

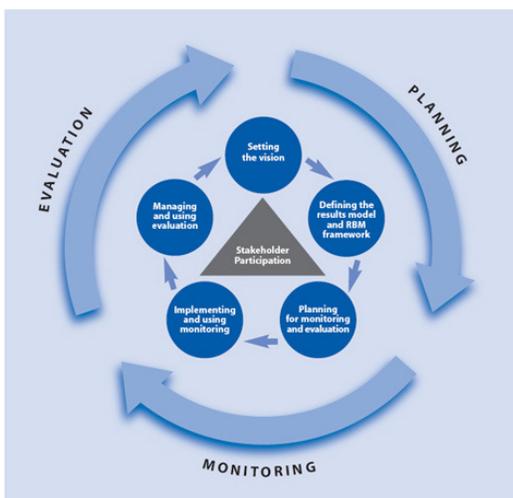


Government of Nepal

Government of Nepal
 Ministry of Irrigation
 Department of Irrigation
 Irrigation and Water Resources Management Project (IWRMP)



World Bank



GUIDELINES FOR MONITORING AND EVALUATION
 (First and Second Party Monitoring)

TA CONSULTANT FOR COMPONENT 'B'
 Irrigation Management Transfer

IDA Grant #

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Abbreviations and Acronyms

AE	: Assistant Engineer
AGM	: Annual General Meeting
AMIS	: Agency-Managed Irrigation System
AMP	: Asset Management Plan
AO	: Association Organizer (Social Worker)
BC	: Branch Canal
CA	: Command Area
CMC	: Chatra Main Canal
COP	: Canal Operational plan
DADO	: District Agriculture Development Office
DIO	: District Irrigation Office
DOA	: Department of Agriculture
DOI	: Department of Irrigation
ESI	: Essential Structure Improvements
FAO	: Food and Agriculture Organization
FMIS	: Farmer Managed Irrigation System
FWUA	: Federation of Water Users Associations of Nepal ().
GON	: Government of Nepal
Ha	: Hectare
HLPSC	: High Level Policy Steering Committee
IDD	: Irrigation Development Division
IDO	: Irrigation Division Office
IDSD	: Irrigation Development Sub-Division
IMT	: Irrigation Management Transfer
IMTP	: Irrigation Management Transfer Project
IWRMP	: Irrigation and Water Resources Management Project
KIS	: Kankai Irrigation System
M&E	: Monitoring and Evaluation

MIS	: Mahakali Irrigation System (also “Management Information System”)
MOF	: Ministry of Finance
MOWR	: Ministry of Water Resources
NIS	: Narayani Irrigation System
NPC	: National Planning Commission
NRs.	: Nepalese Rupees
O&M	: Operation and Maintenance
OPD	: Office of the Project Director
OS	: Overseer
PAD	: Project Appraisal Document
PDO	: Project Development Objective
PICC	: Project Implementation and Coordination Committee
PSC	: Project Steering Committee
SC	: Secondary Canal
SCC	: Scheme Coordination Committee
SE	: Sub Engineer
SMIS	: Sunsari Morang Irrigation System
SMU	: Sub-Project Management Unit
STW	: Shallow Tube Well
TA B	: Technical Assistance of IWRMP Component B
TA	: Technical Assistance
TC	: Tertiary Canal
TOT	: Training for Trainer
WB	: World Bank
WECS	: Water and Energy Commission (Secretariat)
WUA	: Water Users Association
WUAF	: Water Users Associations Federation

I. THE PROJECT ARRANGEMENTS

1.1 Introduction of the Project

1. The Irrigation and Water Resources Management Project (IWRMP) has been initiated to improve productivity of irrigated agriculture and the management of selected irrigation schemes in different agro-ecological regions in the country, primarily to address the food security concerns facing the nation. It adopts a decentralized approach that involves beneficiaries in planning, implementation and sustaining project interventions. The objective is to help increase access to water for the beneficiary farmers, and thereby increase agricultural intensity and productivity while at the same time creating a more efficient system for the management and governance of water resources in Nepal at large.
2. The IWRMP is being implemented by DOI (GoN) under the World Bank financial and technical assistance. It plans do so by undertaking systematic reform measures in irrigation schemes in different agro-ecological regions of the country. The IWRMP envisages overcoming the issues in irrigation through the implementation of four components: Component A addresses the improvement of irrigation facilities in selected FMIS in mountains, hills and Terai areas and development of groundwater irrigation in the Terai; Component B is to improve service performance and service delivery of selected public irrigation schemes in the Terai by completing and consolidating the IMT process; Component C provides strengthening of relevant institutions for water resources management and Component D deals with increase in production, productivity and profitability of irrigated agriculture.
3. Key indicators proposed to measure the achievement of the Project Development Objectives (PDO) of the IWRMP are: increase in productivity of selected (main) crops; increase in cropping intensity; resources raised and O&M expenditures incurred by water user groups; extent of “satisfaction” of water users with the irrigation service delivery; preparation (for government approval and enactment) of an integrated water resources policy and appropriate regulatory framework; and establishment of a national water resource database.
4. The Component B (Irrigation Management Transfer) has an objective to improve service performance and service delivery of selected public irrigation schemes in the Terai through the completion and consolidation of management transfer to WUAs. The component is designed to address the problem of below- capacity performance, poor O&M, negligible cost recovery (below 5% on average) and inadequate maintenance funds in large public irrigation schemes. Component B covers the four large Agency Managed Irrigation Systems (AMISs) of Nepal, namely Kanki, Sunsari Morang, Narayani, and Mahakali. Activities to be financed under this component include (a) Completion/consolidation of Management Transfer Plans(MTP); (b) Essential Structural Improvements (ESI); (c) Repair/ upgradation of buildings, information systems, and transportation and maintenance equipment; and (d) Building capacity of WUAs and DoI. Accordingly, the expected outputs are: (i) Efficient and equitable service delivery by financially and institutionally sustainable WUAs; (ii) Improved physical performance of the selected irrigation schemes; and (iii) Reliable bulk water service delivery by DoI in line with the irrigation Management Transfer (IMT) Agreement.
5. As was noted above, the primary objective of IMT in IWRMP is to improve the productivity of irrigated agriculture in these selected AMISs by ensuring equitable distribution of water at reasonable O&M cost, and by transferring the irrigation service delivery responsibility to the beneficiaries who are organized as WUAs. The ultimate aim is, therefore, to create financially and institutionally strengthened WUAs that can take over the responsibility of management and governance of the systems/sub-systems. This means, it is essentially about institutional capacity development for IMT, putting the right physical and social structures in place. However, the path

1.2 Project Implementation Arrangements

8. The overall responsibilities for implementation and management of the IWRMP rest with DOI, with guidance and assistance from several committees and teams. Project Management is being undertaken by a Project Director with the support from the responsible Senior Divisional Engineer, Sociologist and other engineers including support staffs at the OPD.

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

- 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) **Scheme Coordination Committee (SCC):** Formed in each scheme with representation from line government agencies (DOI and DOA), local government, and WUAs representatives. SCC to be chaired by concerned DOI local unit chief and would meet at least 4 times a year.
 - h) **System Management Unit (SMU):** Takes over responsibilities of IWRMP implementation at scheme level.
 - i) **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.
9. The SCC will be responsible for i) coordination of agriculture production activities of Component D, ii) approving the annual operation and maintenance plans, iii) approving annual budget and user contributions in cash and in kind according to the legal agreement, iv) review annual progress reports, v) overview compliance with agreed actions, and vi) approving M&E reports. SCC shall also recommend actions and sanctions to create social pressure and economic incentives to enforce compliance with agreed water fees at association and individual users' level.
10. A 'Sub-project Management Unit (SMU)' is formed for each of the four AMIS at the system level. The SMUs are the focal point for the IMT activities at the field level and are responsible to

coordinate activities with the WUAs. Water Users' Associations are partner in all stages of the sub project implementation. The composition of this unit is expected to change over the implementation period but essentially includes a Senior Divisional Engineer and/or Engineers, two Junior Engineers and one Association Organizer in each of the four system i.e Kankai, Sunsari Morang, Narayani and Mahakali.

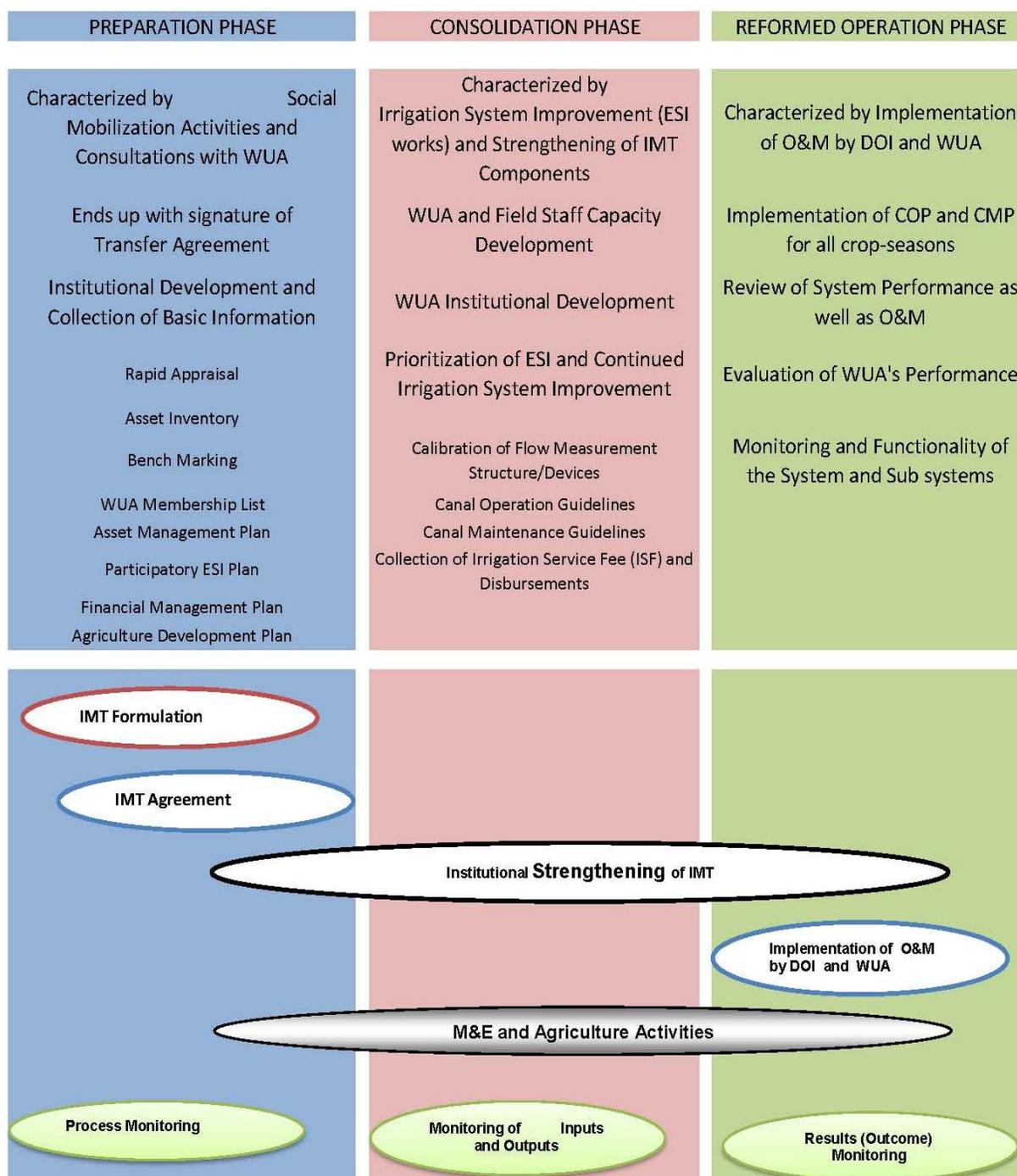
1.3 Project M&E Arrangements

11. As per PAD, the office of the Project Director (OPD) has the overall responsibility for planning and coordinating M&E activities. Under the leadership of Project Director, a central level M&E unit has been established at OPD. The unit has the lead responsibility for development of the relevant formats and software along with data collection, compilation, analysis and reporting at various levels on periodic basis. The unit is expected to report on project implementation progress to PICC on quarterly basis ensuring that a Class III Gazetted Officer has been assigned to assist the PD on M&E activities. In this role, the OPD coordinates M&E activities of the three sets of entities expected to be involved with data collection and analysis:
 - (i) The First Party M&E: Main objective of the First Party M&E is to carry out regular performance tracking of inputs and outputs by concerned implementing departments / agencies, including at the regional and district levels as well as Sub-project Management Unit (SMU) of the respective AMIS. In the case of IWRMP Component 'B', it implies periodic trimester monitoring by the respective SMU, and results based reporting to OPD. The instruments for M&E include Trimester Progress Tracker (**Appendix B**) and Results Based Reporting Formats (**Appendix C** and **Appendix D**).
 - (ii) The Second Party M&E: It implies participatory M&E carried out by beneficiary WUAs with the facilitation and support from the concerned SMU and/or local NGOs/TA Support. The recommended modality involves monitoring by Main WUA Executive Committee using the Trimester Progress Tracker. A more participatory monitoring exercise shall include joint meetings with the representative Branch/Secondary WUA Committees at head, middle and tail end reaches of the system.
 - (iii) The Third Party: an external M&E agency (to be engaged for baseline survey and surveys at mid- point and at completion of project implementation). The Project had employed an external agency for the third party monitoring. The External M&E Support has already submitted the Baseline, Mid Term Review and Pre Completion reports. The methodology employed included household survey (HHs), focus group and group discussions, interviews, review of existing documents etc. These target populations in these studies were the water users (farmers) for the household survey and members of water users' organization. The staffs of Irrigation Development Division Office (IDDO) and line agencies were the key informants for generalization or inferences required for the study. For component 'B', they covered 14 sub-systems under (Kankai-1, Sunsari-Morang-3, Narayani-8, and Mahakali-2). The details are provided in **Appendix E**.
12. The SMUs of the respective AMIS are not only expected to undertake the responsibility of the first party monitoring but also need to facilitate the process of the second party participatory M&E to be undertaken with the beneficiary WUAs. The SCC is responsible oversight body for the first and second party monitoring. Furthermore, 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.

II. APPRECIATION OF THE IRRIGATION MANAGEMENT TRANSFER PROCESS

13. Following the Project Implementation Manual, **the IMT Process** involves five groups of activities organized into three phases of IMT process. The three phases include A) Preparation Phase, B) Consolidation Phase and C) Reformed Action Phase. The five groups of activities towards the irrigation management transfer includes 1. IMT Formulation, 2. IMT Agreement, 3. Institutional strengthening for IMT, 4. Implementation of O&M by DOI and WUA, and 5. Monitoring, Evaluation and Agriculture activities. **Figure 2** below exhibits an indicative placement of five groups of IMT activities into three phases of the IMT process, and a detailed elaboration follows in the ensuing paragraphs.

Figure 2 : Phasing of Activities during the IMT Process



- A. **Preparation Phase** of the transfer consists of IMT Formulation and IMT Agreement that ends up with the signature of the transfer agreement in a SCC meeting.

2.1 IMT Formulation

14. After the selection of the candidate irrigation systems on the basis of scoring, the preparedness of the farmers are to be examined and make them aware and sensitize about IMT and their role and responsibilities. In the meantime, basic information of the system through Rapid Appraisal, preparation of asset inventory of the system, benchmarking of the system, parcellary maps, and list of all WUA members of the system are to be collected. Hence, institutional development and basic information collection should go together for further planning of IMT implementation. If the WUA response is not encouraging, alternative planning is to be prepared at this stage. This might lead to make decision to postpone the implementation of IMT.
15. During this period social mobilization activities are expected to be carried out. A formal Project Kick Off workshop, participated by all the stakeholders, is organized to initiate the IMT process. A brief overview of the IMT process is presented by the OPD and stakeholders' are oriented to their roles and responsibilities. The Kickoff workshop is followed by systematic three landmark consultations with beneficiaries, namely (i) with Main Canal WUA Committee, (ii) with Branch Canal WUA Committees, and (iii) with General Assembly of the WUA. Collection of basic information such as rapid appraisal, WUA member list, asset inventory, parcellary maps and cadastral data information etc. are integrated as part of the institutional development exercises. Office and administrative support could also be extended to the WUAs in accordance with the designed mode and planned objectives. In specific terms preparation of rapid appraisal, bench marking, asset management plan, participatory ESI prioritization, financial management and agriculture development plans are essential prerequisites for the transfer agreement between DOI and WUA.
16. In the first consultation, DOI staff takes initiative to open dialogue with the Central Water Users Committee. The discussion focuses on two documents, a) objectives of IMT and b) draft agreement to be signed between WUA and DOI. Discussion on these documents takes place and provisions are described and interpreted to clarify. Minute of meeting is prepared and attendance is recorded. After the analysis of the documents and suggestions of the first consultation, second consultation is made at secondary level where the representatives of the outlet (sub secondary and tertiary level) committees also participates. This meeting gives opportunity to both DOI representative and secondary canal representatives to further clarify the issues and respective responsibilities. Attendance records and Minute of Meeting with comments, suggestions and commitments are essential documentation of the second consultation. This pave the way for (a) Rapid Appraisal of the System (ii) Asset Inventory Preparation (iii) Benchmarking of the System (iv) WUA Membership List and (v) Parcellary Map Preparation.
17. Subsequently, the third consultation is made with the Central Water Users Committee along with entire water users constituting the General Assembly. General principles of IMT as well as provisions of the agreement are discussed and agreed upon. This way, the spirit of IMT is shared by all members of WUAs. The specific agenda of the third consultation includes, but not limited to the following;
 - Agreement on IMT issues
 - Acceptance to take responsibility of O&M below main canal
 - Acceptance to collect ISF collection required for O&M below main canal
 - Amendment and approval of the WUA Constitution
 - WUA formation at all levels

- Consultation at all levels
 - Cost sharing basic for Essential Structure Improvement (ESI)
18. Specific responsibility of the DOI at the stage of IMT formulation can be outlined as follows;
- a. Rapid Appraisal Report is prepared and information is shared among the WUA members and DOI staff in charge of project implementation.
 - b. Bench marking Study Report is prepared and shared with WUA and project staff
 - c. Asset Management Plan is discussed with WUA members and DOI project staff. Acceptance is sought for the implementation of Asset Management Plan both by WUA and DOI project Staff. The Asset Management Plan will include the following documents and information as;
 - Asset Inventory
 - Updated list of beneficiary farmers and their land holdings or parcellary maps.
 - Operation and Maintenance Plan.
 - Essential Structural Improvement Plan preparation to bring the system into functional state.
 - Review on institutional part, roles and responsibilities of WUA and DoI, procedures and financial management Plan.
 - Based on the resources in hand and potential resource mobilization, **Financial Management Plan** for WUA is prepared and made available to WUA members.
 - **Participatory Essential Structure Improvement Plan** in collaboration with WUA is to be prepared and agreed for implementation. This ESI Plan is to be based on Asset Management Plan.
 - **Agriculture Development Plan** for the implementation in future is to be prepared so that the WUA members as well as DOI project staff are aware of the Agriculture Development activities under Integrated Crop Water Management component in that irrigation system.

2.2 IMT Agreement

19. The General Principles of agreement between the farmers WUA and the DOI include the followings;
- 1. The main canal and the headwork shall be the responsibility of the DOI field office. The farmers take responsibility of operation, maintenance and management of the canals and structures below main canal like secondary and tertiary canals.
 - 2. The DOI field office makes sure the delivery of assigned quantity of water at secondary canal and distribution of water within secondary will be the responsibility of the secondary canal WUA
 - 3. The maintenance responsibility of the main canal and the headwork will be the responsibility of the DOI and secondary and below will be the responsibility of the Secondary canal WUA
 - 4. The improvement of the infrastructures for water delivery and management will be undertaken with joint consultation. After this initial improvement, the maintenance and management of the infrastructure will be the responsibility of the WUAs of the secondary.
 - 5. The resource mobilization for the maintenance of the secondary and below will be the responsibility of the secondary level WUA.

6. The service fee collected now might be very low and they have to collect more in order to have proper maintenance of the canals below secondary. The WUAs have to take the responsibility of increasing the water fee rate and collect them strictly.
 7. Failure to meet the terms and conditions on both parts will be the subject to punishment. The punishment procedures are to be spelled out by both parties.
 8. An initial fund will be provided to the WUA to support the office establishment and operation of the day to day logistic supports as employing office assistance, support staff, gate operators, and other establishment expenditures. The modality of the payments will be made in consultation with the DOI and WUA joint meetings. It will be reflected in the Management Transfer Agreement.\
20. The Specific Items for Agreement between DOI and WUA shall include the followings;
- System and level for IMT
 - WUA role and status
 - Canal operation procedure & documentation of roles and responsibilities
 - Responsibilities of DOI
 - ISF fixation and collection
 - WUA capacity development
 - Inventory of Asset of the System
 - Participatory estimates of ESI
 - Resource mobilization (cost sharing basis)
 - Termination of agreement
21. **B) Consolidation Phase:** usually consists of the 3 year period when ESI activities and other commitments stated in the legal transfer agreement are programmed to be met. Construction units for ESI works need to be established and arrangement for procurement of equipment, training and M&E programs need to be provided. Some of the recommended activities during the phase of consolidation include a) WUA and Field Staff Capacity Development, b) WUA Institutional Development, c) Prioritization of ESI and continued irrigation system improvement, d) Calibration of device and flow measurement at different level, e) Canal Operation and Canal Maintenance Guidelines.

2.3 Institutional strengthening for IMT

22. Training needs of the WUA, farmers, and field staff should be prepared based on the field-based problem solving type. The skills of the WUA members and field staffs are to be enhanced through training. Capacity building of WUA and field staffs could be carried out in the following fields:
- a) **WUA and Field Staff capacity development.**
 - o Review of the objectives of IMT program.
 - o Reassessment of the Process of consultation and promotion of farmer's participation in the irrigation management transfer.
 - o About the Management Transfer Agreement and Bye Laws of WUA's.
 - o Water management and distribution methods.
 - o Awareness regarding the responsibility of farmers and WUA's after taking over.

- Account keeping for kinds of contribution including labor, material and cash resources of WUAs.
- Operation and Maintenance regarding their system or sub-system.

b) WUA Institutional development

- WUA of all level in place by election
- Constitution Adoption
- Registration of WUA
- Organizational capacity improvement
- Leadership at different levels
- Rules & Regulations of the WUA
- WUA recording system
- Effective planning, implementation & monitoring.
- Operational Plan Implementation
- Financial Management Plan Implementation
- Maintenance Plan implementation
- Implementation of water distribution Schedule
- Agriculture Plan Implementation

c) Prioritization of ESI through WUA Participation

23. It is desirable that walk through of the system should be carried out jointly by the field level engineers, sociologist and the WUA's personnel particularly in the problem areas. The walk through process will indicate the inventory of the Essential Structure Improvement (ESI) of the system and sub-systems. The works for the improvement will be prioritized by the WUA's in their meetings. The system manager will then prepare the Improvement Plan.

d) Irrigation System Improvement Works

24. The construction works for the improvement plan should be divided into two parts as i) WUA Contribution Package (through 10% contribution from the farmers for ESI works), and ii) WUA Payable Package (as contract package of value up to Rs. 6 million directly awarded to WUA by the DOI without the bidding process). A construction committee is formed comprising of the WUAs/ farmers and technician from the system office. They supervise the quality control of the construction works. Generally, the structural complex works are contracted to the professional contractors. So the construction committee members should supervise both the contribution part of WUAs as well as contractor's work. Complex construction of the structures should be supervised directly by the engineer and sub engineer of the system office.

2.4 Preparation for O&M of the Transferred System

25. With the support of TA, the DOI project staff prepares Canal Operation Guidelines, Maintenance Guidelines and Financial Management Plan for the WUA.

a) Flow Measurement at Different levels

26. The project staff with assistance from the TA team will carry out hydraulic analysis and diagnosis of the system, and optimize its water distribution with the available water resources

and the irrigation area coverage by preparing a water management plan. The operational schedules for water delivery will be planned for the three distinct seasons as Summer, Winter, and Spring and it will be oriented and trained to the field staff and WUA members/ gate operators for efficient and equitable water distribution. The TA team in consultation with field staff and WUAs will carry out the flow measurements.

b) Canal Operation Guidelines.

27. It is proposed to prepare a guideline on the canal operation of the systems for summer, winter, and spring seasons, which will be applied by the WUA and WUGs in the event of scarcity as well as abundant water resources available in the river. Sometimes the conveyance systems are not capable to carry desired discharge. It is recommended that a water management expert should evaluate and prepare the water allocation plan to the canal systems taking consideration of the WUA's requirement as well as hydraulic consideration. The hydraulic status of the system should be communicated to WUA through training as well as mass communication.

c) Canal Maintenance Guidelines.

28. It is proposed to prepare maintenance guidelines for the system, indicating the types of maintenance as regular, deferred, and emergency. The timings of the maintenance works should be considered according to their cropping pattern and calendar. The training material prepared by Irrigation Management Division of DOI is available in the department for reference. These training materials could be adjusted to suit the system maintenance plan of the desired system. The maintenance plan and methods also should be oriented to the WUAs, The active members should take the responsibility to disseminate it for others after the takeover of the system. The WUA members require training during this implementation phase for the canal operation and water management as well as maintenance of the system.
29. WUA takes responsibility of maintenance of its jurisdiction according to the guidelines. It takes responsibility of implementation of secondary and tertiary canals based on operational guidelines. WUA through decentralized collection system should collect Irrigation Service Fee and use them for operation and maintenance of the system.
30. **C) Reformed Operation Phase:** when the irrigation system operates in a new normal state with DoI scheme local offices operating with redefined structure and responsibilities. Overhead expenses of the local offices are significantly curtailed as use of permanent staff are discouraged for reformed operation. Implementation and review of reformed operation and maintenance guided by their respective canal operation and maintenance plans are the essential activity of this phase. Monitoring the functionality of the system and sub system as well as evaluation of WUA performance are the key activities of this phase. Besides, it is expected that WUAs Financial Management Plan including collection of ISF along with Agricultural Development Plan will be implemented at full scale.

2.5 Monitoring, Evaluation and Agriculture activities

a) Monitoring the Functionality of the System and Sub-system.

31. Monitoring and evaluation of the functionality of the system and the WUA should be carried out regularly by the system office. This will help check the fast deterioration of the system due to negligence. The organization could be assisted further, and rewarded if they are functioning very well as envisaged. The status of the system performances must be recorded in the office as a regular works. Assistancess to WUA will be required during their operation and maintenance activities. Especially structural damages due to flood or other events needs engineering design consideration, which is beyond the capability of WUA, so system office must assist in such technical problems.

b) Evaluation of WUA Performance

32. Based on WUA activities, the performance evaluation of WUA takes place. Different parameters will be identified and evaluation will be undertaken on those parameters. Examples of parameters to carry out evaluation of WUAs performances are organizational indicators like regular meetings, minutes of meetings, record keeping, attendance record, General Assembly meetings, frequency of meetings, book keeping, Irrigation Service Fee (ISF) collection, conflict resolutions, etc.

c) Review of the system Operation and Maintenance

33. The evaluation of the system performances from the Benchmarking tool kit will illustrate the weakness in the system. These can be rectified and improved the system performances. Improvements could be made in water delivery, income per hectare cultivated land, delivery efficiency etc.

At the same time, the system office could conduct the Benchmarking survey of the system. The Benchmarking will do diagnosis of the system performance using the BM toolkit. Appropriate indicators as applied in benchmarking for basic information collection could be applied here for comparison.

It is desirable that these procedural guidelines are discussed among the stakeholders and help identify effective procedures to be applied for the transfer process. The success of the transfer process and taking over by the farmers WUAs depends on the social dynamics of the beneficiaries. The social dynamics part is to be carefully understood. Therefore, it is with great caution that the transfer process on irrigation management needs to be implemented. The degree of the efforts to make the farmers aware on the role of the Operation and Maintenance of the system would decide the sustainability of the system.

III. APPRECIATION OF M&E INDICATORS AND RECOMMENDATIONS

34. The overall project outcomes are associated with the two project development objectives; namely

P.1. Improved Irrigated Agriculture Productivity , and

P.2. Improved scheme management of the transferred irrigation systems.

The results framework as prescribed in the Project Appraisal Document (re: Annex 3), provides indicators associated with (A) the overall project outcomes and (B) the intermediate outcomes specific to Component B. These indicators are reproduced in **Box 1**.

Box 1: IWRMP Component B - Results Based Monitoring Indicators

A) Project Outcome Indicators

1. Improved irrigated agricultural productivity:
 - % Increase in productivity of selected crops (rice, wheat, maize and potato)
 - % Increase in cropping intensity
2. Improved irrigation scheme management:
 - No. and % of WUAs in transferred irrigation schemes whose Operation and Maintenance (O&M) expenditures is as per agreed Asset Management plans
 - % of water users in rehabilitated irrigation schemes satisfied with WUAs.

B) Intermediate Outcome Indicators - Component B: IMT.

1. Improved Water Delivery (improved physical performance of transferred irrigation system)
 - % of tail- enders reporting improved water availability (relative to baseline)
2. Improved Water Management (improved bulk water service delivery by DOI to WUAs as per IMT Agreement)
 - % of delivery points receiving proportionate share of water
 - Adequate O&M expenditures by DOI and WUA according to agreed Asset Management Plan. (specify no. of schemes wrt total schemes)
3. WUAs: Financially & Institutionally sustainable WUAs
 - No. of WUAs holding regular meetings
 - No. of WUAs collecting water charges required for adequate O&M
 - No. of WUAs maintaining appropriate accounts and cash registers

3.1 Project Outcome Indicators

35. With respect to the first of the two project development objectives of improved agriculture productivity, the two project outcome indicators prescribed by PAD namely (a) yields of paddy, wheat, maize, and potato along with (b) the cropping intensity seems to be adequate and appropriate. These objectively verifiable indicators in terms of productivity of selected crops and cropping intensity are universally adopted, and the system of collection and publication of database to this regard is well established.

On the other hand, one proxy and qualitative indicator each are used for the second development objective i.e. to reflect Improved irrigation scheme management. The underlying assumption behind the first indicator in this regard emphasizes institutionalization of the process of O&M expenditures by the WUAs. It is pertinent to note that the process involves (i) preparation of annual O&M budget that is guided by the Asset Management Plan (AMP) and (ii)

mobilization of sufficient resources (ISF) by the WUAs to meet the annual O&M budget requirements. Considering the complexities associated with the process, it is unlikely that any WUA will achieve hundred percent compliance. Thus, it would be more appropriate to lower the standard of compliance to a value which is significant say "80 percent". Furthermore, in case of the qualitative indicator for the assessment of "Users ' Satisfaction", it is recommended that data collection be disaggregated for upper, middle and tail portion of the system so as to help reduce the prejudiced errors.

36. Accordingly, the modified indicators to assess the second project development objective of improved irrigation management includes the followings;
- *P2.1 Number of transferred pilot schemes (including block/stage level subsystems) that have incurred (significant; say 80%) O&M expenditures as per agreed Annual Maintenance Budget/ Asset Management Plan.*
 - *P2.2a. Level of Users' Satisfaction (Excellent/Good/Poor) with WUA's O&M performance in upper-end of rehabilitated irrigation schemes.*
 - *P2.2b. Level of Users' Satisfaction (Excellent/Good/Poor) with WUA's O&M performance in middle-portion of rehabilitated irrigation schemes.*
 - *P2.2c. Level of Users' Satisfaction (Excellent/Good/Poor) with WUA's O&M performance in tail-end of rehabilitated irrigation schemes.*

3.2 Intermediate Outcome Indicators specific to Component B (IMT)

37. The intermediate project outcomes specific to the Component B are directly linked to the second project development objective. They are associated with i) improved water delivery owing to improved physical performance of the system, ii) improved water management for equitable and just distribution of water to all and iii) financially and institutionally sustainable WUAs,

The ESI works are primarily meant to improve the physical performance of the system leading to improved water delivery through prioritized repair and rehabilitation interventions. Though the PAD has specified only one indicator to reflect the improved physical performance, it is recommended to add two more supplementary indicators as given below. It is pertinent to note that both of these added indicators reflect effort towards prioritization and implementation of ESI component.

- *B1 Percentage of tail-enders reporting improved water availability*
 - *B1.1 Percentage of essential structures actually improved under ESI component wrt appropriately identified (re: AMP) and prioritized through participation of beneficiaries.*
 - *B1.2 Level of Users' Satisfaction (Excellent/Good/Poor) wrt prioritization and implementation of ESI component by DOI.*
38. Considering that the assured bulk water delivery by DOI to WUAs is the first and foremost clause of the IMT Agreement, the indicator to this regard has to be essentially included. Furthermore, the Agreement also specify that the WUAs take responsibility of operation, maintenance and management of the canals and structures below main canal like secondary and tertiary canals. Thus, it is equally important that bulk water received in the secondary canals by the WUA is ultimately distributed to the field equitably. Thus, percentage of delivery points receiving proportionate share of water has to be assessed both in terms of (i) bulk water delivered by DOI to WUA, and (ii) water distributed by WUA to water users. Similarly, the O&M

expenditure as mentioned in P2.1 need to be disaggregated in terms of actual expenditure by DoI and WUAs.

- *B2.1.1 Percentage of delivery points (from main to branch/sub branch) that receive their proportionate share of water e.g. bulk water delivered by DOI to transferred systems*
- *B2.1.2 Percentage of delivery points (from branch/sub-branch canal outlets to sub branch/tertiary canals) that receive their proportionate share of water.*
- *B2.2.1 Adequate O&M expenditures by DOI according to agreed Asset Management Plan. (No. of pilot schemes out of 7 selected schemes)*
- *B2.2.2 Adequate O&M expenditures by WUAs according to agreed Asset Management Plan. (specify no. of pilot schemes that complied wrt total pilot schemes).*

39. As the WUAs are the main vehicles for the irrigation management transfer process, it is imperative that the success of the IMT is very much contingent on the institutional strength and sustainability of the WUAs. Similarly, the financial sustainability of WUA is contingent on their effort to institutionalize the mechanism for ISF collection, which in turn requires that rate of ISF is based on extent of resource to be mobilized to meet the annual O&M budget requirements. The three indicators as prescribed by PAD to this regards have been disaggregated further to evaluate the sustainability of not only the main committees but the branch committees as well. Thus, the following six indicators shall be monitored and evaluated in a holistic manner to reflect the financial and institutional sustainability of the WUA.

- *B3.1.1 No. of WUAs (Main WUA) holding regular meetings (at least once in a month)*
- *B3.1.2 Percent of WUAs (Branch Committees) holding regular meetings (at least once in a month)*
- *B3.2.1 No. of WUAs (Main Committees) collecting water charges required for adequate O&M (as ISF following Asset Management Plan/ Annual O&M Budget).*
- *B3.2.2 Percent of agreed (committed) amount collected by WUA for O&M as ISF following Asset Management Plan/ Annual O&M Budget).*
- *B3.3.1 No. of WUAs (Main Committees) that maintains appropriate accounts and cash register (accounts audited this year).*
- *B3.3.2 Percent of WUAs (Branch Committees) that maintains appropriate accounts and cash register.*

40. The Results Framework, covering the Additional Financing to IWRMP Component B is presented in **Appendix A**. It includes additional indicators that have been recommended to be included as above as well as the original baseline and target values as appropriate.

IV. GUIDELINES FOR M&E DATA COLLECTION AND COMPILATION

4.1 General

41. The IMT Process involves five groups of activities organized into three phases of IMT processes as elaborated in Section II. These phases include A) Preparation Phase, B) Consolidation Phase and C) Reformed Action Phase. The five groups of activities towards the IMT includes i) IMT Formulation; ii) IMT Agreement; iii) Institutional strengthening for IMT; iv) Implementation of O&M by DOI and WUA; and v) Monitoring, Evaluation and Agriculture activities. The results framework, as prescribed by PAD (**Appendix A**), requires monitoring against project outcome indicators and intermediate outcome indicators. A trimester progress tracker, as presented in **Appendix B**, has been developed that outlines the checklist of requisite activities and processes towards the irrigation management transfer and also facilitates tracking of inputs and outputs by collection of data and information to be eventually processed with regards to project outcome and intermediate outcome indicators included in the results framework.

4.2 Guidelines for Information Collection on IMT Formulation and Agreement

42. **IMT Formulation** : IMT formulation requires three consultations with the WUA and nine main preparatory activities in the form of collection of basic information such as WUA member list, asset inventory as well as rapid appraisal, bench marking, asset management, resource and funding management plan and parcellary map preparation. The steps must be taken in order because they build upon one another. After the selection of the irrigation systems, the preparedness of the farmers is to be examined and make them aware and sensitize about IMT and their role and responsibilities. Institutional development and basic information collection should go together for further planning of IMT implementation. (refer **Section 2.1**). The progress tracker basically attempts to ensure whether the outlined consultations have been duly carried out properly in due time. In the process of M&E it is presumed that all the relevant reports and documents have been duly collected and reviewed.
43. **IMT Agreement** : A formal agreement with the WUA by clearly defining the functions, duties and rights of the Department of Irrigation and the WUA by adopting a transparent method in relation to construction, operation and management of the project. Though the Trimester Progress Tracker only requires the date of IMT agreement, It is presumed that the specific Agreement document is appropriately reviewed with respect to basic ingredients as mentioned in **Section 2.2**.

4.3 Guidelines for Information Collection on Institutional Strengthening for IMT

44. The institutional strengthening activities are the core or sort of spinal cord of the IMT process. It spans over all the three phases namely preparation, consolidation and reformed action phases (refer **Figure 2**), and is a continuous process. Section 2.3 is referred to for detailed elaboration on the capacity enhancement activities for WUA members and the concerned Government staffs involved in the process. The M&E of Institutional Strengthening for IMT involves the following;
- Collection of basic information on WUA includes (i) No. of executives in the Main Executive Committee disaggregated by sex, (ii) Nos. of all the Branch/Block committees within the Main WUA as well as total Tertiary committees, and (iii) the total no. of executives in all the respective committees.
 - The financial and physical progress of (a) WUA Contribution Contract Package and (b) WUA Payable Contract Package are monitored to assess the organizational capacity of the WUA towards resource mobilization and execution of the construction works (**refer section 2.3d**).

- The Irrigation Service Fee (ISF) is collected by WUA for O&M from the beneficiaries against irrigation water service as per rate approved by the AGM corresponding to the annual O&M budget. This budget consists of amount to be spent by WUA and the contribution from DoI for O&M. It is pertinent to note that as per IMT agreement WUA is not expected to bear all the O&M cost on their own in the initial years, rather contribution from DoI is expected to be predominant. However, the contribution from DoI is gradually expected to be reduced and that from WUA is increased. Thus, the rate of ISF is proportionally adjusted to meet the increased contribution from WUA for O&M. Over the years, it is expected that an institutionalized WUA bears the entire O&M cost on their own. The Tracker requires the rate of ISF as approved by AGM for the current year in NRs./ha or NRs./ ha/ crop as well as the ultimate rate corresponding to 100% O&M as recommended in the IMT agreement have to be recorded. Finally, amount spent by the WUA for O&M from the amount collected through ISF and proportion (progress) of this amount to the total annual budget has to be recorded.
 - A more institutionalized organization meets more frequently. Accordingly, it is expected the WUA Main Committee meets once in a month and its sub ordinate Branch Committees also follow the suit. Therefore, the number of monthly meetings conducted by WUA Main and Branch committees has to be recorded. Likewise, the General Assembly meeting is to be convened by Main WUA at least once a year and has to be recorded.
 - A more institutionalized organization operates bank accounts and does its financial audit annually. Thus, it is expected the WUA Main Committee operates bank accounts as well as carries out its financial audit annually. And its sub ordinate Branch Committees also follow the suit such as operation of bank accounts. And the entire financial activities conducted by the Main WUA and its sub ordinate have to be recorded.
45. Trainings on the required topics need to be conducted on regular basis / or demand basis / or as applicable for upgrading the capacity of WUA members for O & M of the system (refer **Section 2.3**). The training shall focus to solve the field based problems faced by the WUA members. Trainings as well as study and observation tours conducted for them have to be recorded and monitored. The Tracker outlines training topics grouped into five categories as follows:
- a. Awareness and Skill Enhancement**
 - Orientation workshop on IMTP to beneficiary farmers / members of main, branch & TC
 - Computer Trainings to members/staff of Main WUA
 - Gender awareness & women's participation & Income generation of women members
 - TOT Training
 - b. Technical**
 - Orientation to COP (Water Distribution Schedule)
 - WUA Asset Management Skill Enhancement & Water Management and Irrigation Service Delivery
 - Orientation to CMP (maintenance schedule)
 - Construction management & quality control
 - c. Capacity / Leadership Development**
 - Leadership development
 - Participatory monitoring and evaluation
 - d. Resource Mobilization/Management**
 - Resource mobilization/management of WUA - secretary and treasurers
 - Office and account management to secretary of branch and tertiary committee
 - ISF collection and management to members of TCs

- Account record keeping and management to treasurers of BC/TC

e. Agricultural Productivity

- Off season vegetables farming
- Training on fertilizer management

In addition to the above, study and observation tours for WUA members shall be made as applicable to enhance the capacity of the WUA members.

46. Similarly in order to enhance the capacity of SMU Staffs (DoI) towards IMT, the Tracker outlines following topics grouped into four categories:

a. Awareness and Skill Enhancement

- Orientation workshop on IMTP

b. Technical

- Flow Measurement Structures calibration training
- Orientation to Canal Operation Plan (COP) for SMU/DOI staff
- SEMP preparation and review
- Orientation to Canal Maintenance Plan (COP) for DOI staff/SMU
- Parcellary map preparation & review training

c. Capacity / Leadership Development

- Capacity development

d. Monitoring and Evaluation

- Participatory monitoring and evaluation

4.4 Guidelines for Information Collection on Construction Progress

47. Prioritization of ESI through WUA Participation is discussed in **Section 2.3d**. And accordingly, the construction of Essential Structures Improvement has to be made to improve the physical performance of the system leading to improved water delivery through prioritized repair and rehabilitation. (refer **Section 3.2**)

The Tracker requires that the total and respective nos. of ESI under the Main Canal, Branch Canal, and Tertiary Canal shall be indentified based on target made in the IMT Agreement and Asset Management Plan. And accordingly, data on actual nos. of completed ESI have to be collected from the field (Measurement Books) and fulfillment of the defined target need to be assessed.

The Tracker also requires assessment of financial progress wrt all contract packages¹ (WB Funded and GoN Funded). The package wise Contract Cost of ESI Works shall be collected and the Financial Progress be assessed.

4.5 Guidelines for Information Collection on Water Management Operations

48. Preparation for O&M operations consist of calibration of flow measurement structures, canal operation and maintenance guidelines (COP & CMP) as well as institutionalization of ISF collection. (refer **Figure 2**). These activities form the basis of Consolidation Phase and

¹ Two Contract Packages expected to be undertaken by WUA, namely WUA Payable and WUA Contribution Packages are monitored (refer **Section 4.3**) to assess the institutional capacity of WUA.

essentially required before embarking upon the Reform Operation Phase. Evidently these activities are carried out along the sides of institutional development and ESI Works.

One of the basic essences of the IMT concept is that the agency (DoI) delivers measured water to WUA as per agreed seasonal schedule following the IMT agreement. Similarly, the Main WUA Committee delivers water to its sub ordinate organs in due time and right quantity. This requires calibration of all the water distribution structures. Accordingly, the Tracker requires that i) whether the system has all the outlet structures in place; and ii) How many of them are calibrated and gauged to ensure measured supply.

Besides, following the preparation of seasonal water distribution schedule for Paddy, Wheat and Spring Crops, it is important to assess whether they have been actually implemented? The Tracker requires that a brief assessment of its preparation and implementation be recorded as remarks in the prescribed space.

4.6 Guidelines for Information Collection on System Performance and Agricultural Productivity

49. Monitoring of the Reformed Operational Phase consists of i) Assessment of the System Performance; and ii) User Satisfaction and iii) Agriculture Productivity. (refer **Section 2.4**)
50. System Performance Measures are developed to analysis of irrigation water delivery systems in terms of adequacy, efficiency, reliability and equity of water delivery. The measures provide a quantitative assessment not only of overall the system performance, but also of contributions to performance from the structural and management components of the system.

Spatial and temporal distributions of required, scheduled, deliverable, and delivered water are used to calculate the performance measures. These variables may be estimated by a combination of field measurement and hydraulics simulation techniques. The performance measures can be incorporated in an irrigation system monitoring program and can provide a framework for assessing system improvement alternatives. They are amenable to decomposition analysis of systems, allowing assessment of trends in performance among distinctly defined comparison of performance at different levels of system network hierarchy.

The system performance is evaluated both quantitatively and qualitatively. (refer Section 2.5). Data/information on i) whether WUA maintains the system as per the plan; ii) Whether WUA delivers water according to seasonal schedule; and iii) Whether DOI delivers bulk water following the agreed COP shall be collected. These collected data have to be assessed and marked as Excellent, Good and Poor.

The data on baseline, target and current status of i) Water delivery at main canal outlets and ii) Water delivery at all branch canal outlets are to be collected. The unit of water delivery shall be in m³/sec. Likewise, data on no. of delivery points receiving proportionate share of water (% of total) shall be collected. In addition, data on % of tail-enders receiving improved water availability is to be collected. These collected data has to be assessed in respect to baseline, target and current data.

These data / following information are suggested to collect from concerned WUA-executives & members, AO-AE-SE of IDO through group discussion, interview, field observation and existing documents.

51. The satisfaction level between before and after the performance of irrigation system could assess the user satisfaction. Similarly User Satisfaction is in terms of three parameters i.e. i) Prioritization and implementation of ESI by DOI, ii) Quantity of water delivery, and iii) Timeliness of Water Delivery at the upper end (head), middle and tail end of a canal in the system. The

data collected on the said parameters shall be assessed on the basis of judgment and ranked as Excellent, Good and Poor.

52. Data on baseline, target and current status of agricultural productivity of Paddy (Monsoon), Maize, Wheat, Potato, Vegetables (Cabbage, Cauliflower), Mustard, and others are suggested to collect from the Crop Cut Survey Report/DADO/IDD/IDSD by using the Tracker. The unit of productivity shall be in t/ha. Based on the collected data, Average Cropping Intensity shall be calculated. In addition, the percentage of farmers adopting demonstrated techniques shall be assessed.

4.7 Guidelines for Information Collection on Access to Poor

53. Data / information on i) nos. of Women's involvement in different activities (Baseline and Current Data on involvement in cultivation activities/ Self help group/ Employment/ Decision making activity etc.), ii) % of poor farmer in Command Area (CA) and iii) Nos. of Poor Household Beneficiary Numbers in CA have to be collected. The collected data shall be assessed to find out level of access of poor in the system.

4.8 Collection of Data/Information

54. The Tracker shall be used to collect the required data/information for the further analysis from various sources discussed in **Table 2**.

Table 2: 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"> Productivity Cropping intensity 	Crop Cut Survey Data from DOA and/or AMIS	Focus group discussion, interviews, existing documents
b.	Scheme Management		
	<ul style="list-style-type: none"> O&M expenditure as per agreed Asset Management Plan Water users satisfied with-WUA O&M 	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"> Improved availability at tail end 	Tail end farmers\ house holds	Group discussion
	<ul style="list-style-type: none"> Delivery points receiving proportional share Adequate O&M expenditure 	Concerned WUA-executives & members, AO-AE-SE of IDO	Interview, group discussion field observation
b.	Institutional and Financial (WUA)		

<ul style="list-style-type: none"> • WUAs formally constituted • WUAs collecting water charges • WUAs maintaining accounts & cash • Registers 	<p>Concerned WUA – executives, Association Organizer, ID Or</p> <p>Concerned farmer leader handling water distribution and management</p>	<p>Interview, group discussion, observation at WUA office, and existing documents & reports</p>
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55. **Table 3** presented below indicates the Responsibility Matrix to collect the data/information for the Tracker.

Table 3 : Responsibility Matrix to collect the data/information

S. No.	Descriptions	Responsibilities	
		SMU	WUA
1	IMT FORMULATION		
1.1	Consultation with Main WUA on IMT Objectives	•	
1.2	Consultation with Branch/Block WUA committees & outlet representatives to seek Users' Commitments	•	
1.3	Consultation with GA (General Assembly) of Users to seek acceptance of provisions in the drafted IMT Agreement	•	
2	INSTITUTIONAL STRENGTHENING for IMT		
2.1	Information on WUA - Main and Block/Branch /Tertiary Committees		
	Progress of WUA Contribution Package (Construction work package with 10% of total ESI works contrib.)	•	
	Progress of WUA Payable Package (Construction work package executed through WUA)	•	
	Collection of ISF by WUA as per Rate approved by the AGM	•	
	Rate @ NRs. Per Ha.	•	
	Rate as % of Ultimate	•	
	Percent of Amount (ISF) Spent by WUA for O&M wrt total annual budget.		•
	WUA meetings held regularly (Main WUA and Branch WUAs=		•
	WUA (Main & Branch Committees) operates Bank Accounts and maintains records (debit/credit)		•
	Trainings provided to WUA	•	
	Trainings provided to SMU staff	•	
3	Construction Progress		
	Construction of Essential Structures and Works under ESI	•	
4	IMT O&M PREPARATION		
	Calibration & Gauging for Bulk Water Delivery Structures/Points	•	
	No. of outlet structures for bulk delivery?	•	
	No. of structures Calibrated/ Gauzed	•	
	Whether rate of ISF matches the annual maintenance budget?	•	
5	SYSTEM PERFORMANCE		
	Whether WUA maintains the system per O&M plan? O&M Plan doesn't exist.		•

S. No.	Descriptions	Responsibilities	
		SMU	WUA
	Water delivery at main canal outlets		•
	Water delivery at all branch canal outlets		•
	No. of delivery points receiving proportionate share of water (% of total)		•
	% of tail-enders reporting improved water availability		•
6	USER SATISFACTION		
	Performance Area		
	Prioritization and implementation of ESI by DOI		•
	Quantity of water delivery		•
	Timeliness of water delivery		•
7	PRODUCTIVITY (As per crop cut survey Report/DADO/IDD/IDSD) - Reference Year:		
	Paddy	•	
	Maize	•	
	Wheat	•	
	Potato	•	
	Vegetables	•	
	Other crops	•	
	Average Cropping Intensity	•	
	% of farmers adopting demonstrated techniques	•	
8	ACCESS TO POOR		
	Women's involvement in different activities: Baseline and Current Data on involvement in cultivation activities/ Self help group/ Employment/ Decision making activity etc.:	•	
	% of poor farmer in Command Area (CA)	•	
	Poor Household Beneficiary Numbers in CA	•	

Legend:

- Stands for Main Responsibility

V. GUIDELINES FOR REPORTING M&E INFORMATION

56. The transfer of management to the WUAs means turning over governance in terms of management, operations and maintenance responsibilities of the relevant portions of the irrigation systems. The DOI shall continue to operate and maintain the headworks, desilting basins and, in most cases, main canals and head regulators. The WUAs shall operate and maintain the transferred portions of the systems and related assets as per the legal transfer agreement guidelines.
57. **Monitoring** : Monitoring is the process of keeping track of progress on a continuous and / or periodic basis by management at different levels of an institutional hierarchy, or the individual or agency entrusted by the management to scrutinize whether the inputs and resources meant for the implementation of plans, policies, programmes and projects are being properly delivered. Furthermore, the role of monitoring is to verify whether the project activities are being implemented and whether or not the intended outputs are being achieved in accordance with the plan. The following aspects are analyzed in the process of monitoring of plans, policies, programmes and projects:
- Resources are available to and used by the constituent units within the limits of an authorized budget and stipulated timeframe.
 - Expected outputs are achieved in a timely and cost-effective manner.
 - Level of implementation capacity
 - Problems and constraints are being faced and kind of remedial measures are called for.

During monitoring, data and information on the above mentioned aspects are to be collected, processed and reported in a continuous, systematic, and time-bound manner. This helps identify problems and initiate corrective measures before it is too late.

58. **Evaluation** : Evaluation is a systematic and purposeful undertaking carried out by the internal or external evaluators to appraise the relevance, efficiency, effectiveness of, as well as the impacts and sustainability generated by the plans, policies, programmes and projects under implementation. The main objective of evaluation is to draw lessons from the strengths and weaknesses experienced in the implementation of plans, policies, programmes and projects so as to improve their design and implementation in the future as well as to hold the officials and agencies involved in the process accountable for its implementation and results.

The primary objective of IMT in IWRMP is to improve the productivity of irrigated agriculture in these selected AMISs by ensuring equitable distribution of water at reasonable O&M cost, and by transferring the irrigation service delivery responsibility to the beneficiaries who are organized as WUAs. The ultimate aim is to create financially and institutionally strengthened WUAs that can take over the responsibility of the management and governance of the systems / sub-systems. During the process, WUAs entails the completion of several processes of intervention to create enabling environments to take over the systems. These include completion / consolidation of Management Transfer Plan, improvement in the physical structures of the irrigation schemes, capacity building for institutional development, and irrigation system improvement.

The Component B is presently working with four legally empowered WUAs that are responsible for the O&M of four existing sub-systems within the four AMISs. These four pilot subsystems, as discussed below, covers about 23,100 ha., and were selected on the basis of condition of

infrastructure, receptive user organizations and relatively favorable socio- political environment. The Summary of the Irrigation System is presented **Appendix F**.

59. The Result Framework and Monitoring Format (presented below) provided by the World Bank is used for the data compilation and presentation. Two levels of reporting have to be made and include i) Reporting from SMU to OPD and ii) OPD (MIS) to the WB Mission /DOI/ Ministry.

- i) SMU to OPD: SMU shall collect data / information in Trimester Progress Tracker from First Party M&E and Second Party M&E and analyze the collected data and compile in Format for Results Based M&E Reporting to OPD.
- ii) OPD (MIS) to WB Mission / DOI/ Ministry: OPD shall analyze and summarize the data of all four AMISs submitted by the respective SMU in the same format i.e. Format for Results Based M&E Reporting and report to WB Mission / DOI / Ministry of Irrigation and concerned agencies for their review and timely feedback.

The Format for Results Based M&E Reporting requires various data linked with the Trimester Progress Tracker and details are presented in table below:

Table 4 : Linkage of Format for Results Based M&E Reporting with the Trimester Progress Tracker

Format for Results Based M&E Reporting		Trimester Progress Tracker
Project Development Objective	Project Outcome Indicators	
P.1. Improved Irrigated Agriculture Productivity	P1.1a. Productivity of Paddy	Main Source of Agriculture Productivity : Component D Secondary Source – SMU & WUAs (Field)
	P1.1b. Productivity of Wheat	
	P1.1c. Productivity of Maize	
	P1.1d. Productivity of Potato	
	P1.2. Average Cropping Intensity	
P.2. Improved Scheme Management of the Selected Irrigation Systems	P2.1 Number of WUAs that have incurred (significant; say 80%) O&M expenditures as per agreed Annual Maintenance Budget/ Asset Management Plan.	SN. 2.7 : Percent of Amount (ISF) Spent by WUA for O&M wrt total annual budget.
	P2.2a. Level of Users' Satisfaction (Excellent/Good/Poor) with WUA's O&M performance in upper-end of rehabilitated irrigation schemes.	SN. 6.2 : Quantity of water delivery and SN. 6.3: Timeliness of water delivery
	P2.2b. Level of Users' Satisfaction (Excellent/Good/Poor) with WUA's O&M performance in middle-portion of rehabilitated irrigation schemes.	SN. 6.2 : Quantity of water delivery and SN. 6.3: Timeliness of water delivery
	P2.2c. Level of Users' Satisfaction (Excellent/Good/Poor) with WUA's O&M performance in tail-end of rehabilitated irrigation schemes.	SN. 6.2 : Quantity of water delivery and SN. 6.3: Timeliness of water delivery
Project Development Objective	Component B specific Intermediate Outcome Indicators	

Format for Results Based M&E Reporting		Trimester Progress Tracker
B1. Improved Physical Performance of transferred irrigation system	B1 Percentage of tail-enders reporting improved water availability	SN. 5.5 : % of tail-enders reporting improved water availability
	B1.1 Percentage of essential structures actually improved under ESI component wrt appropriately identified (re: AMP) and participatory prioritized.	SN. 3.1 : Construction of Essential Structures and Works under ESI
	B1.2 Level of Users' Satisfaction (Excellent/Good/Poor) wrt prioritization and implementation of ESI component by DOI.	SN. 6.1 : Prioritization and implementation of ESI by DOI
B2 Improved Water Management (bulk water service delivery by DOI to WUAs as per IMT Agreement)	B2.1.1 Percentage of delivery points (from main to branch/sub branch) that receive their proportionate share of water e.g. bulk water delivered by DOI to transferred systems	SN. 5.4: No. of delivery points receiving proportionate share of water (% of total)
	B2.2.1 Adequate O&M expenditures by DOI according to agreed Asset Management Plan. (specify no. of pilot schemes that complied wrt total pilot schemes)	SN. 2.7 : Percent of Amount (ISF) Spent by WUA for O&M wrt total annual budget.
	B2.2.2 Adequate O&M expenditures by WUAs according to agreed Asset Management Plan. (specify no. of pilot schemes that complied wrt total pilot schemes)	
B2 Financially & Institutionally sustainable WUAs	B3.1.1 No. of WUAs (Main WUA) holding regular meetings (at least once in a month)	SN. 2.8 : WUA meetings held regularly (Main WUA and Branch WUAs)
	B3.1.2 % of WUAs (Branch Committees) holding regular meetings (at least once in a month)	SN. 2.8 : WUA meetings held regularly (Main WUA and Branch WUAs)
	B3.2.1 No. of WUAs collecting water charges required for adequate O&M (as ISF following Asset Management Plan/ Annual O&M Budget)	SN. 2.4 : Whether rate of ISF matches the annual O&M Budget. (Yes/No)
	B3.2.2 Percent of agreed (committed) amount collected by WUA for O&M as ISF following Asset Management Plan/ Annual O&M Budget) ²	
	B3.3.1 No. of WUAs (Main Committees) that maintains appropriate accounts and cash register (accounts audited this year).	SN. 2.9 : WUA (Main & Branch Committees) operates Bank Accounts and maintains records (debit/credit)
	B3.3.2 % of WUAs (Branch Committees) that maintains appropriate accounts and cash register.	

60. **Comments** : Number of meetings by WUA addressing O&M agenda is to be added in the Tracker from afterward.

APPENDICES

Appendix A:
***Result Framework for IWRMP (Additional
Financing)***

Appendix A: Result Framework
Additional Financing to the Irrigation and Water Resources Management Project

Design summary Development Objective	Indicators	Baseline ¹	Progress/Achievements			Remarks
			First Year (June 2015)	Second Year (June 2016)	Third Year (June 2017)	
To improve irrigated agriculture productivity and management of selected irrigation schemes and enhance institutional capacity for integrated water resources management.	Increase in productivity of selected (main) crops. Year 1: %, Year 2: Year 3:	Paddy 2.9MT/ha; Wheat 2.0MT/ha; Maize 2.1MT/ha; Potato 10.0MT/ha	Paddy: Wheat: Maize: Potato:	Paddy: Wheat: Maize: Potato:	Paddy: Wheat: Maize: Potato:	(Percentage Change: Paddy: Wheat: Maize: Potato:
	Percent increase in cropping intensity	Average 168 Percent	205			
	<i>P2.1 Number of transferred pilot schemes² that have incurred (significant; say 80%) O&M expenditures as per agreed Annual Maintenance Budget/ Asset Management Plan.</i>	0	2 out of 7	4 out of 7	6 out of 7	KIS & MIS-I in the first year + SMIS-SS9 and SS10 in second year + MIS-II and NIS.
	<i>P2.2 Level of Users' Satisfaction (Excellent/Good/Poor) with WUA's O&M performance in - (a) upper-end of rehabilitated irrigation schemes.</i>	Good	Good	Excellent	Excellent	
	<i>..... (b) middle portion of rehabilitated irrigation schemes.</i>	Poor	Good	Good	Excellent	
<i>..... (c) tail-end of rehabilitated</i>	Poor	Poor	Good	Good		

¹ Baseline as per the original project (May 1, 2008)

² Pilot Schemes include Sitagunj and Ramgunj Area in SMIS, Block 8 and Block 2 Area in NIS and Stage I and Stage II area in MIS along with entire KIS.

Design summary Development Objective	Indicators	Baseline ¹	Progress/Achievements			Remarks
			First Year (June 2015)	Second Year (June 2016)	Third Year (June 2017)	
	<i>irrigation schemes.</i>					
Intermediate Outcome Indicators specific to Component B (IMT)						
i) improved water delivery owing to improved physical performance of the system,	B1. Percentage of tail-enders reporting improved water availability	28%	35%	50%	60%	
	<i>B1.1 Percentage of essential structures actually improved under ESI component wrt appropriately prioritized (re: AMP) through participation of beneficiaries - for rehabilitated schemes only</i>					
	<i>B1.2 Level of Users' Satisfaction (Excellent/Good/Poor) wrt prioritization and implementation of ESI component by DOI -for rehabilitated schemes only</i>					
ii) improved water management for equitable and just distribution of water to	<i>B2.1.1 Percentage of delivery points (from main to branch/sub branch) that receive their proportionate share of water e.g. bulk water delivered by DOI to transferred systems - for rehabilitated schemes only where calibration is completed</i>	28%	35%	50%	60%	
	<i>B2.1.2 Percentage of delivery points (from branch/sub-branch canal outlets to sub branch/tertiary canals) that receive their proportionate share of water. - for rehabilitated schemes only where calibration is completed</i>					
	<i>B2.2.1 Adequate O&M expenditures by DOI according to agreed Asset Management Plan. (specify no. of pilot schemes that complied wrt total pilot schemes)</i>					

Design summary Development Objective	Indicators	Baseline ¹	Progress/Achievements			Remarks
			First Year (June 2015)	Second Year (June 2016)	Third Year (June 2017)	
	<i>B2.2.2 Adequate O&M expenditures by WUAs according to agreed Asset Management Plan. (specify no. of pilot schemes that complied wrt total pilot schemes).</i>					
iii) financially and institutionally sustainable WUAs,	<i>B3.1.1 No. of WUAs (Main WUA) holding regular meetings (at least once in a month)</i>	At least 3 out of 4 WUAs	At least 6 out of 7 WUAs	At least 6 out of 7 WUAs	At least 6 out of 7 WUAs	
	<i>B3.1.2 Percentage of WUAs (Branch Committees) holding regular meetings (at least once in a month)</i>	90%	90%	90%	90%	
	<i>B3.2.1 No. of WUAs collecting water charges required for adequate O&M (as ISF following Asset Mngmt. Plan/ Annual O&M Budget).</i>	At least 3 out of 4 WUAs	At least 5 out of 7 WUAs	At least 6 out of 7 WUAs	7 out of 7 WUAs	
	<i>B3.2.2 Percent of agreed (committed) amount collected by WUA (branch committees) for O&M as ISF following Asset Mngmt. Plan/ Annual O&M Budget).</i>	30%	50%	75%	85%	
	<i>B3.3.1 No. of WUAs (Main Committees) that maintains appropriate accounts and cash register (accounts audited this year).</i>	At least 3 out of 4 WUAs	At least 5 out of 7 WUAs	At least 6 out of 7 WUAs	7 out of 7 WUAs	
	<i>B3.3.2 Percentage of WUAs (Branch Committees) that maintains appropriate accounts and cash register</i>	10%	50%	75%	90%	

Appendix B:
Trimester Progress Tracker

IWRMP COMPONENT B: TRIMESTER PROGRESS TRACKER

Instructions: Maintain one form per IMT system. Send a copy along with the overall trimester progress report to IWRMP-OPD/DO.

SYSTEM: _____ DISTRICT: _____ REGION: _____

Gross/Culturable Command Area (GCA/CCA): _____ Households no. (HH): _____

Date of Agreement: _____

1

IMT FORMULATION

	<input type="checkbox"/> Date: _____ Pax: _____	<input type="checkbox"/> Nos. _____	<input type="checkbox"/>	<input type="checkbox"/>
1.1	Consultation with Main WUA on IMT Objectives-Tick, if yes and provide dates & no. of participants (Pax)	WUA Membership List and Total Members.....	Asset Inventory and Valuation Prepared-Remarks (if any):	Resource and funding Management Plan (ISF requirements etc.)
	<input type="checkbox"/> Date: _____ Pax: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2	Consultation with Branch/Block WUA committees & outlet representatives to seek Users' Commitments. Provide dates, participants (Pax.)	Rapid Appraisal of the System, and Date: _____	Conceptual COP and CMP -	Participatory ESI Plan (Selection of ESI with WUA)-remarks (if any):
	<input type="checkbox"/> Date: _____ Pax: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.3	Consultation with GA (General Assembly) of Users to seek acceptance of provisions in the drafted IMT Agreement. Details etc.	Bench Marking of the System, and Date: _____	Proposed Financial Plan and Schedule for Asset Maintenance	Parcellary Map Preparation

2

INSTITUTIONAL STRENGTHENING for IMT

2.1	Information on WUA - Main and Block/Branch /Tertiary Committees	WUA -Main Executive Committee	# Men # Women)	WUA Branch/Block Committees	Nos.= Members:=	No. of WUA Tertiary Committees	Nos.= Members:=
	Indicator	Target	Progress prior to this trimester	Progress this trimester	Cumulative Progress to date		
2.2	Progress of WUA Contribution Package (Construction work package with 10% of total ESI works contrib.)*	Package Value NRs.	Financial % Physical %	Financial % Physical %	Financial % Physical %		
2.3	Progress of WUA Payable Package (Construction work package executed through WUA)**	Package Value NRs.	Financial % Physical %	Financial % Physical %	Financial % Physical %		
2.4	Whether rate of ISF matches the annual maintenance budget? (Y/N)	Annual Target Value; NRs.	Target: NRs.	Target: NRs.	Target: NRs.		
2.5	Rate @ NRs. Per Ha.		Collected: NRs	Collected: NRs	Collected: NRs		
2.6	Rate as % of Ultimate, as per IMT Agrmnt		Progress %	Progress %	Progress %		
2.7	Percent of Amount (ISF) Spent by WUA for O&M wrt total annual budget.	Total Annual O&M Budget	Amount Spent: _____ (Rs.) Progress wrt Budget: _____ (%)	Amount Spent: _____ (Rs.) Progress wrt Budget: _____ (%)	Amount Spent: _____ (Rs.) Progress wrt Budget: _____ (%)		
2.8	WUA meetings held regularly (Main WUA and Branch WUAs=	WUA Main Committee Monthly Meetings	Monthly Meetings #	Monthly Meetings #	Monthly Meetings #		
		No. of Branch WUAs holding meetings at least a month and Percentage wrt total	Nos. Percent	Nos. Percent	Nos. Percent		
		General Assembly meetings convened by Main WUA					
2.9	WUA (Main & Branch Committees) operates Bank Accounts and maintains records (debit/credit)	No. of Branch/Block WUAs operating Bank Accounts: Nos. and % wrt total	Nos. Percent	Nos. Percent	Nos. Percent		
		WUA (Main) A/C audited this year: Yes/No	WUA (Main) A/C audited last year: Yes/No	WUA (Main) A/C audited before last: Yes/No	WUA has resolved all audit issues, if: Yes/No		
2.9	Trainings provided to WUA	<input type="checkbox"/> Orientation workshop on IMTP	<input type="checkbox"/> Leadership development	<input type="checkbox"/> Office management	<input type="checkbox"/> Account record keeping		
		<input type="checkbox"/> Resource collection and mobilization	<input type="checkbox"/> Computer Trainings	<input type="checkbox"/> ISF collection and management	<input type="checkbox"/> Construction mgmt. & quality control (2 day)		
		<input type="checkbox"/> Gender awareness & women's participation g	<input type="checkbox"/> Income generation of women members	<input type="checkbox"/> Off season vegetables farming	<input type="checkbox"/> Training on fertilizer management		
		<input type="checkbox"/> Orientation to COP (distribution schedule)	<input type="checkbox"/> Orientation to CMP (maintenance schedule)	<input type="checkbox"/> Study Tour & Observation Tour	<input type="checkbox"/> TOT Training		
2.10	Trainings provided to SMU staff	<input type="checkbox"/> Staff capacity development	<input type="checkbox"/> SEMP preparation and review	<input type="checkbox"/> Parcellary map preparation & review training			
		<input type="checkbox"/> Orientation workshop on IMTP	<input type="checkbox"/> training workshopP	<input type="checkbox"/> Participatory monitoring and evaluation			
		<input type="checkbox"/> Flow Measurement Structures calibration training	<input type="checkbox"/> Orientation to Canal Operation Plan (COP)	<input type="checkbox"/> Orientation to Canal Maintenance Plan (COP)			

3

CONSTRUCTION PROGRESS

	Indicator	Target	Progress prior to this trimester	Progress this trimester	Cumulative Progress to date
3.1	Construction of Essential Structures and Works under ESI	No. of ESI in: Main Canal: (no.)	No. of Completed ESI: Main Canal: (no.)	No. of Completed ESI: Main Canal: (no.)	No. of Completed ESI: Main Canal: (no.)
		Branch Canals: (no.)	Branch Canals: (no.)	Branch Canals: (no.)	Branch Canals: (no.)
		Tertiary Canals: (no.)	Tertiary Canals: (no.)	Tertiary Canals: (no.)	Tertiary Canals: (no.)
		TOTAL (no.) _____ (as per IMT agreement)	TOTAL (no. & % of target) _____	TOTAL (no. & % of target) _____	TOTAL (no. & % of target) _____
		<u>Contract Cost of ESI Works</u> Pack. I: Rs. (m):	<u>Financial Progress:</u> Pack. I (%):	<u>Financial Progress:</u> Pack. I (%):	<u>Financial Progress:</u> Pack. I (%):
		Pack. II: Rs. (m):	Pack. II (%):	Pack. II (%):	Pack. II (%):
		Pack. III: Rs. (m):	Pack. III (%):	Pack. III (%):	Pack. III (%):
		Pack. IV: Rs. (m):	Pack. IV (%):	Pack. IV (%):	Pack. IV (%):
	TOTAL : Rs. (m):	OVERALL (%):	OVERALL (%):	OVERALL (%):	

4

IMT O&M PREPARATION

4.1	Caliberation & Gauging of Bulk Water Delivery Structures/Points	COP-Distribution Schedule - Paddy Crop		COP-Distribution Schedule - Wheat Crop		COP-Distribution Schedule - Spring Crop			
4.2	No. of outlet structures for bulk delivery?	Total Reqd.?	Available?	Prepared?	Implmtd?	Prepared?	Implmtd?	Prepared?	Implmtd?
4.3	No. of structures Caliberated/ Gauzed	Target	Actual	Remarks.....	Remarks.....	Remarks.....	Remarks.....	Remarks.....	Remarks.....

5 SYSTEM PERFORMANCE

5.1	Whether WUA maintains the system per O&M plan?	Whether WUA delivers water according to seasonal schedule ?	Whether DOI delivers bulk water following the agreed COP?
	Excellent Good Poor	Excellent Good Poor	Excellent Good Poor

	Indicator	Baseline	Target	Current	Comments
5.2	Water delivery at main	_____ (m3/s)	_____ (m3/s)	_____ (m3/s)	
5.3	Water delivery at all branch canal outlets. e.g. S0 to S22 for KIS; SS9A-SS9J in SMIS; MSC & BSC1-BSC6 of Block 8 of NIS; Block A to E of MIS Stage I (use separate sheet)	_____ (m3/s)	_____ (m3/s)	_____ (m3/s)	
5.4	No. of delivery points receiving proportionate share of water (% of total)	_____ (no.) _____ (%)	_____ (no.) 75%	_____ (no.) _____ %	
5.5	% of tail-enders reporting improved water availability	Not applicable	60%	_____ (%)	

6 USER SATISFACTION

Performance Area		Upper-end			Middle			Tail-end		
6.1	Prioritization and implementation of ESI by DOI	Excellent	Good	Poor	Excellent	Good	Poor	Excellent	Good	Poor
		Details?			Details?			Details?		
6.2	Quantity of water delivery	Excellent	Good	Poor	Excellent	Good	Poor	Excellent	Good	Poor
		Details?			Details?			Details?		
6.3	Timeliness of water delivery	Excellent	Good	Poor	Excellent	Good	Poor	Excellent	Good	Poor
		Details?			Details?			Details?		

7 PRODUCTIVITY (As per crop cut survey Report/DADO/IDD/IDSD) - Reference Year:

		Baseline		Target		Current		Remarks
		Area (ha)	Prod.	Area (ha)	Prod.	Area (ha)	Prod.	
	Paddy		_____ (t/ha)		_____ (t/ha)		_____ (t/ha)	
	Maize		_____ (t/ha)		_____ (t/ha)		_____ (t/ha)	
	Wheat		_____ (t/ha)		_____ (t/ha)		_____ (t/ha)	
	Potato		_____ (t/ha)		_____ (t/ha)		_____ (t/ha)	
	Vegetables		_____ (t/ha)		_____ (t/ha)		_____ (t/ha)	
	_____		_____ (t/ha)		_____ (t/ha)		_____ (t/ha)	
	_____		_____ (t/ha)		_____ (t/ha)		_____ (t/ha)	
	Average Cropping Intensity		_____ (%)		_____ (%)		_____ (%)	
	% of farmers adopting demonstrated techniques		_____ (%)		_____ (%)		_____ (%)	

8 ACCESS TO POOR

Women's involvement in different activities: Baseline and Current Data on involvement in cultivation activities/ Self help group/ Employment/ Decision making activity etc.:	Provide details?		
% of poor farmer in Command Area (CA)	_____ (%)	_____ (%)	_____ (%)
Poor Household Beneficiary Numbers in CA	_____ (No)	_____ (No)	_____ (No)

Appendix C:
Format for Results Based M&E Reporting - Part I
[OPD (MIS) to WB Mission / DOI/ Ministry]

Irrigation and Water Resources Management Project
 Component B: Irrigation Management Transfer
Results Based Reporting Format

Project Development Objective	Project Outcome Indicators	Unit	PAD		Third Party Monitoring			First and Second Party Monitoring						Remarks
			Estimtd. Baseline 2007/08	Target Values (2012/13)	Baseline 2008/09 (mean of 4 AMIS)	Mid-term 2011/12 (mean of 4 AMIS)	Pre-ICR (June 2013) (mean of 4 AMIS)	2012/13 Overall (Wtd. Avg. of 4 AMIS)	2013/14 Overall (Wtd. Avg. of 4 AMIS)	KIS	SMIS	NIS	MIS	
	Command Area													
P.1. Improved Irrigated Agriculture Productivity	P1.1a. Productivity of Paddy	t/ha	2.9	3.5	2.95	4.66	4.02	4.1	3.7	4.0	3.1	5.7	3.2	
	P1.1b. Productivity of Wheat	t/ha	2.0	2.8	1.90	3.33	2.11	2.5	2.1	2.2	2.2	3.0	1.8	
	P1.1c. Productivity of Maize	t/ha	2.1	3.2	2.13	5.78	2.06	3.6	3.3	4.8		0.0	2.0	
	P1.1d. Productivity of Potato	t/ha	10	14.0	10	12	7.83	10.8	17.8	11.0		20.0		
	P1.2. Average Cropping Intensity	%	168	205	186	202	192	207	209	223	201	220	195	
P.2. Improved Scheme Management of the Selected Irrigation Systems	P2.1 Number of WUAs that that have incurred (significant; say 80%) O&M expenditures as per agreed Annual Maintenance Budget/ Asset Management Plan.	No.	None	7 out of 7				NA ¹	NA ¹	NA ¹	NA ¹	NA ¹	NA ¹	
	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		Excellent				NA ²	NA ²	Even in case of distribution of water in adhoc basis, user's perception is Excellent in all except 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		Excellent				NA ²	NA ²	Even in current situation, Users Perception is Good for KIS and SMIS, and Excellent for MIS.				
	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		Excellent				NA ²	NA ²	Even in current situation, Users Perception is Good for MIS but Poor for KIS and SMIS.				

Notes:

NA¹ Not Applicable, because repair maintenance and rehabilitation works are presently being somehow taken care of under ESI component, and WUA do not incur expenses as such

NA² Level of Users' satisfaction shall be judged only after the completion of ESI works, and implementation of COP and CMP by the WUAs. Presently, ESI is ongoing. COP is not implemented though have been prepared for all the three seasons corresponding to winter, summer and spring crops.

Appendix D:
Format for Results Based M&E Reporting - Part II
(SMU to OPD)

Irrigation and Water Resources Management Project
 Component B: Irrigation Management Transfer
Results Based Reporting Format

Project Development Objective	Component B specific Intermediate Outcome Indicators	Unit	PAD		Third Party Monitoring Agency (External Agency)			First and Second Party Monitoring (2013/14)				Remarks			
			Estimtd. Baseline 2007/08	Target Values (2012/13)	Baseline Study (2008/09)	Mid-term Study (2011/12)	Pre ICR Study (June 2013)	(2012/13) Overall (Wtd. Avg. of 4 AMIS)	(2013/14) Overall (Wtd. Avg. of 4 AMIS)	KIS	SMIS		NIS	MIS	
	Command Area							23100	23100	7000	8000	3000	5100		
B1. Improved Physical Performance of transferred irrigation system	B1 Percentage of tail-enders reporting improved water availability.	%	Unavailable	60%	28.04	47.6	35	NA		52%	Not Applicable	50%	70%		
	B1.1 Percentage of essential structures actually improved under ESI component wrt appropriately identified (re: AMP) and participatorily prioritized.	%	Unavailable	100%	Unavailable	Unavailable	Unavailable	Unavailable		Unavailable	Unavailable	Unavailable	Unavailable		
	B1.2 Level of Users' Satisfaction (Excellent/Good/Poor) wrt prioritization and implementation of ESI component by DOI.	%	Unavailable	100%	Unavailable	Unavailable	Unavailable	Good		Excellent	Unavailable	Good	Excellent		
B2 Improved Water Management (bulk water service delivery by DOI to WUAs as per IMT Agreement)	B2.1.1 Percentage of delivery points (from main to branch/sub branch) that receive their proportionate share of water e.g. bulk water delivered by DOI to transferred systems.	%		100%						40%	0	40%	100%		
	B2.2.1 Adequate O&M expenditures by DOI according to agreed Asset Management Plan. (specify no. of pilot schemes that complied wrt total pilot schemes).			100%						Unavailable	Unavailable	Not Applicable	Not Applicable		
	B2.2.2 Adequate O&M expenditures by WUAs according to agreed Asset Management Plan. (specify no. of pilot schemes that complied wrt total pilot schemes).			100%						Unavailable	Unavailable	Not Applicable	Not Applicable		
B2 Financially & Institutionally sustainable WUAs	B3.1.1 No. of WUAs (Main WUA) holding regular meetings (at least once in a month).	No.		4 out of 4						4 out of 4	4 out of 4	4 out of 4	4 out of 4		
	B3.1.2 % of WUAs (Branch Committees) holding regular meetings (at least once in a month)	%		100%	38%	64%	45%			59%	38%	88%	100%		
	B3.2.1 No. of WUAs collecting water charges required for adequate O&M (as ISF following Assett Mngmt. Plan/ Annual O&M Budget) ² .	No.		4 out of 4							Not Applicable	Not Applicable	Not Applicable	Not Applicable	
	B3.2.2 Percent of agreed (committed) amount collected by WUA for O&M as ISF following Assett Mngmt. Plan/ Annual O&M Budget) ² .	%	NA	100%	0	61%	62%				83%	33%	0%	17%	
	B3.3.1 No. of WUAs (Main Committees) that maintains appropriate accounts and cash register (accounts audited this year).	No.		4 out of 4							100%	100%	100%	100%	
	B3.3.2 % of WUAs (Branch Committees) that maintains appropriate accounts and cash register.	%		100%							5%	7%	70%	100%	

Notes:

- NA¹ Not Applicable, because KIS yet to deliver water in main canal after its rehabilitation under ESI. Preparation and approval of COP underway.
- NA² Not Applicable, because water is not delivered by Chatra Main Canal Distribution Committee to the Sitagunj Secondary Canal (S9) following the IMT agreement due to unexpected shortage of water in the CMC (5 to 7 cumec available against 12-14 cumec during the spring season). Besides, Sitagunj
- NA³ Not Applicable, because ESI works still underway (progress less than 50%), Calibration of Flow Measurement Structure yet to be painted, COP of winter crop only prepared. Thus in the absence of full implementation of COP and CMP, improvement in water availability cannot be appropriately assessed.
- NA⁴ Percentage of tailenders reporting improved water availability at 60% reflects the target value. In other words though very few tailenders may report unavailability of water their remains further scope of improvement that could be addressed by implementing the COP. Besides, wastage of water to drains
- NA⁵ ISF collection suspended by a decision of the GA because non delivery of water from India for winter crops since two

Appendix E:
Third Party M&E by External Agency

Appendix E: Third Party M&E by External Agency

The external agency engaged by the Project for the third party monitoring has already completed the baseline study and the mid-term study. Their method of study included household survey (HHs), Focus group and Group discussions, interviews, review of existing documents etc. The study target populations were the water users (farmers) for the household survey and members of water users' organization. The staffs of Irrigation Development Division Office (IDDO) and other line agencies were the key informants for generalization or inferences required for the study. For component 'B', they covered 14 sub-systems under (Kankai-1, Sunsary-Morang-3, Narayani-8, and Mahakali-2).

A two stage stratified random sampling procedure was adopted for Agency Managed Irrigation System (AMIS) under package-B Systems (Kankai, Sunsari Morang, Narayani and Mahakali Irrigation Systems). First stage of strata was considered to all branch canals or blocks of the main system and the second strata was considered the households under sampled secondary canals (Kankai) sub-secondary canal (Sunsari and Morang) and branch canals (Narayani and Kankai). Ten percent of the total household in each second level strata (branch level) were taken from the name list of water users where available, adopting a simple systematic sample procedures representing head, middle and tail section of each sampled branch canals. The information on WUA involvements and activities was deduced from both household survey as well as interaction with concerned water users groups.

The objective of midterm survey was to assess performance of the project in terms of its key baseline data which are categorized as Project Outcome Indicators and Intermediate Outcome Indicators as listed earlier. Almost all of those sites that were included during Baseline survey were taken for this midterm survey as well. In the following table 1, the data collected from the Mid Term Study are compared with those of baseline study. Such comparison should ideally manifest the impact of project intervention. However, it is inferred that increase or decrease in crop yield could be the result of many factors which may or may not be directly related with the project intervention in question.

Appendix F:
***Summary of Four Agency Managed Irrigation
Systems***

Appendix F : Summary of Four Agency Managed Irrigation Systems

i Kankai (KIS)

KIS was initiated in 1970 with a loan assistance of Asian Development Bank. The construction work of the system was completed in two phases. In the relation, the first phase was started in 1971 and completed in 1981 with the intention of providing irrigation facility to the land of 5,000 ha. Likewise, the second phase was started in 1980 targeting to extend its facility to the additional 3,000 ha land, but the facility was extended only to 2,000 ha by 1991.

The system has head works facility comprising of diversion weir of 126 m span and a settling basin to flush out the sediment entry in to the canal. The main canal has 10cumec capacity and has concrete lining up to 11.5 km. It has altogether 22 secondary canals and 54 nos. of sub secondary and 199 nos. of tertiary canals. The summary of the system is outlined herewith.

- Total Command Area	7,000 ha
- Active Sites / Pilot Sub-Systems	Entire System
- Active Sites Command Area	7,000 ha
- No. of WUA	One

ii Sunsari Morang (SMIS)

SMIP has about 68,000 ha under the command of Chatra Main Canal (CMC), which is fed from the Koshi River. The CMC, running generally from west to east, has a maximum capacity of 60 m³/sec, giving a gross water duty of about 0.90 l/sec/ha, or rather less than 0.50 l/sec/ha at the plant root. This is because it was designed for "preventive irrigation", i.e. to supply enough water to supplement (by 80%) the monsoon rainfall, so guaranteeing one crop of rice a year over the entire area. Therefore, effective water management at all levels is vital. A series of secondary canals, running north to south, take the water from the CMC and supply to the command area, which extends almost to the Nepal/India border, some 20 km to the south. There is considerable conjunctive use of groundwater (STWs) and low lift pumping practices from drainage lines to supplement supplies from CMC – particularly towards the tail end of the system.

Sitaganj Secondary Canal is the branch of the SMIP. A total length of the Sitaganj Secondary canal named as S9 is 14.34 km and is serving 8,388 ha land. Sitaganj S9 is situated in between Ramganj secondary canal and Shankarpur secondary canal. The summary of the system is outlined herewith.

- Total Command Area of SMIP	62,000 ha
- Active Sites / Pilot Sub-Systems	Sitaganj SC
- Active Sites Command Area	8,000 ha
- No. of WUA	One

iii Narayani (NIS)

Narayani Irrigation System is a gravity flow irrigation scheme located in the central terai region of Nepal. The command area of this scheme lies in the three districts of terai: Parsa, Bara and

Rautahat. NIS was developed by Indian government and the headwork of the scheme is built across Narayani river in Balmikinagar, the border of Nepal and India. The main eastern canal of this scheme is called Tirhut main canal that supplies water to Don Branch canal in India. The water enters in Nepal (Janakitol of Parsa District) from this Don Branch canal at the chainage of 92 km, which is the end point of Don Branch canal. Nepal gets 24.1 m³/sec water from this Don Branch canal. The summary of the system is outlined herewith.

- Command Area Total 37,000 ha
- Active Sites / Pilot Sub-Systems Block 8
- Active Sites Command Area 3,000 ha of Block 8
- No. of WUA One

iv Mahakali (MIS)

Mahakali Irrigation System is a gravity flow irrigation scheme located in the Far Western Terai region of Nepal. The command area of this scheme lies in Kanchanpur district. Irrigation supplies are diverted from Mahakali river through intake works located at the left abutment of the Sarada barrage, which was constructed in 1928. The main conveyance canal from the barrage to the India-Nepal border is 1 Km long and the main canal from the border to the Chaudar river is about 14 Km long. From the main canal, which runs east-west, irrigation supply is fed to 10 distributaries and minors, aligned basically north-south, the direction of the natural ground slope. Tertiary canals take off from the distributaries canals immediately upstream of a number of cross regulators located on the distributaries. There are at present two gated head regulators on the main canal- one at the escape into the Bhujelia river near the India- Nepal border, and the other at 4+580 at the Mahendranagar distributaries off take. The summary of the system is outlined herewith.

- Command Area Total 10,800 ha
- Active Sites / Pilot Sub-Systems Stage I Area
- Active Sites Command Area 5,100 ha (Stage I Area)
- No. of WUA One