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Ministry of Irrigation  
Department of Irrigation  
Irrigation and Water resources Management Program (IWRMP)  
Jawalakhel, Lalitpur



World Bank



**ELEVENTH TRIMESTER PROGRESS REPORT**  
**(May 01, 2013 Through August 31, 2013)**

**TA CONSULTANT FOR COMPONENT 'B'**  
**Irrigation Management Transfer**  
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## Abbreviations and Acronyms

AMIS	: Agency-Managed Irrigation System
AO	: Association Organizer (Social Worker)
BOQ	: Bill of Quantities
BSC	: Branch Secondary Canal
CCC	: Central Coordination Committee
DADO	: District Agriculture Development Office
DCC	: District Coordination Committee
DDC	: District Development Committee
DDG	: Deputy Director General
DG	: Director General
DIO	: District Irrigation Office
DOA	: Department of Agriculture
DOI	: Department of Irrigation
EIA	: Environmental Impact Assessment
EOP	: End of Project
ESI	: Essential Structure Improvements
FAO	: Food and Agriculture Organization
FMIS	: Farmer Managed Irrigation System
GON	: Government of Nepal
Ha	: Hectare
IDA	: International Development Association
IMD	: Irrigation Management Division
IMT	: Irrigation Management Transfer
ISE	: Initial Social Examination
ISEA	: Integrated Social and Environment Assessment
ISF	: Irrigation Service Fee
ITSS	: Intermittent Temporary Support Staff
IWRMP	: Irrigation and Water Resources Management Project
KIS	: Kankai Irrigation System
M&E	: Monitoring and Evaluation
MASSCOT	: Mapping System and Services for Canal Operation Technique
MIS	: Mahakali Irrigation System (also “Management Information System”)
MOAC	: Ministry of Agriculture and Cooperatives
MOF	: Ministry of Finance
MOWR	: Ministry of Water Resources
MSC	: Main Secondary Canal
MTR	: Mid Term Review
NBD	: National Bidding Document
NGO	: Non Government Organization
NIS	: Narayani Irrigation System
NISP	: Nepal Irrigation Sector Project
NPC	: National Planning Commission
NSC	: National Steering Committee
NWP	: National Water Plan
NWRS	: Nepal Water Resource Strategy
OFWM	: On-Farm Water Management
O&M	: Operation and Maintenance
OPD	: Office of the Project Director

PAD	: Project Appraisal Document
PDO	: Project Development Objective
PIP	: Project Implementation Plan
PIC	: Project Implementation Committee
PICC	: Project Implementation and Coordination Committee
PIM	: Project Implementation Manual
PIU	: Project Implementation Unit
PJM	: Participatory Joint Management
PMC	: Project Monitoring Committee
PM	: Project Manager
PMU	: Project Management Unit
PPT	: Project Preparation Team
PSC	: Project Steering Committee
RAC	: Regional Appraisal Committee
RAAC	: Regional Appraisal and Approval Committee
RAD	: Regional Agriculture Director/Directorate
RAP	: Resettlement Action Plan
RCC	: Regional Coordination Committee
RDs	: Regional Directors
RD	: Regional Directorate of Agriculture
RFP	: Request for Proposal
RFP	: Resettlement Policy Framework
RID	: Regional Irrigation Director/Directorate
RPSU	: Regional Project Support Unit
RPF	: Resettlement Policy Framework
SAC	: Sub-project Appraisal Committee
SBD	: Standard Bidding Document
SC	: Secondary Canal
SCC	: Scheme Coordination Committee
SEA	: Social and Environment Assessment
SEMP	: Social and Environmental Management Plan
SIL	: Specific Investment Loan
SIS	: Sitagunj Irrigation System (aka “S9”, a sub-system within SMIS)
SMIS	: Sunsari Morang Irrigation System
SMU	: Sub-project Management Unit
SSC	: Sub-Secondary Canal
STW	: Shallow Tube Well
TA	: Technical Assistance
TA B	: Technical Assistance of IWRMP Component B
USAID	: United States Agency for International Development
VC	: Vice Chairman
VDC	: Village Development Committee
VCDF	: Vulnerable Communities Development Framework
VG	: Vulnerable Groups
WB	: World Bank
WRIC	: Water Resources Information Centre
WME	: Water Management Expert
WUA	: Water Users Association
WUAF	: Water Users Associations Federation
WUCC	: Water Users Coordination Committee

## Project Data

<b>Name of the project</b>	Irrigation and Water Resources Management Project
<b>Total cost of the project</b>	\$ 65 million
<b>Donor</b>	The World Bank
<b>Grant assistance of the World Bank (IDA)</b>	\$ 50 million
<b>Investment of GON</b>	\$ 10 million
<b>WUAs' contribution</b>	\$ 5 million
<b>Project commencement date</b>	March 01, 2008
<b>Project completion date</b>	June 30, 2013 <sup>1</sup>
<b>Components of the project</b>	Four, namely: A, B, C and D
<b>Components of this Report</b>	Component B
<b>Scope of Component B</b>	Irrigation Management Transfer and essential Structural Improvements within selected sub-areas <sup>2</sup> of Kankai, Sunsari Morang, Narayani and Mahakali Irrigation Systems, located within the Western, Mid-Western and Far Western Development Regions. These systems are presently under DOI Agency Management.
<b>Total cost Component B</b>	\$ 9.53 <sup>3</sup> million
<b>Grant assistance of the World Bank (IDA)</b>	\$ 7.27 million
<b>Investment of GON</b>	\$ 1.82 million
<b>WUAs' contribution</b>	\$ 0.44 million

<sup>1</sup> The World Bank and the DOI have agreed to extend the duration of the IWRMP for a period of 1 year from the original completion date. The revised completion date is June 30, 2014.

<sup>2</sup> The original scope of the IWRMP Component B included the transfer of 61,000 ha. This has been reduced to 33,900 ha. See Table 1.

<sup>3</sup> Reduced from \$11.05 million.

## Executive Summary

IWRMP Component B aims to transfer selected sub-areas of four irrigation systems to their respective Water Users Associations (WUAs). These sub-areas are located within the Kankai, Sunsari Morang, Narayani, and Mahakali Irrigation Systems (KIS, SMIS, NIS, MIS respectively). All of them lie in the Terai (southern plains) of Nepal. The project intends to bring about improvements in irrigation service performance and service delivery through Essential Structure Improvement (ESI), and capacity development of the WUAs. A formal agreement is signed between the respective WUAs and the DOI for transfer of management.

Recent progress of each scheme is summarized below:

### A. Kankai Irrigation System

All of KIS is included within the IWRMP Component B. In Kankai, the overall progress is relatively advanced compared to other sub-projects. Recent progress includes:

- The KIS WUA is collecting membership fee, maintenance fee and ISF at all branch and tertiary level canals. The KIS WUA, with the assistance of the TA, has developed an Annual Budget Plan and an ISF Action Plan to increase the rate of ISF collection among the WUA membership. The WUA is planning to incrementally increase the ISF to 600 NRs/ha in upcoming years in accordance with the IMT Agreement.
- The KIS WUA has taken a leadership role in organizing WUA training activities. A capacity development action plan and associated budget has been formulated for the current fiscal year. The OPD has provided a partial budget and the WUA has scheduled a series of trainings for Tertiary Committee members to be conducted using the WUA's own internal training resources (TOT trainees).
- TA-B has worked in close coordination with the KIS WUA and SMU to develop a draft COP and CMP. The COP for winter-what was test-implemented in January, 2013, with TA-B support. TA-B is assisting the SMU and WUA to extend the development of the COP to include additional cropping seasons and branch canals.
- Calibration of 8 (out of 22) water measurement structures at offtakes from the main canal have been completed at KIS
- Small V-notch and cut-throat weirs have been fabricated by the SMU for measurements on lower level canals. Lysimeters (devices for measuring evapotranspiration and soil infiltration) have also been designed, constructed, and installed with the assistance of TA-B. Water flow, water loss, and evapotranspiration measurements are being taken. Local farmers are involved in the process of measuring losses. These direct field loss measurement are currently being taken and used in the COP pilot test areas.
- There are 3 contract packages for ESI construction works by contractors at KIS. Packages 1 and 2 are completed (100%+ financial progress). The Package 3 is at approximately 85% financial progress.
- ESI construction activities by the WUA, both paid part and contribution part, have been completed (100% financial progress).

- There are 6 contract packages for irrigation infrastructure works funded by GON. Five of these packages are underway. Overall financial progress is 65+% (not including the sixth contract package, for repairs of the KIS headworks, which has not yet been initiated).

#### **B. Sunsari Morang Irrigation System, Sitagunj and Ramgunj Secondary Canals**

- The WUA, with the assistance of the TA, has developed an Annual Budget Plan and an ISF Action Plan to increase the rate of ISF collection among the WUA membership. The SMIS-Sitagunj WUA has initiated the collection of ISF. Five local farmers have been appointed as paid ISF collectors. A target of 1,000,000 NRs by the end of the current fiscal year was set. Though the target was not met, over 566,000 (57% of target) was reportedly collected in FY 2019/70. This is a very large increase over the prior year.
- A TOT initiative similar to that undertaken at KIS and MIS is being supported by the OPD and IMD. Twenty Five farmers from SMIS-Sitagunj were selected and trained as trainers. The TOT sessions were designed and conducted by the DOI IMD.
- TA-B has worked in close coordination with the SMIS-Sitagunj WUA and SMIS SMU to develop a draft COP and CMP. TA-B is assisting the SMU and WUA to begin the test implementation of the COP and CMP and to extend the development of the COP to include additional cropping seasons and branch canals.
- Calibration and gauging of 13 (out of 13) water measurement structures at offtakes from the SMIS Sitigunj (S9) canal have been completed. Some lower-level offtakes have also been gauged. Stage readings are being regularly recorded at 21 flow measurement locations within SMIS-Sitagunj.
- Small V-notch and cut-throat weirs have been fabricated by the SMU for measurements on lower level canals. Lysimeters (devices for measuring evapotranspiration and soil infiltration) have also been designed, constructed, and installed with the assistance of TA-B. Water flow, water loss, and evapotranspiration measurements are being taken. Local farmers are involved in the process of measuring losses. These direct field loss measurement are currently being taken and used in the COP pilot test areas.
- There are 3 contract packages for ESI construction works by contractors at SMIS-Sitagunj. Package 1 is complete and packages 2 and 3 are very near completion (96%, and 98% financial progress, respectively).
- ESI construction activities by the Sitagunj WUA, both paid part and contribution part, have been completed (100% physical progress).
- Irrigation infrastructure works funded by GON, estimated at NRs 110,670,000, are being tendered, but physical works have not yet been initiated.

#### **C. Narayani Irrigation System (Blocks 2 & 8)**

- A TOT initiative similar to that undertaken at KIS and MIS is being planned by the OPD and IMD. Twenty Five farmers will be selected and trained as trainers at SMIS-Sitagunj. The TOT sessions are being designed by and will be conducted by the DOI IMD.

- TA-B is working in close coordination with the NIS Block 8 WUA and NIS SMU to develop a draft COP and CMP.
- The NIS Block-8 WUA reports that they are now conducting regular monthly meetings.
- There are 2 contract packages for ESI construction by contractors at NIS Block 8. Bidding has been completed and a contracts have recently been awarded. Packages 1 and 2 are each at 40+% financial progress.
- ESI construction activities by the WUA, both paid part and contribution part, are complete (100% financial progress for both paid and unpaid portions).
- There is 1 contract package for irrigation infrastructure works funded by GON. Bidding on the package has been completed and a contract has recently been awarded for NRs 21,814,155. The contractor has been making good progress and is reportedly at 70% financial progress.

#### **D. Mahakali Irrigation System (Stage 1)**

- Collection of membership fees and ISF has been initiated within Stage-1. The WUA has completed annual auditing and renewal of the annual association registration. Regular official monthly meetings are being held at Block Level WUAs.
- WUA and DOI staff are cooperating to record irrigation flow data at 6 locations within MIS Stage-I.
- TA-B has developed a draft COP and CMP for MIS Stage-I in close coordination with the SMU and MIS-Stage-I WUA. TA-B is assisting the SMU and WUA to test implement the COP for spring paddy and the CMP. TA-B is also assisting the SMU and WUA to extend the development of the COP to include additional cropping seasons and branch canals.
- Calibration of 10 (out of 11) water measurement structures at offtakes from the main canal have been completed at MIS Stage-I.
- There are 2 contract packages for ESI construction works by contractors at MIS Stage-I. Package 1 is complete (100% completion). The contractor for Package 2 has initiated work, but progress has been slow (about 40% to date).
- ESI construction activities by the WUA, both paid part and contribution part, are complete (100% for both the paid and unpaid portions).
- Irrigation infrastructure works funded by GON, estimated at NRs 112,800,000, have been released for bidding, but physical works have not yet been initiated.

#### **E. Other**

- An assessment of the effectiveness of training activities conducted under Component-B has been completed. The assessment was undertaken by a national consultant contracted by the DOI.
- TA-B has assisted the OPD to develop an Institutional Development and Training Plan for the anticipated 3 year extension period. The plan was completed by an International and a National Institutional Development Specialist contracted by TA-B to undertake this work. This work was funded from TA-B's unallocated person-months budget. The report has been produced and is available under separate cover.



The report emphasizes the need for additional qualified personnel dedicated to the institutional development and training activities needed under TA-B.

- TA-B is assisting the OPD to monitor and evaluate the progress of Component B toward achieving specified milestone indicators. TA-B has employed a National Monitoring and Evaluation Specialist plus four national sub-engineers specifically to undertake this work. Monitoring indicators are being refined and monitoring data is being collected.
- The OPD and World Bank have agreed to allow the IWRMP Component-B to continue to operate under a 1-year no cost "bridging" extension period (through June 30, 2014).
- The OPD and World Bank continue to work on possible arrangements to facilitate the continuation of the IWRMP, including Component-B, for 3 to 4 years of additional time (beyond the present 1-year no cost "bridging" extension).

## 1 IWRMP Project Overview

The Irrigation and Water Resource Management Project (IWRMP) is financed by the World Bank (WB), the Government of Nepal (GON), and Water User Associations (WUAs), and is being executed by Department of Irrigation (DOI). The IWRMP comprises four Components, A through D:

- A – Rehabilitation and Modernization of Irrigation Infrastructure
- B – Irrigation Management Transfer Reform
- C – Institutional and Policy Support for Improved Water Management
- D – Integrated Crop Water Management

This progress report confines itself to details relating to Component B, being implemented by the Department of Irrigation (DOI).

The overall objective of Component B is to improve irrigation service performance and service delivery to selected irrigation systems in the Terai through the completion and consolidation of Irrigation Management Transfer (IMT) to the relevant Water Users Association (WUAs). The component is designed to address problems exhibited in large public irrigation schemes (Agency Managed irrigation Systems or AMIS) of below capacity performance, poor O&M, low cost recovery, and inadequate maintenance funds.

Component B is presently working with 4 legally empowered WUAs which are (or are intended to be) responsible for the operation and maintenance of 4 existing sub-systems within 4 AMISs. These systems/sub-systems were selected on the basis of condition of infrastructure, receptive user organizations, and relatively favourable socio-political environment. These four sub-projects are located within the four AMIS systems of Kankai, Sunsari Morang, Narayani, and Mahakali. These cover about 23,100 ha. ESI works are being conducted these 4 sub-projects. See Table 1 below.

Component B is also planning to initiate interactions with WUAs at three additional sub-project sites. These are the SMIS-Ramgunj, NIS Block-2, and MIS Stage-II subsystems. Component B's initially planned scope of work included IMT support at two of these sub-project sites, namely SMIS-Ramgunj, NIS Block-2, and preliminary activities were initiated at both of these locations, but was soon suspended at both of these locations due to serious and volatile internal conflicts. It is now planned to re-initiate work at both locations during the present 1-year project extension period. It is also planned to initiate work at MIS Stage-II during the present 1-year extension period. MIS Stage-II is adjacent to the MIS Stage-I area currently being supported under Component-B, but is an entirely new geographical area of involvement under Component-B. See Table 1.

Table 1 indicates the list of the sub-systems and related command areas. Locations of these systems are shown in Figure 1. KIS is in Jhapa district, SMIS is in Sunsari and Morang Districts, NIS is in Parsa and Bara Districts, and MIS is in Kanchanpur District.

Note that discussions are currently underway between the World Bank and the DOI that may result in a 3 or 4 year additional extension for Component-B.

Table 1: Component B Irrigation Systems/sub-systems

Irrigation System	Schemes/ sub-systems	Sub-Project Command Area (Ha)	No. of WUA
<b>Present Work Sites</b>			
Kankai (KIS) (total system 7,000 ha)	1. Entire System	7,000	1
Sunsari Morang (SMIS) (total system 62,000 ha)	2. Sitagunj SC	8,000	1
Narayani (NIS) (total system 37,000 ha)	3. Block 8	3,000	1
Mahakali (MIS) (total system 10,800 ha)	4. Stage I	5,100	1
<b>Active Sites Sub-Total</b>	<b>4 Schemes</b>	<b>23,100</b>	<b>4</b>
<b>Planned Work Sites</b>			
Sunsari Morang (SMIS) (total system 62,000 ha)	1. Ramgunj SC	7,800	1
Narayani (NIS) (total system 37,000 ha)	2. Block 2	3,000	1
Mahakali (MIS) (total system 10,800 ha)	3. Stage II	5,700	1
<b>Planned Sites Sub-Total</b>	<b>3 Schemes</b>	<b>16,500</b>	<b>3</b>
<b>Total Sites</b>	<b>7 Schemes</b>	<b>39,600</b>	<b>7</b>

The activities of Component B include<sup>4</sup>:

- (a) Completion/consolidation of Management Transfer Plan including streamlining and strengthening of WUAs;
- (b) Essential structural improvements;
- (c) Repair, upgrading, or procurement of buildings, information systems, transportation, and maintenance and information technology equipment;
- (d) Capacity building of WUAs and Department of Irrigation (DOI).

The expected primary outputs of Component B are<sup>5</sup>:

1. Efficient and equitable service delivery by financially and institutionally sustainable WUAs;
2. Improved physical performance of the irrigation schemes;
3. Reliable bulk water delivery by the DOI, according to the IMT Agreement with the respective WUAs.

### 1.1 Institutional and Implementation Arrangement

The overall responsibilities for implementation management of the IWRMP rests with DOI, with guidance and assistance from several committees and teams. For this purpose

<sup>4</sup> As per the IDA Mission report (18 – 24 September, 2009).

<sup>5</sup> As per the IDA Mission report (18 – 24 September, 2009).

the GON, in executing the Financial Agreement<sup>6</sup>, created several committees to support the implementation of IWRMP. The DOI created the OPD, within the DOI central office, which is fully staffed with the needed manpower and professionals. OPD is responsible for the overall coordination of the project with other implementing agencies.

The transfer of management to the WUAs means turning over governance, management, operations, and maintenance responsibilities of the relevant portions of the irrigation systems. The DOI will continue to operate and maintain the headworks, desilting basins and, in most cases, main canals and head regulators. The WUAs will operate and maintain the transferred portions of the systems and related assets as per the legal transfer agreement guidelines.

Other institutions and groups directing and/or otherwise involved in the implementation or management of IWRMP are:

- a) **Project Steering Committee (PSC)** represented by, but not limited to, the Ministry of Water Resources, Ministry of Agriculture and Cooperatives, Ministry of Finance, National Planning Commission, Water and Energy Commission Secretariat, and the Federation of Water Users Associations of Nepal (FWUA).
- b) **Project Implementation and Coordination Committee (PICC)** conformed by, but not limited to, representatives of DOI and DOA.
- c) **High Level Policy Steering Committee (HLPSC)** including without limitation, representatives of NPC MOF, MOWR and WECS and other senior officials of key stakeholder ministries and agencies.
- d) **National Vigilance Centre:** Independent technical audit of the implementation of the project.
- e) **WECS Project Management Team:** The Project Management Team of WECS to be responsible for planning, implementing, coordinating, supervising, monitoring and evaluating activities to be carried out under component C of the project.
- f) **DOA Project Management Team:** Responsible for, among other activities, planning, implementing, coordinating, supervising monitoring and evaluating activities to be carried out under Component D.
- g) **Water Users Associations (WUA):** Farmer organizations with the aim of irrigation water management, organized and/or assisted to support the planning and implementation of the IWRMP Component B sub-projects.

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<sup>6</sup> Financial Agreement, (Irrigation and Water Resources Management Project) between NEPAL and International Development Association, January 31, 2008. Grant Number HP338-NEP.

**FIGURE 1: LOCATION MAP OF IWRMP COMPONENT-B WORK SITES**



## 2 Progress Status Narrative:

### 2.1 Kankai Irrigation System:

#### 2.1.A Progress on WUA Development at KIS:

- Pre-agreement activities were completed quickly at KIS and the IMT Agreement between the DOI and the KIS WUA was signed in December, 2009.
- New elections within the WUA were completed and orientation trainings were conducted for the WUA leadership.
- TA-B has assisted the KIS WUA to design and print WUA membership identity cards to assist in Irrigation Service Fee (ISF) collection activities. The membership identity cards help in registering farms and recording membership ISF payments. The card was developed with and approved by the WUA leadership.
- The KIS WUA is collecting membership fees, maintenance fees and ISF at all branch and tertiary level canals and serious efforts are being made to increase the rate of ISF collection among the WUA membership. In February, 2012 the WUA raised the ISF from 210 to 300 NRs/ha per cropping season, and the WUA has voted to incrementally increase the ISF to 600 NRs/ha in upcoming years in accordance with the target ISF established in the IMT Agreement. Collection rates are up significantly from previous years. Reportedly a total of 700,000 NRs ISF (45% of target) was collected in KIS during FY 2069/70.
- In line with the drive to improve ISF collection rates, three packages of training were conducted to increase the skills and knowledge of Branch and Tertiary Level Committee in the area of ISF collection. The trainings were conducted from 25-29 April, 2013. Each package consisted of 2 days of training. There were 80 participants in total, including 12 female participants. Training was held in Panchgachhi, WUA office.
- Many WUA and farmer capacity development training activities have been held at KIS on topics such as ISF collection, account record keeping, construction management and construction quality control, gender issues, off-season vegetable production, etc. Over 5,000 person-days of training have been provided to the KIS WUA and/or SMU. See Appendix 1. However, lack of available budget at the field level continues to constrain these activities.
- The TA-B IDS and WME have provided extensive on-the-job training to SMU staff and WUA members.
- A TOT initiative has been implemented by the OPD and IMD. Twenty-three farmers were selected and have been trained as trainers at KIS. The training was conducted at Damak, Jhapa District, from June 15 – 27, 2012. The TOT sessions were designed and conducted by the DOI IMD.
- The TOT trainees noted above served as resource persons for a series of recent trainings, including: "Water Users Organization Management, Resource Collection & Mobilization", "ISF Collection and Management", and "Increasing Awareness". The TOT trainees have provided over 600 person-days of training as of June, 2013.
- The KIS WUA is now taking a leadership role in organizing WUA training activities. With the assistance of TA-B a 1 day workshop was conducted, resulting in a capacity development action plan of trainings, workshops and study tours for the previous fiscal

year (FY 2069/2070), together with an associated budget of 2,302,000 NRs. This plan and budget request was forwarded to the OPD, which responded with an allocation of 388,000 NRs. Accordingly, the WUA conducted 8 packages of trainings to Tertiary Committee members using the WUA's internal TOT trainee resources.

- A Review and Interaction Workshop was conducted by the OPD on December 5 and 6, 2012. The objective of the workshop was to discuss, review, and conduct 2-way dialogue regarding the status, progress, and direction of the IWRMP Component-B. Participants included twenty nine members of the WUA Main Committee, including 4 female members. The workshop was conducted at Bhojpur Hotel, Damak Jhapa. Facilitators were OPD, SMU, and TA-B staff. A number of strengths and weaknesses of the IWRMP Component-B were revealed and documented. Many of the issues identified the need for improved communication and coordination between the stakeholders at central and local levels. Stakeholders committed to resolve the issues identified. See Appendix 1.
- TA-B is assisting the OPD to conduct monitoring of WUA progress relative to established benchmarks.

### 2.1.B Progress on Water Management at KIS

- Parcellary Mapping at KIS is underway and has been reported as complete for secondary canals S0 – S16 (7,000 ha) by the head of the KIS SMU, engineer Pradip Bantawa. However, neither TA-B nor the WUA have been able to acquire a copy of a parcellary map covering KIS from the SMU or the OPD up to this point in time. The IMT Agreement defines parcellary mapping as a DOI responsibility. The WUAs, as well as the TA, need completed parcellary maps in order to operate effectively. The unavailability of parcellary maps presents a significant impediment to effective planning and implementation of system operations and maintenance by the WUAs.
- The SMU has completed the painting and installation of wall and/or staff gages based on the templates prepared by TA-B for 8 (out of 22) flow measurement structures in KIS at important offtake points from the main canal. (See Figure 2.) Calibration of additional flow measurement structures is also needed and is underway at KIS. TA-B is assisting in this undertaking, but funding and personnel support must be available at the SMU in order for any progress to occur.
- TA-B has worked in close coordination with the KIS WUA and SMU to develop a draft Canal Operation Plan (COP). Test implementation of the COP for winter-wheat commenced in January, 2013, with TA-B support.
- A draft COP for the main paddy season has also been prepared with the assistance of TA-B, and is ready for test implementation. TA-B is also assisting the SMU and WUA to extend the existing COPs to the branch canal level.
- TA-B has also developed a draft Canal Maintenance Plan (CMP) for KIS. This plan will assist the KIS WUA to better understand the operation and maintenance needs and associated budgetary requirements and related ISF fees.
- TA-B has engaged a National Water Management Engineer (WME), posted at Biratnagar, to assist KIS and SMIS in COP and CMP development and other water management activities. The TA-B WME has also been providing extensive on-the-job training to SMU staff and WUA members.
- Small V-notch and cut-throat weirs have been fabricated by the SMU for measurements on lower level canals in intensive water management pilot areas. (Lysimeters (devices for

measuring evapotranspiration and soil infiltration) have also been designed, constructed, and installed with the assistance of TA-B. Water flow, water loss, and evapotranspiration measurements are being taken. Local farmers are involved in the process of measuring losses.

- SMU staff from KIS have participated in a substantial number of additional training and capacity building activities, including field and classroom trainings in methods of calibrating water measurement structures and methods of developing and maintaining a Canal Operating Plan (COP) that were facilitated by TA-B. See Appendix 1.
- Various other SMU and WUA support and water management activities are underway or planned at KIS. However, adequate funding is needed at the SMU level if these planned activities are to materialize.
- The SEMP report for KIS has been completed.
- TA-B is assisting the OPD to conduct monitoring of water management progress relative to established benchmarks.

Figure 2: Water management activities at KIS and SMIS.

KIS WUA branch committee members conducting water measurement test on secondary canal.



Painting calibrated wall gauge on water measuring structure at SMIS-Sitagunj



### 2.1.C Progress of ESI Works at KIS

- There are 3 contract packages for ESI construction works by contractors at KIS. Packages 1 and 2 are complete (100%+ financial progress). Package 3 is at approximately 85% financial progress.
- ESI construction activities by the WUA, both paid part and contribution part, have been completed (100% financial progress).
- There are 6 contract packages for irrigation infrastructure works funded by GON. Five of these packages, though lagging the grant-funded ESI works, are underway. Overall financial progress is 65+% (not including the sixth contract package, for repairs of the KIS headworks, which has not yet been initiated).
- Construction sub-committees have been formed at all 21 canal branch WUAs.



Table 2 below summarizes the current state of ESI progress at KIS:

Table 2: Progress of ESI Works at KIS

No.	Description	Contracted Amount (incl. VAT) [NRs]	Date of Agreement	Contractual Completion Date	Financial Progress (%)
KIS	<u>ESI Part (World Bank Grant Funded)</u>				
	Package 1 (S0 - S7)	29,379,463	23/3/2067	13/6/2068	100%
	Package 2 (S8 - S12)	21,940,832	23/3/2068	13/6/2069	100%
	Package 3 (S13 - S16)	24,317,489	23/3/2069	13/6/2070	85%
	WUA Payable	5,214,565	11/2/2067	17/5/2068	100%
	WUA Contribution	11,838,007	11/2/2067	17/5/2068	100%
KIS	<u>DOI Part (GON Funded)</u>				
	Package 4 (S17, S18, Dyangri aqueduct repair, service road repair)	19,894,709	25/7/2067	7/10/2068	85%
	Package 5 (S19 & S21 branches)	12,511,994	2/3/2068	23/05/2069	50%
	Package 6 (S20 branch)	6,984,988	2/3/2068	23/05/2069	50%
	Package 7 (Bhalu & Jhijhile causeways)	19,100,990	19/01/2068	10/4/2069	60%
	Package 8 (Headreach, R-2, R-3, R-5)	17,758,821	19/01/2068	10/4/2069	70%
	Package 9 (Headworks and buildings)	46,000,000 (estimated)	NA	NA	not yet

NA = Not Applicable or Not Available

#### 2.1.D Problems, Constraints, and TA-B Recommendations at KIS

- Institutional development activities are progressing well at KIS compared with other Component-B project locations, however still slowly compared to the ESI progress. This has been primarily due to lack of timely and adequate budgetary provision at the field level, though a number of other factors have also impacted progress. International and a National Institutional Development Specialists contracted by TA-B have recently provided recommendations for improvements to the institutional strengthening and training activities being conducted under Component-B. The recommendations emphasize the need for additional qualified personnel specifically dedicated to the institutional development and training activities.
- Completion of the calibration process at existing flow measurement structures is needed within KIS. TA-B has assisted by preparing paper templates for wall or staff gauges at a number of existing flow measurement locations. The SMU need only paint wall or staff gages according to the templates provided. The SMU has initiated the painting and installation of wall and/or staff gages based on the templates prepared by TA-B. Calibration of many additional existing structures is also needed, and installation of additional flow measurement capability at certain other locations would also be

beneficial. TA-B is fully prepared to assist in these tasks, but budget and personnel support must be available at the SMU level for the necessary work. TA-B recommends that the OPD fund and motivate the SMU to proceed with the calibration of flow measurement structures.

- Parcellary maps are as yet unavailable. Adequate maps are essential to the WUAs in order to operate effectively. The IMT Agreement defines parcellary mapping as a DOI responsibility.

## **2.2 Sunsari Morang Irrigation System (Sitagunj and Ramgunj Secondary Canals):**

### **2.2.A Progress on WUA Development at SMIS**

- Pre-agreement activities were completed at SMIS-Sitagunj and the IMT Agreement between the DOI and the SMIS-Sitagunj WUA was signed on November 25, 2010.
- New elections within the SMIS-Sitagunj WUA have been completed. Several orientation trainings have been conducted for the WUA leadership.
- Many WUA and farmer capacity development training activities have been held at SMIS-Sitagunj on topics such as ISF collection, construction management and construction quality control, WUA capacity development, etc. Over 1,200 person-days of training have been provided to the SMIS-Sitagunj WUA and/or SMU. See Appendix 1. However, lack of available budget at the field level continues to constrain these activities.
- The TA-B IDS and WME have provided extensive on-the-job training to SMU staff and WUA members.
- The WUA, with the assistance of the TA, has developed an Annual Budget Plan and an ISF Action Plan to increase the rate of ISF collection among the WUA membership. The SMIS-Sitagunj WUA has initiated the collection of ISF with serious intent. Five local farmers have been appointed as paid ISF collectors. A target of 1,000,000 NRs by the end of the 2069/70 (2012/13) fiscal year was set. Reportedly a total of 566,280 NRs (57% of target) was collected during that period.
- A TOT initiative similar to that undertaken at KIS and MIS has been implemented by the OPD and IMD. Twenty Five farmers were selected and trained as trainers at SMIS-Sitagunj. The training was conducted at Bhedatar, Dankuta District, from May 30 through June 11, 2013. The TOT sessions were designed and conducted by the DOI IMD.
- Various SMU and WUA support, capacity development, and water management activities are planned at SMIS. TA-B has assisted the SMU and WUA to prepare an Annual Action Plan for IMT activities during 2012/13. However, lack of funding at the SMU level continues to impact progress in this area.
- A WUA election process was completed within the SMIS-Ramgunj WUA. Component-B activities have not yet been initiated at SMIS-Ramgunj, though it is anticipated that IMT preparatory activities will commence within SMIS-Ramgunj during the current 1-year project extension period. See Appendix 1 for an Action Plan for the completion of pre-IMT Agreement preparatory tasks. Terms of Reference for a Benchmarking Study and Report for SMIS-Ramgunj sub-system have been developed by the OPD with the assistance of TA-B.

## 2.2.B Progress on Water Management at SMIS

- A three day training on “On and Off Farm Water Management” was organized and conducted from February 6-8, 2013, by the SMIS-Sitagunj SMU. The purpose was to improve the technical capacity of gate operators, dhalpas and farmer leaders. Thirty participants including six Engineers, sixteen dhalpas and gate operators, and twelve leading farmers participated in the training. The participants acquired knowledge on the types and use of various water controlling structure, water distribution methods, irrigation schedule preparation, and canal operation.
- SMU staff from SMIS have also participated in a number of other training and capacity building sessions. See Appendix 1. TA-B has assisted the SMU of SMIS in the preparation of Action Plans covering training and water management activities during the preceding three fiscal years. An action plan for the current fiscal year (2070/71) is under development. However, actual progress in training and institutional development has been limited at SMIS, predominantly due to staffing issues and lack of funding at the SMU level.
- Calibration and gauging for 12 (out of 13 offtakes) existing offtakes from the Sitagunj (S9) canal have been completed. (See Figure 2.) This is a significant accomplishment. Some additional structures have also been calibrated and/or gauged. Stage readings are presently being regularly taken (3 times per day) at 21 flow measurement points within the SMIS-Sitagunj sub-system. The SMIS SMU reports that they are also developing an action plan for calibrating additional structures within the Sitagunj sub-system.
- Each structure along S9 canal has also been demarked with a unique label indicating the type of structure and its location within the S9 system. This is very helpful for the operations and maintenance of the sub-system, and highly commendable.
- Twelve small V-notch and cut-throat weirs have been fabricated by the SMU for measurements on lower level canals in intensive water management pilot areas. Lysimeters (devices for measuring evapotranspiration and soil infiltration) have also been designed, constructed, and installed with the assistance of TA-B. Water flow, water loss, and evapotranspiration measurements are being recorded. Local farmers are involved in the process of measuring losses. These direct field loss measurement will be used in the COP pilot test area (an area within SS9E and F).
- Various other SMU and WUA support and water management activities are underway or planned at SMIS. However, adequate funding is needed at the SMU level if these planned activities are to materialize.
- TA-B has worked in close coordination with the SMIS-Sitagunj WUA and SMIS SMU to develop a draft COP and CMP. TA-B is assisting the SMU and WUA to begin the test implementation of the COP and CMP. Implementation testing is planned to begin in mid-2013 and continue through the current 1-year extension period.
- TA-B has developed a draft Canal Maintenance Plan (CMP) for SMIS-Sitagunj. This plan will assist the SMIS-Sitagunj WUA to better understand the operation and maintenance needs and associated budgetary requirements and related ISF fees.
- TA-B has engaged a National Water Management Engineer, posted at Biratnagar, to assist KIS and SMIS in COP, CMP, and other water management activities. The WME has also been providing extensive on-the-job training to SMU staff and WUA members.

- The progress of parcellary mapping of SMIS-Sitagunj is unclear. SMU engineer R.K. Yadav previously reported that parcellary mapping for SMIS-Sitagunj would be complete by the end of July, 2012. However, neither TA-B nor the WUA have been able to acquire a copy of a parcellary map covering SMIS-Sitagunj from the SMU or the OPD up to this point in time. The IMT Agreement defines parcellary mapping as a DOI responsibility. The unavailability of parcellary maps presents a significant impediment to effective planning and implementation of system operations and maintenance by the WUAs.
- The SEMP report for SMIS-Sitagunj has been completed.

### 2.2.C Progress of ESI Works at SMIS

- There are 3 contract packages for ESI construction works by contractors at SMIS-Sitagunj. Package 1 is complete and packages 2 and 3 are very near completion (96%, and 98% financial progress, respectively).
- ESI construction activities by the Sitagunj WUA, both paid part and contribution part, have been completed (Paid and unpaid portions 100% financial progress).
- Irrigation infrastructure works funded by GON, estimated at NRs 110,670,000, are being tendered, but physical works have not yet been initiated.

Table 3 below summarizes the current state of ESI progress at SMIS.

Table 3: Status of ESI Works at SMIS-Sitagunj

No.	Description	Contracted Amount (incl. VAT) [NRs]	Date of Agreement	Contractual Completion Date	Financial Progress (%)
SMIS SIS	<u>ESI Works (World Bank Grant Funded)</u>				
	Package 1	15,064,445	27/03/2068	25/2/2068	100%
	Package 2	19,059,303	26/3/2068	25/08/2069	96%
	Package 3	18,176,878	27/3/2068	25/08/2069	98%
	WUA Payable	5,990,600	19/2/2068	18/02/2069	100%
	WUA Contribution	9,812,100	19/02/2068	18/02/2069	100%
SMIS SIS	<u>DOI Works (GON Funded)</u>				
	DOI Total (4 Contract packages, plus WUA Contribution and WUA Payable agreements)	110,670,000 (estimated)	NA	NA	Not yet started

NA = Not Applicable or Not Available

### 2.2.D Problems, Constraints, and TA-B Recommendations at SMIS

- Institutional development activities are progressing slowly at SMIS due to lack of timely and adequate budgetary provision and poor performance of the SMU. TA-B has national

professional staff (a water management engineer and a sociologist/institutional development specialist), plus additional support staff posted at Biratnagar. However, their ability to provide effective input is limited by the poor performance of the SMU and lack of funding at the SMU level. Also, the Scheme Coordination Committee at SMIS is disorganized and largely ineffective. However, a new Project Manager is now in place, and the situation may improve if the new Project Manger will provide additional direction and motivation to the to the SMU and SCC.

- Meetings are not held regularly by the Sitagunj WUA. TA-B recommends that the SMU sociologist assist the WUA to organize and conduct regular WUA meetings. TA-B will assist in facilitating these meetings, if requested.
- The WUA leadership needs additional guidance on their comprehensive role and related tasks.
- Parcellary maps are as yet unavailable. Adequate maps are essential to the WUAs in order to operate effectively. The IMT Agreement defines parcellary mapping as a DOI responsibility.

## **2.3 Narayani Irrigation System (Blocks 2 and 8):**

### **2.3.A Progress on WUA development at NIS**

- Pre-agreement activities were completed at NIS-Block 8. The IMT Agreement was signed between the DOI and the NIS-Block 8 WUA on May 12, 2011.
- An election was conducted by the Water Users Association of NIS Block-8. Representatives were elected by the membership for 102 tertiary committees, 8 branch level committees, and 1 Block Committee. Nineteen members were elected to the Block Committee, including 4 executives and 15 members, 4 of which are female members. A 1-day orientation training has been conducted for the new WUA leadership.
- Collection of membership fees and ISF has been initiated at NIS Block-8 but collection rates are extremely low. The issue is not being addressed seriously by the WUA.
- Several WUA and farmer capacity development training activities have been held at NIS on topics such as construction management and construction quality control, WUA capacity development, etc. Over 800 person-days of training have been provided to the NIS Block-8 WUA and/or NIS SMU. However, lack of available budget at the field level continues to constrain these activities.
- The TA-B IDS and WME have provided on-the-job training to SMU staff and WUA members.
- The NIS Block-8 WUA reports that they conduct regular monthly meetings on the 15<sup>th</sup> of each month.
- TA-B is assisting the NIS Block-8 WUA to develop a proposed Training Plan for the current fiscal year. The proposed plan includes refresher courses for the WUA leadership and office management training sessions for Block and tertiary level committee executives.
- TA-B has assisted the SMU and WUA to prepare Annual Action Plans for IMT activities for NIS Block 8 to cover 2010/11, 2011/12, and 2012/13. Action Plans for 2013/14 are

under development. Only limited actual progress has been achieved at NIS, predominantly due to the related problems of repeated shifting of the NIS Project Manager, poor performance of the SMU, and lack of funding at the SMU level.

- A 2 day training workshop on WUA capacity building was conducted by the OPD on December 27 and 28, 2011. Senior Division Engineer Bashu dev Lohanee and Sociologist Chetman Budhthapa of the OPD organized the workshop. The main objectives of the training were to refresh the WUA representatives on IMT objectives, present status, rules and responsibilities of the WUA in canal operation and maintenance, and methods of ISF collection. Twenty six WUA members, including 3 female and 12 other government staff participated. The IDS of TA-B also assisted as a facilitator, trainer and announcer.
- WUA development activities have been slow during the reporting period. It is hoped that activities will pick up pace as the NIS Project Manager becomes better oriented to the IWRMP.
- Progress at Narayani Block 2 was delayed by an internal dispute involving the management of the WUA. The situation became volatile and the issue was taken to the court system for adjudication. IWRMP Component B activities at NIS Block 2 were placed on hold until resolution. The court pronounced its judgment and the WUA has stabilized and has strongly requested the recommencement of Component-B activities. It is expected that planning activities will be recommenced within NIS Block-2 during the present 1-year extension period. Terms of Reference for a Benchmarking Study and Report, Irrigation System Rapid Appraisal, and Asset Inventory, Asset Management Plan, Tentative ESI Plan and Financial Management Plan for NIS Block-2 sub-system have been developed by the OPD with the assistance of TA-B.

### 2.3.B Progress on Water Management at NIS

- An Action Plan covering COP development and structural calibration for the 2012/13 fiscal year was developed by the SMU of NIS with the assistance of TA-B. However, little actual progress was achieved at NIS, predominantly due to lack of funding at the SMU level, combined with the repeated shifting of DOI agency leadership at NIS. Some works related to the calibration of irrigation water flow measurement structures and water management plan development were conducted in preceding trimesters, such as:
  - A search for historical flow measurement records within the Block 8 command area was conducted. (No records for Block-8 could be located.)
  - A prioritized list of candidate structures for flow measurement calibration was developed.
  - Eleven years discharge data were collected for the NEC head regulator. Data was compiled and analyzed. A report titled “*Water Availability and Current Canal Operating Practices*” was prepared by TA-B, providing a basis for discussion on water availability agreement between the DOI and WUA.
  - Schematic maps showing canal capacities and related command areas for Block 2 and Block 8 have been developed in AutoCAD and Microsoft excel formats.
- A TOT initiative similar to that undertaken at KIS and MIS is being planned by the OPD and IMD. Twenty-five farmers will be selected and trained as trainers at NIS-Block 8, similar to that already completed at KIS and MIS. The TOT sessions are being designed and will be conducted by the DOI IMD.

- SMU staff from NIS have participated in several training and capacity building sessions, including methods of calibrating water measurement structures, facilitated by TA-B.
- TA-B has prepared calibration reports including stage-discharge graphs and tables and gage templates for 6 flow measurement structures at NIS-Block 8. However, many structures within the NIS Block-2 sub-system require repair or replacement, including many water measurement structures. Flow measurement is considered by the WUA and SMU to be of secondary importance after water control structures, which are also in widespread disrepair. It is also recognized that calibration of a few water measurement structures will not be particularly helpful. A coherent program of assessment, repair and calibration of canal structures, including flow measurement structures, is needed. It is unclear to what extent the ESI works presently underway will address remediation of water measurement structures.
- The TA-B International Water Management Expert and National Hydraulic Engineer have worked closely with the NIS WUA and SMU to develop a draft COP for the NIS-Block 8 main canal. Implementation testing is planned for the proposed extension period, if granted.
- TA-B has posted a Nepali National Water Management Engineer, Mr. Desh Bhakta Mallik, at NIS to work closely with the NIS SMU and Block-8 WUA. Mr. Mallik mobilized to his post at NIS on May 3, 2013.
- TA-B is working closely with the NIS SMU and WUA to develop a draft Canal Maintenance Plan (CMP) for NIS Block 8. This plan will assist the NIS Block 8 WUA to better understand the operation and maintenance needs and associated budgetary requirements and related ISF fees.
- The progress of parcellary mapping at NIS Block-8 is unclear. Neither TA-B nor the WUA have been able to acquire a copy of a parcellary map covering NIS Block-8 from the SMU or the OPD up to this point in time. The IMT Agreement defines parcellary mapping as a DOI responsibility. The unavailability of parcellary maps presents a significant impediment to effective planning and implementation of system operations and maintenance by the WUAs.
- The SEMP report for NIS Block 8 has been completed.

### 2.3.C Progress of ESI Works at NIS

- ESI design, cost estimates, bidding and contract awards have been completed for NIS Block 8. There are 2 contract packages for ESI construction by contractors at NIS Block 8. Bidding has been completed and a contracts have recently been awarded. Packages 1 and 2 are at 40+% and 50+% financial progress, respectively.
- ESI construction activities by the WUA, both paid part and contribution part, are complete (100% financial progress for both paid and unpaid portions).
- There is 1 contract package for irrigation infrastructure works funded by GON, for an estimated NRs 24,814,155. The contractor is at 70+% financial progress. WUA construction activities under the GON-funded works are at 80% for both paid and unpaid portions.

Table 4 below summarizes the current state of ESI progress at NIS Block 8.

Table 4: Status of ESI Works within NIS Block-8

No.	Description	Contracted Amount (excl. VAT) [NRs]	Date of Agreement	Contractual Completion Date	Financial Progress (%)
NIS BL 8	<u>ESI Works (World Bank Grant Funded)</u>				
	Package 1: Block No. 8 (MSC, BSC1, BSC 2)	14,316,030	27/01/2069	16/03/2070	40%
	Package 2: Block No. 8 (BSC3-6 and SSC 1-14)	12,665,184	27/01/2069	16/03/2070	40%
	WUA Payable	5,998,190	25/09/2068	31/03/2069	95%
	WUA Contribution	3,780,021	25/09/2068	31/03/2069	95%
NIS BL 8	<u>DOI Works (GON Funded)</u>				
	Block No. 8 of NIS	24,814,155	27/01/2069	16/03/2070	70%
	WUA Payable		31/12/2069	31/12/2069	80%
	WUA Contribution	2,768,206	31/12/2069	31/12/2069	80%

NA = Not Applicable or Not Available

### 2.3.D Problems, Constraints, and TA-B Recommendations at NIS

- Institutional development activities are progressing slowly at NIS. The SMU is not well organized or motivated at NIS, and there are related funding constraints. TA-B has a national professional water management engineer, plus additional support staff posted at Birgunj. However, their ability to provide effective input is limited by the poor performance of the SMU.
- Also, the Scheme Coordination Committee at NIS must improve its organization and effectiveness. The NIS IWRMP Scheme Coordination Committee (SCC) does not meet regularly. This has handicapped the progress of the provisions of the Transfer Agreement. TA-B suggests that the NIS Division Chief and SMU Chief, with the support of the OPD, mandate regular meetings of the SCC, facilitate these meetings, and monitor compliance through required submittal of meeting minutes. If the SCC members fail to fulfil their duties, new members should be appointed.
- The NIS Block-8 WUA is weak and poorly organized. The WUA is unable to successfully address issues of operations, maintenance, management, and Irrigation Service Fee (ISF) at the present time. A much higher investment in WUA institutional training and support is required if successful IMT is anticipated.
- Parcellary maps are as yet unavailable. Adequate maps are essential to the WUAs in order to operate effectively. The IMT Agreement defines parcellary mapping as a DOI responsibility.
- Completion of the calibration process of existing flow measurement structures is needed within NIS Block-8. TA-B has assisted by preparing paper templates for wall or staff



gauges at six existing flow measurement locations. The SMU need only paint wall or staff gages according to the templates provided. Calibration of many additional existing structures is also needed, and installation of additional flow measurement capability at certain other locations would also be beneficial. Unfortunately, many existing water measurement structures at NIS Block-8 are in need of repair or replacement. The situation at NIS Block-2 has not been assessed, but similar conditions are likely. A coherent program of assessment, repair and calibration of canal structures, including flow measurement structures, is needed. TA-B is fully prepared to assist in these tasks, but budget and personnel support must be available at the SMU level to accomplish the necessary physical work. TA-B recommends that the OPD fund and motivate the SMU to proceed with a program of repair/replacement and calibration of flow measurement structures.

## 2.4 Mahakali Irrigation System (Stage I):

### 2.4.A Progress on WUA development at MIS

- Pre-agreement activities were completed at MIS Stage-I and the IMT Agreement between the DOI and the MIS Stage-I WUA was signed on September 15, 2010.
- Post-IMT Agreement WUA meetings have been conducted regarding establishment of WUA office, demarcation of canal right-of-ways, etc.
- TA-B has assisted the MIS Stage-I WUA to design and print 5,000 WUA membership identity cards (in five different colours for five different blocks), to assist in Irrigation Service Fee (ISF) collection activities. The membership identity cards help in registering water users and recording their ISF payments. The card was developed with and approved by the WUA leadership.
- New elections were completed at all levels within MIS Stage-I. The election process consumed a large measure of the personnel resources of the MIS SMU, the MIS Stage-I WUA, and TA-B staff during the first half of 2012. During this time the ESI work was halted due to security concerns. ESI construction activities re-commenced following the completion of the elections. A 1-day orientation training was conducted for the new WUA leadership in April, 2012.
- SCC meetings have been initiated.
- Collection of membership fees and ISF has been initiated within Stage-1. The WUA has completed annual auditing and renewal of the annual association registration. Regular official monthly meetings are being held at Block Level WUAs.
- A TOT initiative is being implemented by the OPD and IMD. TOT training was completed for twenty-five farmer participants of MIS Stage-1 during a 9-day training in Dhangadhi from December 9 - 20, 2012. The TOT sessions were designed and conducted by the DOI IMD, and held in Dhangadhi. The training covered skill areas such as organization and resource management, canal maintenance and construction, and canal operation and water management. Eleven female members participated in the training.
- A number of WUA and farmer capacity development training activities have been held at MIS Stage-I on topics such as ISF collection, construction management and construction quality control, WUA capacity development, etc. Over 1,250 person-days of training have been provided to the MIS Stage-I WUA and/or MIS SMU. See Appendix 1. However, lack of available budget at the field level continues to constrain these activities.

- The TA-B IDS and WME have provided extensive on-the-job training to SMU staff and MIS Stage-I WUA members.
- TA-B has assisted the SMU and WUA of MIS to prepare Action Plans covering training activities for MIS Stage-I for fiscal year 2010/11 and 2011/12. An Action Plan for 2012/13 is under development. However, only limited actual progress has been achieved at MIS Stage-I, predominantly due to lack of funding at the SMU level.
- For FY 2069/70 the MIS WUA prepared a projected Income and Expenses budget for the first time. This is an excellent first step, although the projected expenses total 6.24 million NRs, compared with projected income of 3.44 million NRs (projected expenses exceed projected income by 181%), even though an unrealistic rate of 100% ISF collection was assumed and the projected expenses do not include any provision for canal maintenance apart from routine cleaning. The WUA anticipates that the deficit will be covered by DOI for the current fiscal year. Despite these criticisms, the initiative and capability to perform the analysis is seen as a very positive indicator in WUA capability development. ISF collection to date within the last fiscal year is shown in Table 5, below:

Table 5: ISF Collection within last fiscal year at MIS

Block	Target ISF [NRs]	Collected ISF [NRs]	Collection Rate [%]
A	300,000	63,000	21%
B	300,000	50,000	17%
C	330,000	68,000	21%
D	330,000	39,000	12%
E	75,000	8,000	11%
Total:	1,335,000	228,000	Overall: 17%

#### 2.4.B Progress on Water Management at MIS

- Action Plans covering institutional development and water management activities for prior and current fiscal years have been developed by the SMU of MIS Stage-I with the assistance of TA-B. However, actual progress in water management activities has been limited, primarily due to limited funding and support at the SMU level.
- SMU staff from MIS have attended a number of training and capacity building sessions, including methods of developing and maintaining a Canal Operating Plan (COP) that was facilitated by the TA-B, September 11 through September 15, 2011. The training focused on the use of CropWat software, developed by FAO and freely available on the internet, for the development of crop water demands within the irrigation system, and the widely available Excel software for relating irrigation demand to available supply and optimizing productive output within defined constraints. SMU engineers from KIS also attended this training. In total, 9 Agency personnel participated in this training.
- TA-B conducted a training at MIS on theory and methods for calibrating broad crested weirs, long throated flumes, and similar flow measurement structures from 24 to 31 July, 2011. Seven engineers from MIS including the SMU Chief participated in the calibration training/workshop.

- Working closely with the MIS WUA and SMU, TA-B developed a draft COP for the MIS Stage-I main canal. Implementation testing is planned for the first half of 2013 and continuing into the proposed extension period, if granted. The TA-B National Water Management Engineer was on site for an extended period in March, 2013, to assist in advancing water management activities and provide on-the-job training.
- TA-B has also worked interactively with the MS WUA to develop a draft Canal Maintenance Plan (CMP) for MIS Stage-I. This plan will assist the MIS WUA to better understand the operation and maintenance needs and associated budgetary requirements and related ISF fees.
- Calibration and gauging for 10 (out of 11) existing offtakes from the main canal has been completed. The SMU reports that they are also developing an action plan for calibrating additional structures within the Stage-I sub-system.
- Parcellary Mapping is underway at MIS Stage-I, but progress is very slow (estimated 5% complete to date). The IMT Agreement defines parcellary mapping as a DOI responsibility. The WUAs need complete and accurate parcellary maps in order to operate effectively. TA-B WME has prepared a set of guidelines for parcellary map preparation in Nepali language.
- WUA and DOI staff are cooperating to record irrigation flow data at 6 locations within MIS Stage-I. These are: MIS Border Weir, Basantpur Minor, Majhgaon Minor, Mahendranagar Distributary at station 5+172, Ultakham Distributary at station 0+581, Sisaiya Distributary at station 0+426. Gate-keepers (Dhalpas) of MIS are collecting this flow data. The data is being stored in the SMU's computer. This data is also available to the OPD and TA-B for study and analysis.
- The SEMP report for MIS Stage-I has been completed.

Table 6 summarizes the status of ESI works at MIS.

Table 6: ESI Status at MIS

No.	Description	Contracted Amount (incl. VAT) [NRs]	Date of Agreement	Contractual Completion Date	Financial Progress (%)
MIS ST I	<u>ESI Works (World Bank Grant Funded)</u>				
	Package 1 (MIP 65a1)	1,349,885	31/03/2068	30/09/2069	100%
	Package 2 (MIP 65a2)	17,330,907	31/03/2068	30/09/2069	40%
	WUA Payable	5,707,412	28/12/2067	31/12/2068	100%
	WUA Contribution	4,034,991	28/12/2067	31/12/2068	100%
MIS ST I	<u>DOI Works (GON Funded)</u>				
	Package 1	112,800,000 (estimated)	NA	NA	0%

NA = Not Applicable or Not Available

#### 2.4.C Progress of ESI Works at MIS

- There are 2 contract packages for ESI construction works by contractors at MIS Stage-I. Package 1 is complete (100% completion). The contractor for Package 2 has initiated work, but progress has been slow (about 40% to date).
- ESI construction activities by the WUA, both paid part and contribution part, are complete (100% for both the paid and unpaid portions).
- Irrigation infrastructure works funded by GON, estimated at NRs 112,800,000, have been released for bidding, but physical works have not yet been initiated.

#### 2.4.D Problems, Constraints, and TA-B Recommendations at MIS

- Institutional development activities are progressing slowly at MIS. The SMU needs to become better organized and motivated at MIS, and related funding constraints must be resolved. TA-B has national professional specialists plus additional support staff devoted to supporting the IMT process at MIS. However, their ability to provide effective input is limited by the performance of the SMU and lack of funding at the SMU level. Also, the Scheme Coordination Committee at MIS must also improve their performance.
- The MIS IWRMP Scheme Coordination Committee (SCC) held their first meeting during the preceding fiscal year. This is an encouraging development, however their lack of engagement to date has handicapped the progress of the provisions of the Transfer Agreement. Their recent progress should be encouraged and supported. TA-B suggests that the MIS Division Chief and SMU Chief, with the support of the OPD, mandate regular meetings of the SCC, facilitate these meetings, and monitor compliance through required submittal of meeting minutes. If the SCC members fail to fulfil their duties, new members should be appointed.
- Water management activities at MIS (and all other work sites), including further calibration of flow measurement structures, have been limited to date by lack of budget at the SMU level. TA-B is prepared to assist at MIS (and other work sites) to prepare additional reports at the request of the SMU, however additional funds are needed at the SMU level to continue this work.
- Parcellary Mapping was initiated at MIS-Stage I, but no recent progress has been reported. The WUAs need completed parcellary maps in order to operate effectively. TA-B recommends that the parcellary mapping process be accelerated through the employment or assignment of additional parcellary mapping specialists (Amin Surveyors) or other available means. TA-B WME has prepared a set of guidelines for parcellary map preparation in Nepali language.
- Related to the point above, the unavailability of data has posed a constraint to TA-B's ability to complete a comprehensive COP. TA-B has made independent efforts at the field level to acquire sufficient data to proceed with COP development to the extent possible. As a consequence of the lack of available data TA-B has necessarily reassessed and restructured their efforts at COP development. The completeness, date, source, and reliability of the COP will be variable will reflect the uncertainty of the available data.
- Calibration and gauging of 10 existing water measurement structures has been completed at MIS Stage-I. Calibration and gauging of many additional existing structures is also needed, and installation of additional flow measurement capability at certain other locations would also be beneficial. TA-B is fully prepared to assist in these tasks, but budget and personnel support must be available at the SMU level for the necessary work.

TA-B recommends that the OPD fund and motivate the SMU to proceed with the calibration of flow measurement structures.

## 2.5 Other Progress:

- Terms of Reference for a Benchmarking Study and Report for SMIS-Ramgunj sub-system have been developed by the OPD with the assistance of TA-B. It is recommended that this study be completed as soon as possible.
- Terms of Reference for a Benchmarking Study and Report, Irrigation System Rapid Appraisal, and Asset Inventory, Asset Management Plan, Tentative ESI Plan and Financial Management Plan for NIS Block-2 sub-system have been developed by the OPD with the assistance of TA-B. It is recommended that these studies be completed as soon as possible.
- Terms of Reference for a Benchmarking Study and Report and updating and rewriting of the existing Asset Inventory, Asset Management Plan, Tentative ESI Plan and Financial Management Plan for MIS Stage-2 sub-system have been developed by the OPD with the assistance of TA-B. It is recommended that these studies be completed as soon as possible.
- An assessment of the effectiveness of training activities conducted under Component-B has been completed. The assessment was undertaken by a national consultant contracted by the DOI. The report is available from the OPD.
- An Institutional Development and Training Plan for the anticipated 3 year extension period has been prepared by International Institutional Development Expert Dr. Don Messerschmidt and National Institutional Development Specialist Mr. Tej Raj Bhandari. These positions were funded from TA-B's unallocated person-months budget. The major recommendation is for significantly more appropriately trained and qualified persons to be posted at the work sites, tasked to assist with the institutional development of the WUAs at all levels. The report is available from the OPD.
- TA-B is continuing to assist the OPD in monitoring and evaluation of achievement of progress and milestone indicators for Component-B. TA-B has engaged National Monitoring and Evaluation Specialist Mr. Kishore K. Jha plus four sub-engineers to acquire, compile, and analyze monitoring and evaluation indicator data from each of the current Component-B work sites. TA-B is also developing revised data collection and analysis forms. This work is presently underway.
- Several Component-B "Success Stories" have been compiled and submitted to the OPD.
- The OPD and World Bank are engaged in discussions regarding a proposed 3-year extension for Component-B. Discussions presently underway include the continuation / completion of ESI and institutional development work at the four existing Component B Active Work Sites (see Table 1), and also including the re-activation of SMIS-Ramgunj SC (7,800 ha) and MIS Stage-II (5,700 ha) for ESI and institutional development work. The possibility of World Bank funding for additional infrastructure work at various levels within the irrigation system is also under discussion. The general disposition of both parties toward the extension is favourable, though there are numerous details to resolve.

## 2.6 IWRMP Component B Progress Summary Narrative and Table

There has been significant progress at all currently active Component B work sites (KIS, SMIS-Sitagunj, NIS-Block 8, MIS-Stage 1). However, a number of delays have been incurred, primarily associated with the volatile political situation within Nepal, and related issues associated with the transition to a democratic government which have resulted in extremely slow governmental processes. These challenges will continue to exist for the foreseeable future. Some comparatively minor delays are also attributable to the learning curve faced by the DOI and WUAs confronting new processes and working methods.

The rate of progress has differed among the work sites due to various local factors. The most progress to date has been achieved at KIS, and the least at NIS. An additional 12 to 18 months beyond the present EOP will be required to complete the ESI works at MIS and NIS. An additional 36 months beyond the current EOP is also needed at all work site locations in order to provide necessary monitoring and support to the WUAs and constituent farmers.

The IWRMP is presently operating under a 1-year no-cost "bridging" extension, from July 01, 2013 through June 30, 2014. During this "bridging" period the World Bank and DOI are preparing a 3-year (or possibly 4-year) extension of the IWRMP, including Component B. The extension is needed for Component-B for the following reasons:

1. In order to complete remaining Essential Structural improvements (ESI works) at existing work sites.
2. In order to complete necessary WUA and SMU training and institutional strengthening activities at existing work sites. It is proposed to increase these training and institutional strengthening activities above that originally included under the IWRMP Component B.
3. In order to conduct ESI work and WUA institutional strengthening activities at 3 additional work sites: SMIS-Ramgunj, NIS Block-2, and MIS Stage-II. SMIS-Ramgunj and NIS Block-2 were included under the original scope of work of Component-B, but were placed on hold due to WUA internal issues. They are now considered ready for initiating IMT activities. MIS Stage-II is an entirely new area, though contiguous with MIS Stage-I, an existing Component-B work site. MIS Stage-II has expressed a strong interest in being included in Component-B IMT activities.

Progress to date within the four existing and three proposed Component B are summarized within Table 7 below.

Table 7 Status of IWRMP Component B Activities

Irrigation System	Schemes and sub-systems	Kankai, Jhapa	Sunsari Morang		Narayani		Mahakali	
		Whole System	Sitagunj SC	Ramgunj SC	Block 2	Block 8	Stage-I	Stage-II
Total Command Area (ha)	33,900 ha Total	7,000	8,000	7,800	3000	3000	5100	5700
Command Area (ha) ESI Works	23,100 ha ESI	7,000	8,000	0	3000	0	5100	5700
No of WUA	Total 7 WUA	1	1	1	1	1	1	1
Introductory Workshop	Status	Completed	Completed	Not Initiated	Completed	Completed	Completed	Not Yet
	Responsible Agency	OPD	OPD	OPD	OPD	OPD	OPD	OPD
Dissemination of WUA guideline and other information	Status	Completed	Completed	Not Initiated	Completed	Completed	Completed	Not Yet
	Responsible Agency	OPD	OPD	SMU / OPD	OPD/SMU	OPD	OPD	SMU / OPD
Sensitization and orientation activities for WUA and Field Staff	Status	Completed	Completed	Not Initiated	Completed	Completed	Completed	Not Yet
	Responsible Agency	SMU	OPD/SMU	OPD / SMU	OPD	OPD/SMU	OPD/SMU	OPD / SMU
WUA constitution revision in the context of IMT	Completed	Completed	Completed	Completed	Completed	Completed	Completed	Not Yet
	OPD/SMU/Sahara, Nepal	WUA/SMU/TA	WUA/SMU/TA	WUA/SMU/TA	WUA/SMU/TA	WUA/SMU/TA	WUA/OPD/SMU/Sahara, Nepal	WUA/SMU/TA
Update WUA inventory	Completed	Completed	Completed	Completed	Completed	Completed	Completed	Not Yet
	OPD/SMU/Sahara, Nepal	/WUAOPD/SMU/TA/Sahara, Nepal	SMU/WUA	SMU/WUA	SMU/WUA	SMU/WUA	OPD/SMU/WUA Sahara, Nepal	SMU/WUA
System benchmarking	Status	Not yet	Not yet	Not yet	Not Yet	Not yet	Not yet	Not Yet
	Responsible Agency	OPD/SMU	OPD/SMU	OPD/SMU	OPD/SMU	OPD/SMU	OPD/SMU	OPD/SMU
Parcellary mapping	Status	2000 ha completed	In Progress	Not Yet	Not Yet	In Progress	In Progress	Not Yet
	Responsible Agency	SMU	SMU	SMU	SMU	SMU	SMU	SMU
2 <sup>nd</sup> & 3 <sup>rd</sup> Consultation on MTA	Status	Completed	Completed	Not Yet	Completed	Completed	Completed	Not Yet
	Responsible Agency	OPD/SMU/Sahara, Nepal	SMU / TA	SMU / TA	Neighbourhood Society/SMU	Neighbourhood Society/SMU/OPD	SMU/OPD	SMU / TA
IMT Agreement Signed	Status	Completed	Completed	Not Yet	Not Yet	Completed	Completed	Not Yet
	Responsible Agency	OPD/SMU	OPD/SMU	OPD / SMU	OPD/SMU	OPD/SMU	OPD/SMU	OPD / SMU
WUA formation on the basis of canal network	Status	Completed	Completed	Not Yet	Not Yet	Completed	Completed	Not Yet
	Responsible Agency	SMU / WUA	SMU / WUA	SMU / WUA	SMU / WUA	SMU / WUA	SMU / WUA	SMU / WUA
Updating AMP, IMT docs, FMP, ESI, etc.	Status	Completed	Completed	Not Yet	Not Yet	Completed	Completed	Not Yet
	Responsible Agency	SMU	SMU	SMU	SMU	SMU	SMU	SMU

Irrigation System	Schemes and sub-systems	Kankai, Jhapa	Sunsari Morang		Narayani		Mahakali	
		Whole System	Sitagunj SC	Ramgunj SC	Block 2	Block 8	Stage-I	Stage-I
Information Dissemination on IMT	Status	Completed	Completed	Not Yet	Completed	Completed	Completed	Not Yet
	Responsible Agency	OPD / SMU / Sahara, Nepal	SMU/OPD	SMU/OPD	Neighbourhood society/SMU	Neighbourhood society/SMU	SMU/OPD	SMU/OPD
Monitoring Visit	Status	Three Completed	Two Completed	Not Initiated	One Completed	Two Completed	Two Completed	Not Yet
	Responsible Agency	OPD	OPD	SMU / OPD	OPD	OPD	OPD	OPD
Orientation to Field Staffs	Status	Completed	Completed	Not Yet	Not Yet	Completed	Completed	Not Yet
	Responsible Agency	OPD	OPD	OPD	OPD	OPD	OPD	OPD
WUA and Field Staff capacity development	Status	In Progress	In Progress	Not Yet	Not Yet	Initiated	In Progress	Not Yet
	Responsible Agency	SMU/TA	SMU/TA	OPD	OPD	OPD	SMU/TA	SMU/TA
WUA Institutional Development	Status	In Progress	In Progress	Not Yet	Not Yet	Initiated	In Progress	Not Yet
	Responsible Agency	SMU/TA	SMU/TA	OPD	OPD	OPD	OPD	OPD
Prioritization of ESI Works	Status	Completed	Completed	Not Yet	Not Yet	Completed	Completed	Not Yet
	Responsible Agency	SMU	SMU	SMU	SMU	SMU	SMU	SMU
ESI Design and Tendering	Status	Completed	Completed	Not Yet	Not Yet	Completed	Completed	Not Yet
	Responsible Agency	SMU / WUA	OPD	SMU / WUA /OPD	SMU / WUA /OPD	SMU / WUA /OPD	SMU / WUA /OPD	SMU / WUA /OPD
ESI Construction	Status	In Progress	In Progress	Not Yet	Not Yet	In Progress	In Progress	Not Yet
	Responsible Agency	OPD / SMU / TA	OPD / SMU / TA	OPD / SMU / TA	OPD / SMU / TA	OPD / SMU / TA	OPD / SMU / TA	OPD / SMU / TA
Calibration of Flow Measurement Structures	Status	Partially Complete	Partially Complete	Not Yet	Not Yet	Partially Complete	Partially Complete	Not Yet
	Responsible Agency	SMU / TA	SMU / TA	SMU / TA	SMU / TA	SMU / TA	SMU / TA	SMU / TA
Preparation of Canal Operation Plan	Status	Draft Complete	Draft Complete	Not Yet	Not Yet	Draft Complete	Draft Complete	Not Yet
	Responsible Agency	SMU / TA	SMU / TA	SMU / TA	SMU / TA	SMU / TA	SMU / TA	SMU / TA
Preparation of Canal Maintenance Plan (CMP)	Status	Draft Complete	Draft Complete	Not Yet	Not Yet	Draft Complete	Draft Complete	Not Yet
	Responsible Agency	SMU / TA	SMU / TA	SMU / TA	SMU / TA	SMU / TA	SMU / TA	SMU / TA
Training WUA on COP and CMP	Status	Ongoing	Ongoing	Not Yet	Not Yet	Ongoing	Ongoing	Not Yet
	Responsible Agency	SMU / TA	SMU / TA	SMU / TA	SMU / TA	SMU / TA	SMU / TA	SMU / TA
M&E of IWRMP activities and WUA performance	Status	Ongoing	Ongoing	Not Yet	Not Yet	Ongoing	Ongoing	Not Yet
	Responsible Agency	SMU / OPD	SMU / OPD	SMU / OPD	SMU / OPD	SMU / OPD	SMU / OPD	SMU / OPD



### 3 Issues and Solutions

#### 3.1 Last Aide Memoire

Table 8a and 8b, below, is adapted from recent World Bank/IDA produced aide memoir documents The table below includes only items related to Component B, and includes an “Action/Status” column which indicates the current state of response to each issue by IWRMP Component B.

Table 8a: IWRMP Component B Issues noted by IDA support mission of October 8-15 2012: Current status of Action/Response

Issue	Responsible Agency	When	Action/Response Status
Develop strategy for institutional capacity building of IMD (para. 15, 33)	DOI	Dec 31, 2012	Ongoing.
Review trimester M&E progress tracker and annual results tracker. Prepare accompanying guideline/manual (para. 25)	DOI	Not specified	Not Yet.
TA team to train DOI staff and WUAs in water management (para. 33)	TA consultants and OPD	Dec 31, 2012	Continuously ongoing.
Carry out rapid assessment of WUA training program to determine effectiveness and participants' perceptions.	3rd party consultants engaged by OPD	Dec 31, 2012	Complete

Table 8b: IWRMP Component B Issues noted by IDA support mission of April 1-7 2013: Current status of Action/Response

Issue	Responsible Agency	When	Action/Response Status
More time and resources to be focussed on institution building activities for the WUA at NIS Block-8 (para. 12)	OPD/IMD/TA	Not stated	TA has posted WME at Birgunj.
Develop strategy for institutional capacity building of IMD (para. 15, 33)	DOI	June 30, 2013	Ongoing.
Carry out rapid assessment of WUA training program to determine effectiveness and participants' perceptions.	3rd party consultants engaged by OPD	June 30, 2013	Complete

#### 3.2 Other Current Issues and Solutions

The following issues are affecting the implementation progress of IWRMP Component B:

**ISSUE 1:** Delays in the flow of funds from national to project site government offices continues to impede the progress of Component B activities, particularly with respect to training, water management development, and related non-ESI activities. The lack of funds at the field level for non-ESI activities continues to negatively impact the timeline for IWRMP task achievement.

**SOLUTION 1:** These issues must be resolved within the DOI and GON.

**ISSUE 2:** Adequate numbers of qualified technical staff are not available at all subproject sites. Some SMU staff have other duties which sometimes take priority over their IWRMP duties. Frequent transfer of key DOI staff at SMU or irrigation system management level causes disruption and/or delay to IWRMP activities.

**SOLUTION 2:** The DOI must prioritize its allocation of personnel resources such that the IWRMP is fully staffed with qualified staff for the duration of the Project.

**ISSUE 3:** Planning, budget preparation, and follow-through is weak at the field level.

**SOLUTION 3:** Annual progress review meetings to review issues and develop budgets responsive to the progression and evolution of the Project would be of immense benefit. OPD has discussed organizing such a meeting in Kathmandu, with all SMU representatives in attendance, however this has not materialized to date. If/when such meetings take place, the meetings should incorporate participatory planning and budgeting processes with input from project staff at all levels. Budgetary planning should be realistic, and provision must be timely. During budget preparation for the project sites SMU and WUA capacity development activities must be critically and realistically assessed, and given adequate priority.

**ISSUE 4:** Due to a number of reasons, awareness raising and information dissemination related to IWRMP Component B to government field staff, WUA representatives, farmers and other stakeholders at sub-project sites has been inadequate. Stakeholders are unaware or are uncertain as to the status and future of the project, and question its credibility. A significant difficulty is the large numbers of farmers involved. Within each project area there are thousands, or tens of thousands, of farmers involved, with several times that number of persons within affected households. This fact, combined with poor communication and transportation infrastructure, and limited staff and funding available for awareness and information campaigning, provides some understanding of the scope of the issue. Nevertheless, a WUA can not function without the participation and compliance of the members, which requires awareness and acceptance of the concepts and knowledge of the rules and processes, etc.

**SOLUTION 4:** The importance of awareness, involvement, and interaction of the farmer-stakeholder with the government and other stakeholders must be recognized by the DOI, OPD, SMU and WUA. Budgetary provisions must reflect this recognition and program activities must actively address this issue.

**ISSUE 5:** Logistical resources such as vehicles that are provided under the Project are limited and often appropriated according to rank rather than by need.

**SOLUTION 5:** Only a strong leadership with a grasp of the bigger picture will address this problem.

**ISSUE 6:** The budgetary and personnel orientation of the project design is heavily weighted toward technical support for infrastructure work. Resources allocated to the personnel-intensive area of institutional development and training are comparatively light. The challenges presented in the area of institutional development necessary for successful IMT are very significant, and far less defined than those related to the necessary infrastructure work. The requirements of the infrastructure work tend to overwhelm the implementation capacity of DOI's field resources as well as the absorption capacity of the WUAs. Additional resources must be allocated toward institutional development and related "software" aspects of IMT if the process is to be successful within the given time frame.

**SOLUTION 6:** Adequate numbers of qualified trained staff and budgetary resources must be allocated to WUA and SMU training and other aspects of institutional development. These staff and budgetary resources should be separate from those allocated to infrastructure work. Process planning and implementation scheduling with the WUAs should focus on institutional strengthening as the primary objective, with infrastructure work as a concurrent related activity (rather than the reverse, which is the prevailing tendency).

## **4 Financial Management Status:**

### **4.1 Present Financial Status:**

Total budget allocations for Component-B are: GON = 73,226,100 NRs (= approx USD \$1.031 million) + IDA = USD \$9,024 million (= approx 640,757,400 NRs) = approx 713,983,500 NRs total = approx USD \$10.055 million total. The Finance Office of IWRMP reports that the most current information available (as of July 15, 2013) indicates approximately 561,726,500 NRs (approximately USA \$7.119 million) of total disbursement as of the end of Nepali Fiscal Year 2069/70. This includes disbursements from both GON and IDA sources, and constitutes approximately 78.7% of total budget allocations. The proportion of GON vs. IDA funds comprising this total was not provided by the DOI Finance Office.

Remaining funds of approximately \$2.144 Million USD (= USD \$10.55 million USD - USD \$7.911 million) are largely committed, and will be disbursed as work on related contracts progress. It is anticipated that this remaining balance will be disbursed prior to June 30, 2014, leaving approximately \$0 of the original grant unspent by this date.

Funding under the existing provisions of the grant is adequate to complete the presently planned ESI works, plus all other Component-B activities planned through June 30, 2014.

### **4.2 Projected Disbursement up to June 30, 2014**

Total disbursement (GON + IDA) under B as of the end of the June 30, 2014 is projected to approximately \$9.53 million USD), including the GON portion of approximately \$1.82 Million USD and the IDA portion of approximately \$7.27 million USD.

At this time it is estimated that approximately 100% of the original grant funding will be utilized by June 30, 2014. Any minor remaining balance will be carried forward to fund the Component B activities to be undertaken during the subsequent extension period.

## **5 Procurement Plan/Status**

### **5.1 Procurement of Goods**

No change during present reporting period.

### **5.2 Procurement of Services**

No change during present reporting period.

### **5.3 Issues of Procurement of Goods and Services**

No issues were identified by DOI procurement staff.

### **5.4 Revised Procurement Plan**

No revised Procurement Plan was available from the DOI procurement staff.

## **6 Monitoring and Evaluation of the Project**

### **6.1 Revised M&E Indicators Matrix**

TA-B has engaged National Monitoring and Evaluation Specialist Mr. Kishore K. Jha plus four sub-engineers to assist the OPD in the monitoring and evaluation of achievement of progress and milestone indicators for Component-B. In conjunction with this work TA-B is developing proposed revised data collection and analysis forms. Related monitoring data is also being collected from the field by TA-B sub-engineers. This work is presently underway.

### **6.2 M&E Indicators Data Collection**

As noted in the sub-section above, TA-B is now assisting the OPD in the M&E of Component-B. TA-B is presently acquiring, compiling, and analyzing monitoring and evaluation indicator data from each of the current Component-B work sites. The objective of the assistance by TA-B is to define/refine suitable indicators, develop suitable monitoring mechanisms, and assist in institutionalizing these mechanisms within the DOI.

### **6.3 Measurement of the Impacts Against Baseline Data**

As per the sub-section above, TA-B is now assisting with this work. Monitoring of impacts against baseline data is (ideally) an ongoing process. Draft indicators and recording formats have been prepared by TA-B and submitted to the OPD. These are being circulated with the DOI and to World Bank representatives for comments.

## **7 Social and Environmental Safeguards (SEMP Status)**

### **7.1 Environmental and Social Screening**

The IWRMP subprojects are required to be screened against the set of environmental and social criteria derived from GON regulations and the World Bank's safeguard policies. The screening of a subproject results in one of the following:

- Subproject is exempted from formal environmental and social investigations (IIEE/ISE and EIA/SIA). Subproject will have simple subproject-specific SSEMP;
- Subproject requires IIEE/ ISE;

- Subproject requires detailed EIA / SIA;
- subproject is ineligible for funding under IWRMP as it fall under negative items list.

The SEMP identifies and assesses the social and environmental impacts resulting from the proposed development activities and prepares a management plan with mitigation measures including the cost of mitigation, monitoring, auditing and capacity building. A SEMP report must be prepared for each sub-project, even if no EIA/IEE is required (as per the Environmental Protection Rules 1997, 1999 of GON) and it should be site specific. The objective of SEMP is not only to mitigate the adverse (or negative) social and environmental impacts but also to enhance the positive impacts. It should contain a detailed description of the potential social and environmental impacts (both during construction and operation and maintenance), mitigation measures and mechanisms for both implementation and monitoring for each sub-project activity. The SEMP should be properly and adequately integrated in over-all planning, designing, budgeting and implementing of a sub-project. In fact, SEMP will be an integral part of the sub-project plan.

## **7.2 SEMP Status**

SEMP reports have been completed for KIS, SMIS-Sitagunj, NIS Block-8 and MIS Stage-I. SEMP monitoring is ongoing.

## **8 Governance and Accountability Action Plan (GAAP)**

No change reported since previous reporting period.

## **9 Staffing Situations and Issues (For Technical Assistance and DOI)**

### **9.1 IMT/DOI Staff: Present Status**

#### *Field Staff*

There have been no significant changes in the management of the irrigation systems during the current reporting period.

#### *Central Staff*

Divisional Engineer Mr. Bashu Dev Lohanee has been transferred from the OPD to the IMD. His place within the OPD has been filled by Mr. Tikram Baral.

### **9.2 Technical Assistance (TA) Staff**

All currently employed TA-B staff are working at their assigned stations according to their work scheduled.

### **9.3 Staffing Issues**

The government staff assigned to the IWRMP are sometimes inadequately trained, equipped, or otherwise prepared to undertake the possibly unfamiliar process-oriented activities of the IWRMP. In addition, the DOI policy of making frequent changes of staff at the irrigation system management level and/or SMU level has caused (and continues to cause) disruption to the progress of the IWRMP Component-B activities. In these cases staff may procrastinate or sideline IWRMP activities. Staff assigned to the IWRMP must be well supervised and/or otherwise incentivized to make IWRMP activities a priority in their work scheduling, and

staff should remain assigned through the duration of the Project to the greatest extent possible.

The TA-B staffing has been substantially adjusted over the 4-year period of the TA-B involvement with Component-B. The balance of TA input has increasingly shifted from infrastructure-oriented to greater support to institutional development and water management improvement. During the current 1-year no-cost extension TA-B is operating under severe funding constraints. Unfortunately, the only available option is to reduce TA-B staffing input for the duration of the no-cost extension. It is anticipated that additional funding for TA support will become available during the second half of 2014 when the next phase of IWRMP becomes active.

## 10 Proposed Activity Plans

### 10.1 Activity Plans for 2013/14 (Nepali FY 2070/71)

Proposed Action Plans for training activities, water management activities, and institutional strengthening activities are being prepared for current (2013/14). Funds are needed at the SMU level in order to implement these Action Plans.

Expectations within the current fiscal year include the completion or near-completion of ESI works at KIS, SMIS-Sitagunj, NIS Block-8, and MIS Stage-1, by the current EOP date (June 30, 2014).

The progress of flow measuring structure calibration activities, water management plan and canal operation plan development and the completion of various related DOI staff and WUA training activities will depend largely on the availability of support from qualified SMU staff and the provision of sufficient government to the SMUs to implement the necessary related activities.

Clarity on the structure and timeline of the proposed Component-B extension is needed in order to refine planned activities beyond the second half of 2014.

## 11 Major Challenges and Recommendations

- The transitional and uncertain political and budgetary situation in Nepal continues to impact all aspects of progress of the IWRMP Component B. Example were witnessed in fiscal years 2010/11, 2011/12, and 2012/13 when long delays in the approval of a national budget prevented the flow of funds to Component B activities for up to 9 months. This sporadic flow of Project funds has delayed implementation of all activities under Component-B. The outlook for 2013/14 is for a continuation of essentially the same situation. In addition, the frequent widespread and prolonged protests across the country related to various political issues disrupt transportation in general, including Component B activities.

**This must be acknowledged as a risk.**

- The training and institutional development needs of the WUAs are considerable, and beyond the capacity of the existing TA and DOI resources to implement within the given time frame. However, without adequate support, the WUAs are unlikely to be able to

function as anticipated by the end of the implementation period. Many field-level government staff also need additional training in various technical and non-technical areas.

**The Component B TA has assisted the DOI IMD to prepare a proposal for IMD assistance to the IWRMP. The involvement of the IMD in Component B is potentially of significant benefit. Arrangements in this regard are between the IMD and the DOI are in process. However, progress is slow. Only 3 training activities have been conducted for Component B by the IMD up to the present time. In addition to the IMD, there is an extensive existing base of capable local NGOs, Association Organizers (AOs) and other training specialists, which could be utilized to a greater extent by the IWRMP. In particular, it is recommended to utilize these resources to assist in WUA training and institutional development as needed. Existing budgets may need to be reviewed for sufficiency in this regard.**

- Related to training activities: the availability of WUA representatives and farmer-members is limited. They do not have time for training activities during crop sowing and harvesting periods, and during the monsoon period their time availability is also very limited. This constraint, in addition to other factors, limits their training absorption capacity. The absorption capacity of DOI field staff is also similarly limited, as they also have multiple demands on their time.

**These considerations must be kept in mind when developing and implementing any training and/or institutional strengthening planning or activities. Training and institutional strengthening needs must be accurately assessed, and training programs and activities and institutional strengthening inputs must be targeted, efficient, and effective. Planning decisions such as content and scheduling must be made in consultation with the participants.**

- Due to the issues noted above, the IWRMP Component B will not be completed by the original project completion date of 30 June, 2013. Some ESI works will remain in progress at existing work sites. The DOI is also proposing to initiate IMT activities at 3 additional work sites: SMIS Ramgunj, NIS Block-2, and MIS Stage-II. These three sites cover approximately 16,500 ha of additional area. There is also greater need than that originally envisioned for training and institutional development support to the WUAs and SMUs. A consistently high level of support in these areas will be required throughout the entire implementation period if WUA autonomy and self-sufficiency is expected.

**TA-B has assisted the IWRMP OPD to prepare a request for project extension. Component B is requesting an additional 3 to 4 years of time, plus additional funding support from the IDA. Additional details are provided in the request for extension document, which was submitted to the World Bank by the OPD in approximately October, 2012. Discussions related to the proposed extension are continuing between the World Bank and the DOI as of the completion of this report.**

## Component B Appendix 1: Pre-IMT Agreement Preparatory Activity Action Plan

### 2.5.2 Plan for July 2013 - June 2014

(Completion of all preparatory tasks required for IMTA in Ramgunj, NIS (Block-8) & MIS (Phase-II))

Schedule of Consultation and Update of Collected Information

S.N.	Activities	Purpose	Months/Week												Responsible Person		Completion by					
			Sept,013	Oct,013	Nov,013	Dec, 013	Jan, 014	Feb,014	Mar, 014	Apr,014	May,014	June014	Lead	Assist								
1	First Consultaion with WUA Main Committee	Orientation on IMT																OPD & SMU	TA	First Week of Dec. 013		
2	Second Consultation with WUA and Farmers	Orientation on IMT																		OPD & SMU	TA	Second Weeks of March,014
3	Third Consultation with WUA and General Assembly and Finalization of Draft IMT Agreement	Provision of the Agreement will be Discussed and Agreed																		OPD & SMU	TA	Second Weeks of June, 014
4	Update of Collected Information																					
a	Rapid Appraisal Report																			SMU	TA & WUA	End of Jan,014
b	Asset Inventory of the System																			SMU	TA & WUA	End of April,014
c	Bench Marking of the System																			SMU	TA & WUA	End of Jan,014
d	WUA Membership List																			SMU	WUA	End of April,014

Note: RIS: Ramgunj Irrigation System, NIS: Narayani Irrigation System, Block-2, MIS: Mahakali Irrigation System, Phase II



## Component B Appendix 2: Status of Component-B M&E

### I. Introduction

The efforts by OPD to institutionalize the first and second party M&E included installation of MIS software at central level, procurement of required equipment and several trainings and workshops for government staff under SMUs and beneficiary WUAs. In addition to regular performance tracking and reporting of inputs, outputs and project outcomes under the first party monitoring, the SMUs of the respective AMIS are also expected to facilitate the process of the second party participatory M&E to be undertaken with the beneficiary WUAs. Besides, the PAD recommends that all the filled in standard formats shall be forwarded to the central M&E unit of the OPD, which in turn shall analyze the data and produce informative reports in simplified formats for distribution to the PICC, World Bank, NPC, WECS and other concerned agencies for their review and timely feedback. As the First Party and Second Party Monitoring as proscribed in the PAD were not happening in the expected manner, the OPD provisioned inputs of an M&E Specialist under TA-B to assist and facilitate these activities.

### II. Instruments for Internal M&E Data Collection

#### Checklist/Questionnaires

A two page form for data collection on trimester basis was provided to TA-B by the OPD. Under analysis it was evident that the provided form attempted to capture data and information pertaining to all the three phases of the IMT process. A restructured version of the form was prepared by the M&E Specialist and is presented below. A description of its structure and content follows;

The initial part of the Trimester Tracker seeks general information with regards to the system including number of households and command area coverage (GCA and CCA).

Preparation Phase: Following the description of IMT process in Appendix B, information as regards to compliance with the process of IMT formulation is sought. In specific terms, the checklist of activities in sequential order includes Main canal consult with WUA, Branch canal consult with WUA, GA consult with WUA, Rapid Appraisal, Asset Inventory Prep, Asset Management Plan, Bench Marking, WUA Membership List, Parcellary Map, Bulk water delivery plan, Selection of ESI with WUA. Similarly, information with regards to compliance with IMT O&M preparation is sought in terms of whether WUA has been facilitated with the Canal Operation Plan and Canal Maintenance Plan.

Consolidation Phase: The consolidation of IMT process involves activities towards facilitating the process towards evolution of institutionally and financially sustainable WUAs, ESI activities for improved physical performance of the system and preparatory activities towards Operation and Maintenance. In addition to seeking details on formal trainings as well as on institutional functioning, the Tracker seeks information pertaining to capacity of the WUA towards resource mobilization and resource utilization.

Reformed Operation Phase: The reformed operation is reflected by the O&M checklist with queries on whether (i) DOI delivers bulk water following the agreed COP, (ii) rate of ISF matches the annual maintenance budget, (iii) WUA delivers water according to seasonal schedule, and whether (iv) WUA maintains the system per O&M plan. Similarly, queries on system performance is

sought, particularly to ensure that whether bulk water is delivered by DOI as per agreement and whether WUA ensures proportionate distribution of water to the irrigation field.

**Data Collection and Results Information:** The information on system performance such as percent of tail-enders reporting improved water availability and users satisfactions are sought next. Finally, data on productivity might be sought provided meaningful intervention towards improved scheme management is evidenced. Table 1 below provides a framework for data collection towards the first and second party i.e. internal results monitoring, and Table 2 summarizes the compiled data for the entire Component B following the format suggested by the PAD. A narrative description of the results information is provided in Section III, following.

**Table 1: Data source and Collection procedure for First and Second Party M&E**

S.N	Indicator Category	Data Source	Data Collection Procedures
A.	Outcome indicators		
a.	Agricultural aspect		
	<ul style="list-style-type: none"> <li>Productivity</li> <li>Cropping intensity</li> </ul>	Crop Cut Survey Data from DOA and/or AMIS	Focus group discussion, interviews, existing documents
b.	Scheme Management		
	<ul style="list-style-type: none"> <li>O&amp;M expenditure as per agreed Asset Management Plan</li> <li>Water users satisfied with-WUA O&amp;M</li> </ul>	Concerned WUA executives, IDO, AO, water users – head\ middle\ tail	Group discussion, Interview, existing documents
B.	Intermediate Indicators		
a.	Water availability		
	<ul style="list-style-type: none"> <li>Improved availability at tail end</li> <li>Delivery points receiving proportional share</li> <li>Adequate O&amp;M expenditure</li> </ul>	Tail end farmers\ house holds Concerned WUA-executives & members, AO-AE-OS of IDO	Group discussion Interview, group discussion field observation
b.	Institutional and Financial (WUA)		
	<ul style="list-style-type: none"> <li>WUAs formally constituted</li> <li>WUAs collecting water charges</li> <li>WUAs maintaining accounts &amp; cash</li> <li>Registers</li> </ul>	Concerned WUA – executives, Association Organizer, ID Or Concerned farmer leader handling water distribution and management	Interview, group discussion, observation at WUA office, and existing documents & reports

## Irrigation and Water Resources Management Project

## Component B: Irrigation Management Transfer

**Table 2: Results Framework and Monitoring Format**

Project Development Objective	Project Outcome Indicators	Unit	Baseline	Target	Current Values (2012/13) <sup>1</sup>				Remarks	
			Baseline Values (2007/08)	Target Values (2012/13)	Overall (avg. of 4 AMIS)	KIS	SMIS	NIS		MIS
P.1. Improved Irrigated Agriculture Productivity	P1.1a. Productivity of Paddy	t/ha	2.9	3.5	4.1	3.7	3.7	4.8	5.5	
	P1.1b. Productivity of Wheat	t/ha	2	2.8	2.5	2.1	2.0	2.1	3.3	
	P1.1c. Productivity of Maize	t/ha	2.1	3.2	3.6	3.6	6.7	6.0	2.7	
	P1.1d. Productivity of Potato	t/ha	10	14	10.8	6.8	11.0	17.0	18.5	
	P1.2. Average Cropping Intensity	%	168	205	207	223	186	220	212	
P.2. Improved Physical Performance of Selected Irrigation Systems	P2.1 % of WUAs that have incurred minimum of 80% of O&M expenditures as per agreed Asset Management Plans.	%	0%	100%	Not Applicable, because practice of O&M expenditures based on Asset Management Plan linked Annual Budget yet to be started. Repair maintenance and rehabilitation works are currently covered under ESI component by the Agency.					
	P2.2a. Level of Users' Satisfaction (Excellent/Good/Poor) with WUA's O&M performance in upper-end of rehabilitated irrigation schemes.	Exclnt/Good/Poor	NA	Excellent	Not Applicable, because WUA yet to take over the O&M functions. COP and CMP though prepared with TA assistance in KIS, SMIS & NIS, have not been implemented yet. Water not delivered in MC of KIS due to ESI activities, and also due to R&M (Indian portion) in NIS.					
	P2.2b. Level of Users' Satisfaction (Excellent/Good/Poor) with WUA's O&M performance in middle-portion of rehabilitated irrigation schemes.	Exclnt/Good/Poor	NA	Excellent	- same as above -					
	P2.2c. Level of Users' Satisfaction (Excellent/Good/Poor) with WUA's O&M performance in tail-end of rehabilitated irrigation schemes.	Exclnt/Good/Poor	NA	Excellent	- same as above -					

<sup>1</sup> Source of Data: Publication of DOA on productivity data 2012/13, as compiled by IWRMP Component 'D'.

**Table 2.1: Results Framework and Monitoring Format ..... continued**

Project Development Objective	Component B specific Intermediate Outcome Indicators	Unit	Baseline	Target	Current Values (2012/13)				Remarks	
			Estmtd. Values (2007/08)	Target Values (2012/13)	Overall (avg. of 4 AMIS)	KIS	SMIS	NIS		MIS
B1 Improved performance of transferred irrigation system	B1.1 % of tail-enders reporting improved water availability	%	NA	60%	Not Applicable, Refer 2.3 (page 5) for progress and assessment of remaining Water Management Activities. Though calibration of structures for bulk water delivery and COP/CMP prepared with TA assistance in KIS, SMIS & MIS, they have not been implemented yet..					
	B1.2 % of agreed (committed) amount spent by DOI for O&M as per Asset Management Plan.	%	NA	100%	Not Applicable, because practice of O&M expenditures based on Asset Management Plan linked Joint Annual Budget yet to be started					
	B1.3 % of agreed (committed) amount spent by WUA for O&M as per Asset Management Plan.	%	NA	100%	Not Applicable, because practice of O&M expenditures based on Asset Management Plan linked Joint Annual Budget yet to be started					
B2 Improved bulk water service delivery by DOI to WUAs as per IMTA	B2.1 Water delivery at branch canal outlets	m3/s	NA	100%	Refer comments for B1.1 as above.					
	B2.2 Water delivery at sub-branch/ tertiary canal outlets	m3/s	NA	100%	Not Applicable: Currently water is delivered on adhoc basis - as per the need and guided by canal capacity					
	B2.3 % of delivery points that receive their proportionate share of water	%	NA	100%	Not Applicable: Currently water is delivered on adhoc basis - as per the need and guided by canal capacity					
B3 Financially & Institutionally sustainable WUAs	B3.1: Percentage of WUAs holding regular meetings at least once in a month	%	NA	100%	87%	87%	80%	80%	100%	Data based on M&E meetings with WUA
	B3.2: Percentage of actual contribution by WUAs to agreed amount - collected as water charges (in cash, kind and labor) required for adequate O&M requirements.	%	NA	100%	Low (32%)	Low (55%)	Low (45%)	Not Started	Low (30%)	Refer 2.2.1 (1), page 13 ISF Collection
	B3.3: Percentage of WUA maintains appropriate accounts and cash register (accounts audited this year).	%	NA	100%	NA	Not existent in BC	Not existent in BC	Not existent in BC	Not existent in BC	Refer 2.2.1 (4), Account keeping and office management
	B3.4 Level of Users' Satisfaction (Excellent/Good/Poor) with WUA delivering water according to seasonal schedules for crops as agreed between DOI, DOA and WUA.	%	NA	Exclnt.	Not Applicable, because though water measurement structures calibrated for bulk water delivery and COP and CMP prepared with TA assistance in KIS, SMIS & MIS, they have not been implemented yet. Besides, preparation for BC level water distribution not started yet					

### **III. Narrative Description of the Results Information**

#### **P.1. Improved Irrigated Agriculture Productivity**

With respect to monitoring the project development objectives of improved agriculture productivity, data on yields of paddy, wheat, maize, potato and vegetables along with the cropping intensity were collected using participatory rapid appraisal during M&E meetings with main and branch canal WUA committees. Besides, annual publication of DOA on crop cut surveys as compiled under IWRMP Component D was also referred to as the secondary source data. The data of crop cut surveys undertaken by KIS, SMIS, NIS and MIS were also compiled to the extent available. Based on comparative assessment of the productivity (yield) data from the three sources, the one through official publication of DOA was considered more authentic and credible. Hence adopted for M&E purpose. In general it was found that yield data from direct interviews and AMIS sources reported higher value than that from DOA publication.

With due reference to Table 2, it is concluded that with the exception of wheat, all the productivity data have exceeded the target. This among others imply that accomplishment of targets shall be attributed to factors other than Component B specific project activities, assumed to be contributing to the target values. A few of such attributing factors include widespread use of groundwater irrigation employing diesel pump sets, encouraging agricultural extension activities through other projects (ICWMP), and access to agricultural inputs from the cross border markets.

With reference to monitoring the second project development objective namely to reflect improvement in the scheme management of the selected irrigation system more accurately, it was suggested to monitor the status of O&M expenditures of the branch committees instead of only the main WUA committee. However, monitoring of these outcome indicators was found to be premature due to the fact that (i) practice of O&M expenditures based on Asset Management Plan linked Annual Budget is yet to be started, and (ii) WUAs are yet to take over the entire O&M functions. COP and CMP though prepared with TA assistance in KIS, SMIS & NIS, have not been implemented yet. Besides, water was not delivered in MC of KIS due to ESI activities, and also due to R&M works in the Main Canal in India in NIS.

Similarly, monitoring of the intermediate outcome indicators, namely B1 Improved performance of transferred irrigation system, B2 Improved bulk water service delivery by DOI to WUAs as per IMTA and B3 Financially & Institutionally sustainable WUAs, also seem to be premature at this stage for reasons identified in Table 2. However, progress towards the accomplishment of target values are being adequately reflected in Chapter 1 and 2 of the Main Report.