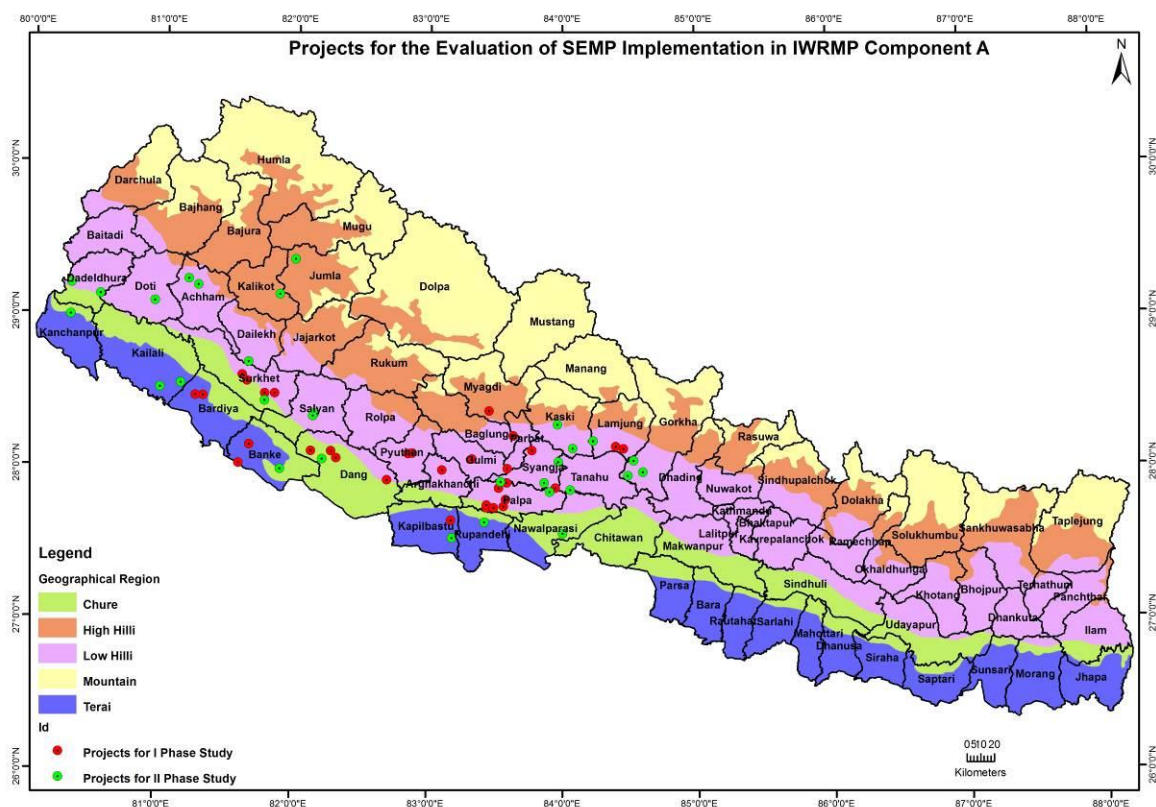


EVALUATION OF SEMP IMPLEMENTATION IN IWRMP COMPONENT A SUBPROJECT



DRAFT REPORT

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Separate Volumes

Social and Environmental Monitoring Report

List of Reports from Western Regional Irrigation Directorate

1. AMARAI Irrigation Sub Project, Yamgha VDC-6, Palpa
2. MATERI KULO Irrigation Sub Project, Rampur VDC-3, Palpa
3. GOLME-SANKHE Irrigation Sub Project, Raipur VDC-3, Tanahu
4. NAYATAR Irrigation Sub Project, Ghiring-Sundhara VDC-1, Tanahu
5. BAGADIBIRAUTA Irrigation Sub Project, Leknath Municipality-1, Kaski
6. JYAGDI THULO KULO Irrigation Sub Project, Sekham VDC-4, Syangja
7. PURANBESI Irrigation Sub Project, Puranchaur VDC-4, 6, Kaski
8. BHANDARTHOK Irrigation Sub Project, Palungtar & Aanppipal VDC – 1, Gorkha
9. DHUNWAKOT Irrigation Sub Project, Dhunwakot VDC – 7 & 8, Gorkha
10. HAJARPHANT Irrigation Sub Project, Dhunwakot VDC – 1 & 5, Gorkha
11. MAJUWA KHOLA Irrigation Sub Project, Karapu VDC – 1, Lamjung
12. TAMSARIYA BARUWA Irrigation Sub Project, Tamsariya VDC – 6 & 9, Nawalparasi
13. PARROHA-SEMLAR DTW Irrigation Sub Project, Parroha 1,2 & 6 and Semlar 2,3,4 & 5, Rupandehi
14. BETI Irrigation Sub Project, Banskhor VDC – 7 & 9, Kapilvastu

List of Reports from Mid-Western Regional Irrigation Directorate

15. MALAIYA PATHARAIYA Irrigation Sub Project, Baijapur VDC – 4 & 7, Banke
16. GHATGAUN Irrigation Sub Project, Ghatgaun VDC – 4 & 9, Surkhet-under
17. GHUNKHAYA BHUJKULO Irrigation Sub Project, Ranchuli VDC – 8 & 9, Kalikot -under
18. BANDIRAJ Irrigation Project, Kankasundari - 7 & 8, Birat - 3 & 4 and Pandugupha - 6 & 7, Jumla
19. JUGENI Khola Irrigation Sub Project, Goganpani VDC – 5 & 9, Dailekh
20. PATU KHOLA PADDA Irrigation Sub Project, Tarigaon VDC – 4, 7 and Urahari VDC – 8, Dang
21. PANDHERI PALESI Irrigation Sub Project, Khalanga VDC – 4, Salyan
22. SYALPANI Irrigation Sub Project, Dandagaun VDC – 5, Salyan

List of Reports from Far-Western Regional Irrigation Directorate

23. AMARAWATI Irrigation Sub Project, Godawari VDC-8, Kailali
24. BANI KULO Irrigation Sub Project, Joshipur & Thapapur VDC, Kailali
25. DAIJI DEEP TUBEWELL Irrigation Sub Project, Daiji VDC- 1, 5 6, 7, & 8, Kanchanpur
26. GHATTEE PLOT Irrigation Sub Project, Sirse VDC-9, Dadeldhura
27. GOLGHAR BHITRISAIN Irrigation Sub Project, Alital VDC-2, Dadeldhura
28. BADABINAYAK Irrigation Sub Project, Shidheshwor VDC- 4, 6, 7, 8, 9, Achham
29. RANISHERA Irrigation Sub Project, Bhageswor VDC- 1, Achham
30. SALENIGAD Irrigation Sub Project, Bhumirajmandu VDC- 5, 6, Doti

CHAPTER 1 INTRODUCTION

1. INTRODUCTION

1.1 Project Background

The Irrigation and Water Resources Management Project (IWRMP) is implementing Irrigation Sub-Projects managed by farmers' groups. These Farmer Managed Irrigation Schemes (FMIS) are being improved/developed by the Irrigation Development Divisions (IDDs) and Irrigation Development sub-divisions (IDSDs) of three regions likewise Western Regional Irrigation Directorate (WRID), Mid-Western Regional Irrigation Directorate (MWRID) and Far-Western Regional Irrigation Directorate (FWRID), all under the Department of Irrigation (DOI).

The objective of the IWRMP is to improve irrigated agriculture productivity and management of selected irrigation schemes, and enhance institutional capacity for integrated water resources management. The primary target beneficiaries groups of the project are the water users of the selected irrigation schemes.

Key indicators proposed to measure the achievement of the Project Development Objective (PDO) are : increase in productivity of selected (main) crops; increase in cropping intensity; resources raised and O & M expenditures incurred by water user groups; extent of "satisfaction" – as defined through structured score cards – of water users with the irrigation service delivery; preparation (for government approval and enactment) of an integrated water resources policy and appropriate regulatory framework; and establishment of a national water resource database.

The project consists of the following four components:

Component A : Irrigation Infrastructure Development and Improvement,
Component B : Irrigation Management Transfer (IMT)
Component C : Institutional and Policy Support for Improved Water Management
Component D : Integrated Crop and Water Management

This Final report is for the Evaluation of Social and Environmental Management Plan of component A only.

1.2 Objective of the Component

The objective of this component is to improve irrigation water service delivery in selected schemes in Mountain, Hills and Terai (flood plains) areas and expand groundwater irrigation in the Terai. The component is designed to address the following issues: (a) structural and operational weakness in the traditional FMIS, which are experiencing low water efficiency and low agricultural productivity; and (b) low exploitation of the excellent groundwater potential of the Terai and lack of an appropriate plan for systematic development of groundwater irrigation.

The output of this component will be better irrigation services from existing and / or new schemes in the Western regions, in the mountains, Hills and Terai zones, which are or will be managed by farmers (FMIS). It involves five sub-components (i) physical rehabilitation and modernization of small and medium FMIS in the three zones; (ii) Capacity Building of WUAs and DOI as appropriate; (iii) development and improvement of sixty Deep Tube Wells (DTW) groundwater schemes; (iv) supporting, through electrification, ten groundwater irrigation schemes; and (v) preparation of a groundwater irrigation development plan. Under component A, support was to provide improved irrigation water delivery on about 26,392 ha. through rehabilitation and improvement of 168 FMIS spread over forty districts, of this 50 are to be taken up in the first year. But the target has been revised in the midterm review of the project. The original and revised scope of work of the component A of the project is presented in Table 1.1

Table 1.1. No of subproject under Component A

Activities	Original Scope		Revised Scope	
	No	Area in ha	No	Area
FMIS Surface	168	26,400	96	15,150
FMIS Tube well	15	2,100	6	1,680
Electricfication	10	3,000	3	715
		31,500	105	17,545

Source: Progress Status Report, May 2012

1.3 Objective of the Study

The main objective of the study is

- Verify compliance with social and environmental requirements process and procedures as defined in ISEA/SEMF. PAD and other project document
- Verification of the community participation in the preparation of SEMP
- Collect post construction social and environmental data of the project area
- Assess environmental and social impacts which occurred due to project implementation
- Evaluate the variation and the effectiveness of the mitigation measures
- Suggest corrective measures

1.4 Scope of Work

Evaluation work is the assessment of compliance and non-compliance of certain procedures and guideline which have been agreed and committed during the project development. Since SEMP of subprojects have been approved by the PICC with sample review by the Bank, we have taken the SEMP of the subprojects are the final documents for the compliance of the environmental and social requirement. The scope of work will be to assess and evaluate the compliance and non compliance of the proposed mitigation measures in the subprojects and suggest the corrective measures for the non compliance of proposed mitigation and/or compensatory measures that have been documented in SEMP of the respective subprojects.

1.5 Status of Component A

Though the revised scope of work for the component A is for 105 subprojects, as reported by the project SEMP has been prepared for 134 subprojects. PICC has approved all SEMP. A location map of the completed subprojects is presented in Figure 1.1. The status of the subprojects in the different geographical regions is presented in Table 1.2.

Table 1-2 Status of Subprojects in Different Geographical Regions

Development Regions	Surface				GW			Total
	Terai	Hill	Mountain	Total	STW	DTW	Total	
Western Development Region	10	50	5	65	1	3	4	69
Mid western Development Region	10	25	9	44	1	1	2	46
Far Western Development Region	4	12	0	16	1	2	3	19
	24	87	14	125	3	6	9	134

Source: OPD, IWRMP

Lists of subprojects approved by PICC are presented in Annex 1.

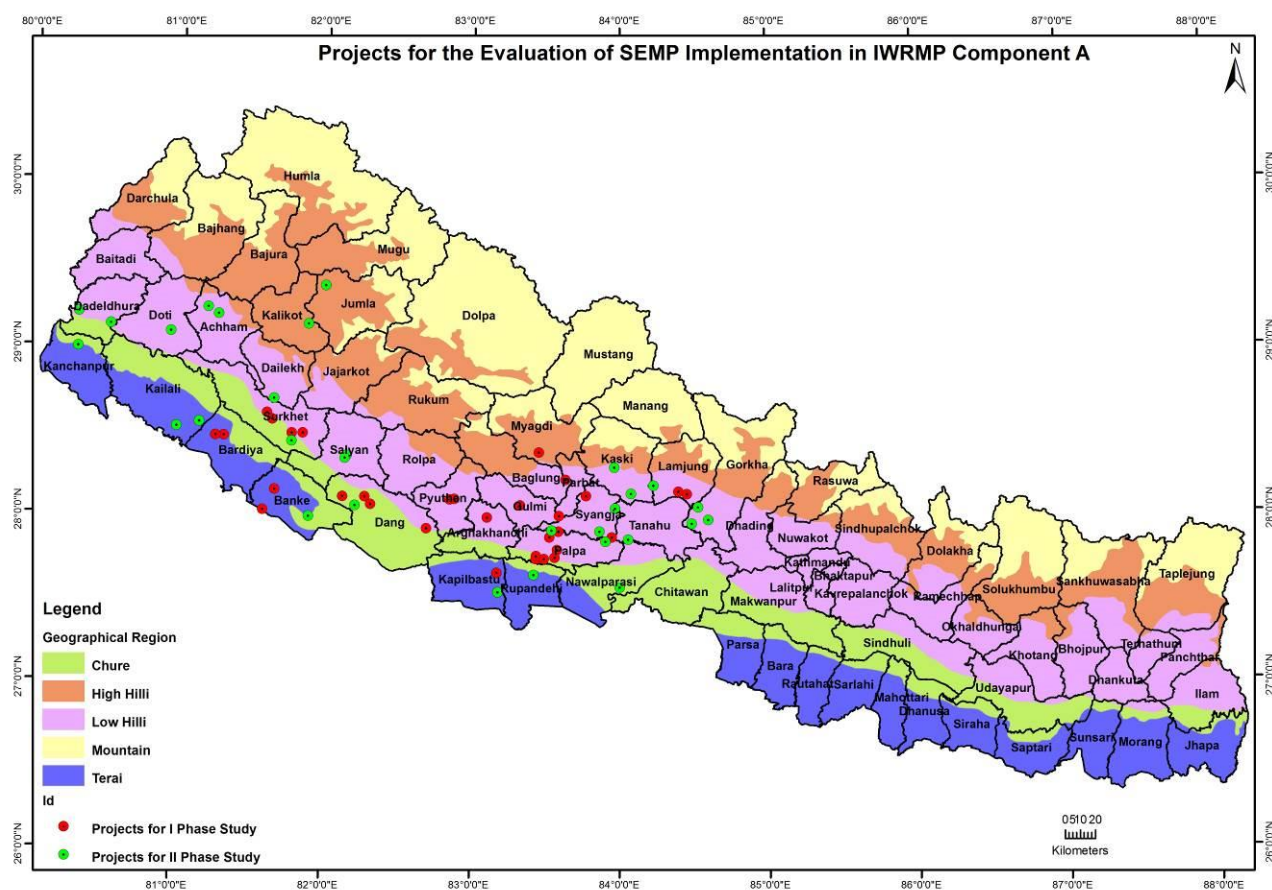


Figure 1-1: Project Area for the evaluation of SEMP in different geographical regions

CHAPTER 2

REVIEW OF THE DOCUMENTS

2. REVIEW OF THE DOCUMENTS

2.1 Review of Project Related Document

2.1.1 Review of SEMF

The main objectives of the SEMP guidelines was to provide inputs to identity possible site specific impact on social and environment of the subproject area due to the subproject implementation, develop and incorporate social and environmental considerations and measures to mainstreaming them into all management stages and functions of project execution starting from project preparation, detailed design, construction, monitoring and evaluation.

SEMP framework covers all ingredients of full social and environmental development plan. It details out a comprehensive list of issues on social and environment that are likely to be occur due construction/rehabilitation of a surface irrigation scheme and groundwater irrigation scheme. SEMP Framework requirement to identify site specific, cost effective and detailed mitigation measures for the identified social and environmental impacts to acceptable level. It also stress on the (i) requirement to integrate the proposed mitigation measures in sub project design, tender document with cost implication. (ii) requirement of capacity development and training of project staff, contractors and community groups in carrying out mitigation and mitigation measures where needed, (iii) presents monitoring and evaluation framework to be followed during the pre-construction, construction and O &M phase of the sub project cycle and (iv) stresses on making the budgetary provision for the implementation of each identified mitigation measures either in the bill of quantity of the construction contract, also make the provision of budget for the social and environmental monitoring in the subprojects by hitting professional from the market deemed necessary.

SEMP guide provides list of environmental and social issues that are likely to occur in the implementation of surface irrigation/groundwater subproject. It gives 14 steps for SEMP assessment at the different project cycles. It calls for the public participation and consultation at various stages in the assessment process to ensure quality, comprehensiveness and effectiveness of the stakeholders' participation, disclosure of the SEMP in public, publics' right to know information are in gradients of this guideline which make different from similar guidelines of the past.

SEMP framework has made provision of review and approval of SEMP at the decision making level which ensures the quality and completeness of the SEMP further review of the sample SEMP by the funding agency reconfirms the quality of the SEMP.

2.1.2 SEMP Preparation Guideline

The Project has prepared SEMP preparation guideline in 2007 and steps for the assessment process of SEMP. It comprised of input requirement of the environmental specialist and social scientist, detailed sequential steps for the preparation of SEMP, data requirement, time requirement and the content in SEMP.

2.1.3 Review of Aide Memoire of the Project

During the year 2012 to June, 2013 there 3 review mission and a support mission of the Word Bank. Issue raised in the Aide Memoires on the Environment and Social have been summarized here below.

(i) Aide Memoires April 25-29 and May 26-30, 2102

Most of the reporting on the Aide Memoire are as reported by the project to the mission, They were;

- the monitoring of SEMP were carried out monthly but the reporting was found regular and not reported in time. It was agreed that the SEMP monitoring report will be included in four monthly progress report. However, SEMP monitoring report was not available for review. Apart from that monitoring will be carried out in 10 subprojects from the central level. These reports are also not available for the review.
- Required land for the subprojects is donated by farmers in voluntary and they were documented according to the agreed format.
- Feed back registered are being regularly monitored and reporting is included in four monthly progress reports

The Aide Memoire raised concern of not having information on social and environment in the completion report of 14 subprojects and suggested to revise the subproject completion report including social and environment information. Aide memoir also raised concern on not availing the gender related data on regular basis. It was reported that IPDP of Bani ISP and GAP of Malware ISP have been prepared.

The Aide Memoire agreed to include the evaluation of SEMP of component B in the scope of work of third party monitoring consultant.

Orientation program on SEMP to be carried for the new field staff by October, 2012

(ii) Aide Memoire October 8-15, 2102

Aide Memoire made concern that four monthly SEMP monitoring as agreed was not regular feature of the project activities, even the central level monitoring report did not include social and environment data, lack of awareness on social and environmental issues among the newly posted staff, delay in the revision of 14 project completion report, delay in preparation of sample IPDP and GAP a subproject, lack of data on gender and vulnerable community in the subprojects.

(iii) Aide Memoire April 1- 7, 2013

This aid memoire mainly focused on the monitoring of SEMP. The statements stated are not conclusive. It states that the project has prepared monitoring format and implementation of SEMP are being monitored trimesterwise at a regular interval by DOI in close coordination with TA team whereas it also states that four monthly monitoring of SEMP implementation is yet to become regular activity of the Project. It states that OPD has sent instruction to all IDD/IDSD chiefs for regular monitoring of SEMP and submit the trimester wise report on agreed format and also states that DOI has received second trimester SEMP monitoring reports from different IDD and IDS. But reports on the monitoring of SEMP were not available with OPD. Aide Memoire expressed concerns on following

- Delay in implementation of SEMP for Sitaganj IP and Narayni Block 8
- Delay in revision of 14 subprojects completion report to include social and environment data
- Delay in regularizing four monthly SEMP monitoring
- Delay in preparation of sample IPDP and GAP for one subproject
- Delay in conducting sample survey of component D of safeguards requirement

2.2 Review of Subproject Related Document

- Status of SEMP and SEMP Monitoring
- Review of SEMP
- Review of SEMP Monitoring

2.2.1 Status of SEMP and SEMP Monitoring

As reported by the project, SEMP have been prepared for all 134 targeted sub projects. Evaluation of SEMP Implementation has been completed for 31 sub-projects under Phase I. In Phase II 30 Irrigation Sub Projects have been evaluated from Western, Mid-western and Far-western Regions. As the SEMP evaluation was to be carried out for the completed subprojects, in II Phase study construction work has been completed in 22 Irrigation Sub Projects, whereas the construction work is ongoing in 8 Irrigation sub projects.

2.2.2 Review of SEMP

In general a SEMP should have following data and information:

- Baseline data on the social physical, biological and social environments
- Identification of site specific social issues and environmental issues which have been presented in section 3 of RFP
- Proposed cost effective and doable mitigation measures for each identified impacts
- Budgetary allocation for the proposed mitigation measures
- Identification of the agency for the implementation of the mitigation measures
- Incorporation of SEMP in the sub project document such as tender documents of the construction contract or other project document. The construction related mitigation measures could have been included in the bill of quantity of the construction contract whereas the land compensation, crop damage compensation, training to the income generation, skilled development, pest management, institutional development of WUAs will be allocated under separate budget heading of the subproject. These training components are included in Package D component of IWRMP.
- Identification of the parameters for the effective monitoring of implementation of mitigation measures
- Identification of monitoring agency
- Schedule of monitoring
- Cost for the monitoring

SEMP Guideline comprised of the reporting format for the SEMP. It comprised of 5 sections and 13 Annexes. Section 1 is the Introduction section, which comprised of general description of the project and specific data such as dalit, janajati, women headed household, and other vulnerable groups. General descriptions of the subprojects were covered in all SEMP but specific data such a complete list of beneficiary farmers is available in some of the SEMP only.

Section 2 is the methodology section, it is the methodology used for the preparation of SEMP. Almost all Most of the SEMP have described the methodology.

Section 3 is identification of the impacts and mitigation measures. It comprised of identification of issue and mitigation measures, identification of requirement of RAP, IPDP, GAP and safety measures. Though all the SEMP have identified the issues and mitigation measures, they are not in the specific format as required by SEMP Guideline.

Section 4 is the mitigation cost assessment. Provision of mitigation cost has been made in majority of the SEMP. They are on lump sum without any basis. It is not understood how these cost has been build up in subproject cost estimate.

Section 5 is requirement of monitoring mechanism which has been identified in majority of the SEMP but they are again not in the specific format.

Detail compliance in the content of SEMP is presented in Annex 2 and summarized in Table 2.1.

Table 2.1: Summary of Compliance of SEMP Content

Sections	Compliance	
	No	Yes
1. SEMP Approval Form	18	12
2. Introduction		
Name	0	30
Location	0	30
Command Area	0	30
Household	8	22
List of the households	30	0
Identification of		
Janjati	15	14
Dalit	8	22
women headed	16	14
Other vulnerable group	19	8
Accessability	0	30
Brief Description of the Subproject	5	25
3. Methodology		
Field visit date	24	6
Mass meeting date	6	24
Walkthrough survey	6	24
Focused group discussions	6	24
Social mapping	6	24
Time line analysis	5	25
Debriefing	5	25
4. Identification of Impacts and Mitigation Measures		
Short Description of the Issues	5	25
Supported by hand drawn sktechs and photographs	26	4
Issue, Mitigation Measures and Responsible Agencies	0	14 in specific format
Identification of requirement of RAP, IPDP, GAP, Safety Measures	6	24
5. Mitigation Cost Assessment	0	format
6. Monitoring Mechanism		
Pre construction, construction and O & M stages	0	30 in not specific format
Annexes		
Location Map	4	26
Hand Drawn sketch of the project features	8	22
Topographical map	7	23
Social map	7	23
Time Line analysis	6	24
Attendance of mass meeting	7	23
Attendance of FGD (Women, dalit, janjati)	7	23
Attendance of wrap up meeting	23	7
Census of project affected people (PAP)	6	24
List of figures related to dalits, janajati, women and other vulnerable groups	8	22
Letter of voluntary land donation		
Individuals	25	5
WUA	30	0
List of NGO, CBO, Cooperatives, CFUGS etc	29	1
Major environmental and social issues	15	15
Monitoring and Evaluation mechanism	30	0
Photographs	5	25

All the subprojects of IWRMP component A are the rehabilitation of the FMIS of surface irrigation schemes or refurbishment of the existing groundwater tube wells. The adverse environmental impacts are very limited. In fact the rehabilitation works are meant for the smooth operation of the system by protecting the environment. The SEMP does not classify the impact under physical, social and biological environment. As the subprojects were in operation since many years as FMIS, the social harmony in the project area existed. Hence the SEMP of all the sub projects has considered the proposed intervention as the mitigation measures for solving the exiting problems in the system.

The proposed agriculture development support training, strengthening and capacity building of WUA can be considered as the social benefit of the project and recommended to include the women, dalits and janjatis in these programs in priority. Among the agricultural related trainings, preparation of organic manure, seed multiplication, training on modern agriculture practice, field visit have been proposed in almost all the SEMP.

Each SEMP comprised of the matrix of proposed mitigation measures for the identified activities/issues. Some of the identified activities/issues are in accordance with SEMP guideline but some are not. There are no distinct difference on the mitigation measures and benefit augmentation measures. For example, employment opportunity is the benefit from the project. Priority in employment to the project affected people, employment to the women with equal wage rate that of men are the augmentation measures to enhance the benefit. Similarly agricultural related trainings are the benefit of the project. But the training on application of chemical fertilizers and pesticides are the mitigation measures of their use. Similarly the training on the capacity building of WUAs is the benefit of the project. Inclusion of the women, dalit and janjati in these training programs are the project specific need of IWRMP which will have to be compiled according to the project document.

The mitigation measures for the gender issues have been proposed as training on manure preparation, crop diversification, agriculture inputs, exposure visits, on farm water management in many of the subproject. But it is not explain how these activities could be mitigation measures for the gender issue.

SEMP has made provision of agriculture related training programs such as preparation of organic manure, control use of chemical fertilizers and pesticides, seed multiplication, on farm water management. Nominal budget (Rs 25,000.00 to 50,000.00) has been allocated for each project. But it does not specify any concrete plan and programs in SEMP. Since the agriculture component of IWRMP is covered in Package D, the details of agricultural training will be available from Package D.

Some of the SEMP suggested assistance in the registration of CFUG, rehabilitation of water supply schemes, launching health and sanitation awareness program, assistance in construction of latrines as the mitigation measures which are very generic statement and not related with the system rehabilitation. They are related to the health, sanitation and other social activities which have been addressed by the SEMP. But implementation modality such as program, budget is not specified.

Almost all the SEMP has included strengthening and capacity building of WUA as one of the activities and its mitigation measures is to provide adequate and proper number of trainings and field visit program. But no specific type of trainings and number participants has been specified.

2.2.3 Review of SEMP Monitoring

It is reported that monitoring of SEMP implementation is being carried out by the respective division and sub division of the Department of Irrigation. The proposed mitigation measures related to construction were site specific but proposed enhancement measures related to agriculture development such as training and employment to the people is generalized. It reports that various training activities were implemented by DADO for the crop diversification and increase in cropping intensity, on farm water management, seed preservation, organic manure preparation, control use of chemical fertilizers and pesticide. For the employment opportunity to dalits and economically backward people it reports that hiring agriculture labour force during peak season. Employment opportunity is one of the mitigation measures for the affected people whereas it is the benefit for the local people. The employment opportunity should have been related to the construction stage rather than agriculture activities.

CHAPTER 3 METHODOLOGY

3. METHODOLOGY

3.1 Sample Size Determination

During the pre bid meeting of the proposal, the client informed that there SEMP has been prepared for 153 subprojects and suggested to consider 20 % as the sample size for the mid term evaluation and end term evaluation. The sample should cover all geographic and administrative regions in proportion.

The evaluation of the sub project to be carried out was done in two phases. Under the first phase study, evaluation was carried out for 31 subprojects. Similarly, under second phase, the evaluation was to be carried out for 30 sub projects. In II Phase construction work was completed in 22 Irrigation Sub Projects, whereas in 8 Irrigation sub projects the construction work was on completion stage. The selection of the subprojects for second phase was selected on the basis of the coverage of the geographic region and administrative region.

3.2 Preparation of Check List

Since the matrix of mitigation measures were prepared for all the subprojects, this matrix was the check list to evaluate the compliance and non-compliance of these measures. The method of evaluation and source of the confirmation could be different of each parameter. A check list for all the subprojects has been prepared. The status of compliance and non-compliance of the proposed mitigation measures of each subproject is presented in individual subproject report.

But the matrix of mitigation measure of SEMP did not cover the social and environmental issues that need to be covered as required by the SEMP Guideline. Apart from the check list of the matrix of the mitigation measures, a check list has also been prepared to solicit the information from the respective IDD/IDSD and WUA. Some of the questions were repeated in both the check list to reconfirm answers from both parties. These information will be useful in assessing or evaluating the social and environmental impacts of the subprojects.

(i) Check list for IDD/IDSD

- (i) Get the list of the project completion report if available
- (ii) Check the compliance of the proposed mitigation measures and make the note
- (iii) Enquire whether they faced any social or environmental issue or problem during construction. Note down the details.
- (iv) Enquire the extent of WUAs involvement in the construction supervision and quality control works.
- (v) Was there any construction supervision committee under WUA
- (vi) What was the farmers contribution in amount
- (vii) Enquire how farmers contribution was made (cash or kind)
- (viii) Did WUA or the local people got the contract work directly from the Project? What was the value of the contract/s?
- (ix) Enquire the extent of local people involvement in the construction works of the contractor?
- (x) Number of skilled labor
- (xi) number of unskilled labor
- (xii) Number of women employed
- (xiii) Number of men employed
- (xiv) Did the construction labour used safety gears such as helmets, boots, mouth masks at the construction sites?
- (xv) Were the construction labours were insured?
- (xvi) Enquire whether there was any accident during the construction works?
- (xvii) Was there any disturbance in the canal operation due to the construction activities?
- (xviii) Where were the sources of the construction materials such as sand, aggregates and boulders?
- (xix) Was there any complain or constraints while canal widening or canal extension

- (xx) Was there any special consideration given to the people whose land was located in the canal extension or canal widening? If yes what were they?
- (xxi) What was the Grievances Redress Mechanism?
- (xxii) List out the number of trainings given to the beneficiaries. Get the number of participants of (Male and female), (upper caste, janjati, dalit).
 - Project orientation
 - Construction related
 - Agricultural related
 - Income generation
 - Exchange field visits
- (xxiii) Enquire whether the test run of the system has been completed or not if yes note the date of the test run and participants in the test run.
- (xxiv) Enquire whether IPDP and/on RAP was prepared for the sub project.

Check list with WUA.

- (i) Note the WUA registration date
- (ii) List of WUA members (Male, female)
- (iii) Name and number of sub committees if any and their members (male, female).
- (iv) Enquire whether they faced any social or environmental issue or problem during construction. Note down the details.
- (v) Enquire the extent of WUAs involvement in the construction supervision and quality control works.
- (vi) What was the farmers contribution in amount
- (vii) Enquire how farmers contribution was made (cash or kind)
- (viii) Did WUA or the local people got the contract work directly from the Project? What was the value of the contract/s?
- (ix) Enquire the extent of local people involvement in the construction works of the contractor?
- (x) Number of skilled labor
- (xi) number of unskilled labor
- (xii) Number of women employed
- (xiii) Number of men employed
- (xiv) Average wage rate of the skilled and unskilled worker.
- (xv) Was there any difference in wage rate of male and female?
- (xvi) Did the construction labour used safety gears such as helmets, boots, mouth masks at the construction sites?
- (xvii) Enquire whether there was any accident during the construction works?
- (xviii) Was there any disturbance in the canal operation due to the construction activities?
- (xix) How people were compensated if there land was located in the canal widening or canal extension?
- (xx) Was there any special consideration given to the people whose land was located in the canal extension or canal widening? If yes what were they?
- (xxi) List out the number of trainings given to the beneficiaries. Get the number of participants of (Male and female), (upper caste, janjati, dalit).
 - Project orientation
 - Construction related
 - Agricultural related
 - Income generation
- (xxii) Whether the subproject has been constructed according to agreed condition or not. If not what were the changes?
- (xxiii) Do you have (i) operation maintenance plan of the system (ii) water management plan of the system
- (xxiv) Whether the water availability has increased or decreased?
- (xxv) Has WUA maintained "Feed Back Register"?

3.3 Consultation

3.3.1 Consultation with IDD/IDSD

The tentative schedule of the site visit was pre informed to the IDD/IDSD offices. In addition the survey team contacted the IDD/IDSD offices to confirm that the responsible engineer was available in the office during the site visit. The survey team administered the checklist developed for solicitation of the information from IDD/IDSD offices. Table 3.2 presents itinerary of the site visits.

3.3.2 Community Consultation

The community consultation was carried with the WUA members. The checklist was administered. As specified in the check list the consultation was focused on the

- extent of farmers participation in the project implementation
- participation of the women and indigenous people in the project activities, including training
- any specific problem encounter during the construction,
- the process of involuntary land contribution if any,
- type of the services they have been providing in the operation of the system.

Apart from that while making the walk through survey along the canal alignment discussion were made with number of farmers to seek their opinion on the sub project.

Community consultation was carried out in all 30 subprojects. Findings of the community consultation are presented in social and environmental monitoring report of each subproject.

3.4 Walk Through Survey

A walk through survey of the subproject from the intake structures to the command area was carried along with project staff and the WUA representatives. A hand held GPS was used during the walk through survey to locate the subproject on the topographic maps. Compliance of the proposed mitigation measures were checked and evaluated whether they were site specific or not.

Table 3.2: Itinerary of the Site Visits

IDD/IDSD	S.N.	Name of Irrigation Project	District	Date	Community Consultation	Participants from WUA/Farmers	Remarks
I WESTERN DEVELOPMENT REGION							
WIDD-2 Syangja	1	Jyagdi Thulokulo IP	Shyangja	9/28/2013	Yes	20	
	2	Bagadi Birauta IP	Kaski	9/26/2013	Yes	27	
	3	Puranbesi Khola IP	Kaski	9/27/2013	Yes	16	
IDD-3 Palpa	4	Amarai IP	Palpa	9/29/2013	Yes	22	
	5	Materi Kulo	Palpa	9/30/2013	Yes	20	
IDSD- 3 Tanahu	6	Nayataar IP	Tanahu	10/1/2013	Yes	24	
	7	Golme Sankhe Kulo IP	Tanahu	10/4/2013	Yes	18	
IDSD -1, Gorkha	8	Hajari Phaant IP	Gorkha	9/29/2013	Yes	13	
	9	Dhunwakot IP	Gorkha	9/27/2013	Yes	13	
	10	Bhandarthok IP	Gorkha	9/17/2013	Yes	9	
WIDD-1 Lamjung	11	Majuwa Khola IP	Lamjung	12/1/2013	Yes	13	
IDD-7 Nawalparasi	12	Tamsariya Baruwa IP	Nawalparasi	10/3/2013	Yes	20	
GFO Butwal	13	Parroha-Shemlar DTW	Rupandehi	10/5/2013	Yes	16	
IDD-5 Kapilbastu	14	Bethi IP	Kapilbastu	10/7/2013	Yes	14	
II MID-WESTERN DEVELOPMENT REGION							
IDD-1 Dang	15	Patu Khola IP	Dang	1/22/2014	Yes	12	
IDSD-2 Salyan	16	Pandheri Palesi	Salyan	1/26/2014	Yes	20	
	17	Sayalpani	Salyan	1/27/2014	Yes	15	
IDD-2, Banke	18	Malaiya Pathraiya IP	Banke	1/5/2014	Yes	22	
IDD-3 Surkhet	19	Ghat Gaun IP	Surkhet	1/9/2014	Yes	26	
	20	Jugeni Khola IP	Dailekha	1/11/2014	Yes	13	
	21	Ghunkhaya Bhuj kulo	Kalikot	1/16/2014	Yes	12	
IDD-5 Jumla	22	Bandi Raaj IP	Jumla	1/18/2014	Yes	13	
III FAR-WESTERN DEVELOPMENT REGION							
GFO Dhangadi	23	Daiji DTW IP	Kanchanpur	1/7/2014	Yes	18	
IDD-1, Kanchanpur	24	Amarawati IP	Kailali	1/9/2014	Yes	21	
	25	Bani Kulo IP	Kailali	1/22/2014	Yes	34	
IDSD-2 Dadeldhura	26	Ghattee Plot IP	Dadeldhura	1/13/2014	Yes	24	
	27	Golghar Bhitrisain IP	Dadeldhura	1/12/2014	Yes	41	
IDD-2, Doti	28	Salenigaad IP	Doti	1/17/2014	Yes	28	
	29	Ranishera IP	Acham	1/19/2014	Yes	34	
	30	Badabinayak IP	Acham	1/20/2014	Yes	21	

CHAPTER 4

Evaluation of SEMPs

4. Evaluation of SEMPs

Evaluation has been carried in two parts. (i) Compliance of the proposed mitigation measures of SEMPs and (ii) Compliance of Environmental and Social Issues through the check list administered to IDD/IDSD and WUAs. As stated in the methodology, the evaluation of SEMPs is based on the discussion with the IDD/IDSDs of the respective subproject, WUA members and field verification by the walkthrough survey. The detailed evaluation of the SEMP of each subproject is prepared and presented as the separate volume. They are summarized in this Chapter.

4.1 Compliance of the Proposed Mitigation Measures

Most of the proposed mitigation measures stated in the SEMPs have been complied with few exceptions which were mostly not related to the project impact. The detailed evaluation of the SEMP of each subproject is prepared and presented as the separate volume. The list of the non complied mitigation measures have been listed out in Table 4.1.

Table 4.1: List of Non Complied Mitigation Measures in the Subprojects

SN	Impact	Mitigation Measures	Explanation
Bhandarthok ISP, Gorkha			
	Impediment of movement of Wild Animals	Small pond for drinking water to animals	No provision of ponds for drinking water
Dhunwakot ISP, Gorkha			
	Impediment of movement of Wild Animals	Small pond for drinking water to animals	No such ponds for drinking water to animals were seen in the project area. Instead, animals drink water in the nearby river.
Hajarpant ISP, Gorkha			
	Impediment of movement of Wild Animals	Small pond for drinking water to animals	No provision of ponds for drinking water
Majuwa Khola ISP, Lamjung			
	Impediment of movement of people and cattle	Construction of 5 nos. of RCC ditches and ponds	No RCC ditches or ponds seen in the project area
Materi Kulo ISP, Palpa			
	Command area protection works	Plantation of grass	Plantation and Bio engineering work is not necessary within the command area
		Bio-engineering works	
	Other social issues	Material and skill manpower supply for "sudhariyako chulo"	IDD is planning to provide sudhariyako chulo within the project area in this fiscal year
Golme Sankhe Kulo ISP, Tanahu			
	Encroachment into forest and forest management	Tree plantation	Tree plantations was not done in the project area
	Gender issue	Field and exposure visit	No field exposure visit made from the project area

Table 4.1: List of Non Complied Mitigation Measures in the Subprojects

SN	Impact	Mitigation Measures	Explanation
	Water supply and public health	Maintenance of existing WS scheme	Maintenance work of water supply and installation of the Latrine were not done in the command area
		Installation of STW/Latrine	
Nayatar ISP, Tanahu			
	Poor health and sanitation	Health and sanitation awareness program	Such programs were not launched in the project area
		Coordinate to launch program to latrine construction in the area	
Bagadibirauta ISP, Kaski			
	Impediments of Movement of Animals/People due to canal widening	Small pond for drinking water to animals	No small pond constructed in the canal alignment
	Forest management	Tree plantation	Tree plantations was not done in the project area
		Proper location of labour camps	Labor camps was not established
	Hard Rock Excavation	Use manual excavation without blasting	There was no any hard rock excavation in the command area
	Gender Issues	Field and exposure visit	No field exposure visit made from the project area
	Poor health & sanitation	Health and sanitation Awareness program	Health and sanitation awareness program and construction of latrine were not launched in the command area
		Coordinate to launch program to latrine construction in the area	
Puranbesi ISP, Kaski			
	Impediment of movement of animals/people due to canal widening	Small pond for drinking water to animals	No small pond constructed in the canal alignment
	Forest management	Tree Plantation	Tree plantations was not done in the project area
	Protection of place of worship	Protect temple from construction activity	There is no temple in the command area
	Hard rock excavation	Use manual excavation without blasting	There was no any hard rock excavation during the construction of canal
	Gender issue	Field and exposure visits	No field exposure visit made from the project area
	Poor health and sanitation	Health and sanitation awareness program	Health and sanitation awareness program and construction of latrine were not launched in the command area
		Coordinate to launch program to latrine construction area	
Jhyagdi Thulo Kulo ISP, Syangja			
	Impediment of movement of animals/people due to canal widening	Small pond for drinking water to animals	No small pond constructed in the canal alignment

Table 4.1: List of Non Complied Mitigation Measures in the Subprojects

SN	Impact	Mitigation Measures	Explanation
	Forest management	Tree plantation	Tree plantations was not done during the project time
	Strengthening and capacity building of WUA	Field and exposure visits	No field exposure visit made
	Poor health and sanitation	Health and sanitation awareness program Coordinate to launch program for latrine construction in the area	Such program were not launched in the project area
Beti, Kapilvastu			
	Environment assessment	Structural and vegetative measures	No such environmental issues seen in the project area. Hence no measures need to be applied
Malaiya Patharaiya, Banke			
	Capacity building of WUA	Training will be arranged on the preparation and use of organic manure as well as controlled use of chemical fertilizers and pesticides by DADO.	Training will be arranged on the preparation and use of organic manure as well as controlled use of chemical fertilizers and pesticides by DADO.
	Sanitation and health	Irrigation Division Office will provide necessary budget for materials and skilled man power for toilet construction and co-ordinate for the work and conduct sanitation training. WUA will construct the toilets and best use and maintain them.	Irrigation Division Office has not shown any concern on sanitation and health. But each and every household in the project area has the facility of latrine.
	Gender issues	Specific training on preparation of jam, tailoring, draping and modern agricultural practice will be provided by IDD and DADO. WUA and users are committed to make equal wages. Field and exposure visits will be arranged by IDD and DADO.	No such trainings and field exposure visits have been arranged. Regarding the construction works of the canal, men and women were provided with equal wages.
	Maternity health and education issues	Specific training on maternity health and education will be provided by IDD and NGO.	No such trainings have been provided.
Ghatgaun ISP, Surkhet			
	Conversion of rain-fed agricultural land to irrigated agri-land, and increase of irrigation services in existing irrigated area	Prepare canal operation plan based on water availability at source river and irrigation water demand. Ensure active farmers participation. Prepare canal repair plan.	Canal is still under construction. Mitigation measures related to canal repair plan, operation and maintenance plan will be followed after the completion of the project.

Table 4.1: List of Non Complied Mitigation Measures in the Subprojects

SN	Impact	Mitigation Measures	Explanation
		Strengthen WUA capabilities to enable them to take up O & M activities.	
Ghunkhaya Bhujkulo ISP, Kalikot			
	Impediment of Wild Animals	Provide foot bridges crossings.	The project is still under construction. Not even a single foot bridge has been built.
	Promotion of apple production and its preservation	A group of local people will be given a special training on the production and preservation of apple.	No trainings have been provided about the production and preservation of apple. Mr. Til Prasad Koirala, one of the WUA members has taken training on apple and peach production and preservation on his own.
Ban.diraj ISP, Jumla			
	Impediment of movement of Wild Animals/people due to canal	Small pond for drinking water to animals	No such ponds for drinking water to animals were seen in the project area.
Jugeni Khola ISP, Dailekh			
	Extraction of sand from river for construction work	Expedite an alternative quarry site.	Sand and aggregates were carried from Jugeni Khola far away from the intake site. Boulders were used from the local kholsis
	Aggravate the land slide	Plantation of trees and use of other bio-engineering works to stabilize the landslide area.	No such bio-engineering works seen around the project area.
	Canal passing near residence of Mr. Jasbir B.K	Provision of canal lining along this length	Work is still on progress. No lining has been carried out beyond Ch 0+325.
Patu Khola ISP, Dang			
	Need to cross Patu Khola for smooth operation of system and minimize water due to seepage across the river bed	Construction of super-passage across Patu Khola	No super-passage has been constructed across Patu Khola to minimize the seepage of water across the river bed at Ch 5+200.
	Need to minimize seepage loss at key seepage zone along the main canal	Construction of canal lining	Problems of loss due to seepage still exists at chainages 5+000, 5+200, 5+350 and 6+150 as no lining seems to be carried out.
	Gender issues	Women empowerment training to enable them for active representation in decision making in development activities.	No such awareness and training programs were provided to empower women.
		Training program on organic farming.	
		Awareness program.	
Pandheri Palesi ISP, Salyan			
	Silt intrusion in canal	Covered canal with protection at left side of canal and construction of de-silting basin.	No provision for covered canal and de-silting basin was made up to 50 m d/s of the intake in order to control siltation in the canal. Moreover, the canal had no gate at the inlet.
Syalpani ISP, Salyan			

Table 4.1: List of Non Complied Mitigation Measures in the Subprojects

SN	Impact	Mitigation Measures	Explanation
	Silt intrusion in canal	Covered canal with protection at left side of canal and construction of de-silting basin.	No provision for covered canal and de-silting basin was made up to 50 m d/s of the intake in order to control siltation in the canal. Moreover, the canal had no gate at the inlet.
Amarawati ISP, Kailali			
	Encroachment of forest and forest management	Tree plantation	Tree plantation was not done in the command area
	Controlled use of chemical fertilizer and pesticide	Training and promotion of organic farming	Such program were not launched in the project area
	Poor public health and sanitation	Health and sanitation awareness program	Such program were not launched in the project area
		Monitoring of water quality of tube wells	
		Program to construct low cost latrine in the area	
Bani Kulo ISP, Kailali			
	Institutional Development and Capacity Building of WUA	Exposure visits will be organized to enhance WUA capacity	Field exposure visit has not been made till date
	Gender Issues	NGO's will support them to gain access to the development programs of the concerned line agencies and other organization for the literacy, health and sanitation	Such program were not launched in the project area
	Social Issues of Dalits	WUA will request NGOs to include them for income generation and skill development training	NGOs were not involved in the generation and skill development training in the project area
	Poor health & sanitation	Health and sanitation Awareness program	Such program were not launched in the project area
		Initiation of building of latrine in local households	
		WUA will request the concerns NGOs or Government agencies to improve the existing health and sanitation condition of the project area	
Daiji DTW ISP, Kailali			
	Arsenic Contamination	Arsenic field kit and training should provide to WUA for periodic monitoring	Arsenic test was done by GBO office but WUA members were not trained for arsenic monitoring
	Sustainability of Irrigation System	Irrigation service fee collection as per the hour basis.	No such activities were seen nor information provided by the locals
Ghatte Plot ISP, Dadeldhura			
	Seepage in Main Canal in head reach	Tree plantation at the L/B of canal as well as L/B of diverted part of Rangoon River	Such program were not launched in the project area
	Loss of Sisso trees	Realign main canal up to possible extent	There was no loss of Sisso trees during construction of main canal

Table 4.1: List of Non Complied Mitigation Measures in the Subprojects

SN	Impact	Mitigation Measures	Explanation
	Rehabilitation of existing water supply scheme and improvement in sanitation condition	Coordinate with concerned line agency for rehabilitation of WS Scheme Provide health education and sanitation awareness training to local people	Such program were not launched in the project area
	Employment Opportunity to Dalits and Economically backwards	Employ them as Dhalpa and chowkidar	None of the individual employed as Dalpa and chowkidar
Golghar Bhitrisain ISP, Dadeldhura			
	Landslide protection	WUA do the plantation	Plantation program was not launched in the project area
	Gender issues	NGO will support them to gain access to the development programs of the concerned line agencies and other organizations	Such program were not launched in the project area
	Social issues of dalits	WUA will request NGOs to include them with other people for income generation and skill development training	Such program were not launched in the project area
	Health, sanitation and safety	WUA will request the concerned NGOs and or Government agencies to improve existing health and sanitation condition along with awareness programmes for HIV and AIDS	Such program were not launched in the project area
Badabinayak ISP, Achham			
	Impediment of movement of wild animals/people due to canal widening at some stretches	small pond for drinking water to animals	No small pond constructed in the canal alignment
	Landslide protection slope stabilization from canal widening activity	application of SABO technology for slope stabilization	Gabion protection done at different parts but SABO techniques not applied
	Social discrimination	inequality in wages among men and women will be controlled by WUA/Contractor as per condition of contract	Wages differences between male and female; Male@600 and Female@500
Ranishera ISP, Achham			
	Impediment of movement of wild animals/people due to canal widening at some stretches	small pond for drinking water to animals	No small pond constructed in the canal alignment
	Encroachment into forest and forest management	CFUG registration	There is no registered community forest , few amounts of shrubs along the canal alignment
	Landslide protection slope stabilization from canal widening activity	application of SABO technology for slope stabilization	Gabion protection done at different parts but SABO techniques not applied
Salenigad ISP, Doti			

Table 4.1: List of Non Complied Mitigation Measures in the Subprojects

SN	Impact	Mitigation Measures	Explanation
	Impediment of movement of wild animals/people due to canal widening at some stretches	small pond for drinking water to animals	No small pond constructed in the canal alignment
	Encroachment into forest and forest management	CFUG registration	There is no registered community forest , few amounts of shrubs along the canal alignment
	Landslide protection slope stabilization from canal widening activity	application of SABO technology for slope stabilization	Gabion protection done at different parts but SABO techniques not applied

Most of the non complied mitigation measures such as construction of ponds and ditched for the cattle, health and sanitation awareness program, coordinated to launch program to toilet construction, forest management and monitoring of water quality are not directly related to the project impact. They might have been proposed as the additional benefit to the subproject area in SEMP. But such benefits have not been properly addressed in the other project document as required. Similarly, the mitigation measures for the encroachment in the forest area have been proposed in 16 irrigation sub projects. In 8 sub projects the canal passes through the community forest but there was no any encroachment or loss of trees during the construction period.



4.2 Comments on the Completed Structures

The engineering designs seemed to be carried out just to remove the bottlenecks of the existing systems. The evaluated 22 subprojects were supposed to be completed whereas in 8 sub projects the construction work is on completion stage, some problems have been noticed in the completed structures. They may be due to the incomplete construction works, non performance of WUA contribution, design deficiency or wrong water management. But they are related to the safety and environment. The comments have been categorized as general and sub project specific. If the deficiency is found in more than 2 subprojects they are presented as general comment and if it is found in only one project, it is under the specific.

4.2.1 General

(i) Canal banks without proper embankment

There are no canal banks at the lined sections of the canal for the people to walk. The canal banks are not properly maintained even at the earthen section of the canal. In the absence of the proper canal embankment people will have difficulty in walking along the canal for the inspection and maintenance purpose even dangerous from the safety point. It was reported that construction of the earthen embankment at the lined canal section was supposed to be carried under the WUA contribution part which have not been fulfilled.

	
Lined canal section without passage for the walk, Salenigad ISP, Doti	Lined canal without proper embankment Tamsariya Baruwa ISP, Nawalparasi

Lined canal section without passage for the walk, Ghattee Plot ISP, Dadeldhura	Lined canal section without passage for the walk, Badabinayak ISP, Accham

(ii) Road/track crossing structures without proper access

In some of the project VRB has been constructed but access to the VRB has not been considered or built. The purpose of the structure is not fulfilled. It is either the overlook in the design or the contractor has not completed their work.

A VRB Constructed in Ghattee Plot ISP, Dadeldhura without approach road.	In complete culvert; required for the movement of animals, Ghattee Plot ISP, Dadeldhura

(iii) Insufficient canal escape structures

The canal escape structure is limited at the intake structure only. There should have been number of escape structures around the cross drainage along the canal especially on the hill canal for preventing overtopping of the water from the hill slope. Absence of the canal escape at the appropriate locations may over top the canal resulting wash out of the canal. Similarly, the proper metal gates are recommended in the escapes in order to control the flow of water in the canal.

Escape structure without Gate controller, Jugeni Khola ISP, Dailekh	Escape structure without Gate controller, Ranishera ISP, Accham

(iv) Landslides and small slips

There are number of landslides and slips in the hill subprojects which are not attended. A typical example of landslide has occurred in Salenigad ISP, Majuwa Khola ISP, Bhandarthok ISP, Ghatgaun ISP and Jugenikhola, ISP. This may trigger bigger slide and lead to canal wash out if not treated in time.

In Amarai Irrigation Sub Project the landslide has destroyed 30 meter RCC at Katahare danda. The landslide at Katahare danda is between chainage 1+550 to 1+670. Since the system is not in operation at present context an immediate initiation is recommended to re-construct the eroded 30 m section. Similarly, the wages differences made between male and female workers should be stopped.

	
Landslide at Ch.0+200 Majuwa Khola ISP, Lamjung	Landslide problem at Ch. 5+600, Salenigad ISP, Doti
	
Bank erosion at Ch. 0+800 of Bhandarthok ISP, Gorkha	Landslide erosion and bank erosion of Ghatgaun ISP, Surkhet
	
Landslide at the end of canal, Jugeni Khola ISP, Dailekh	Landslide near headwork, Ghatgaun ISP, Surkhet

Katahare danda landslide , Amarai ISP, Palpa	30 m RCC canal destroyed due to landslide, Amarai ISP, Palpa

4.2.2 Specific Problem

Bank scouring problem is seen in the Rangoon watershed, which has resulted huge deposition of gravel and boulder nearby the Ghattee plot command area. The flood occurred nearby the Ghattee plot command area has destroyed 3 houses. The gabion protections near the intake site and command area are washed out every monsoon. Farmers will have to construct gabions around the intake site every year.

Nayatar Irrigation canal passes through the Katandanda community. Deforestation activity was seen above the canal alignment at chainage 0+550. WUA members should coordinate with community forest committee to stop the falling down of trees from sidewise of the canal alignment. Similarly landslides and scouring were seen at chainage 1+400, 1+700, 3+070, 3+300 and 3+500 where immediate gabion protection was required.

Deposition of Grave and Boulders near the Ghattee Plot command Area, Sirse VDC, Dadeldhura	Scouring and displacement made by Rangoon River, Ghattee Plot ISP, Sirse VDC, Dadeldhura

	
Illegal cutting down of trees just above the canal alignment - Katandanda community forest, Nayatar ISP, Tanahu	Gabion protection work necessary at chainage 2+200, Nayatar ISP, Tanahu

4.2.3 Recommendations

It is recommended to make the joint walk through survey of IDD/IDSD official and WUA members in each subprojects and list out the required works which would affect the system operation and the people property and carry out the necessary works.

4.3 Environmental and Social Issues

Results of the check list administered in each subproject are presented in separate individual report of the subprojects. They are described in brief here below.

4.3.1 Compliance of the Proposed Mitigation Measures

All the IDD/IDSD and WUA members of the sub project reported that most of the proposed mitigation measures have been complied with few exceptions which are not directly related to the project impact. Table 4.1 gives the summary of status of the proposed mitigation measures in each subproject.

4.3.2 Construction Related Mitigation Measures

The construction related mitigation measures related to safety issues have not been addressed in the SEMP. The use of the safety gears such as helmets, boots and gloves were not provided to the construction workers at the construction site. Only mouth mask was provided to the construction labours. The contractor used mostly construction workers from outside the project area. A proper labor camp with the facilities was not established. They were kept in the temporary huts in the vicinity of the construction site. Though there was provision of insurance in the bill of quantities of all subprojects, the project staff was not aware of insurance of the construction workers. There were incidence of minor injuries but no serious accident was reported during the construction period. The local construction materials such as sand, stone and aggregate were collected from the nearest available sites.

4.3.3 WUA Participation on the Subproject Implementation

The beneficiaries' participation was encouraging in all the subprojects. They contributed in the construction cost in cash and kind as required by the project. It ranged from 0.7 % in Bandiraj ISP, Jumla to 13 % in Bani Kulo ISP, Kailali. In 27 Irrigation Sub Projects WUAs took part of the construction contract related to the earthwork. Out of 30 subprojects, construction sub committee was formed in 12 sub projects whereas in other subprojects WUA members were actively involved in the construction supervision works.

4.3.4 Employment Opportunity

Most of the contractor used the construction labours from outside of the subproject areas as they have their own set of the workers which are convenient from them. Since the beneficiaries contribution was mandatory

in the all the subprojects, it was done as the labour contribution. In addition to this, WUA took the construction contract in 7 subprojects. This gave the ample opportunity of employment to the local people. Employment record data were available from 9 subprojects only. Participation of the unskilled labour was from 60% to 91 %. Employment to the women was encouraging. It ranged from 10 % to 30 %.

4.3.6 Social Issues

All the WUAs of the subprojects reported that subproject has been completed according to the agreed condition and water availability has increased after the project intervention. The survey team did not find any complain or grievances while making the walkthrough survey in each subproject and during the discussion with the WUA members and lead farmer.

4.3.6 Land compensation

Most of the subprojects have land requirement in the form of canal widening. There was no record of such requirement. The subprojects being FMIS constructed with involuntary land contribution from the farmers and in operated since long time, land compensation was not issue in any subproject. The WUAs ensured that the required land will be amicably settlement and there will be no coercion. WUA had submitted the minutes of meeting signed by the beneficiaries on the agreement of the voluntary land contribution if required. There was no special consideration for the people whose land was affected by the canal widening or extension. This was made very clear to all the farmers in the beginning that any land requirement in the form of canal widening will have to be voluntary. Based on this agreed understanding the subproject was taken up. Hence land compensation had not been considered in the design and resettlement plan was not prepared.

4.3.7 Women Participation

The participation in the project activities is encouraging in general. Their participation in the WUA ranged from 3% to 51 %. It is more than 33 % as required by the Irrigation Policy of Nepal in 18 ISP. Women participation in WUA committee was found greater than men (35 members; Male-17 and Female-18) in the Bani Kulo Irrigation subprojects having majority of the beneficiaries from Chaudhary ethnic group.

Similarly women participations in the training activities are also very encouraging. It ranged from 9 % to 66 %. Out of the 30 ISPs, seven subprojects had less women participation in training (9% and 27 %). It ranged from 30% to 66 % in other 23 subprojects. Table 4.2 presents participation of women in the training activities.

The wage rates difference between the male and female was reported in three subprojects; Amarai ISP-Palpa, Badabinayak ISP-Achham, Parroha-Semlar DTW-Rupandehi with the difference of Rs. 50, Rs.100 and Rs.100 respectively.

4.3.8 Community Participation

The majority of the beneficiary community in the subprojects is Brahmin/Chhettri. Out of 30 subprojects, 22 subprojects have Brahmin/Chhettri as the major community, 7 subprojects have Indigenous group as majority and in the Jugeni Khola ISP at Dailekh Dalits are the majority group. Table 4.3 presents the beneficiaries of different communities in the subprojects.

4.3.9 Grievance Record Keeping

In all the projects there were no any disputes during the rehabilitation of the Irrigation Projects. The issues raised during the construction were resolved by making meetings with the IDD officers at the district level. All the projects are the rehabilitation type and there were no any extension of canal, thus disputes were not found. The WUAs have maintained a register known as 'Agantuk Pustika' in their office. This register is meant for the visitors to make comments on the subproject.

Table 4.2: Participation in the Training Activities

IDD/IDSD	S.N.	Name of Irrigation Project	District	Training Participant (Gender Wise)	
				Male	Female
I	WESTERN DEVELOPMENT REGION				
WIDD-2 Syangja	1	Jyagdi Thulokulo IP	Shyangja	63%	37%
	2	Bagadi Birauta IP	Kaski	57%	43%
	3	Puranbesi Khola IP	Kaski	52%	48%
IDD-3 Palpa	4	Amarai IP	Palpa	91%	9%
	5	Materi Kulo	Palpa	70%	30%
IDSD- 3 Tanahu	6	Nayataar IP	Tanahu	58%	42%
	7	Golme Sankhe Kulo IP	Tanahu	56%	44%
IDSD -1, Gorkha	8	Hajari Phaant IP	Gorkha	34%	66%
	9	Dhunwakot IP	Gorkha	60%	40%
	10	Bhandaarthok IP	Gorkha	80%	20%
WIDD-1 Lamjung	11	Majuwa Khola IP	Lamjung	47%	53%
IDD-7 Nawalparasi	12	Tamsariya Baruwa IP	Nawalparasi	63%	37%
GFO Butwal	13	Parroha-Shemlar DTW	Rupandehi	90%	10%
IDD-5 Kapilbastu	14	Bethi IP	Kapilbastu	66%	34%
II	MID-WESTERN DEVELOPMENT REGION				
IDD-1 Dang	15	Patu Khola IP	Dang	78%	22%
IDSD-2 Salyan	16	Pandheri Palesi	Salyan	74%	26%
	17	Sayalpani	Salyan	65%	35%
IDD-2, Banke	18	Malaiya Pathraiya IP	Banke	60%	40%
IDD-3 Surkhet	19	Ghat Gaun IP	Surkhet	44%	56%
	20	Jugeni Khola IP	Dailekha	60%	40%
	21	Ghunkhaya Bhuj kulo	Kalikot	50%	50%
IDD-5 Jumla	22	Bandi Raaj IP	Jumla	58%	42%
III	FAR-WESTERN DEVELOPMENT REGION				
GFO Dhangadi	23	Daiji DTW IP	Kanchanpur	54%	46%
IDD-1, Kanchanpur	24	Amarawati IP	Kailali	48%	52%
	25	Bani Kulo IP	Kailali	48%	52%
IDSD-2 Dadeldhura	26	Ghattee Plot IP	Dadeldhura	50%	50%
	27	Golghar Bhitrisain IP	Dadeldhura	75%	25%
IDD-2, Doti	28	Salenigaad IP	Doti	69%	31%
	29	Ranishera IP	Acham	67%	33%
	30	Badabinayak IP	Acham	73%	27%

Table 4.3: Beneficiaries Communities in Each Subproject

IDD/IDSD	S.N.	Name of Irrigation Project	District	Ethnic Group Participation			
				Brahmin/Chettri	Indigenous	Dalits	Other
I	WESTERN DEVELOPMENT REGION						
WIDD-2 Syangja	1	Jyagdi Thulokulo IP	Shyangja	45%	47%	7%	-
	2	Bagadi Birauta IP	Kaski	58%	25%	17%	-
	3	Puranbesi Khola IP	Kaski	85%	-	15%	-
IDD-3 Palpa	4	Amarai IP	Palpa	78%	22%	-	-
	5	Materi Kulo	Palpa	56%	29%	15%	-
IDSD- 3 Tanahu	6	Nayataar IP	Tanahu	9%	85%	6%	-
	7	Golme Sankhe Kulo IP	Tanahu	52%	38%	10%	-
IDSD -1, Gorkha	8	Hajari Phaant IP	Gorkha	52%	36%	12%	-
	9	Dhunwakot IP	Gorkha	17%	83%	-	-
	10	Bhandaarthok IP	Gorkha	50%	40%	5%	-
WIDD-1 Lamjung	11	Majuwa Khola IP	Lamjung	61%	28%	11%	-
IDD-7 Nawalparasi	12	Tamsariya Baruwa IP	Nawalparasi	54%	39%	7%	-
GFO Butwal	13	Parroha-Shemlar DTW	Rupandehi	45%	40%	15%	-
IDD-5 Kapilbastu	14	Bethi IP	Kapilbastu	-	100%	-	-
II	MID-WESTERN DEVELOPMENT REGION						
IDD-1 Dang	15	Patu Khola IP	Dang	17%	83%	-	-
IDSD-2 Salyan	16	Pandheri Palesi	Salyan	81%	7%	12%	-
	17	Sayalpani	Salyan	70%	10%	20%	-
IDD-2, Banke	18	Malaiya Pathraiya IP	Banke	12%	80%	8%	-
IDD-3 Surkhet	19	Ghat Gaun IP	Surkhet	61%	3%	36%	-
	20	Jugeni Khola IP	Dailekha	44%	8%	48%	-
	21	Ghunkhaya Bhuj kulo	Kalikot	80%	5%	15%	-
IDD-5 Jumla	22	Bandi Raaj IP	Jumla	64%	14%	22%	-
III	FAR-WESTERN DEVELOPMENT REGION						
GFO Dhangadi	23	Daiji DTW IP	Kanchanpur	65%	25%	16%	-
IDD-1, Kanchanpur	24	Amarawati IP	Kailali	61%	25%	14%	-
	25	Bani Kulo IP	Kailali	4%	94%	2%	-
IDSD-2 Dadeldhura	26	Ghattee Plot IP	Dadeldhura	84%	-	16%	-
	27	Golghar Bhitrisain IP	Dadeldhura	70%	-	8%	22%
IDD-2, Doti	28	Salenigaad IP	Doti	80%	1%	19%	-
	29	Ranishera IP	Acham	61%	-	13%	26%
	30	Badabinayak IP	Acham	90%	-	10%	-

4.3.10 Others

Some of the key elements of the completed subprojects such as (i) formal test run of the completed schemes (ii) Project completion report and (iii) operation and maintenance plan of the scheme have not been prepared in most of the completed subprojects.

CHAPTER 5 RECOMMENDATIONS

5. RECOMMENDATIONS

5.1 Conclusion

In general, a SEMP should comprised of ingredients like the impact on the physical, biological social and cultural environment due to the project intervention, proposed mitigation measures for the identified impacts, cost of mitigation measures, modality for the implementation of the mitigation measures such as when to do how to do and who will do. But most the SEMP do not comply these details. As stated in section 2, the proposed interventions have been considered as the impact or mitigation measures. The content of the SEMP depended on the IDD/IDSD of DOI.

All the subprojects being the rehabilitation of the existing FMISs, the adverse impact on the environment is limited to the canal widening. The project intervention has improved the environmental conditions. The construction related impacts such as safety measures at the construction sites, insurance coverage of the workers and impact of use of local construction materials etc have not been considered in the SEMP. They were not included in the SEMP.

The sub projects being in operation since many years, social harmony among the people existed. The required land for the canal construction in the FMISs was the involuntary contribution from the people in the past. The farmers had agreed voluntary contribution of the land for the canal widening or canal extension if required. Based on this understanding, the subprojects were taken up. Hence the compensation for the canal widening was not considered in the project and resettlement plan was not prepared.

The women participation in the WUA executive body is encouraging. It complies the Irrigation Policy requirement in most of the subprojects with few exceptions. The women participation in the trainings provided by the project is very good.

Training activities are carried out by irrigation divisions and district agriculture development office. But they are not properly recorded in many of the division offices.

Evaluation of the 30 sub projects were carried in the II phase study. Out of 30 projects, construction works have been completed in 22 sub projects, whereas in 8 Irrigation sub projects the construction work are on completion stage. Though the construction work was evaluated in the 22 sub projects that are supposed to be completed, they have not been formally closed. The construction contract will have defect liability period. At this period, the any defect of the construction shall be repaired and certified. A joint walk through survey has not been carried out in any of the subprojects.

5.2 Recommendation

For the evaluated subprojects, it is recommended to make the walk through survey of the system from headworks to the end of the canal together with the WUA members. Any deficiency in the canal system which will affect the operation of the canal should be noted and repaired so that the investment made in the subproject properly used and the farmers are benefitted.

The monitoring of the SEMP must be carried out quarterly in all the subprojects and it is recommended to keep the record of all the training activities carried out under the project in the respective irrigation division office.

Though the land requirement is considered as the involuntary in the project, there are incidences of the affect on the private and public property due to the construction activities hence it is also recommended to maintain a separate Grievance Register in the office of WUA of all the subprojects which shall be accessible to the beneficiaries easily. Any grievances reported in the register should be reported in the SEMP monitoring report.

Annex 1:

List of Evaluated Irrigation Sub Projects of IWRMP in Two Phases

Irrigation & Water Resources Management Project
List of Sub-Projects Approved by PICC

IDD/IDSD	District	S.No	Name	CA (ha)	Complete (%)	Reports Available	Matrix Available	Phase I	Phase II	Total Phase I & II
Western Region										
WIDD-1 Lamjung	Lamjung	1	Kirinche Kandabote IP	52	51		√	1		1
	"	2	Tarabali IP	25						
	"	3	Shera Phaant IP	65		√				
	"	4	Akle Phaant IP	25			√	1		1
	"	5	Majuwa Khola IP	80	89	√	√		1	1
	"	6	Siti khola Bhat besi	50	15	√	√			
	Manang	7	Syuakhu Ghatte IP	25						
	"	8	Gowa Khola IP	26	85	√	√			
	"	9	Tenki	45		√	√			
WIDD-2 Syangja	Shyangja	10	Tamakhubari IP	30	95		√	1		1
	"	11	Suraudi IP	80	33	√	√			
	"	12	Jyagdi Thulokulo IP	40	55		√		1	1
	Kaski	13	Puranbeshi IP	48		√	√		1	1
	"	14	Bagadi Birauta IP	75	60	√	√		1	1
	"	15	Polyangtar	110	20					
IDD-3 Palpa	Palpa	16	Aathbise IP	25			√	1		1
	"	17	Leguwa Jhumsa IP	34			√	1		1
	"	18	Churi Chaurasi Birta IP	30			√	1		1
	"	19	Dailathum IP	40			√	1		1
	"	20	Gethi Chaur IP	34			√	1		1
	"	21	Maidani Phat IP	45			√	1		1
	"	22	Amarai IP	53	85	√	√		1	1
	"	23	Jhyangalpat IP	35			√	1		1
	"	24	Materi Kulo IP	28	90		√		1	1
	"	25	Talmul	78	60	√	√			
	"	26	Argeli	215	70	√				
IDD-4 Baglung	Baglung	27	Lekhani Andheri IP	62			√	1		1
	"	28	Kusmishera IP	57	25	√	√			
	Myagdi	29	Babiyachaur IP	34			√	1		1
	"	30	Ghara IP	80	75	√	√			
	Mustang	31	Namgel IP	32	85	√	√			
	"	32	Dhakmar IP	90	68					
IDD-5 Kapilbastu	Kapilbastu	33	Bethi IP	470	92	√	√		1	1
	"	34	Gangauli Gautariya IP	220			√	1		1
	"	35	Sayar bandh IP	400	92	√				
	"	36	Gudrung khola	400	15	√				
	"	37	Galaha Bangawa	800	18	√				
IDD-6 Rupandehi	Rupandehi	38	Gonahiya IP	800		√	√			
	"	39	Gajedi IP	419			√			
	"	40	Motipur Khadawa IP	1500						
IDD-7 Nawalparasi	Nawalparasi	41	Nayabelhani IP	320	20					
	"	42	Tamsariya Baruwa IP	217	63	√	√		1	1
IDSD -1, Gorkha	Gorkha	43	Hajari Phaant IP	38		√			1	1
	"	44	Bhandaarthok IP	50		√			1	1
	"	45	Kaldheri khet IP	25	75	√	√			
	"	46	Dhunwakot IP	54	80	√	√		1	1
	"	47	Nimel phant	25	10					
IDSD-2 Parbat	Parbat	48	Khurkott IP	95	70					
	"	49	Thulakhet IP	30	90					
IDSD- 3 Tanahu	Tanahu	50	Nayataar IP	100	92	√	√		1	1
	"	51	Gadijhaauritaar IP	51		√	√	1		1
	"	52	Golme Sankhe Kulo IP	45	89	√	√		1	1
	"	53	Bhulke Kulo IP	44	27	√	√			
	"	54	Shera Phaant IP	50	20	√	√			
	"	55	Chundi khola	29	50	√	√			
	"	56	Chundi Barah	45	40	√				
	"	57	Pokharel phant	30	60	√	√			
IDSD-4 Gulmi	Gulmi	58	Dalli Khola IP	29			√	1		1
	"	59	Jethi Kulo IP	50			√	1		1
	"	60	Tardi Khola IP	50	67	√	√			
	"	61	Lampate IP	45	88	√	√			
	"	62	Pahadi Phant IP	29	43	√	√			
IDSD-5 Arghakhachi	Arghakhachi	63	Thuladhunga IP	40			√	1		1
	"	64	Durga phant	35	12	√				
	"	65	Bangi khola	31	12	√				
GFO Butwal	Nawalparasi	66	Tamsariya DTW IP	240		√				
	"	67	Sunwal Swathi DTW Rehab	240						
	"	68	Surajpural Shallow Tubewell Electrification	200						
	Rupandehi	69	Parroha-Shemlar DTW	400	86	√			1	1
Sub - Total Western Region								17	14	31

Irrigation & Water Resources Management Project
List of Sub-Projects Approved by PICC

IDD/IDSD	District	S.No	Name	CA (ha)	Complete (%)	Reports Available	Matrix Available	Phase I	Phase II	Total Phase I & II
Mid Western Region										
IDD-1 Dang	Dang	70	Malwaare Kulo IP	1200			√	1		1
	"	71	Baruwa Gaule IP	228			√	1		1
	"	72	Dohate IP	38				1		1
	"	73	Chhotekulo IP	180	28					
	"	74	Patu Khola IP	250	86				1	1
	"	75	Korbang IP	210				1		1
	"	76	Manpure Kulo IP	400	15					
	"	77	Oineriya	60	15					
IDD-2, Banke	Banke	78	Malaiya Pathraiya	285	12	√			1	1
	Bardiya	79	Prataappur IP	235		√	√	1		1
	"	80	Kaali Gaudi IP	230				1		1
IDD-3 Surkhet	Dailekha	81	Jugeni Khola IP	50	55	√			1	1
	"	82	Khadapalcjaur IP	80	22					
	Surkhet	83	Ratataar Goremare IP	85				1		1
	"	84	Itaura IP	60				1		1
	"	85	Chanaute IP	87				1		1
	"	86	Ghat Gaun IP	400	56				1	1
	"	87	Kharkhola IP	225				1		1
	"	88	Baghkhori IP	40		√	√			
	"	89	Chaurkhola IP	50	36	√	√			
	"	90	Tatekulo IP	90	42	√	√			
	Kalikot	91	Sukatiya IP	71	54					
	"	92	Ghunkhaya Bhuj kulo	104	11	√			1	1
	"	93	Khati kulo Phurkot	150	11	√				
IDD-4 Puthaan	Rolpa	94	Puran Gaun IP	40			√			
	"	95	Madi Chaur IP	30		√	√			
	Pyuthan	96	Kasi Kulo IP	35				1		1
	"	97	Badahara Sariwang IP	30			√	1		1
	"	98	Aarang Khola IP	25	36	√	√			
IDD-5 Jumla	Jumla	99	Bandi Raaj IP	120	89	√	√		1	1
	Dolpa	100	Khatijyula IP	100						
	"	101	Jhuleni to Ranga gaun	52	13	√	√			
	Mugu	102	Gulma IP	90	56					
	"	103	Barkhu	90	15	√	√			
	Humla	104	Yangchu jyula	50	13	√	√			
IDSD-1 Rukum	Rukum	105	Chandribang IP	30						
	"	106	Bhalachaur	31	21	√	√			
	Jajarkot	107	Oriwaul IP	40						
	"	108	Kolgad	25		√				
IDSD-2 Salyan	Salyan	109	Reshamjyula IP	100						
	"	110	Bhumeswor Jyula IP	40						
	"	111	Pandheri Palesi	45		√	√		1	1
	"	112	Syalpani IP	27		√	√		1	1
	"	113	Mantura	50	17					
GFO Banke	Banke	114	Samshergunj DTW IP	360			√	1		1
	"	115	Jaispur Saigaun STW Electrification	315			√	1		1
Sub - Total Mid Western Region								14	8	22

Irrigation & Water Resources Management Project
List of Sub-Projects Approved by PICC

IDD/IDSD	District	S.No	Name	CA (ha)	Complete (%)	Reports Available	Matrix Available	Phase I	Phase II	Total Phase I & II
Far Western Region										
IDD-1, Kanchanpur	Kailali	116	Gaidakhera	450	25	√				
	"	117	Bandigada	205	22	√				
	"	118	Amarawati IP	200	85	√	√		1	1
	"	119	Bani Kulo IP	1800	62		√		1	1
IDD-2 Doti	Doti	120	Salenigaad IP	60	50				1	1
	Bajura	121	Pilchauri Majh kulo	35		√				
	"	122	Dhungri khola	64	25	√				
	Acham	123	Ranishera	58	26	√			1	1
	"	124	Badabinayak	51	20	√			1	1
IDSD-1 Bajhaang	Bajhaang	125	Puchauri IP	30						
IDSD-2 Dadeldhura	Dadeldhura	126	Ghatte Plot IP	45		√			1	1
	"	127	Chaud Rupal IP	48	90	√	√			
	"	128	Golghar Bhitrisain IP	30	85	√	√		1	1
IDSD-3 Baitadi	Baitadi	129	Paudi Surnaya IP	277	50					
IDSD-4 Darchula	Darchula	130	Chalyeegaad IP	58	20	√				
	"	131	Chaud	60	25					
GFO Dhangadi	Kanchanpur	132	Daiji DTW IP	360	56		√		1	1
	"	133	DTW Rehabilitation Work (Parashan 3 & 7 -2 Nos)	80						
	Kailali	134	Udasipur STW Electrification	200						
Sub - Total Far Western Region								0	8	8
Total								31	30	61

Annex 2:

Summary of SEMP Reports

