIEW

The following steps will be followed during the desk review:

- Collection and review of secondary sources of information from various sources
- Initial interaction and consultation with the local community and district level stakeholders
- Delineation of geographical boundary of the Zone of Influence (ZoI) on the topographical map
- Preparation of project specific checklist

4.2 PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

The role of public consultation and participation is to ensure the quality, comprehensiveness, effectiveness of IEE as well as to ensure that the public view's are adequately taken into consideration in the decision making process. It is done during the preparation of an IEE. In order to ensure the public involvement, the following procedures will be followed during IEE report preparation:

- Publication of notice- A public notice of 15 days will be published in a national level daily newspaper seeking written opinion from concerned VDCs, DDC, school, health posts and related local organizations. A copy of the public notice will be affixed in the above mentioned organizations and deed of enquiry (*muchulka*) will be collected.
- Recommendation letter from concerned VDCs and/or municipality will also be obtained.
- IEE team will also carryout interaction with local communities and related stakeholders and will also collect the public concerns and suggestions.
- Draft IEE report will be sent to concerned VDCs for information disclosure.
- The approved IEE report will be made accessible to interested parties and general public through information center of DDC and websites of ADB, DoLIDAR and RRRSDP.

4.3 FIELD WORK

The IEE team will walk through along the road alignment visiting the significant environmental features in the probable influence corridor, and make necessary measurements, inspect/observe and discuss it with the local stakeholders. The information collection will be made covering physical, biological, socio-economic and cultural aspects of the environment.

5.0 ALTERNATIVES FOR THE IMPLEMENTATION OF THE PROPOSAL

Alternative analysis has been considered as an integral part of IEE study, which involves an alternative ways of achieving the objectives of a proposed sub-project. The aim of alternative analysis is to arrive at a development option, which maximizes the benefits while minimizing the unwanted impacts.

The study team will conduct alternative analysis considering the following issues:

- No action option
- Project alternatives
- Alternative alignment
- Alternative design and construction approach
- Alternative schedule and process
- Alternative resources

6.0 REQUIREMENT OF THE IEE STUDY

This includes time schedule, estimated budget and appropriate manpower (experts) for conducting IEE study.

6.1 TIME SCHEDULE

IEE report will be completed within eight weeks after the approval of ToR. An indicative time frame for conducting IEE is given in the Table 1 below:

Table 1. Proposed work schedule for conducting IEE study

SN	Activities	Week							
		1	2	3	4	5	6	7	8
1	Orientation training to the team	■							
2	Desk study and review		■						
3	Public notice publication			■					
4	Field visit for survey and consultation with community			■	■				
5	Collection of suggestions and recommendations from stakeholders					■			
6	Analysis and interpretation						■		
7	Draft report preparation							■	
8	Comments on draft report								■
9	Final Report preparation and submission								■
10	Approval of the final report.								

6.2 ESTIMATED BUDGET AND STUDY TEAM

Most commonly an IEE of an infrastructure sub-project in the district need expert inputs from the following sectors:

- Landslides, slope stability, bio-engineering and erosion
- Forestry and wildlife
- Geology
- Road engineering
- Social, economic and culture.

The IEE will be carried out and prepared by DIST Environmental Specialist, with support from DIST team Rukum, Environmental Specialist from CISC and District Project Office (DPO). CISC Environmental Specialist will provide necessary training to DIST for the environmental assessment procedures. The activity of IEE preparation will be supervised by DPO office. Since, the IEE report will be prepared by the DIST team with the support of the CISC, no separate budget and manpower is required. However, specific subject matter experts will be hired for short term basis if needed.

7.0 ENVIRONMENTAL BASELINE

This will describe environmental setting of the project location and surrounding areas and will contain information on relevant bio-physical, socio-economic and cultural factors and features. The updated, processed and analyzed information and data on each of the relevant bio-physical, socio-economic and cultural aspects will be presented in the IEE study. As far as possible, other environmental features such as, sensitive area, population and settlements, forests, geological features will be shown in the map.

8.0 ANALYSIS AND INTERPRETATION

Both secondary and primary information and data collected will be analyzed and interpreted. The bio-physical information will be tabulated to the extent possible. The socio-economic, cultural and religious information will be cross checked and analyzed.

9.0 IDENTIFICATION, PREDICTION AND EVALUATION OF IMPACT

The identification and prediction of impacts shall be carried out by considering the proposed project actions/activities in terms of rehabilitation and construction of the road project. The impacts of the activities shall be on bio-physical, socio-economic and cultural resources in a defined zone of influence (i.e. 1.5 hours walking distance from the road alignment or 5 km distance).

The impacts shall be classified in terms of extent (site specific, local and regional), magnitude (low, medium and high) and duration (short term, medium term and long term) as well as reversible, irreversible, severe, moderate and significant. The likely impact shall be assessed covering both adverse and beneficial ones. The methodology adopted for impact identification and prediction will be checklists and matrix method. The likely impacts of the proposed road construction as well as operation are described in the following sections.

9.1 BENEFICIAL IMPACTS

Beneficial impacts due to the construction of the road shall be assessed by the study team in terms of impacts on physical, biological, socioeconomic and cultural systems of the project area. The impacts shall also be assessed in the category of extent, duration and magnitude. Based on the identification and prediction of the impacts, the suitable enhance measures to maximize the project benefits shall be explored and designed. The largest beneficial impacts will be on the physical and socio-economic environment as given below:

9.1.1 Construction Stage

- Employment Generation and Increase in Income
- Skill Enhancement
- Enterprise Development and Business Promotion
- Community Empowerment and Ownership

9.1.2 Operation Stage

- Access to Inputs and Services
- Development of Market centers
- Appreciation of Land Value
- Increased Crop Productivity and Sale of Farm Products
- Enhancement of Community Development Services
- Promotion of Tourism Activity
- Women and Indigenous People Empowerment

9.2 ADVERSE IMPACTS

The likely adverse impacts during construction and subsequent operation and maintenance in terms of physical, biological, socioeconomic, cultural and religious aspects due to project actions shall be identified, predicted and evaluated. Based on the identified impacts, appropriate mitigation measures shall be recommended.

9.2.1 Construction Stage - Though the sub-projects will apply LEP approach to the extent possible during the implementation, it may not be possible to avoid all likely impacts; the study shall take into account the following issues:

Physical environment

The issues and concerns generally related to physical environment typically include, but not necessarily limited to:

- Change in Land Use
- Spoil Disposal
- Slope Instability
- Water Management works i.e. springs, streams, rain water (Drainage and Cross Drainage Works
- Air Dust, Noise and Water Pollution
- Quarrying and Borrow Pit
- Decline in Aesthetic Value

Biological environment

The issues and concerns generally related to biological environment typically include, but not necessarily limited to;

- Loss or degradation of forests and vegetation.
- Impact on wildlife including birds due to loss or degradation of habitat, increased hunting and other form of human pressure.
- Impacts on flora and fauna (as listed in CITES and IUCN Red data book)

Socio-economic and cultural environment

The issues and concerns generally related to socio-economic and cultural environment typically include, but not necessarily limited to;

- Loss or degradation of farm land and productivity
- Loss or degradation of private properties such as houses, farm sheds, and other structures, crops and fodder/ fruit trees
- Impact on community infrastructure such as irrigation, water supply, schools, health post, trail and trail bridges
- Impacts on cultural, religious and archeological sites
- Impacts on health and safety matters.

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 augumentatin 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 augumentation 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 Augumentation/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 Cunsultation 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
- 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

Roads & Highways, page 1

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/Rural Reconstruction and Rehabilitation Sector

Subproject::

Naduwa-Radijyula Road Sub-Project

SCREENING QUESTIONS	Yes	No	REMARKS
A. Project Siting			
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 	√		Dislocated people will be compensated and included in resettlement plan.
<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? 	√		There are 1HH that should be dislocated. Dislocated people will be compensated.
<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? 		√	

Annex III: Abstract of cost

Government of Nepal
Ministry of Local Development
Office of District Development Committee
District Technical Office
Rural Rehabilitation Reconstruction Sector Development Program
Rukum

Road: Naduwa-Radijyula Road Sub Project

Chainage: 0+000-16+500

Summary of Total Cost (Item-wise)

SN	Description of works	Unit	Estimated	Rate(NRs)	Amount
			Quantity	In Figure	(NRs)
1	General				
1.1	Provision for Insurances as specified in the[General Conditions of Contract, Clause-13)	LS			300,000.00
1.2	Providing site office (s) for supervision team	LS			500,000.00
	Sub Total of General Item				800,000.00
2	Earthwork				
2.1	Site Clearance including Clearing and grubbing as per specification(DoLIDAR'- 1-1)	Sq.m.	82500.00	11.00	907,500.00
2.2	Excavation in roadway including removal and satisfactory disposal and stacking or hauling (to sites of embankment construction) of suitable cut materials as required.(DoLIDAR SN 5, Clause 2-1.2.2, 2-1.8, 2-1.9)				
	a) OrdinarySoil	Cu.m.	20089.50	137.50	2762306.73
	b) Hard soil	Cu.m.	33046.81	165.00	5452723.65
	c) Soft Rock	Cu.m.	7716.57	1100.00	8488225.02
	d) Hard Rock	Cu.m.	2796.06	4675.00	13071595.93
2.2.1	Construction of roadway in embankment and miscellaneous backfilling areas with approved material obtained from roadway excavation including average transportation distance up to 50 m along the lead route, spreading in layers, watering and compaction; (DoLIDAR clause 2-5)	Cum.	10139.46	68.75	697087.88
2.3	Excavation of Drain including removal and satisfactory disposal and stacking or hauling (to sites of embankment construction) of suitable cut materials as required.(DoLIDAR SN 5, Clause 2-1.2.2, 2-1.8, 2-1.9)				
	a) OrdinarySoil	Cu.m.	863.52	137.50	118734.28
	b) Hard soil	Cu.m.	1021.47	165.00	168543.21
	c) Soft Rock	Cu.m.	234.86	1100.00	258343.80
	d) Hard Rock	Cu.m.	175.95	4675.00	822547.55
2.3.1	Construction of drain in embankment and miscellaneous backfilling areas with approved material obtained from roadway excavation including average transportation distance up to 50 m along the lead route, spreading in layers, watering and compaction; (DoLIDAR clause 2-5)	Cum.	0.00	68.75	0.00
3.4	Excavation foundation for gabion and retaining wall structures including removal and satisfactory disposal and stacking or hauling (to sites of embankment construction) of suitable cut materials as required.(DoLIDAR SN 5, Clause 2-1.2.2, 2-1.8, 2-1.9)				
	a) OrdinarySoil	Cu.m.	580.47	137.50	79814.95
	b) Hard soil	Cu.m.	1126.59	165.00	185887.70
	c) Soft Rock	Cu.m.	233.68	1100.00	257044.46
	d) Hard Rock	Cu.m.	119.96	4675.00	560835.30
2.4.1	Construction of roadway in embankment and miscellaneous backfilling areas with approved material obtained from roadway excavation including average transportation distance up to 50 m along the lead route, spreading in layers, watering and compaction; (DoLIDAR clause 2-5)	Cum.	166.20	68.75	11425.98
	Sub Total of Earthwork Items				33,842,616.42
3	Structural work				

3.1	Drain Work				
3.1.1	PCC in (1:4)	Cum.	1882.40	8395.83	15,804,300.98
3.1.2	Stone soiling work	Sq.m.	3982.00	601.39	2,394,744.94
3.2	Stone pitching				
3.2.1	Excavation in Hard soil	Cum.	620.00	165.00	102,300.00
3.2.2	Granular base material in Stone Pitching	Sq.m.	3100.00	129.25	400,675.00
3.2.3	20 cm thick stone pitching on the prepared bedding including supply of stone and river spalls for sealing of voids	Cum.	3100.00	601.39	1,864,316.75
3.3	Gabion works				
3.3.1	Box size (2x1x1)				
3.3.1.1	Assembling of gabion baskets and placing them in position including stretching, binding them together and tying down lids	Box	807.00	24.75	19,973.25
3.3.1.2	Stone Packing in Gabion Crates including stone supply	Box	807.00	4992.55	4,028,987.85
3.3.1.3	Fabrication of gabion boxes including rolling, cutting, weaving and supply to the site (Hexagonal Mesh Size: 100mm*120mm, selvedge wire-7swg, mesh wire-10 swg & binding wire-12 swg, all heavy coated)	Box	807.00	987.94	797,266.56
3.3.2	Box size (2x1x1)				0.00
3.3.2.1	Assembling of gabion baskets and placing them in position including stretching, binding them together and tying down lids	Box	593.00	17.50	10,377.50
3.3.2.2	Stone Packing in Gabion Crates including stone supply	Box	593.00	3693.79	2,190,415.99
3.3.2.3	Fabrication of gabion boxes including rolling, cutting, weaving and supply to the site (Hexagonal Mesh Size: 100mm*120mm, selvedge wire-7swg, mesh wire-10 swg & binding wire-12 swg, all heavy coated)	Box	593.00	1372.88	814,116.21
3.3.3	Geo-textile work inside of gabion wall	Sq.m	2053.50	80.00	164,280.00
3.4	Dry Wall				0.00
3.4.1	Dry stone Wall (Road Stone available from road excavation within initial lead from 150m to 200m)-8 [DoLIDAR SN-39,Clause 8)	Cu.m	1240.92	2782.53	3,452,893.71
3.5	Slab Culvert				
3.5.1	Span (6m)				
3.5.1.1	Earthwork ecavation in foundation	Cu.m	142.20	165.00	23,463.00
3.5.1.2	Stone soiling	Sq.m	152.20	601.39	91,531.94
3.5.1.3	PCC in (1:3:6)	Cu.m	60.88	5604.80	341,220.22
3.5.1.4	Stone masonry work (1:4)	Cu.m	120.00	8395.83	1,007,499.00
3.5.1.5	PCC in (1:2:4)	Cu.m	10.50	5530.30	58,068.15
3.5.1.6	Form work	Sq.m	61.20	286.50	17,533.80
3.5.1.7	Reinforced Steel	kg	876.20	35.70	31,276.09
3.5.2	Span (4m)				
3.5.2.1	Earthwork ecavation in foundation	Cu.m	94.80	165.00	15,642.00
3.5.2.2	Stone soiling	Sq.m	104.80	601.39	63,025.93
3.5.2.3	PCC in (1:3:6)	Cu.m	41.92	5604.80	234,953.22
3.5.2.4	Stone masonry work (1:4)	Cu.m	80.00	8395.83	671,666.00
3.5.2.5	PCC in (1:2:4)	Cu.m	9.00	5530.30	49,772.70
3.5.2.6	Form work	Sq.m	52.20	286.50	14,955.30
3.5.2.7	Reinforced Steel	kg	584.14	35.70	20,850.73
3.6	PCC Causeway				
3.6.1	Earthwork ecavation in foundation	Cu.m	10.00	165.00	1,650.00
3.6.2	Boulder soiling	Sq.m	50.00	601.39	30,069.63
3.6.3	PCC in (1:2:4)	Cu.m	12.50	5530.30	69,128.75
3.7	Humpipe				
3.7.1	60dia.				
3.7.1.1	Earthwork ecavation in foundation	Cu.m	35.28	165.00	5,821.20
3.7.1.2	PCC in (1:3:6)	Cu.m	4.10	5604.80	22,951.66
3.7.1.3	Stone masonry work (1:4)	Cu.m	28.54	8395.83	239,637.18
3.7.1.4	Granular base material in Stone Pitching	Cu.m	15.75	129.25	2,035.69
3.7.1.5	Back filling work	Cu.m	82.43	68.75	5,667.12
3.7.1.6	Laying, Fitting, and Fixing of Hume Pipe with Trasportation at Site,with all complete Work	Rm.	15.00	5519.95	82,799.25
3.7.2	30dia.				

3.7.2.1	Earthwork ecavation in foundation	Cu.m	159.12	165.00	26,254.80
3.7.2.2	PCC in (1:3:6)	Cu.m	2.86	5604.80	16,029.73
3.7.2.3	Stone masonry work (1:4)	Cu.m	20.52	8395.83	172,282.33
3.7.2.4	Granular base material in Stone Pitching	Cu.m	19.80	129.25	2,559.15
3.7.2.5	Back filling work	Cu.m	59.40	68.75	4,083.75
3.7.2.6	Laying, Fitting, and Fixing of Hume Pipe with Trasportation at Site,with all complete Work	Rm.	60.00	2829.30	169,758.00
	Sub Total of Structural works Items				35,536,835.03
4	Tools for RBGs	LS	2500000.00		2,500,000.00
	Sub Total of Structural RBGs tools Items				2,500,000.00
	Grand Total of all Items (A)				72,679,451.45
			Bio-Engineering works@3% of (A) except tools		2,105,383.54
		B	Sub Total		74,784,834.99
			VAT @13% of (A)		534,479.76
		C	Sub Total		75,319,314.75
			Provion for contingencies @ 5% of (A)		3,765,965.74
		D	Grand Total = [(B)+(C)]		79,085,280.49
			Cost Per Kilometer		4,793,047.30

Annex IV: RRRSDP Environmental Checklist

A. GENERAL SOCIO-ECONOMIC SITUATION OF THE INFLUENCE AREA 1

1. Overview of settlements in the zone of influence (Zol) area

Settle ment Code*	Name of Settlement and address	Household and Population	Caste/ethnic distribution	General Comment
A				
B				
C				
D				
E				
F				
G				
H				
I				
J				

* Use the same codes as in strip map and topographical map.

2. Economic activities/main occupation

Settlement Code	Number of HH and Percentage of Population engaged in					
	Agriculture & Livestock	Labour & Porter	Business/Commerce	Cottage Industry	GO/NGO Employees	Others (specify)
A						
B						
C						
D						
E						
F						
G						
H						
I						
J						

3. Existing services and infrastructures

[illegible]

[illegible]

1.6	Phaper										
1.7	Others (list)										
2.0	CASH CROPS										
2.1	Oil Seeds										
2.2	Beans/Dal										
2.3	Tobacco										
2.4	Potato										
2.5	Vegetables										
2.6	Fruits										
2.7	Tea/Coffee										
2.8	Amliso										
2.9	Sericulture										
2.10	Others (list)										
3.0	LIVESTOCK & FISHERIES										
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										

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. Also mention the place.**

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

Name of settlement:

- (b) **Seasonal migration in search of work.**

Month	No. of Total HH	Destination	Purpose
Baisakh			
Jestha			
Ashad			
Shrawan			
Bhadra			
Ashwin			
Kartik			

Marga			
Poush			
Magh			
Falgun			
Chaitra			

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
1		
2		
3		
4		
5		

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
1		
2		
3		
4		
5		

C. HISTORIC AND CULTURAL RESOURCES WITHIN THE SETTLEMENT

Type of Resource	Name/specification	Affecting activities	Location from project
Temples			
Monuments			
Others			

१२

२०६६ साल साउन १ गते बिहीबार
Thursday, July 16, 2009सँग
जमा
गस

नेपाल सरकार

स्थानीय विकास मन्त्रालय
जिल्ला विकास समितिको कार्यालय
जिल्ला प्राविधिक कार्यालय
ग्रामीण पुनर्निर्माण तथा पुनर्स्थापना आयोजना
जिल्ला आयोजना कार्यालय
रुकुम

प्रारम्भिक वातावरणीय परीक्षण (IEE) सम्बन्धी राय सुझावका लागि सार्वजनिक सूचना

(सूचना प्रकाशन मिति : २०६६/०४/१)

यस जिल्ला विकास समितिको कार्यालय/जिल्ला प्राविधिक कार्यालय रुकुम, ग्रामीण पुनर्निर्माण तथा पुनर्स्थापना आयोजना, जिल्ला आयोजना कार्यालय, रुकुम निर्माण गर्ने प्रस्ताव गरिएका निम्न सडकहरूको प्रारम्भिक वातावरणीय परीक्षण ९६३०० प्रतिवेदन कार्यान्वयन गर्ने सिलसिलामा वातावरणीय संरक्षण नियमावली २०५४, (पहिलो संसोधन २०५५ समेत) को नियम ७२ (२) अनुसार यो सार्वजनिक सूचना प्रकाशित गरिएको छ।

प्रस्तावकको नाम :- जिल्ला प्राविधिक कार्यालय। जिल्ला आयोजना कार्यालय, रुकुम

सि.नं.	आयोजनाको नाम	आयोजनले प्रभावित पर्ने गाविसहरू
१	काँक्री-तकसेरा-कोल- हुकाम-मैकोट सडक	काँक्री, कोल, तकसेरा, हुकाम, रन्मामैकोट
२	नदुवा-राडीज्युला सडक	पम्मा, आठविसडाँडागाउँ, आठविसकोट
३	छिन्खेत-स्यापुदह सडक	बाफिकोट

उक्त प्रस्तावको कार्यान्वयनबाट वातावरणमा पर्नसक्ने प्रभावका बारेमा सम्बन्धित गाविस, विद्यालय, स्वास्थ्य चौकी, वन उपभोक्ता समिति तथा अन्य सरोकारवाला व्यक्ति वा संस्थाले यो सूचना प्रकाशित भएको मितिले १५ (पन्ध्र) दिनभित्र निम्न ठेगानामा आफ्नो सुझाव पठाईसक्यो गरीदिनु हुन अनुरोध गरिन्छ।

राय सुझाव पठाउने ठेगाना

जिल्ला प्राविधिक कार्यालय, खलङ्गा, रुकुम
ग्रामीण पुनर्निर्माण तथा पुनर्स्थापना आयोजना
जिल्ला आयोजना कार्यालय, रुकुम
टेलिफोन नं. ०८८-६८००६३/०१९-६४७००४
फ्याक्स नं. ०१९-६४७००५/०८८-६४९०९१

Annex VI: Deed of Enquiry (*Muchulka*)



प.सं. :
च.नं. :

दिनांक : २०६६/०४/०९

जो जससँग सम्बन्धित छ ।

उपरोक्त सम्बन्धमा आज मिति २०६६/०४/०९ मा यस जि.वि.सको सुचना पाटीमा ग्रामीण पुनर्निर्माण तथा पुनस्थापना आयोजना, रुकुमका कर्मचारी श्री केदार धिमिरेले बातावरण संरक्षण नियमावली २०५४, (पहिलो संसोधन २०५५ समेत) को नियम ७२(२) बमोजिम प्रारम्भिक बातावरणीय परीक्षण (IEE) गर्ने बारेको मिति २०६६/०४/०९ मा गोरखापत्रमा प्रकाशित सुचनाको टाँस गरेको व्योहोरा प्रमाणित गरिन्छ । उक्त सुचना नदुवा- राडिज्पूला सडक खण्डको लागि टाँस गरिएको व्योहोरा जानकारी गराउँदछौ ।

(हरिप्रसाद किरण ओष्ठा)
स्थानिय विकास अधिकारी

ब.मु.स्थानिय विकास अधिकारी



आज मिति २०८०/०८/०९ या यस मिति २०८०/०८/०९ गते भएको १०११ नम्बरको बायोम
 पुनर्विज्ञान तथा पुनर्स्थापना आयोजना, रुकुमका कम्प्युटररी श्री सशक्त, सिद्धि र प्रतिभा के सी
 ने वातावरण संरक्षण नियमावली २०५४, (पहिलो संशोधन २०५५ समेत) को नियम ७२(२)
 हसोजिम प्रारम्भिक वातावरणीय परीक्षण (IEE) गर्ने बारेको मिति २०६९/०४/०९ मा गोरखापत्र
 मा प्रकाशित सुचनाको टाँस गरेको व्योहोरा प्रमाणित गरिन्छ। उक्त सुचना २०८०/०८/०९
 २०८०/०८/०९ सडक खण्डको लागि टाँस गरिएको व्योहोरा जानकारी गराउँदछौ।

तपसिल

नाम	हस्ताक्षर
१) श्री हन रिमाल	श्री हन रिमाल
२) कृतावहादुर शही	कृतावहादुर शही
३) नदीराम डो. ला.	नदीराम डो. ला.
४)	
५)	
६)	
७)	
८)	
९)	
१०)	



सुचना

संयोजक

आज मिति २०७६/०४/०९ मा यहाँ आइएससी मा वि.संको डा. वि. स. प्रसाद मा सामाजिक

पुनर्निर्माण तथा पुनर्वासमा सामाजिक कार्यकर्ता श्री सत्यवती गिरी, अनिता के.सी.

ले वातावरण संरक्षण नियमावली २०५४, (पहिलो संसोधन २०५५ समेत) को नियम ७२(२)

बमोजिम प्रारम्भिक वातावरणीय परीक्षण (IEE) गर्ने बारेको मिति २०६६/०४/०९ मा गोरखापत्र

मा प्रकाशित सुचनाको टाँस गरेको व्योहोरा प्रमाणित गरिन्छ। उक्त सुचना गुप्त बाडी

गुप्त बाडी सञ्चक खण्डको लागि टाँस गरिएको व्योहोरा जानकारी गराउँदछौं।

तपसिल

नाम

हस्ताक्षर

१) सत्यवती गिरी

[Signature]

२) अनिता के.सी.

[Signature]

३) शमिला शर्मा

[Signature]

४) कमला मल्ल

[Signature]

५)

.....

६)

.....

७)

.....

८)

.....

९)

.....

१०)




.....



सूचना और सार्वजनिक सम्पर्क

प्रतिष्ठित मिति २०२३/०५/१२ मा यहाँ प्रमाणित अवशोषण आग कि
 २० को आग वि००००० अमरना उपमिम अन्तर्निर्माण तथा पुनर्स्थापन
 आयोजना कठुप्रका कार्रगारी ७५९ अन्तर्गती निरी २ अतिना के
 ले आतावरण संरक्षण नियमावली २०२४ (पहिलो संशोधन २०२५)
 को नियमावली ६२(२) अन्तर्निर्माण आरम्भिक आतावशीय परिधान (II)
 शर्त आरेको मिति २०२३/०४/०९ मा आरेकापन मा उकाशित सुचनाके
 तौर आरेको आरेका अपाणित आरम्भ १ अन्तर् सुचना लघुवा आरीजितला २
 खण्डको आगे तौर आरेको आरेका आतावशीय जानकारी आतावशीय ।

तयसिल

- नाम
- १) कपिल देव शर्मा 
 - २) सहायक सहायक 
 - ३) तसविर् समर्थ 

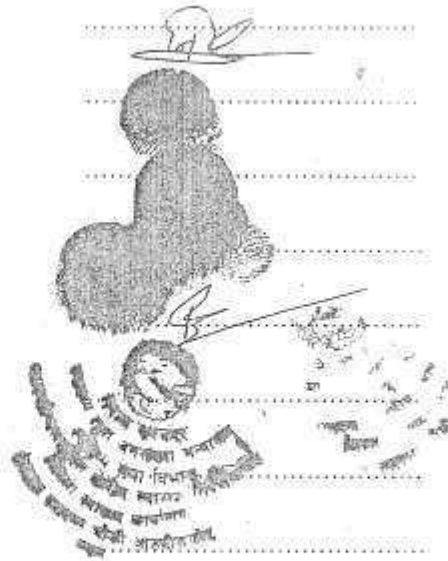
दस्ताक्षर

सुनिश्चित टाँस सम्बन्धी सूचना

आज मिति २६/०८/२० मा बस माहावि.सके.मा वि.सके.स्वा.प्र.को.मा प्राथमिक पुनर्निर्माण तथा पुनर्स्थापना कार्योजना, तर्फका कर्मचारी श्री सद्वत्त शिरी डोन्गेली के सँग ले बातावरण संरक्षण नियमावली २०५४, (पहिलो संसोधन २०५५ समेत) को नियम ७२(१) बमोजिम प्रारम्भिक बातावरणीय परीक्षण (IEE) गर्ने वारेको मिति २०६६/०४/०९ मा गोरखापत्र मा प्रकाशित सूचनाको टाँस गरेको व्योहोरा प्रमाणित गरिन्छ। उक्त सूचना नहुदा रा.सी.सु.व. सडक छण्डको लागि टाँस गरिएको व्योहोरा जानकारी गराउँदछौ।

तपसिल

नाम	हस्ताक्षर
१) <u>निमल शाह</u>	<u>धरे</u>
२) <u>सारद खड्का</u>	
३) <u>रामभाया वि.क</u>	
४) <u>रविन वि.क</u>	
५) <u>बोद्धु झापा लगात</u>	
६)	
७)	
८)	
९)	
१०)	



सुचना और साक्षरता मंत्रालय

[illegible]

तपसिल

नाम

हस्ताक्षर

- 9) मोहन रिजिस्ट्रार.....

॥ श्रीगणेशाय नमः ॥

- २। चमारी खरी

समाप्त

- ३) तिडकी खणी



- 8)



21.

- 5) $1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100$

- (9)

- 5).....

- 9)

- 90)

सुचना टाँस सम्बन्धी प्रचुल्का

आज मिति २०७६/०८/१८ मा यस मन्त्रालयको कार्यालयमा उपस्थित भई
 पुनर्निर्माण तथा पुनर्स्थापना (पारोबन्ता) सम्बन्धी सूचनाको विषयमा छलफल गरियो।

ले वातावरण संरक्षण नियमावली २०५४, (पहिलो संसोधन २०५५ समेत) को नियम ७२(२)

बमोजिम प्रारम्भिक वातावरणीय परीक्षण (IEE) गर्ने बारेको मिति २०६६/०४/०९ मा गोरखापत्र

मा प्रकाशित सुचनाको टाँस गरेको व्योहोरा प्रमाणित गरिन्छ। उक्त सुचना

बैज्ञानिकी सडक खण्डको लागि टाँस गरिएको व्योहोरा जानकारी गराउँदछौ।

तपसिल



नाम	हस्ताक्षर
१) डब्लु. शर्मा	
२) विष्णु पौडेल	
३) हरि बाम्जा शर्मा	
४) राम बल्लभ आर्जुन	
५) रमेश्वर के. शर्मा	
६) लक्ष्मीनारायण के. शर्मा	
७) गोरे बहादुर कुसारी	
८)	
९)	
१०)	

सुचना और सम्बन्धी सूचना

आज मिति ०९/०१/१९९० मा जल आयोगको कार्यालयमा भएको बैठकको मातामोष
 पुनर्निर्माण तथा पुनर्स्थापना योजनाको अन्तर्गतमा रहेको मातामोष क्षेत्र
 ले वातावरण संरक्षण नियमावली २०५४, (पहिलो संसोधन २०५५ समेत) को नियम ७२(२)
 अमेजिम प्रारम्भिक वातावरणीय परीक्षण (IEE) गर्ने बारेको मिति २०६६/०४/०९ मा गोरखापत्र
 मा प्रकाशित सुचनाको टाँस गरेको व्योहोरा प्रमाणित गरिन्छ। उक्त सुचना मातामोष
 सडक खण्डको लागि टाँस गरिएको व्योहोरा जानकारी गराउँदछौं।
 राडीफोन

तपसिल

नाम

हस्ताक्षर

- १) जलपान वि.क.
- २) मातामोष क्षेत्र विकास समिति
- ३) जीता पुन
- ४) मुला राडीफोन
- ५) प्रकाश चर्फ
- ६)
- ७)
- ८)
- ९)
- १०)



Handwritten signatures and official stamps corresponding to the list of names.

सुचना टाँस सम्बन्धी सूचना

आज मिति ०४/०६/२०२० मा यस आडविश्वको मा वि.संको दिग्विजयपुर गाउँपालिका-२ मा ग्रामीण पुनर्निर्माण तथा पुनर्स्थापना आयोजना, रुकुमका कमन्सारी को आडविश्व के.सी. खड्काली जिरी ले वातावरण संरक्षण नियमावली २०५४, (पहिलो संसोधन २०५५ समेत) को नियम ७२(२) बमोजिम प्रारम्भिक वातानुगम्य परीक्षण (IEE) गर्ने वारेको मिति २०६३/०४/०९ मा गोरखापत्र मा प्रकाशित सुचनाको टाँस गरेको व्योहोरा प्रमाणित गरिन्छ। उक्त सुचना रुकुम राडी डुप्लो सडक खण्डको लागि टाँस गरिएको व्योहोरा जानकारी गराउँदछौ।

तपसिल

नाम	हस्ताक्षर
१) <u>अनार वल्ल</u>	<u>अनार वल्ल</u>
२) <u>शीरका मल्ल</u>	<u>शीरका मल्ल</u>
३) <u>कालु कामी</u>	<u>कालु कामी</u>
४) <u>तारक शही</u>	<u>तारक शही</u>
५) <u>बर्मन चन्द</u>	<u>बर्मन चन्द</u>
६) <u>विर्मला रिजाल</u>	<u>विर्मला रिजाल</u>
७)
८)
९)
१०)



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

आज पिछी 10/08/2020 सा बस 2 सा नि सको 2 सा पापण

(Signature)

ले दातावरण संरक्षण नियमावली २०५४, (प्रथिले संसोधन २०५४ समेत) के नियम १२(२)

द्विभोजिम प्रारम्भिक वातावरणीय परीक्षण (IEE) गर्ने बारेको मिति २०६६।०४।०९ मा गौरक्षापत्र

मा प्रकाशित सुचनाको टाँस गरेको ब्योहोरा प्रमाणित गरिन्छ । उक्त सुचना गठ्ठ्या.....

राजीविका सड़क खण्डको लागि टाँस गरिएको ध्याहेरा जानकारी गराउँदछौ ।

तपसिल

नाम

हस्ताक्षर

01 12/10/20 20/10/20

२। शीला वि. क.

3) मैत्रिम्य का मी

8) निम्नलिखित में से

५)... दिपु कुमार खाह

8.)

(9)

5).....

Q1.

90)

575

... ..

५५५



POLYMER LETTERS

.....

[illegible]

XX

[illegible]

Annex-VII:Name of the Organizations

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

SN	Name or Organization	Address	Remarks
1	MagmaVDC	Magma	
2	Aathbiskot VDC	Aathbiskot	
3	Aathbidadagaun VDC	Aathbisdadagaun	
4	Janabikash S.School	Magma	
5	Siddhartha H.S.School	Magma	
6	Dip Joyti P.School	Aathbiskot	
7	Health Post	Aathbiskot	
8	Radijyula Bazar	Aathbiskot	
9	Kamal P.School	Aathbiskot	

Source: Field Survey, 2009

Annex VIII: List of persons consulted

List of Person Consulted

S.N	Name	Address/VDC	Occupation
1	Nar Bdr.Gautam	Magma	Farmer
2	Jasiram Khatri	Magma	Farmer
3	Man Bdr.Gautam	Magma	Farmer
4	Amar Bdr.Khatri	Magma	Farmer
5	Sasiram K.C	Magma	Farmer
6	Navaraj K.C	Magma	Farmer
7	Jasiram K.C	Magma	Farmer
8	Bhim Bdr.Khatri	Magma	Farmer
9	Nadu Khatri	Magma	Farmer
10	Kamala Khatri	Magma	Farmer
11	Ramita Gautam	Magma	Farmer
12	Rato Kami	Magma	Farmer
13	Danda Br.K.C	Magma	Farmer
14	Dal Br.Khatri	Magma	Farmer
15	Tarak Shaih	Aathbiskot	Farmer
16	Diparam Uphadhaya	Aathbiskot	Farmer
17	Nabin Nishal Shah	Aathbiskot	Farmer
18	Karna Bdr.Shaih	Aathbiskot	Farmer
19	Dhan Singh Khadka	Aathbiskot	Farmer
20	Ganesh K.Singh	Aathbiskot	Farmer
21	Jokh Bdr,Sharki	Aathbiskot	Farmer
22	Laxmi Sharma	Aathbiskot	Farmer
23	Tare Pun	Aathbiskot	Farmer
24	Khal Bdr.Sharki	Aathbiskot	Farmer
25	Nanda Bdr.Shaih	Aathbiskot	Farmer
26	Nanda Bdr.Shaih	Aathbiskot	Farmer
27	Gita pun	Aathbiskot	Farmer
28	Muna Khadka	Aathbiskot	Farmer
29	Gopal Shaih	Aathbiskot	Farmer
30	Dhan Kumari Oli	Magma	Farmer

31	Pabitra K.C	Magma	Student
32	Sarmila Oli	Magma	Student
33	Samita Thapa	Magma	Student
34	Sunita K.C	Magma	Student
35	Navaraj K.C	Magma	Student
36	Padma Khatri	Magma	Student
37	Lilaram Khatri	Magma	Farmer
38	Bal Bdr.Khatri	Magma	Farmer
39	Kali Bdr.Khatri	Magma	Farmer
40	Ranbir Khatri	Magma	Farmer
41	Danda Bdr.K.C	Magma	Farmer
42	Sarjan Khatri	Magma	Farmer
43	Hiralal B.K.	Magma	Farmer
44	Gopal Shaih	Aathbiskot	Farmer
45	Ram Bdr.Shah	Aathbiskot	Farmer
46	Bir Jung Shah	Aathbiskot	Farmer
47	Pawan Shah	Aathbiskot	Student
48	Gandarva shah	Aathbiskot	Farmer
49	Naina Chanda	Aathbiskot	Farmer
50	Krishna chanda	Aathbiskot	Farmer
51	Purna Bdr.Shah	Aathbiskot	Farmer
52	Sital Malla	Aathbiskot	Farmer
53	Mukti Kumar Malla	Aathbiskot	Farmer
54	Balkumari Shaih	Aathbiskot	Farmer
55	Madan Shah	Aathbiskot	Farmer
56	Dharma Bdr.Shah	Aathbiskot	Farmer
57	Om Kumari Shah	Aathbiskot	Farmer
58	Dhurba Ganga Shah	Aathbiskot	Farmer

Annex IX: Summary of meeting minutes with local people

महान्ति २००६ साल काष्ठण २० जून अमेरिका दिन आगविलेवालावे
 सा वडा नं ४ अर्थात रातोव्वता वडासा आरम्भित वातावरणिय
 परिषदा (१५६) आगविलेवालावे २० जून अमेरिका दिन आगविलेवालावे
 आगविलेवालावे २० जून अमेरिका दिन आगविलेवालावे २० जून अमेरिका दिन आगविलेवालावे
 आगविलेवालावे २० जून अमेरिका दिन आगविलेवालावे २० जून अमेरिका दिन आगविलेवालावे

उपस्थितिकाः -

१. श्री तारक शर्मा - आगविलेवालावे-१
२. श्री विपिन शर्मा -
३. श्री नविन शर्मा -
४. श्री कविशंकर शर्मा -
५. श्री अशोक शर्मा -
६. श्री अशोक शर्मा -
७. श्री अशोक शर्मा -
८. श्री अशोक शर्मा -
९. श्री अशोक शर्मा -
१०. श्री अशोक शर्मा -
११. श्री अशोक शर्मा -
१२. श्री अशोक शर्मा -
१३. श्री अशोक शर्मा -
१४. श्री अशोक शर्मा -
१५. श्री अशोक शर्मा -
१६. श्री अशोक शर्मा -
१७. श्री अशोक शर्मा -
१८. श्री अशोक शर्मा -
१९. श्री अशोक शर्मा -
२०. श्री अशोक शर्मा -
२१. श्री अशोक शर्मा -
२२. श्री अशोक शर्मा -
२३. श्री अशोक शर्मा -
२४. श्री अशोक शर्मा -
२५. श्री अशोक शर्मा -

- 26, दिनेश शाह
27, दिनेश शाह
28, गुरु शाह जी
29, दिनेश शाह

[Signature]

प्रस्ताव

- प्रस्ताव १, सड़क निर्माण कार्य के लिए तमाम आवश्यकताओं को ध्यान में रखते हुए निम्नलिखित कार्य कराए जाएंगे।
" १. स्थानीय रिक्विजिट, पट्टा, सर्वेक्षण कराया जाएगा।
" २. लागूवायि अनुदान का आवेदन किया जाएगा।
" ३. ग्राम प्रशासनिक अधिकारियों को सूचित किया जाएगा।

निर्णय

प्रस्ताव १, प्रस्ताव १ के अन्तर्गत सड़क निर्माण कार्य के लिए तमाम आवश्यकताओं को ध्यान में रखते हुए निम्नलिखित कार्य कराए जाएंगे।
" १. स्थानीय रिक्विजिट, पट्टा, सर्वेक्षण कराया जाएगा।
" २. लागूवायि अनुदान का आवेदन किया जाएगा।
" ३. ग्राम प्रशासनिक अधिकारियों को सूचित किया जाएगा।

प्रस्ताव २, प्रस्ताव २ के अन्तर्गत सड़क निर्माण कार्य के लिए तमाम आवश्यकताओं को ध्यान में रखते हुए निम्नलिखित कार्य कराए जाएंगे।
" १. स्थानीय रिक्विजिट, पट्टा, सर्वेक्षण कराया जाएगा।
" २. लागूवायि अनुदान का आवेदन किया जाएगा।
" ३. ग्राम प्रशासनिक अधिकारियों को सूचित किया जाएगा।

प्रस्ताव ३, प्रस्ताव ३ के अन्तर्गत सड़क निर्माण कार्य के लिए तमाम आवश्यकताओं को ध्यान में रखते हुए निम्नलिखित कार्य कराए जाएंगे।
" १. स्थानीय रिक्विजिट, पट्टा, सर्वेक्षण कराया जाएगा।
" २. लागूवायि अनुदान का आवेदन किया जाएगा।
" ३. ग्राम प्रशासनिक अधिकारियों को सूचित किया जाएगा।

प्रस्ताव ४, प्रस्ताव ४ के अन्तर्गत सड़क निर्माण कार्य के लिए तमाम आवश्यकताओं को ध्यान में रखते हुए निम्नलिखित कार्य कराए जाएंगे।
" १. स्थानीय रिक्विजिट, पट्टा, सर्वेक्षण कराया जाएगा।
" २. लागूवायि अनुदान का आवेदन किया जाएगा।
" ३. ग्राम प्रशासनिक अधिकारियों को सूचित किया जाएगा।

[Signature]

॥
ॐ
ॐ
ॐ
ॐ
ॐ
ॐ

५५

2018

24/5

આત્મચિંતિ ૨૦૬૬ અગ્રણી શિક્ષણ ૨. ગતિએ કિત ઘણું કામ કરાયેલું જાતે.
 ૨૨ ફેબ્રુ ૨૦૨૨ સ્થિતિ ગિજા માં મુલુવા-ચાંદિનિશા સડક નિર્માણે
 નીચી પ્રાથમિક શાળાઓમાં પરિણામ દર્શાવેલું છે. જનિ શ્રી ગોપાલ
 શાળા સુધે અભ્યુદયમાં કેહક વધે તપાસિત અગ્રણી
 પ્રસ્તાવ રૂબા બાપુદ હાથે કરી નિર્માણ પામિ ગઈએ.

ગિજા શાળા

અધ્યક્ષશ્રી

સામાજિક પરિચાલક

- | | |
|----------------------------|----------|
| ૧. શ્રી. ગોપાલ શાળા | 24/5 |
| ૨. " શાંતિ કોશાલ | 24/5 |
| ૩. " નૈવેદ્ય, શાળા | 24/5 |
| ૪. " પવન શાળા | 24/5 |
| ૫. " જનક શાળા | જનક શાળા |
| ૬. " રૂબા કોમળા | |
| ૭. " વેલ કોમળા | |
| ૮. " સુશિલ કોમળા | 24/5 |
| ૯. શ્રીમતિ તપા નંદ (શાળા) | 24/5 |
| ૧૦. શ્રી જી પ્રભાકર, શાળા | 24/5 |
| ૧૧. શ્રીમતિ ભોમલમાળી શાળા | ભોમલમાળી |
| ૧૨. શ્રી રૂબા કોમળા | 24/5 |
| ૧૩. શ્રીમતિ ચાંદિનિશા શાળા | 24/5 |
| ૧૪. શ્રી રૂબા મધુરા શાળા | 24/5 |
| ૧૫. " શિવલિંગ મલ્લ | 24/5 |
| ૧૬. " મુનિશા મલ્લ | 24/5 |
| ૧૭. " રામદાસ શાળા | 24/5 |
| ૧૮. " સદેશ શાળા | 24/5 |
| ૧૯. " ચાંદિનિશા શાળા | 24/5 |
| ૨૦. " જગત શાળા | 24/5 |

અત્યંત

૧. સરકારી શાળા મુલુવા તથા મોળિય સંસ્કૃત શાળાઓ.
૨. સ્વામીય શાળાઓ, પાંચા, સોનકાલિ શાળાઓ.

24/5

ગાંધી

સાવધાનિ અને સ્વચ્છતા
અથવા આપણે આ કાર્યોને સત્વરે

નિર્ણય

નિર્ણય નં ૧ માંથી દરમિયાનગદી (RRRSDP) અંગેના ઉપનિર્ણય સુધી
પુનઃચાલના આરંભના અર્થમાં નુસા-સાઈડરોડ રોડ રેલ્વે નિર્માણ કામ
પરવાલ ગઈ છે અને તે પુરું થઈ ત્યાં ખેતિ સેવાઓ વધુ મુશ્કેલી ઇન્ટર
આવેલું સંભવિત છે. આપણને ત્યાં નાણાં અને કામના હાલના કોડના આધારે
વેલિયાના હાથે આપણને ત્યાં રાષ્ટ્રીય આયોજક પદે ગઈ અને તેને સમય
બાદ નિર્ણય પાડેલ ગયો.

નિર્ણય નં ૨ માંથી દરમિયાનગદી પાસ નુસા, સાઈડ રોડ નિર્માણગદી
પાસ હોમલિંગ પર્સે યુનિયનને લેવાના નીચેના પ્રતિનિધિ, પંચાયત
અથવા હોમલિંગ હાલના અંત નર્મ ગઈ હોવાથી ગઈ ગયો અને હવે
સમયવાદ નિર્ણય પાડેલ ગયો.

નિર્ણય નં ૩ માંથી આપણે દરમિયાનગદી પાસ સાઈડ-નુસા કાર્યોને
ગોરેલી વાલોના છૂટ પર્સે આપણને પ્રવેશ નર્મલોડ ૨ હોવાથી નિર્માણ
ગઈ લાગેલી સરકારના પર્સે હવે પ્રમાણે આપણને અંતર હવે ગઈ
નિર્ણય હવે ગઈ હવે RRRSDP નીચેના પ્રવેશ ગઈ અને નિર્ણય
પાડેલ ગયો.

નિર્ણય નં ૪ માંથી આપણે દરમિયાનગદી પાસ હોમલિંગ હોવાથી હવે
સમય નુસા સાઈડરોડ નિર્માણ કામ સાઈડ હવે હોમલિંગ પર્સે સરકાર
અથવા રેલ્વે નિર્માણ ગઈ હવે હોમલિંગ પર્સે હવે અંતર પ્રવેશ
આપણે, સામાન્ય ખેતિ, વિકાસના કાર્યો ગઈ હવે અંતર પ્રવેશ
હવે હોમલિંગ હવે વિકાસ, ત્યાં આયુષ્યના કાર્યો હવે આપણે
પિંડીના વર્ગ ત્યાં હવે નિર્માણગદી સરકારના પ્રવેશના હવે
સાઈડ અન્ય આપણે, વૈદિક રેલ્વે હોમલિંગ નિર્માણ નર્મલોડ
આ હવે હવે હવે ગઈ ગઈ ગઈ હવે સમયવાદ નિર્ણય પાડેલ
ગયો.

ગાંધી

आज मिति २०७३/४/१६ गतेको दिन धनु शम्भा आ.वि.स.को
 कामा, गडुवा, रानीजिहवा, रसक, रसक रोमालको लागि आवश्यक जाला
 गेय परिक्षण (IEE) सम्बन्धी इजाजत गर्न जी नहु सक्ने
 प्रस्ताव गरेको बैठकले तपस्विन बर्मालेको महत्त्वपूर्ण उपस्थिति
 । विभिन्न उस्ताव उपर कापको इजाजत गर्न निर्णय गरियो

विशेष उपस्थिति
 विवेक शर्मा
 सामाजिक परिचालक
 उपस्थितहरू

तरे वं गौतम	-	नरेश
महेश्वर खत्री	-	अरुण
प्रतापराज गौतम	-	सुन्दर
धर्म वं खत्री	-	अरुण
अशीश्वर के.सी	-	अरुण
तपस्विन के.सी	-	अरुण
महेश्वर के.सी	-	अरुण
मिश्र वं खत्री	-	अरुण
मन वं गौतम	-	अरुण
मिश्र वं गौतम	-	अरुण
नरु खत्री	-	अरुण
गौरी खत्री	-	अरुण
मन वं गौतम	-	अरुण
कालिका खत्री	-	अरुण
अमिताभ रमित्त गौतम	-	अरुण
अमिताभ बल्लु गौ.के.सी.	-	अरुण

अरुण



उल्लावक

५) स्वच्छ निर्माण गर्दा भू-क्षय र भौतिक संरचनामा क्षति नभै
सम्बन्धमा।

६) स्थानिय बिलिखिवाजको तथा स्वेत्कृतिको सम्बन्धमा।

७) सामुदायिक भवन सुवर्द्धा सम्बन्धमा।

८) आयोजना र कार्यक्रम सम्बन्धमा।

निर्णय

१) निर्णय नं १ उल्लावक १ उपर हलफलगर्दा कामेन स्तनिर्माण तथा
स्नलथापना आयोजना अन्तर्गत नहुवा राडीजिडला सङ्क स्वच्छ निर्माण कार्य
छाड्ती गर्दा हुनएकले स्नेमाका भू-क्षयलाई हुनएदिन आवश्यक स्नेक
कला क्षयताडले तथा भएका स्वच्छता ल्यालाई स्नेकथान गर्ने तथा नि
मान स्वच्छता करपछा भौतिक संरचनालाई क्षति हुनएदिन आवश्यक
पट्टा बुझाशेषन, पट्टाल, भित्तिनिर्माण आदि कार्यलाई निर्णय सर्वसम्म
बाट पारित गरियो।

२) निर्णय नं २ उल्लावक २ उपर हलफलगर्दा नहुवा राडीजिडला सङ्क
स्वच्छ निर्माण गर्दा वर्तमानमा चलिरहेका बिलिखिवाजलाई स्वच्छता ल्याउने
निर्णय पारित गरियो।

३) निर्णय नं ३ उल्लावक ३ व्यापक हलफलगर्दा एउ नहुवा राडीजिडला
सङ्क स्वच्छ निर्माण गर्नेक्रममा कुनैपनि सामुदायिक भवनसङ्कपछि स्वच्छता
उत्तम भवनसङ्क नपुगेको छिट्टै सम्म गर्ने लक्ष्यलेलाई (R&S)
लाई भन्नुसार्थ गर्ने निर्णय पारित गरियो।

४) निर्णय नं ४ उल्लावक ४ उपर हलफलगर्दा लक्ष्यलेलाई
संचालन हुने लोको नहुवा - राडीजिडला सङ्क स्वच्छ निर्माणकासाथ
यो स्वच्छता ल्याउने शुरुआत पति जनसमुदायको बिनसला हुनएने
स्वास्थ्य विभिन्न किसिमका आर्थिक विकासहुने सिपमुलक
आयुमुलक, कामसङ्क संचालनगत लक्ष्य लक्ष्यलाई भन्नुसार्थ
गर्ने निर्णय पारित गरियो।

निष्कर्ष

मुनीलाल शर्मा

सुभाषिक परिचालन

- पुस्तिका

- सुनिता के साथ

- 2010/05/11
(10/05)

- ५९९१७२
६७७७

- लगातार धारा
विद्युत् प्रवाह

- 2

- 20/10/2019

- _____

- प्रस्तावहरू
१. यद्बु निर्माण गर्दा खुट्टा तथा भेत्ति (खेती) संरक्षणा
२. स्थानिय विनिरित्तन गम्भारा पंस्करि (सन्तान)
३. क्षात्रुदायिड भवन पुर्नका संरक्षणा
४. क्षायु काजीत तथा कायिड संरक्षणा

अमर

भ्रम मिति २०६२/३।६ गरी दिना मनु भवता समविम्वरको लुपु
मा लुपुवा आडिजिउला सडक निर्माणभर्तागत लुपुवामा व्यवहारिक
बलावर्णिप पविशता (IEE) सडकको दलफल गरी एमि काली
बेडाहुवे अवलीउरको भएपछिमा समेको बाँडको तपसिला को
निमका प्रसवभावको उपधिमा विभिन्न सल्लाव सडक कोपु
दलफल गरि निर्माण पारिल गरियो।

विशेष उपधिपत
सल्लावको समी
आमाजिक परिचालक

उपधिपति

पठिने

१) पदमे खत्री	लुपुवा	
२) बिलासम खत्री	"	लीलासन खत्री
३) बलबहादुर खत्री	"	धनजीति
४) शमजोर कुलारी	"	कृष्ण
५) कालिबहादुर खत्री	"	रत्न
६) देवबहादुर खत्री	"	रत्न
७) उमन क खत्री	"	रत्न
८) रत्नी खत्री	"	रत्न
९) पल क खत्री	"	रत्न
१०) रत्न क केली	"	रत्न

उल्लावको

- १) सडक निर्माण गरी भुचय २ भौतिक सल्लावमा क्षतिगत सडकको
- २) स्थानिय रितिरिवाज तथा सल्लावको सम्बन्धमा।
- ३) सामुदायिक भवन सुरक्षा सम्बन्धमा।
- ४) भौतिक र कार्यक्रम सम्बन्धमा।

निर्णयको

निर्णय नं १

उल्लावको १मा व्यापक दलफल गरी ग्रामिन स्वनिर्माण तथा
सुवस्थापना आयोजना पार्तागत लुपुवा आडिजिउला सडक सडक निर्माण
को

कमरी

गर्भ धारणति गर्भ इत्यस्यैव भूतस्यैव कृतमिति भावश्चक तान्माता
ग भित्तस्य ललाटे निर्णय सर्वसम्मतं वाच्यं पारित ठारियो।

निर्णय नं २

उत्तापन २ उपर दलफल गर्भ तद्वत् राडीमिडला
स्वच्छ निर्माण कार्य अग्राडिकलाडा सप्त सतीममना चलिमरेका
मिवाजकाई स्वलज तस्याउते निर्णय पारित ठारियो।

निर्णय नं ३

उत्तापन ३ उपर दलफल गर्भ तद्वत् राडीमिडला
स्वच्छ निर्माण कार्य अग्राडिकलाडा सप्त सतीममना चलिमरेका
परेका अग्राडिकलाडा डिपेलसमे गर्भ तपनगरी डिपेलसमे गर्भ
निर्णय पारित ठारियो।

निर्णय नं ४

उत्तापन - ४ उपर दलफल गर्भ तद्वत् राडीमिडला
रा (R.R.S.P.P) संघालन हुने तद्वत् राडीमिडला सडक स्वच्छ
शाय सो सडक अमेमिन पन गनमभुषयको जिवनसल
हाले चेतनाभुषक तथा आयभुषक कार्यकमहाल संघालन
गर्भ तद्वत् राडीमिडला अतुरोध हुने निर्णय पारित ठारियो

कमरी

Annex X: Recommendation Letters



93/556

82

17-25
2013

1917. 5. 25. 12.5

विषय:- सिफारीश सामान्य

શ્રી જો ગાંધી સ્વામીનારાયણ /

[illegible]

[Signature]

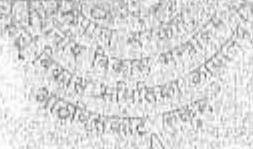
असीम कृप
शा.वि.स. सचिव



प्रादेशिक विकास विभाग, दिल्ली

आठवीं योजना

संख्या: 0551/050
प्रमाण: ८८



दिनांक: 0551/050

विषय: सिंचाई कार्य/पथ निर्माण

श्री जौअर क्षेत्र समर्थन राज्यक

प्रस्तुत विवरण पर जिले के प्रशासनिक नदुवा देवी
राजस्थान, समर्थन सड़क इकाई के निर्माण तथा सड़क निर्माण
के कार्य ग्रामीण पूर्ण निर्माण तथा पूर्ण स्थापना आयोजित
(संख्या: 0551/050) के तहत प्रत्येक प्रत्येक प्रत्येक
संयोजन के सड़क इकाई के निर्माण कार्य
के कुल पाठ्यक्रम के समर्थन के अन्तर्गत
कुल पाठ्यक्रम के अन्तर्गत
सर्व कार्य समर्थन के अन्तर्गत
रि दिवस व्यय के अन्तर्गत

उपस्थित

उपस्थित/देखने के
सावित्री सचिव



452

विषय:- एलिकापिड सिन्धु

श्री श्री गुरु दीन शुक्ल ७.

[illegible]

कपिल देव शास्त्री
भा. वि. स. सचिव



राष्ट्रिय उद्योग विभाग
शाखा कार्यालय



मिति :- 20.08.2016


पत्र :- 088/086

च.नं :- 06

विषय :- विफारिस गरिएको सम्बन्धमा

श्री.....जी. जस. खेग सम्बन्धमा राखेको छ।

उपरोक्त सम्बन्धमा यस जिल्लामा संचालन भई रहेको ग्रामीर पुन निर्माण तथा पुन स्थापना (RRSGP) अन्तरगत निर्माण हुने नवुवा दाडीजुला बाइक खण्डले पाके हुने पनि बिशेषको नस्रो म्यालको आतावरणीय सामाजिक, आर्थिक स्वास्थ्यिक तथा अन्य हुने पनि नकारात्मक प्रभावहरू बपार्ने जानकारी को लागि यो खण्ड निर्माण को लागि प्रकृया अगाडी बढाई दिन हुन हार्दिक अनुरोध का साथ विफारीत गरिएको जानकारी गरिन्छ।


नविन निरञ्चल शास्त्र
मुख्यक्ष



नेपाल सरकार
स्वास्थ्य तथा जनसंख्या मन्त्रालय
स्वास्थ्य सेवा विभाग

जिल्ला स्वास्थ्य कार्यालय

पत्र संख्या:-
स्वा/सी/सं/२०७३

मिति: २०७३/०५/१५

विषय :- सिफारिसको सम्बन्धमा।

श्री श्री जयसुख शर्मा शर्मा

उत्कृष्ट विषयमा यस जिल्लामा अद्यावत हुन गइर
आगमिit श्रमनिर्माण तथा स्तरीकरण (R&D) अन्तर्गत सेवा
तथा निर्माण हुने यथावतिकाको गर्नुवा शरीरनिर्माण यस
निर्माण हुने समयमा यदि यस स्वास्थ्य कार्यालयलाई कुनै
स्वास्थ्य सेवाको लागि आवश्यक सामग्री, आर्थिक, योर्का
तथा अन्य कुनैपनि आवश्यकता भएमा यसको लागि
साथै यो निर्माण श्रम यथावतिका विधि निर्माणको लागि
क्या भगति बढाइनुहुने गर्दैन भन्नेको साथ सिफा
गर्दिएको छ।


भरत कुमार खत्री
स्वास्थ्य चौकी प्रमुख
स्वास्थ्य प्रमुख



1. *Chrysomelidae* (Colorado potato beetle)
 2. *Chrysomelidae* (Colorado potato beetle)

इस प्रकार विवेचना कर सुकुम निष्कर्षात्, संचालन एवं मैनेजमेंट प्रणालि एवं
निर्माणि तथा हुने रक्षणमा (R.R.D.P.) अन्तर्गत जम्मा हुने केवि रकम निम्नलान्मा
रु. १०० - रु. १०० निर्माण कार्यमा संचालनमा पठाउनु विधानमा रहेको छ।
विधानमा नभएको हुने वरि सामाजिक प्रोत्साहित कार्यहरूमा अर्पण गर्ने
प्रमाणमात्र छिने। अर्थात् संचालन रक्षणमा अर्पण गर्नुमा हुने रकम
हुने व्यहोराको विवरणमा गरिएको छ।

Handwritten signature
Handwritten signature

142186



संख्या :- २०६३/०६/३२
दिनांक :- १५/६/७४

दिनांक २०६३/०६/३२

विषय :- विद्यार्थीय सामग्री

श्री श्री सरसंग प्रसाद सहस्र

प्रस्तुत विषयका कार्य जिल्लाका संचालक भएर भइरहेको आश्रित पुनः निर्माण तथा पुनः स्थापना (RRPDP) अन्तर्गत निर्माण हुने यस गाविसको अन्तर्गतको महुवा राईपुला खड्ग बाटो बाटो अन्तर्गतको खड्ग भएर खड्गमा पनि पनि विद्यार्थीय सामग्री नभएको कारणले नोतावरणीय सामग्री, कार्यालय, खोलाको तटमा अन्य वृक्ष पनि लगाइएको देखिएको भएर जनशक्तिको साथमा यो खड्ग निर्माणको लागि पृष्ठभूमि अगाडि नभएको हुन बाटोको महुवा राईपुला बाटो विद्यार्थीय गरि-
-एको हो।

नेतावृद्ध
नेतावृद्ध

प्राचार्य

श्री जयशंकर प्रसाद स्मृति स्नातकोत्तर विद्यालय
 वाराणसी, उत्तर प्रदेश
 प.सं. :- ७६६१०६७
 च.नं. :- १६७

मिति २०२६.१०.१०.६७

विषय :- सिफारिसा सम्बन्धमा ।

श्री श्री जयशंकर प्रसाद स्मृति स्नातकोत्तर विद्यालय ।

प्रस्तुत विषयमा यस जिल्लामा संचालन भैरहेको ग्रामिण पुनः निर्माण तथा पुनः स्थापना (RRRSDP) अन्तर्गत निर्माण हुने यस गा.वि.स. अन्तर्गतको नुववा राडी ग्छुला सडक यस गा.वि.स. अन्तर्गत को क्षेत्रबाट भएको सडकमा पछि कुनै पनि किसिमको तरासी खालको वा-
 तानरणीय सामाजिक, आर्थिक, सांस्कृतिक तथा अन्य कुनै पनि नकारा-
 त्मक असरहरू तर्फको जानकारीको साथै यो सडक सडक निर्माणको लागि
 प्रकृया अगडो वगडै हिँड्न हुन हार्दिक अनुरोधका साथ सिफारिसा ग-
 रीएको छ ।

उज्ज्वल
 बम बहादुर ओली
 प्रधानाध्यापक



श्री जयपाल माधोराज विद्यालय, धर्मपुर

जाति - ब्राह्मण



संख्या २०८४

कक्षा - ०६६/६७

वर्ग - ४३

दिनांक - २०८६/११/१२

विषय - शिक्षण गतिविधि

श्री श्री जयपाल विद्यालय

वर्ग ४३ विषय गतिविधि विषय संयोजन रूप में रहे हैं। तब
नया पुनः स्थापना (REROP) कार्यका अन्तर्गत सारा नया दिने रति
बाइल लव विद्या संयोजन कार्यका कार्य विद्यालय २ अस विद्यालय
लक्ष्य कुत्रे विद्यालय विद्यालय र विद्यालय विद्यालय विद्यालय
के अन्तर्गत विद्यालय विद्यालय विद्यालय विद्यालय विद्यालय
अन्तर्गत है।

२०८६

(जयपाल विद्यालय)
धर्मपुर



श्री हरी प्राश्न भवन विद्यालय

बास्थला नमस्त-५ रुकुम

स्था-२०५४

प० सं०:- ०६६/०६७

च० सं०:- २४

मिति:- ००००/००/००

विषय:- शिफारी प्र सार्वजनिक ।

४१ जी जल स्रोत सार्वजनिक ।

प्रस्तुत विषयमा यस गिल्लामा सार्वजनिक भई
रहेको गाम्भीर्यपूर्ण निर्माण तथा पूर्ण स्थापना (ARRSAP)
अन्तर्गत निर्माण हुने यस गाव विषयक अन्तर्गतको नदुवा
राष्ट्रिय स्तरमा सदर यस गाव विषयक अन्तर्गतको श्रृंखलाबाट
भएको सदरमा यदि कुनै पनि विधिमाको नयासो रबाको
वातावरणनिक सभाजिक आर्थिक सांस्कृतिक तथा अन्य
कुनै पनि हकमाको असरहुन तपने जानकारीको लागि भो
सदर रबा निर्माणको लागि प्रकृषि अगाडी चर्दै दिनुहुन
हार्दिक अनुरोधको साथ यो दिकारीस गरिएको छ ।

००००/००/००
संस्थापक

ANNEX XI

XI a. Distribution of households by major occupation

XI b. Summary of public services & infrastructures

XI c. Land holding pattern of settlements within Zol

XId. Number of households belonging to different food security category

XIa. Distribution of households by major occupation

Settlement Name	Agriculture & Livestock	Labour & Porter	Business/ Commerce Employees	Cottage Industry	Others (specify)
Naduwa	85%		14%		1%
Gharekhola	90%		9%		1%
Banskhola	95%		2.5%		2.5%
Gija	90%		7.5%		2.5%
JhakriSalla	60%		15%		25%
Radijyula	85%		10%		5%

Source: Field survey, 2010

XI b. Summary of public services and infrastructures according to settlement

Settlement Name/ Public services and Infrastructure	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)
Naduwa	3	1	1	2	-	25	12	2		2	-	-	-	-	-
Gharekhola		-	-	-	-	21	2	1	-	1	-	-	-	-	-
Banskhola	2	-	-	-	-	21	2	1		1	-	-	-	-	-
Gija	2	-	-	-	-	51	2	1	1		-	-	-	-	-
JhakriSalla	1	-	-	-	-	41	2	2		1	-	-	-	-	-
Radijyula	2	1	1	3	-	65	14	4		1	-	-	-	-	-
Total	10	2	2	5	-	224	34	11	1	6	-	-	-	-	-

Source: Field survey, 2010

XI c. Land holding pattern of settlements within Zol

SN	Influenced VDCs/MC	Distribution of HHs by land holdings						Total
		Less than one rop	Less than 5 rop	5-10 rop	10-20 rop	20-50 rop	More than 50 rop	
1	Magma	64	162	15	0	0	0	241
2	Aathbiskot	98	492	80	28	0	0	698
3	Aathbisdada	65	9	0	0	0	0	74
Total		227	663	95	28	0	0	1013
Percentage (%)		22.41	65.45	9.38	2.76	-	-	100%

Source: Field survey, 2010

XI d. Number of Households Belonging to Different Food Security Category

SN	Influenced VDCs/MC	Distribution of HHs by food sufficiency level				Total HHs
		0-3 months	3-6 months	6-9 months	9-12 months	
1	Magma	36	178	23	4	241
2	Aathbiskot	190	394	89	25	698
3	Aathbisdada	40	30	3	1	74
Total		266	602	115	30	1013
Percentage (%)		26.26	59.43	11.35	2.96	100%

Source: Field survey, 2009

ANNEX XII: Vegetation and Wildlife found in the project area

Vegetation Found in the Project Area

S.N.	Local Name	Scientific Name	Plant part Use
1	Sal	<i>Shorea robusta</i>	Fodder
2	Salla	<i>Pinus roxburghii</i>	Fodder
3	Bamboo	<i>Bambusa spp</i>	Fodder
4	Dhupe	<i>Juniperus cummunis</i>	Fodder
5	Mango	<i>Mangifera indica</i>	Fodder
6	Chiraito	<i>Swertia chirayta</i>	Whole Plant
7	Harro	<i>Terminalia chebula</i>	Fruit
8	Okhar	<i>Juglans regia</i>	Fruit
9	Aaru	<i>Prunus Persica</i>	Fruit
10	Banana	<i>Musa Nepalensis</i>	Fruit
11	Cheure	<i>Bassia butyracea</i>	Fruit
12	Lapsi	<i>Choeros pondias axillarias</i>	Fruit

Wild Animals Found in the Project Area

S.N	Local Name	Common Name	Scientific Name	Remark
Animals				
2	Syaal	Jackal	<i>Canis aureus</i>	
5	Ban Biralo	Jungle Cat	<i>Felis chaus</i>	
6	Malsapro		<i>Martef Flabigula</i>	
7	Lokharke	Squirrel	<i>Ratufa sp.</i>	
Birds				
1	Dhukur	Laughing Dove	<i>Streptopelia senegalensis</i>	
2	Crow	Crow	<i>Corvus splendens</i>	
3	Bhyakur	Eye – brownd Thrush	<i>Turdus obscurus</i>	
4	Mayur	Peacock	<i>Hubaropsis Bengalensis</i>	
5	Hutityau	Common Sandpiper	<i>Tringa hypoleucos</i>	

Source: Field Survey, 2009

Annex XIII: Photographs



Cultivated land at the Ch 9+100



Proposed site for slab culvert at Ch. 9+200, Salagad Khola



Affected House at Ch. 8 + 200, GhariKhola, Magma VDC



Affected House at Ch. 15 + 729, Kaflechaur, Aathbiskot VDC



Affected House at Ch. 14 +800, Kaflechaur, Aathbiskot VDC



Affected Water Mill at Ch. 14+000, Aathbiskot VDC

Annex XIV: Recommended Structures necessary for slope stabilization

Gabion Retaining Wall

S.N	Description	Chainage		Length m	Height m	Volume m ³	Total Gabion (Nos.)		Geotextile (m ²)	Remarks
		From	To				1x1x1.5	1x1x2		
1	Gabion Walls	0+900	0+908	8	3	90	8.00	12.00	36.00	Left side
2	Gabion Walls	0+920	0+925	5	3	90	5.00	8.00	22.50	Left side
3	Gabion Walls	0+960	0+967	7	3	90	7.00	11.00	31.50	Left side
4	Gabion Walls	0+980	0+992	12	3	90	12.00	18.00	54.00	Left side
5	Gabion Walls	1+000	1+009	9	3	90	9.00	14.00	40.50	Left side
6	Gabion Walls	1+040	1+047	7	3	90	7.00	11.00	31.50	Left side
7	Gabion Walls	1+080	1+087	7	3	90	7.00	11.00	31.50	Left side
8	Gabion Walls	1+300	1+306	6	3	90	6.00	9.00	27.00	Left side
9	Gabion Walls	1+320	1+330	10	4	130	20.00	20.00	60.00	Left side
10	Gabion Walls	1+340	1+352	12	4	130	24.00	24.00	72.00	Left side
11	Gabion Walls	1+360	1+372	12	4	130	24.00	24.00	72.00	Left side
12	Gabion Walls	1+380	1+398	18	4	130	36.00	36.00	108.00	Left side
13	Gabion Walls	1+400	1+409	9	5	180	18.00	32.00	67.50	Left side
14	Gabion Walls	1+420	1+428	8	5	180	16.00	28.00	60.00	Left side
15	Gabion Walls	1+440	1+447	7	5	180	14.00	25.00	52.50	Left side
16	Gabion Walls	1+500	1+507	7	4	130	14.00	14.00	42.00	Left side
17	Gabion Walls	1+640	1+647	7	4	130	14.00	14.00	42.00	Left side
18	Gabion Walls	1+660	1+668	8	5	180	16.00	28.00	60.00	Left side
19	Gabion Walls	1+680	1+692	12	6	230	36.00	54.00	108.00	Left side
20	Gabion Walls	1+800	1+809	9	5	180	18.00	32.00	67.50	Left side
21	Gabion Walls	1+820	1+830	10	5	180	20.00	35.00	75.00	Left side
22	Gabion Walls	2+400	2+413	13	5	180	26.00	46.00	97.50	Right side
23	Gabion Walls	2+420	2+429	9	4	130	18.00	18.00	54.00	Right side
24	Gabion Walls	2+800	2+806	6	5	180	12.00	21.00	45.00	Right side
25	Gabion Walls	2+820	2+826	6	5	180	12.00	21.00	45.00	Right side
26	Gabion Walls	3+680	3+686	6	4	130	12.00	12.00	36.00	Right side
27	Gabion Walls	3+700	3+706	6	3	90	6.00	9.00	27.00	Right side
28	Gabion Walls	3+720	3+726	6	4	130	12.00	12.00	36.00	Right side
29	Gabion Walls	3+760	3+766	6	4	130	12.00	12.00	36.00	Right side
30	Gabion Walls	3+800	3+809	9	4	130	18.00	18.00	54.00	Right side
31	Gabion Walls	4+160	4+169	9	3	90	9.00	14.00	40.50	Left side
32	Gabion Walls	5+140	5+149	9	6	230	27.00	41.00	81.00	Left side
33	Gabion Walls	5+160	5+169	9	5	180	18.00	32.00	67.50	Left side
34	Gabion Walls	7+160	7+170	10	4	130	20.00	20.00	60.00	Left side
35	Gabion Walls	9+000	9+010	10	3	90	10.00	15.00	45.00	Left side
36	Gabion Walls	14+780	14+792	12	4	130	24.00	24.00	72.00	Left side
37	Gabion Walls	15+320	15+332	12	3	135	12.00	18.00	54.00	Left side
38	Gabion Walls	16+460	16+467	7	4	130	14.00	14.00	42.00	Left side
TOTAL (A)				335.00		5205.00	593.00	807.00	2053.50	

Source: Field Survey, 2009

Dry Wall

S.N.	Chainage		Length m	Height m	Area sq.m.	Quantity cu.m.	Remarks
	From	To					
1	0+180	0+190	10	3	4.486	44.860	Dry Wall left side
2	1+220	1+225	5	3	4.486	22.430	Dry Wall left side
3	1+240	1+245	5	3	4.486	22.430	Dry Wall left side
4	1+480	1+487	7	2	2.145	15.015	Dry Wall left side
5	1+520	1+527	7	2.5	3.494	24.458	Dry Wall left side
6	1+540	1+547	7	2	2.145	15.015	Dry Wall left side

7	1+740	1+749	9	3	4.486	40.374	Dry Wall left side
8	1+760	1+769	9	3	4.486	40.374	Dry Wall left side
9	1+780	1+789	9	3	4.486	40.374	Dry Wall left side
10	1+920	1+930	10	2.5	3.494	34.940	Dry Wall right side
11	2+240	2+250	10	2.5	3.494	34.940	Dry Wall right side
12	3+220	3+232	12	3	4.486	53.832	Dry Wall left side
13	3+820	3+832	12	3	4.486	53.832	Dry Wall left side
14	4+540	4+551	11	2.5	3.494	38.434	Dry Wall left side
15	4+560	4+571	11	2.5	3.494	38.434	Dry Wall left side
16	4+740	4+745	5	3	4.486	22.430	Dry Wall left side
17	4+760	4+765	5	3	4.486	22.430	Dry Wall left side
18	4+780	4+786	6	2.5	3.494	20.964	Dry Wall left side
19	4+800	4+809	9	2.5	3.494	31.446	Dry Wall left side
20	4+820	4+825	5	2.5	3.494	17.470	Dry Wall left side
21	4+840	4+846	6	2.5	3.494	20.964	Dry Wall left side
22	4+860	4+867	7	2.5	3.494	24.458	Dry Wall left side
23	4+880	4+889	9	2.5	3.494	31.446	Dry Wall left side
24	4+900	4+909	9	2.5	3.494	31.446	Dry Wall left side
25	4+920	4+927	7	2.5	3.494	24.458	Dry Wall left side
26	4+940	4+947	7	2.5	3.494	24.458	Dry Wall left side
27	4+960	4+968	8	3	4.486	35.888	Dry Wall left side
28	4+980	4+987	7	3	4.486	31.402	Dry Wall left side
29	5+000	5+006	6	3	4.486	26.916	Dry Wall left side
30	5+020	5+027	7	3	4.486	31.402	Dry Wall left side
31	5+040	5+045	5	3	4.486	22.430	Dry Wall left side
32	5+060	5+068	8	3	4.486	35.888	Dry Wall left side
33	5+080	5+089	9	3	4.486	40.374	Dry Wall left side
34	5+100	5+108	8	3	4.486	35.888	Dry Wall left side
35	5+120	5+130	10	3	4.486	44.860	Dry Wall left side
36	5+180	5+188	8	3	4.486	35.888	Dry Wall left side
37	5+200	5+207	7	3	4.486	31.402	Dry Wall left side
38	6+180	6+186	6	3	4.486	26.916	Dry Wall left side
39	6+200	6+207	7	2	2.145	15.015	Dry Wall left side
40	7+200	7+210	10	2.5	3.494	34.940	Dry Wall left side
Total Quantity						1240.921	Cum

Source: Field Survey, 2009

Annex XV: Purposed Cross Drainage and Side Drainage for Water Management

Purposed Causeway for Water Management

SN	Chainage	Length	Earthwork		Boulder Soling		PCC(1:2:4)	
			Area	Quantity	Area	Quantity	Area	Quantity
		m	sq.m.	cu.m.	sq.m.	sq.m.	sq.m.	cu.m.
1	4100	10.0	1.00	10.00	50.00		1.25	12.5
		10.00	Total	10.00	Total	50.0	Total	12.5
Earthwork			HS	10.00				

Source: Field Survey, 2009

Hume Pipe

S.N.	Chainage	Length	Dia.	Quantity	Remarks
		m	m	no.	
1	9459.88	7.5	0.6	3	For Cross Drainage
2	9659.88	7.5	0.6	3	
3	9899.88	7.5	0.6	3	
4	10379.88	7.5	0.6	3	
5	11339.88	7.5	0.6	3	
Total		37.5		15	RM

S.N.	Chainage	Length	Dia.	Quantity	Remarks
		m	m	no.	
1	2060.05	7.5	0.3	3	For Irrigation Purpose
2	2519.88	7.5	0.3	3	
3	2819.68	7.5	0.3	3	
4	3059.98	7.5	0.3	3	
5	3379.88	7.5	0.3	3	
6	3679.88	7.5	0.3	3	
7	3899.88	7.5	0.3	3	
8	4160.08	7.5	0.3	3	
9	4459.88	7.5	0.3	3	
10	4679.98	7.5	0.3	3	
11	5322.48	7.5	0.3	3	
12	5497.78	7.5	0.3	3	
13	5742.48	7.5	0.3	3	
14	6119.98	7.5	0.3	3	
15	6500.28	7.5	0.3	3	
16	6759.98	7.5	0.3	3	
17	7879.98	7.5	0.3	3	
18	8399.98	7.5	0.3	3	
19	8700.08	7.5	0.3	3	
20	9299.98	7.5	0.3	3	
Total		150		60	RM

Stone Masonry Drain Work

Chainage	Drain length		Left side	Right side	Quantity	Remarks
			Area	Area		
	m		m ²	m ²	m ³	
720	20			0.52	10.40	
740	20			0.52	10.40	
760	20			0.52	10.40	
780	20			0.52	10.40	
800	20			0.52	10.40	
820	20			0.52	10.40	
840	20			0.52	10.40	
1080	20			0.52	10.40	
1100	20			0.52	10.40	
1120	20			0.52	10.40	
1140	20			0.52	10.40	
1160	20			0.52	10.40	
1180	20			0.52	10.40	
1200	20			0.52	10.40	
1220	20			0.52	10.40	
1240	20			0.52	10.40	
1260	20			0.52	10.40	
1280	20			0.52	10.40	
1300	20			0.52	10.40	
1320	20			0.52	10.40	
1340	20			0.52	10.40	
1360	20			0.52	10.40	
1380	20			0.52	10.40	
1400	20			0.52	10.40	
1420	20			0.52	10.40	
8000	20			0.52	10.40	
8020	20			0.52	10.40	
8040	20			0.52	10.40	
8060	20			0.52	10.40	
8080	20			0.52	10.40	
8100	20			0.52	10.40	
8120	20			0.52	10.40	
8140	20			0.52	10.40	
8160	20			0.52	10.40	
8180	20			0.52	10.40	
8200	20			0.52	10.40	
8220	20			0.52	10.40	
8240	20			0.52	10.40	
8260	20			0.52	10.40	
8280	20			0.52	10.40	
8300	20			0.52	10.40	
8320	20			0.52	10.40	
8340	20			0.52	10.40	
8360	20			0.52	10.40	

8380	20		0.52	10.40
8420	20		0.52	10.40
8440	20		0.52	10.40
8460	20		0.52	10.40
8480	20		0.52	10.40
8500	20		0.52	10.40
8520	20		0.52	10.40
8540	20		0.52	10.40
8560	20		0.52	10.40
8580	20		0.52	10.40
8600	20		0.52	10.40
8620	20		0.52	10.40
8640	20		0.52	10.40
8660	20		0.52	10.40
8680	20		0.52	10.40
8700	20		0.52	10.40
8720	20		0.52	10.40
8740	20		0.52	10.40
8760	20		0.52	10.40
8780	20		0.52	10.40
8800	20		0.52	10.40
8820	20		0.52	10.40
8840	20		0.52	10.40
8860	20		0.52	10.40
8880	20		0.52	10.40
8900	20		0.52	10.40
8920	20		0.52	10.40
8940	20		0.52	10.40
8960	20		0.52	10.40
8980	20		0.52	10.40
9060	20		0.52	10.40
9080	20		0.52	10.40
9100	20		0.52	10.40
9120	20		0.52	10.40
9140	20		0.52	10.40
9160	20		0.52	10.40
9180	20		0.52	10.40
9200	20		0.52	10.40
9220	20		0.52	10.40
9240	20		0.52	10.40
9260	20		0.52	10.40
9280	20		0.52	10.40
9300	20		0.52	10.40
9320	20		0.52	10.40
9340	20		0.52	10.40
9360	20		0.52	10.40
9380	20		0.52	10.40
9400	20		0.52	10.40
9420	20		0.52	10.40

9440	20		0.52	10.40
9460	20		0.52	10.40
9480	20		0.52	10.40
9500	20		0.52	10.40
9520	20		0.52	10.40
9540	20		0.52	10.40
9560	20		0.52	10.40
9580	20		0.52	10.40
9600	20		0.52	10.40
9620	20		0.52	10.40
9640	20		0.52	10.40
9660	20		0.52	10.40
9680	20		0.52	10.40
9700	20		0.52	10.40
9720	20		0.52	10.40
9740	20		0.52	10.40
9760	20		0.52	10.40
9780	20		0.52	10.40
9800	20		0.52	10.40
9820	20		0.52	10.40
9840	20		0.52	10.40
9860	20		0.52	10.40
9880	20		0.52	10.40
9900	20		0.52	10.40
9920	20		0.52	10.40
9940	20		0.52	10.40
9960	20		0.52	10.40
9980	20		0.52	10.40
10000	20		0.52	10.40
10020	20		0.52	10.40
10040	20		0.52	10.40
10060	20		0.52	10.40
10080	20		0.52	10.40
10100	20		0.52	10.40
10120	20		0.52	10.40
10140	20		0.52	10.40
10160	20		0.52	10.40
10180	20		0.52	10.40
10200	20		0.52	10.40
10220	20		0.52	10.40
10240	20		0.52	10.40
10260	20		0.52	10.40
10280	20		0.52	10.40
10300	20		0.52	10.40
10320	20		0.52	10.40
10340	20		0.52	10.40
10360	20		0.52	10.40
10380	20		0.52	10.40
10400	20		0.52	10.40

10420	20		0.52	10.40	
10440	20		0.52	10.40	
10460	20		0.52	10.40	
10480	20		0.52	10.40	
10500	20		0.52	10.40	
10520	20		0.52	10.40	
10540	20		0.52	10.40	
10560	20		0.52	10.40	
10580	20		0.52	10.40	
10600	20		0.52	10.40	
10620	20		0.52	10.40	
10640	20		0.52	10.40	
10660	20		0.52	10.40	
10680	20		0.52	10.40	
10700	20		0.52	10.40	
10720	20		0.52	10.40	
10740	20		0.52	10.40	
10760	20		0.52	10.40	
10780	20		0.52	10.40	
10800	20		0.52	10.40	
10820	20		0.52	10.40	
10840	20		0.52	10.40	
10860	20		0.52	10.40	
10880	20		0.52	10.40	
10900	20		0.52	10.40	
10920	20		0.52	10.40	
10940	20		0.52	10.40	
10960	20		0.52	10.40	
10980	20		0.52	10.40	
11000	20		0.52	10.40	
11020	20		0.52	10.40	
11040	20		0.52	10.40	
11060	20		0.52	10.40	
11080	20		0.52	10.40	
11100	20		0.52	10.40	
11120	20		0.52	10.40	
11140	20		0.52	10.40	
11160	20		0.52	10.40	
11180	20		0.52	10.40	
	3620				
Total				1882.40	m3
Stone soling work in drain foundation				3982.00	m2

Annex XVI: Religious and Cultural sites of the project area

S.N.	Name of the site	Location	Aesthetic/Historical Importance	Land owned
1	Laxmi Narayan Temple	Aathbiskot VDC	Aesthetic/Historical Importance	Government
2	Bhagawati Temple	Aathbiskot VDC	Historical	Government
3	Kuripani Temple	Aathbiskot VDC	Aesthetic/Historical Importance	Government

Source: Field survey, 2009

Annex XVII: School and campus along the road alignment

S.N.	Name of VDC	School/Campus
1	Magma	Nepal Rastrya Primary school
2		Laxmi Primary school
3		Jana Bikash Secoundary school
4		Shiddrtha Janta H.S.School
5		Anu Primary school
6		Hari Primary school
	Aathbiskot	
7		Kamal Primary School
8		Dipjoyti Primary School
9		Himalayan Pri-Primary School
10		Sirjana Primary School

Annex XVIII: Summaries of Resettlement and Rehabilitation Cost

	Item	Unit	Total loss	Amount(NRs)	Remarks
1.	DIRECT COSTS				
1.1	Compensation for private land	(sqm)			
A	Donated Land	(sqm)	66593		Cost for donated land is NRs.5159289.
B	Absentees' Land (Reserve Fund)	(sqm)	30973	2792187.00	As per CDC Rate for 70 HHs
1.2	Compensation for structures	26	3586.26	2260493.66	13 house, 1 shed and 13 ghatta
1.3	Dismantling Costs for Structure	(sqm)	101152.26	250000.00	Lumsum
	Sub-Total			5302680.66	
2.	INDIRECT COSTS				
2.1	Movement Allowance	LS:	13 HHs	39000.00	
2.2	Rental Stipend	LS:	13 HHs	78000.00	
2.3	Deed Transfer Assistance	LS:	261 HHs	261000.00	
2.5	Official Deed Transfer fees and others	LS	412 plots	250000.00	
2.6	Appreciation Program for APs	LS:		250000.00	
	Sub Total			878000.00	
3	Livelihood Enhancement Skills Training (LEST)	LS:		579500.00	For APs
	Sub total (2+3)			1457500.00	
4	Contingency (5%)			72875.00	heading (2+3)
	Grand Total NRs.			6833055.66	heading (1+2+3+4)

Annex XIX: Details of Affected Structures and Summary of Resettlement Cost

Details of Affected Private Structures

SN	Chainage		Name of Owner	Setthement	Ward	VDC	Structure No.	Distance from CL	Materail used for Construction	Type of Structure
	From	to								
Residential Houses										
1	13+177.00	13+537.00	Gagan Khatri	Naduwa	5	Magma	1	3	Mud-Stone masonry with Straw roof	Residential House
2	13+177.00	13+177.00	Jasi Ram Khatri	Gharikhola	8	Magma	1	3	Mud-Stone masonry with Sleet roof	Residential House
3	13+177.00	13+537.00	Bam Bdr Oli	Gharikhola	8	Magma	1	3	Mud-Stone masonry with Slate roof	Residential House
4	14+800.00	14+801.00	Mukunda K.C.	Kaflechour	9	Aathbis kot	1	2.5	Mud-Stone masonry with Slate roof	Residential House
5	15+729.00	15+756.00	Yeman Giri	Kaflechour	9	Aathbis kot	1	2.5	Mud-Stone masonry with Slate roof	Residential House
	15+756.00	15+766.00		Kaflechour	9	Aathbis kot		2.5	Mud-Stone masonry with Slate roof	Residential House
6	15+794.00	15+816.00	Gagendra Bdr. Chanda	Kaflechour	9	Aathbis kot	1	2.7	Mud-Stone masonry with Straw roof	Residential House
7	15+795.00	15+817.00	Ambekumari Malla	Gija	2	Aathbis kot	1	3	Mud-Stone masonry with Straw roof	Residential House
8	15+937.00	15+952.00	Dilli Bdr. Saha	Gija	3	Aathbis kot	1	2.4	Mud-Stone masonry with Straw roof	Residential House
9	16+000.00	16+010.00	Bal Bdr. Sahi	Gija	2	Aathbis kot	1	2.4	Mud-Stone masonry with Straw roof	Residential House
10	15+858.00	15+891.00	Mohan Sahi	Gija	3	Aathbis kot	1	3	Mud-Stone masonry with Straw roof	Residential House
11	12+702.00	13+723.00	Jabire Kami	Gharikhola	9	Magma	1	2.5	Mud-Stone masonry with Straw roof	Residential House
12	13+177.00	13+537.00	Pratap Khatri	Basthala	5	Magma	1	2.5	Mud-Stone masonry with Slate roof	Shed
13	13+177.00	13+177.00	Drabya Khatri	Naduwa	5	Magma	1	3	Mud-Stone masonry with straw roof	Residential House
Total:							13			
Water Mill										
SN	Chainage		Name of Owner	Setthement	Ward	VDC	Structure No.	Distance from CL	Materail used for Construction	Type of Structure
	From	to								
1	0+000	0+500	Karna Sing Khatri	Gharikhola	8	Magma	1	2.1	Wood, Stone with ghatta machine	Pani Ghatta
2	0+000	0+500	Dhirandra Khattri	Dandaqaun	9	Aathbis dandag aun	2	2.8	Wood, Stone with ghatta machine	Pani Ghatta

3	0+000	0+500	Chakkra Bdr. Malla	Ghartigaun	2	Aathbis dandag aun	1	2.1	Wood, Stone with ghatta machine	Pani Ghatta
4	0+000	0+500	Tek Bdr. Malla	Ghartigaun	2	Aathbis dandag aun	1	2.1	Wood, Stone with ghatta machine	Pani Ghatta
5	0+000	0+500	Prabir Malla	Ghartigaun	2	Aathbis dandag aun	1	1.9	Wood, Stone with ghatta machine	Pani Ghatta
6	0+000	0+500	Dili Bdr. Pun	Gija	7	Aathbis dandag aun	1	2.1	Wood, Stone with ghatta machine	Pani Ghatta
7	0+000	0+500	Dhime Kami	ghari Khola	8	Magma	1	2.1	Wood, Stone with ghatta machinel	Pani Ghatta
8	0+001	0+501	Gagbire Kami	ghari Khola	8	Magma	1	3.1	Wood, Stone with ghatta machinel	Pani Ghatta
9	0+002	0+502	Khadka Bdr. Kami	Gharikhola	8	Magma	1	2.1	Wood, Stone with ghatta machinel	Pani Ghatta
10	0+003	0+503	Ramesh K.C.	Gharikhola	8	Magma	1	2.1	Wood, Stone with ghatta machinel	Pani Ghatta
11	0+004	0+504	Harke Kami	Gharikhola	8	Magma	1	3	Wood, Stone with ghatta machinel	Pani Ghatta
12	0+005	0+505	Ale Kami	Gharikhola	8	Magma	1	1.6	Wood, Stone with ghatta machinel	Pani Ghatta
Total:							13			