



**REVIEW OF THE INTERNATIONAL AND REGIONAL EXPERIENCE  
IN MONITORING AND EVALUATION SYSTEMS WITH SPECIAL  
REFERENCE FOR THE FORMATION AND SUPPORT OF WATER  
USERS ASSOCIATIONS**

**BACKGROUND DOCUMENT FOR THE EXPERTS GROUP MEETING FOR THE  
DEVELOPMENT OF A REGIONAL M&E SYSTEM TO MONITOR AND  
EVALUATE PARTICIPATORY IRRIGATION MANAGEMENT & IRRIGATION  
MANAGEMENT TRANSFER IN THE SWIM COUNTRIES**

**Work package (WP1)  
Water Governance and Mainstreaming  
Activity 1.2.8.2**

**August 2013**

Version	Title of document	Authors	Review and Clearance
V4	REVIEW OF THE INTERNATIONAL AND REGIONAL EXPERIENCE IN MONITORING AND EVALUATION SYSTEMS WITH SPECIAL REFERENCE FOR THE FORMATION AND SUPPORT OF WATER USERS ASSOCIATIONS	Suzan Taha and Juan Antonio Sagardoy	Hosny Khordagui, and Vangelis Constantianos



Global Water Partnership  
Mediterranean



umweltbundesamt®



## The SWIM Program (2010 – 2014)

### Contributing to Sustainable Water Integrated Management in the Mediterranean

Funded by the European Commission with a total budget of approximately € 22 million, Sustainable Water Integrated Management (SWIM) is a Regional Technical Assistance Program aiming to contribute to the effective implementation and extensive dissemination of sustainable water management policies and practices in the South-Eastern Mediterranean Region in view of increasing water scarcity, combined pressures on water resources from a wide range of users, desertification processes and in connection with climate change.

The SWIM Partner Countries (PCs) are: Algeria, Egypt, Israel, Jordan, Lebanon, Libya<sup>1</sup>, Morocco, Palestine, Syria and Tunisia.

SWIM aligns with the outcomes of the Euro-Mediterranean Ministerial Conferences on Environment (Cairo, 2006) and Water (Dead Sea, 2008) and also reflects on the four major themes of the draft Strategy for Water in the Mediterranean (SWM), mandated by the Union for the Mediterranean, namely: Water Governance; Water and Climate Change; Water Financing and; Water Demand Management and Efficiency, with particular focus on non-conventional water resources. Moreover, it is operationally linked to the objectives of the Mediterranean Component of the EU Water Initiative (MED EUWI) and complements the EC-financed Horizon 2020 Initiative to De-Pollute the Mediterranean Sea (Horizon 2020). Furthermore, SWIM links to other related regional processes, such as the Mediterranean Strategy for Sustainable Development (MSSD) and the Arab Water Strategy elaborated respectively in the framework of the Barcelona Convention and of the League of Arab States, and to on-going pertinent programs, e.g. the UNEP/MAP GEF Strategic Partnership for the Mediterranean Large Marine Ecosystem (MedPartnership) and the World Bank GEF Sustainable Mediterranean.

The Program consists of two Components, acting as a mutually strengthening unit that supports much needed reforms and new creative approaches in relation to water management in the Mediterranean region, aiming at their wide diffusion and replication.

The two SWIM Components are:

- A Support Mechanism (SWIM-SM) funded with a budget of € 6.7 million and
- Five (5) Demonstration Projects funded with a budget of approximately € 15 million

For more information please visit <http://www.swim-sm.eu/> or contact [info@swim-sm.eu](mailto:info@swim-sm.eu)

---

<sup>1</sup>The situation in spring 2012 is that following formal EC decision, activities have been stalled in Syria while Libya has officially become a Partner Country of the SWIM Program



## Acknowledgement:

Special thanks are extended to the partner countries' focal points for their active dissemination and follow up with the relevant departments to ensure providing the responses to the questionnaire/checklist on the status of monitoring and evaluation systems in their respective countries, and for the government personnel who filled up the questionnaires. **We list them below by the countries which responded to the questionnaire:**

- **Algeria:** No name was provided
- **Egypt:** Ms. Nagwa Ahmed El-khashab, Under Secretary Of Irrigation Advisory service Central Department Of IAS
- **Israel:** Ms. Tamar Shor, Deputy Director General(Regulation), Regulation Division, Ms. Tahel Brandes, Deputy Legal Advisor, Legal Advisor Office and Ms. Olga Slepner, Head of Foreign Relations Unit, Director General Office of the Governmental Authority for Water and Sewage
- **Jordan;** Mr. Qais Owais, Assistant Secretary General – North and Middle Jordan Valley at the Jordan Valley Authority.
- **Morocco:** M. Belghiti Mhamed, Ingénieur Général Chargé de la gestion des affaires de la Direction de l'Irrigation et de l'Aménagement de l'Espace Agricole, Ministère de l'Agriculture, Direction de l'Irrigation et de l'Aménagement de l'Espace Agricole.
- **Palestine:** Mr Emad Ramadan; Director Water control, Palestinian Water Authority (PWA) and Mr. Muhannad Alhaj Hussein; Deputy Director for Irrigation at the Ministry of Agriculture.
- **Tunisia:** Ingénieur Général Latiri Raqya Directeur Ministère de l'Agriculture Génie Rural et Exploitation des eaux

## Disclaimer:

This document has been produced with the financial support of the European Union. The contents are the sole responsibility of the implementing Consortium and can in no way be taken to reflect the views of the European Union



## TABLE OF CONTENTS

LIST OF ACRONYMS.....	9
BACKGROUND.....	10
EXECUTIVE SUMMARY .....	11
OUTCOMES OF THE REVIEWS:.....	11
SECTION 1: THE INTERNATIONAL REVIEW OF M&E SYSTEMS .....	15
PART A: SUMMARY GUIDELINES FOR THE DEVELOPMENT AND IMPLEMENTATION OF M&E SYSTEMS, ARISING FROM THE REVIEW OF THE WB, UN HANDBOOKS AND GUIDES .....	15
1.    WHAT IS MONITORING AND EVALUATION (M&E)?.....	15
2.    WHO ARE THE USERS? .....	15
3.    INTEGRATING PLANNING AND M&E .....	16
3.1    Purpose of M&E in the project cycle .....	16
3.2    The use of logical framework and Results Framework in project design and M&E .....	16
3.2.1    The logical framework analysis (LFA).....	16
3.2.2    The logical framework in project design and M&E.....	16
3.2.3    Linking project design to monitoring and evaluation .....	19
3.2.4    Result based M&E .....	20
3.3    Participatory and conventional M&E .....	21
3.3.1    When and how to use PME and who should participate:.....	21
3.3.2    Who to involve in the PME .....	21
3.3.3    Types of Stakeholders .....	22
3.4    Indicators .....	22
3.4.1    Criteria for selecting the indicators:.....	22
3.4.2    Good Practices in Identifying Indicators .....	23
3.5    Evaluation .....	23
3.5.1    Objectives of program evaluation.....	24
3.5.2    Evaluation Steps.....	24
3.5.3    Impact evaluation .....	24
4.    THE DATA FRAMEWORK.....	24
4.1    Planning requirements:.....	25
4.2    Data Management (collection, storage, analysis and reporting) .....	25
5.    SETTING UP A STRATEGY FOR ESTABLISHING AN M&E SYSTEM .....	27
5.1    Main Components of a good M&E system .....	28
6.    HIGHLIGHTS OF LESSONS LEARNT & THE POSSIBLE IMPLICATIONS FOR THE PROPOSED M&E SYSTEM:28	
PART B. REVIEW OF SELECTED M&E SYSTEMS USED BY INTERNATIONAL AGENCIES FOR ASSESSING PIM/IMT PROGRAMS .....	30
1.    BACKGROUND .....	30



2. REVIEW OF THE M&E SYSTEMS APPLIED TO PIM/IMT PROGRAMS BY SELECTED INTERNATIONAL ORGANISATIONS ..... 30

3. THE WB M&E SYSTEM FOR WUAs FORMATION (GUIDELINES No. 16) AND FOR THE OPERATION AND MAINTENANCE (O&M) OF IRRIGATION SYSTEMS (GUIDELINES No. 15)..... 31

    3.1 M&E for WUA formation and support (Guidelines No. 16) .....31

    3.2 M&E of operation and maintenance of Irrigation systems (Guidelines No. 15) .....35

4. FAO - IWMI M&E SYSTEM OF WATER REPORT NO. 32 ..... 39

    4.1 Main indicators used .....40

5. THE USAID REPORT NO. 59 ..... 42

6. LESSONS LEARNT FROM THE REVIEW..... 43

**SECTION 2: ANALYSIS OF RESPONSES TO THE QUESTIONNAIRE/CHECKLIST ON THE AVAILABILITY OF DATA FOR THE MONITORING AND EVALUATION OF PIM/IMT PROGRAMS IN THE SWIM COUNTRIES**  
**44**

1. STRUCTURE OF THE QUESTIONNAIRE ..... 44

2. RESPONSIVENESS TO THE QUESTIONNAIRE ..... 44

3. OVERVIEW OF THE PROCESS FOR ESTABLISHING WUAs IN THE PARTICIPATING COUNTRIES ..... 45

4. A REGIONAL PERSPECTIVE OF THE FINDINGS..... 45

5. OUTCOMES OF PART A: EXISTING M&E SYSTEMS IN THE PCS ..... 46

    5.1 General observations about Part A of the questionnaire .....48

6. PART B, SUBSECTION A: AVAILABLE INFORMATION REGARDING THE PROCESS OF ESTABLISHING WUAs AND PRACTICES ASSOCIATED WITH THIS PHASE ..... 49

    6.1 General observations about Part B, Subsection A of the questionnaire.....52

7. PART B, SUBSECTION B: INFORMATION REGARDING THE IMPLEMENTATION PROGRAM OF WUAs AND PRACTICES ASSOCIATED WITH THIS PHASE ..... 53

    7.1 General observations about Part B, Subsection B of the questionnaire.....57

8. PART B, SUBSECTION C: INFORMATION REGARDING THE MANAGEMENT PERFORMANCE OF WUAs AND PRACTICES ASSOCIATED WITH THIS PHASE ..... 57

    8.1 General observations about Part B, Subsection C of the questionnaire .....62

9. PART B, SUBSECTION D: INFORMATION RELATED TO ASSESSING THE IMPACT OF THE ESTABLISHMENT OF WUAs ..... 63

    9.1 General observations about Part b, Subsection D of the questionnaire.....65

**REFERENCES..... 66**

SECTION 1, PART A..... 66

SECTION 1, PART B ..... 66

SECTION 2..... 67



**ANNEX 1: SELECTED M&E INDICATORS USED BY INTERNATIONAL AND BILATERAL ORGANISATIONS FOR SPECIFIC ACTIVITIES, OUTPUT, AND OUTCOMES RELATED TO WUAS ESTABLISHMENT<sup>68</sup>**

**1. MONITORING THE PERFORMANCE OF WUAs ..... 68**



## LIST OF TABLES:

### Section 1 – PART A

Table 1: Main elements of the Logical framework Matrix .....	18
Table 2: Logical structure for project monitoring and evaluation.....	19
Table 3: Linking project design and evaluation criteria.....	19
Table 4: Structured indicators for project monitoring and evaluation .....	22
Table 5: Typical implementation and results framework for interventions to establish and support WUAs .....	31

### Section 1 - PART B

Table 6: Key activities, outputs and outcomes for WUAs formation and support.....	32
Table 7: List of possible activities and indicators for monitoring implementation of WUAs establishment and support .....	33
Table 8: Typical implementation and results framework for interventions to improve management, operation and maintenance of irrigation and drainage systems.....	35
Table 9: Number of indicators proposed for the main areas of results monitoring of improved operation and maintenance of Irrigation systems.....	37
Table 10 : Water delivery indicators .....	37
Table 11: Main questions and indicators used in FAO-IWMI report.....	40
Table 12: Roles of government irrigation sector agencies relative to WUAs and water users.....	41
Table 13: Sources of financing WUAs after IMT.....	41
Table 14: Number of indicators per category and subcategory.....	42
Table 15: Objectives of the Existing M&E systems and the number of Indicators used.....	46
Table 16: Geographical coverage of the PIM/IMT programs .....	49
Table 17: Adequacy of institutional arrangements .....	50
Table 18: Availability of information related to the financial commitments towards PIM/IMT.....	50
Table 19: Legal Reforms for WUAs.....	51
Table 20: Reforms affecting the irrigation agency (or concerned ministry) .....	52
Table 21: Awareness campaigns and related events .....	53
Table 22: Coverage of the steps undertaken by the Irrigation Agency in the establishment of the WUAs .....	54
Table 23: Coverage of the main support services provided after establishing the WUAs.....	55
Table 24: The most and least important problems in the establishment of WUAs in the PCs.....	55
Table 25: Significance of Problems encountered in the establishment of WUAs (by country) .....	56



Table 26: Functions of the WUAs .....	58
Table 27: Legal rights of the WUAs .....	59
Table 28: Rights and responsibilities of the members of the association.....	59
Table 29: Adequacy of the operation of the irrigation system .....	60
Table 30: Adequacy of the financial system.....	60
Table 31: Accounting practices.....	61
Table 32: Assessment of the quality of the management.....	61
Table 33: Information related to operation and maintenance .....	63
Table 34: Recovery of costs.....	64
Table 35: Management of the WUAs .....	64
Table 36: Socio economic issues .....	64
Table 37: Information related to the environment.....	65

### **Annex 1**

Table 38: Example of key indicators used to monitor the performance of Water Users Associations .....	68
Table 39: Key indicators for outcome monitoring and evaluation of irrigation and drainage system management, operation and maintenance.....	69

### **LIST OF FIGURES:**

#### **Section 1 – PART A**

Figure 1: Logical hierarchy of project design.....	18
--	----



## LIST OF ACRONYMS

AWM	Agricultural Water Management Projects
CIHEAM	International Centre for Advanced Mediterranean Agronomic Studies
DPR	Delivery Performance ratio
DZ	Algeria
EMG	Experts Group Meeting
EG	Egypt
EU	European Union
EUWI Med	the European Union Water Initiative -the Mediterranean Component
FAO	Food and Agriculture Organisation
GN	Guidance Note
GDA	Groupements de Développement Agricole (Agricultural Development Groups)
IAMB	the Mediterranean Agronomic Institute of Bari
I&D	Irrigation and Drainage
IL	Israel
IMT	Irrigation Management Transfer
ISF	Irrigation Service Fee
IWMI	International Water Management Institute
JO	Jordan
LFA	Logical Framework Analysis
LOGFRAME	Logical Framework
M&E	Monitoring and Evaluation
MIS	Management Information System
MO	Morocco
MOM	Management, Operation and Maintenance
O&M	Operation and Maintenance
OECD	The Organisation for Economic Co-operation and Development
PA	Palestine
PCs	Partner Countries
PDO	Project Development Objective
PIM	Participatory Irrigation Management
PME	Participatory Monitoring and Evaluation
RBM	Results Based Management
RWS	Relative Water Supply
SU	Support Unit
SWIM	Sustainable Water Integrated Management
SWIM-SM	Sustainable Water Integrated Management Support Mechanism
TKN	Toolkit Number
TU	Tunisia
UN	United Nations
UNDP	United Nations Development Program
UNPFA	United Nations Population Fund Agency
USAID	United States Agency for International Development
WB	World Bank



## BACKGROUND

In 2012, the EC funded “Sustainable Water Integrated Management Support Mechanism (SWIM-SM) project undertook a regional assessment on water users’ participation and the status of Participatory Irrigation Management (PIM)/Irrigation Management Transfer (IMT) in the region that was conducted in collaboration with CIHEAM/IAMB (International Centre for Advanced Mediterranean Agronomic Studies/ the Mediterranean Agronomic Institute of Bari). The assessment was followed by a regional experts’ group meeting that was held in Athens in April 2012 to validate its findings and to identify priority actions to be undertaken by SWIM-SM with the aim to improve local water management and enhance users’ participation. During the meeting, the need for a comprehensive monitoring and evaluation (M&E) system emerged as a priority action that was identified unanimously by all experts.

In response to the experts’ recommendations, and as part of its work-plan for 2013 and 2014, SWIM-SM embarked on a series of activities with the aim to develop a regional M&E system to monitor and evaluate PIM/IMT process; that is best suited for the SWIM-SM countries, taking into consideration international practices/experiences in M&E systems used and/or recommended by international organisations. The envisaged M&E system entails the development of a checklist of indicators to enable comprehensive monitoring and evaluation of the PIM/IMT process throughout its three different phases; preparatory, planning and implementation phases. The system should enable:

- Monitoring the degree of governments’ commitment towards the process
- Monitoring the various government interventions to establish and support WUAs
- Monitoring the status and the institutional, financial and technical performance of the WUAs
- Periodical assessment of the results/impacts of the government interventions in the established WUAs

To this effect, SWIM-SM undertook the following tasks:

1. Carried out a regional review of the existing M&E systems that are used to monitor and evaluate the PIM/IMT process in the project partner countries (PCs); and
2. Reviewed and compiled selected international experience in the design and implementation of M&E systems as well as existing monitoring and evaluation systems recommended [for assessing PIM/IMT programs](#).

The results of both reviews were presented as background documents in the experts group meeting (EMG) in Athens between 2 and 4 September 2013 involving representatives of national authorities, water users’ associations, regional and international experts to discuss the M&E experiences emanating from the SWIM-SM regional and international reviews (see 1 and 2 above) and jointly adopt a regional M&E system involving a checklist of indicators which best suit the needs and the specificities of SWIM participating countries , while capturing internationally recommended best practices throughout the PIM/IM process.



## EXECUTIVE SUMMARY

This document presents the results of the regional and international reviews which were used as a background material for the regional EMG that was held in Athens (2 - 4 September 2013) in order to develop an M&E system to monitor and evaluate the PIM/IMT process in the PCs. It is divided in two Sections:

### Section 1: presents “The International review of M&E systems” in two parts:

- **Part A:** Summary guidelines for the development and implementation of M&E systems arising from the review of the WB & UN handbooks and guides;
- **Part B:** Review of selected M&E systems used by selected international agencies for assessing PIM/IMT programs.

The purpose of this review was double; on the one hand; to provide participants of the meeting with selected reference material that is relevant to the development of the regional M&E system in order to ensure equal understanding of the background against which the system is developed, and on the other hand to guide the development of the M&E system proposed at the Workshop.

### Section 2: Analysis of the responses to the questionnaires/checklists on the availability of data for the monitoring and evaluation of PIM/IMT programs in the SWIM countries.

The questionnaire was developed in two parts: **Part A** applies to countries where a formal M&E system has been developed to monitor the progress and status of implementation of the PIM/IMT programs. **Part B** applies to all countries regardless whether they have an M&E system or not.

## OUTCOMES OF THE REVIEWS:

### Section 1 -Part A: Summary guidelines for the development and implementation of M&E systems, arising from the review of the WB & UN handbooks and guides

- There is a clear evolution from implementation monitoring to results based monitoring due to the increasing demands for accountability and results, transparency, greater effectiveness of development assistance and delivery of tangible results. While it is clear that the proposed M&E system must take into consideration this trend, it will be quite problematic for the development of the proposed M&E system, considering that the design of any result based M&E system is normally linked with the project planning (i.e. early on; during the design phase of any project), whereby both the project development objectives and the outcomes are defined according to the countries’ national contexts.
- In view of the above, and given the specific objectives of the M&E system outlined in the BACKGROUND of this document, the proposed M&E system will have to monitor outputs, and countries have to realign the PIM/IMT activities to match the prospective outputs that correspond to their stated outcomes and objectives. This implies that the system has to be broad enough to account for several countries’ specificities.
- The references consulted provide good guidance for the selection of indicators to be used, which are reflected in the detailed text and were used during the workshop in Athens.
- Two types of M&E are distinguished: conventional M&E and participatory monitoring and evaluation (PME). International experience with the latter in development planning indicates that PME improves program quality; helps address local development needs and increases the sense of ownership. This participatory approach should guide the implementation of the planned Regional M&E system.
- There is concurrence among the references in the recommended steps for setting up a project M&E systems which need to be considered in the planning stage and throughout project implementation. The nine steps represent a set of best practices that should guide the planning and implementation of the proposed regional M&E system, whenever applicable.



## Section 1 - Part B: Review of selected M&E systems used by international agencies for assessing PIM/IMT programs

The three publications have defined the respective M&E system for different purposes and therefore cannot be compared but assessed in their own merits.

- The two WB guidelines (No. 15 and 16) of the “Toolkit for Monitoring and Evaluation of Agricultural Water Management Projects” are methodological and they focus on the “results monitoring” approach. The WB publication is certainly the most didactic by recommending a methodology that is followed in two examples: a) the formation and support of the WUAs and b) the operation maintenance of irrigation systems. The methodology focuses in the Logical Framework (LOGFRAME) structure and place great emphasis on the definition of the outcomes. This approach is sound but requires a careful definition of the outcomes, outputs and activities. The WB publication provides quite a number of useful indicators; most of them included in this document and can be used in similar context provided that they fit the local conditions in SWIM countries.
- The FAO-IWMI publication uses an M&E methodology for a comparative study among 33 countries to learn the lessons arising from the implementation of PIM/IMT programs in these countries. The report uses only 27 indicators to cover a wide spectrum of situations all over the world. Hence they are found quite useful when comparative, or similar regional, studies are planned and several of these indicators were included in the proposed Regional M&E system.
- The USAID is of much earlier date (2002) than the other two and follows a methodology which is somewhat different from other accepted practices of M&E in present times. Nevertheless, it is a good source of indicators since some 172 are included and therefore represents a good menu to select indicators from that can be used for any M&E system intended to assess PIM/IMT programs. It has also useful considerations for the data gathering and processing in M&E systems.
- Only the WB reference (see Annex 1) touches briefly on the subject of providing scores for the indicators which is an essential issue for evaluation. A possible explanation for this gap is the largely subjective character of defining scores. Nevertheless, the proposed M&E system will include suggestions for the scoring and corresponding evaluation framework.

## Section 2: Analysis of the responses to the questionnaires/checklists on the availability of data for the monitoring and evaluation of PIM/IMT programs in the SWIM countries

*The main features of the results of part A of the questionnaire (related to the existence of M&E systems in the PCs) are:*

- Egypt, Jordan and Tunisia have M&E systems for assessing their respective PIM/IMT national programs. Morocco indicated that they have only a national table with some few data and the last update was made in 2003.
- There is a high degree of similarity in the responses among the 3 countries, with an indication that they follow similar best practices in the application of the respective M&E system. [These best practices are described in chapter 5.1 of section 2 of this document.](#)

**The implications of the results of this part of the questionnaire on the planned Regional M&E system are:**

- The system should use as much as possible the existing information and complement some of the existing gaps.
- One of the clear gaps is the need for monitoring how the PIM/IMT process is carried out (politically, institutionally and financially)
- The system needs to be integrated in the normal operation of the WUAs. Processing of the information is a responsibility that is normally carried out at central level
- The experience of Egypt indicates that a large number of indicators is not necessarily a constraint.



- The system should be developed in a participatory manner.

**The main conclusions of part B of the questionnaire are:**

**1. Subsection A (Process of establishing WUAs)**

- The data concerning location of the systems that have been transferred to WUAs, number of farmers involved and their regional distribution is low. This is a very strong shortcoming to assess the progress of the PIM/IMT program and emphasizes the need for a Regional M&E system
- The adequacy of the countries with respect to the institutional arrangements during PIM/IMT planning process is of medium level. However a clear line of command appears a common shortcoming, followed by effective coordination and clarity of roles and responsibilities.
- Most of the financing comes from the central Government and multilateral organisations. NGOs also play an important role. The level of financial information available appears satisfactory.
- Legal reforms have been undertaken only by two countries. This is one of the major reasons that explains why the PIM/IMT process in the region progresses slowly and without satisfactory results
- Irrigation Agencies, or concerned ministries, have enacted some reforms as result of the PIM/IMT processes. Two countries reported a reduction in the number of staff as a result of implementing PIM/IMT program.

**The possible implications of the above observations on the planned regional M&E system are:**

- The M&E system has to build a solid monitoring section that allows monitoring of the number of irrigation systems that have been transferred, their regional distribution, the number of farmers benefiting from the transfer and other related data. These are essential data to assess the progress in the implementation of the PIM/IMT program.
- The M&E system should be able to monitor the institutional changes that take place as result of the PIM/IMT implementation
- Legal reforms are much below expectations. This needs periodical updating of the situation and checking of the farmers' satisfaction with the present legal system.
- Staff changes in the irrigation agency need monitoring as well as periodical control of the relevant functions of the agency. Assessment of the capacity building of the staff of the irrigation agencies needs also to be monitored

**2. Subsection B (Implementation of WUAs)**

- All countries appear well informed of the need for awareness campaigns for the farmers and they have used different methodologies to carry them out.
- Only two countries have followed the main steps of the **WUAs implementation "road map"**. The rest have covered about half of the potential steps. This indicates important shortcomings in the implementation strategy.
- The PCs appear to have a generally good support services after transfer indicating good understanding of the WUAs needs. However, the lowest performance is scored on the provision of support to agribusiness, marketing and credit for WUAs and dispute resolution. This needs to be improved in the future since improvement on production income is largely influenced by these services.
- The problems affecting the process are known but this knowledge is rarely used to improve the implementation strategy except in Tunisia and Jordan which use the information to improve the process.

**The possible implications of the above observations on the planned regional M&E system are:**

- While all countries seem aware of the need for awareness campaigns for the farmers the M&E system should be able to provide greater information on the scope and reach of the campaigns.
- It is evident that there are clear gaps in the "road " map for the establishment of the WUAs and the system should be able to identify them and assess the degree of accomplishment



- Periodic control on the services provided by the irrigation agency to WUAs is also needed. This will be helpful to identify possible gaps
- The system should be capable of identifying the reason for dissatisfaction/satisfaction with the new system of management (WUAs). This may imply the need for carrying out specific questionnaires among farmers.

### **3. Subsection C (Performance of WUAs)**

On the one hand there is a group of three or four countries that have relatively good information about the indicators listed in the questionnaire, while the remaining countries have a very low level of information. In any case there are large gaps of information for all countries including those that have an M&E system. The main emerging points of subsection C of the questionnaire are detailed in [chapter 8.1, of Section 2 of the report](#).

#### **The implications of the results of this part of the questionnaire on the planned regional M&E system are:**

The availability of data necessary to assess the adequacy of the operation, maintenance and financial performance of the WUAs is generally low. This is coupled with significant limitations in the WUAs functions, hydraulic coverage, technical responsibilities, legal rights, and implementation of other good practices which implies that the proposed M&E system should cover the information necessary to assess WUAs performance.

### **4. Subsection D (Impact)**

The available information regarding the impacts is generally low. This appears a serious shortcoming indicating that, at regional level, little is known about the positive or negative impacts of the PIM/IMT policies and programs. **The obvious consequence of the above for the planned regional M&E system** is the need for integrating in it most of the indicators needed to monitor the socio-economic and environmental impact of WUAs establishment.

Finally, the emerging regional picture of the questionnaire is that the three countries that have an M&E system have significant gaps in the collected information and those that do not have such a system should do considerable efforts to establish it. In these latter countries, the existing information indicates that they are interested in this kind of information but lack an effort to integrate it in a common regional M&E system.



## Section 1: The International review of M&E systems

### PART A: SUMMARY GUIDELINES FOR THE DEVELOPMENT AND IMPLEMENTATION OF M&E SYSTEMS, ARISING FROM THE REVIEW OF THE WB, UN HANDBOOKS AND GUIDES

This review focuses on the practices recommended by selected international organisations with regards to the process of designing and implementing, Monitoring and Evaluation (M&E) systems in development projects. The main references used for this review are those of the following three international organisations; Food and Agriculture Organisation (FAO), the World Bank (WB) and two United Nations agencies; the United Nations Development Program (UNDP), and the United Nations Population Fund Agency (UNPFA). All these organisations are using the results based framework for M&E and have developed hand-outs/toolkits to guide mainly their managers and projects teams in designing, planning and implementation of M&E systems in development projects implemented by these agencies. However, the structured approach used by the World Bank; involving all the necessary steps in planning and implementing a project M&E system, is found to be extremely useful and systematic. Accordingly this review draws frequently from the WB toolkit for Monitoring and Evaluation of Agricultural Water Management Projects and its supporting guidance notes (GNs); mostly from GN numbers 1, 2, 3, 6, 9 and 11; with the relevant practices being integrated whenever possible from other guidance notes and references including the UNPFA Programme Manager's Planning Monitoring & Evaluation Toolkit (toolkits number (TN) 2, 4 and 6).

#### 1. WHAT IS MONITORING AND EVALUATION (M&E)?

M&E are two closely linked but separate activities. In general, monitoring is a continuous activity that involves the collection of data on a regular, on-going basis, in order to track inputs, outputs, outcomes and impacts of development activities.

**Evaluation** is a periodic activity that is carried out to assess the significance of a development activity, policy or program. Both M&E provide appropriate information to users and decision makers and form a powerful instrument for planning the future, based on what can be shown to work and what does not (FAO-WB 2008). The complementarity between monitoring and evaluation takes three forms (*WB 2008*)

- monitoring can raise questions for evaluation
- evaluation results can indicate that new issues need to be monitored
- monitoring and evaluation can use the same data, but different analyses is carried out for different purposes; and
- M&E are used together as a tool by managers to diagnose and address specific problems.

M&E has evolved considerably since the eighties including the way in which its concepts are applied. In the early days, the focus was on the project (a development initiative that has limited time frame and clearly articulated goals). Today, the focus of M&E efforts is much broader and encompasses the M&E of sectorial plans and programs, national development strategies including poverty reduction strategies and the Millennium Development Goals, (FAO-WB 2008). M&E findings can contribute to sound governance primarily through evidence based policy-making (including budget decision-making), policy development, management and accountability.

#### 2. WHO ARE THE USERS?

Users for monitoring and evaluation systems include donors and governments who have a financial or management interest in the project, as well as the beneficiaries, the media, civil society at large and their representatives (parliament). Usually, the more open or inclusive the system of government, the broader the



range of users is likely to be. At the start of the project, the focus of the M&E reporting system may be on budget management and performance budgeting, but as the program or project grows and the number of beneficiaries increases, so does interest in the M&E data.

### 3. INTEGRATING PLANNING AND M&E

#### 3.1 Purpose of M&E in the project cycle

Monitoring and evaluation is an integral part of the life cycle of a project/program; **starting from identification through the evaluation.** Through timely reports on project progress, monitoring provides managers and other stakeholders with regular information on progress relative to the whole causal sequence from inputs to outcomes. It alerts management of favourable or negative variances from targeted progress and enables to adjust operations accordingly, formulate budgetary requests and justify any needed increase in expenditure. **An effective MIS that performs these functions is therefore an essential part of good management practices.**

At the end of the project, sufficient information should have been accumulated for an evaluation to be conducted to know whether the project had achieved its expected objectives and to highlight any unexpected outcomes. This is equally important for internal uses by managers and for external use by stakeholders who expect to see results and require accountability and trustworthiness on behalf of the public (FAO-WB 2008).

**Frequent evaluation of progress is a good management practice.** It requires asking why targets are, or are not being achieved, in order to establish the reasons for the trends recorded by monitoring. Clearly evaluation should respond, when monitoring identifies problems or opportunities to enhance achievements (WB 2008).

When good planning<sup>2</sup> is combined with effective monitoring and evaluation, it can play a major role in enhancing the effectiveness of development projects. Good planning helps focus on the results that matter, while monitoring and evaluation help us learn from past successes and challenges and inform decision making so that current and future initiatives are better able to improve people's lives (UNDP 2009).

#### 3.2 The use of logical framework and Results Framework in project design and M&E

##### 3.2.1 The logical framework analysis (LFA)

In order to analyse the causal relations (or "hierarchy") between inputs – activities – outputs – outcomes, leading to the project development objective (PDO), the logical framework analysis should be conducted. The logical framework analysis allows the identification of appropriate indicators and arrangements for their monitoring at all these levels (**inputs, activities, outputs, outcomes, and PDO**). Box 1 defines the terminologies used in the logical hierarchy of project design (WB 2008).

Figure 1 illustrates the causal relationships that provide the conceptual linkages between the project elements. Establishing these linkages helps to design a sound and logical project. A basic premise in the framework is that both the achievements and conditions specified for each level in the hierarchy are necessary and sufficient to result in attainment of the next higher level. Using the LFA therefore provides a means to identify important assumptions and the risks that these may not be fulfilled.

##### 3.2.2 The logical framework in project design and M&E

**LFA** has been adopted by several development agencies to improve project planning, and M&E and to address previous weaknesses related to:

- poor planning including lack of clear objectives and specification of desired project outcomes;
- inadequate specification of M&E processes and indicators;

---

<sup>2</sup>The Process of planning refers to (a) identifying the vision, goals or objectives to be achieved, (b) formulating the strategies needed to achieve the vision and goals, (c) determining and allocating the resources (financial and other) required to achieve the vision and goals, and (d) outlining implementation arrangements, which include the arrangements for monitoring and evaluating progress towards achieving the vision and goals (UNDP2009)



- failure to consider external factors and take account of risks affecting project results.

LFA enables the design of the project to be considered in a systematic and structured way. It is an analytical process based on **problem and stakeholder analysis, the setting of objectives and the identification of project content and scope**. The results of the analysis are presented in the form of a logical framework matrix (table 1). Although the terminology may differ in the different versions used by donors, the underlying concept and approach remain the same.

**Box 1: Main definitions used in the logical framework**

**Higher level development objectives:** the longer-term widespread improvement in society to which achievement of the *project development objective(s)* is intended to contribute.

**Project development objective (PDO):** the combination of one or more *project component outcomes* which make up the physical, financial, institutional, social, environmental or other development changes which the project is designed and expected to achieve.

**Project component outcomes/results:** the effects of project components bringing intermediate effects for beneficiaries in terms of observable change in performance, behavior or status of resources.

**Outputs:** the products, capital goods and services resulting from a development intervention and which are necessary for the achievement of *project component outcomes*.

**Activities:** the actions taken by project implementers that deliver the *outputs* by using the *inputs* provided (some practitioners do not define activities, relying only on the detailed specification of inputs and outputs).

**Inputs:** the human and material resources financed by the project.

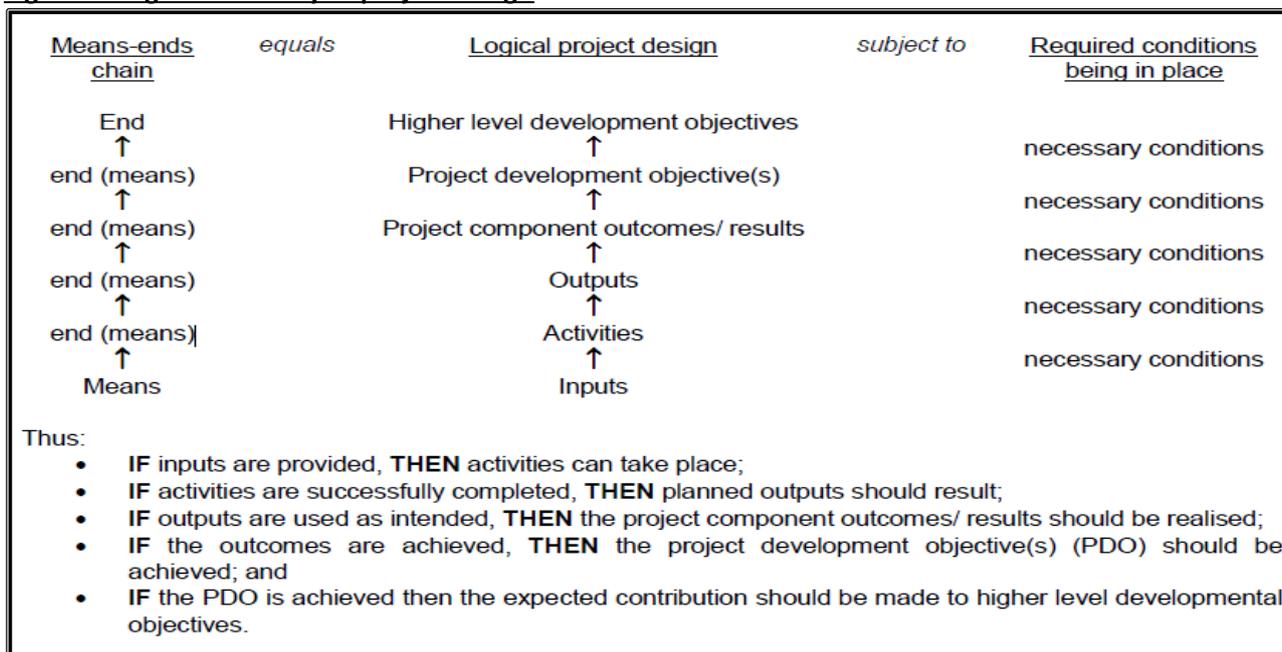
Source: WB 2008

**One of the main challenges involved in the use of LFA for project planning is the identification of the target groups and their needs. Confusion is also common when identifying project outputs and outcomes, PDOs, etc.** The Guidance Note 2 of the WB 2008 gives a detailed account of the stages in logical framework analysis, and the principles to be applied when dealing with each of the following stages in LFA:

- identification of target groups and their needs
- setting objectives and outcomes
- identifying the outputs
- defining the activities
- identifying the inputs
- Assessing assumptions and risks



**Figure 1: Logical hierarchy of project design**



Source: WB 2008

**Table 1: Main elements of the Logical framework Matrix**

project Level		Indicators	Sources of verification	Assumptions and risks
Three levels of project Objective	Higher Development goals	How the higher development goal(s) is to be measured; specified in terms of quality, quantity and timeframe.	Data sources that exist or that can be provided cost effectively through completion of surveys or other forms of data collection.	If the <b>PDO(s)</b> is achieved, what conditions beyond the project's direct control need to be in place to ensure the expected contribution to the higher level development objectives?
	Project development objectives (PDO)	How the PDO(s) is to be measured in terms of its quality, quantity and timeframe	Details of data sources, how the data will be collected, by whom and when.	If the project <b>component outcomes</b> are achieved, what conditions beyond the project's direct control need to be in place to achieve the PDO(s)?
	Project components outcomes/results	Specification of how each project component outcome is to be measured in terms of its quality, quantity and timeframe		If the <b>outputs</b> are produced, what conditions beyond the project's direct control need to be in place to achieve the project component outcomes
Outputs		How the outputs are to be measured in terms of their quality, quantity and timeframe		
Activities		Indicators to assess if the activities have been carried out	(a summary of the costs and budget may be provided in this cell)	
Inputs		Indicators to check if the input was provided.		

Adapted from WB 2008



### 3.2.3 Linking project design to monitoring and evaluation

There are two types of monitoring:

- 1) **Results monitoring** involves monitoring of the following:
  - The impact of the project i.e., the extent to which the project contributes to its objectives (including unintended impacts, both positive and negative).
  - The achievement of project outcomes; measured in terms of results, which are the extent to which the observable outcomes are as planned.
- 2) **Implementation monitoring or performance monitoring:** assesses the operation and performance of the project in terms of the effectiveness and efficiency of the processes through which **inputs** are utilised in **processes** to produce the planned **outputs**.

**Implementation or performance monitoring and evaluation is a core project management function**, since ‘inputs’, ‘activities’ and ‘outputs’ are within the direct control of the management. This type of monitoring is essentially done through MIS, tracking the day-to-day implementation of the project. A good record keeping system and analysis should be sufficient for establishing a sound implementation or performance monitoring.

Table 2 provides the logical structure for project monitoring and evaluation. **Column 3 of table 3 (see highlighted columns) introduces the five criteria for evaluation** of development projects in addition to their respective definitions. These criteria can also be used to evaluate sectorial and policy level interventions:

- Relevance
- Impact
- Effectiveness
- Efficiency
- Sustainability

**Table 2: Logical structure for project monitoring and evaluation**

Logical project design	Indicators Type	Focus of M&E	Characteristics of Indicators
Higher Development goals	Impact Indicators	Results Monitoring	Long-Term wide spread improvement in society
Project development objectives (PDO) Project components outcomes/results	Outcome Indicators		Intermediate effects for beneficiaries
Outputs	Output Indicators	performance / implementation Monitoring	Capital goods, products and services produced
Activities	Process Indicators		Tasks undertaken to transform input to output
Inputs	Input Indicators		Human & material resources

Source: GN2- WB 2008

**Table 3: Linking project design and evaluation criteria**

Project logic	indicator Types	Evaluation criteria and their definitions	
<b>Objectives</b>	<b>Impact Indicator</b>	<b>Relevance:</b> The project effect on its wider environment & its contribution to the wider policy, sector or Country Assistance Strategy development objectives <b>Impact:</b> The appropriateness of project objectives to the problems intended to be addressed & to the physical & policy environment within which the project operates	<b>Sustainability:</b> The likelihood that benefits produced by the project continue to flow after external funding has ended.
<b>PDO and Outcomes</b>	<b>Outcomes Indicators</b>		
<b>Outputs</b>	<b>Output Indicators</b>	<b>Effectiveness:</b> How well the outputs contributed to the achievement of project component outcomes/ results & the overall Project Development Objective(s), & how well assumed external conditions contributed to project achievements <b>Efficiency:</b> Whether project outputs have been achieved at	
<b>Activities</b>	<b>Process Indicators</b>		
<b>Inputs</b>	<b>Input Indicators</b>		



		reasonable cost, i.e. how well inputs have been used in activities and converted into outputs	
--	--	---	--

Source: Adapted from WB 2008

Table 3 above also shows how the evaluation criteria are in turn linked to logical project design and to the types of indicator, which clearly shows that design and planning of monitoring and valuation should be closely linked.

### 3.2.4 Result based M&E

Due to increasing pressure from internal and external stakeholders, governments and international development agencies, are demanding increased accountability, transparency, greater effectiveness of development interventions and delivery of tangible results. In consequence, a lot of international agencies adopted a results-based management and enhanced results-based monitoring and evaluation of policies, programs and projects; involving a continuous process of collecting and analysing information **to compare how well a project, program, or policy is being implemented against expected results.**

*The Results Framework (called Results Based Management (RBM) by the UNDP) requires that the PDO and the intermediate outcomes / results of all project components to be specified **during project planning.***

Preparing the rigorous logical framework and Results Framework that underpins M&E requires a clear analysis of the expected developmental impact of a project and of the causal chain linking investments to outcomes and objectives. It will oblige project designers to establish and understand the causal model through which the project is expected to achieve the desired aims, and enhance the quality of project design.

The Results Framework focuses on (GN1-WB2008):

- The PDO and its outcome
- Intermediate outcomes/results - expected from implementing each individual project component, each of which contributes to the achievement of the PDO.
- Outcome indicators corresponding to each project development objective and results indicators corresponding to each project component result
- How the outcome information and results monitoring should be used.

**Specifying how the outcome information and results monitoring should be used** entails describing when and how to take corrective action if the project is at risk of not achieving agreed targets for the selected indicators. This implies: (a) the more quantification and specification of detail the better, and (b) the importance of setting clear and time bound targets for the selected indicators that are measured throughout the project lifespan.

Accompanying the results framework should be a specification of arrangements for data collection, reporting, dissemination and use for decision-making. Adequate institutional arrangements, and organisational and human capacity, are essential for an effective M&E system. This is relevant to determination of who has responsibility for data collection.

#### Coverage of M&E features lacking in the results framework

There are three important aspects of both project and M&E design that are not included in the results framework, thus necessitating conducting full logical framework analysis during the design process:

- The results framework does not explicitly refer to the sector goals. Provisions should therefore be made to describe how the project contributes to these higher level objectives.
- The results framework does not explicitly set out expected project component outputs, activities and inputs, thus necessitating planning 'Implementation monitoring'
- The results framework does not explicitly capture the assumptions that may need to be made about necessary external conditions for project success. Identification and assessment of these critical assumptions and the risk of their non-fulfilment is therefore warranted.



### 3.3 Participatory and conventional M&E

**Participatory M&E (PME)** is a process of collaborative problem-solving (through the generation and use of knowledge) that leads to corrective action by involving all levels of stakeholders in shared decision making. In this process, project stakeholders are fully involved in initiating, defining the parameters for, and conducting the M&E including collecting, analysing, compiling and sharing the information. Its key principles are (GN11 - WB 2008):

- Local people are active participants—not just sources of information.
- Stakeholders evaluate, while outsiders facilitate.
- Focuses on building stakeholder capacity for analysis and problem-solving.
- Builds commitment to implementing recommended corrective actions.

In contrast to PME, the **conventional M&E** is driven by senior managers, and external experts who plan and manage the M&E process in which the role of the primary stakeholders is limited to the provision of information. According to the toolkit number (TKN) 4 of UNPFA (August 2004), the following principles characterises conventional M&E:

- Aims at making a judgment on the program for accountability purposes rather than empowering program stakeholders
- Strives for “scientific” objectivity of M&E findings thereby distancing the external evaluator(s) from stakeholders
- Emphasises the needs for information of program funders and policy makers rather than program implementers and people affected by the program
- Focuses on measurement of success according to predetermined indicators.

International experience with participatory approaches in development planning indicates that PME improves program quality and helps address local development needs. It increases the sense of ownership of program activities and ultimately promotes the likelihood that the program activities and their impact would be sustainable.

#### 3.3.1 When and how to use PME and who should participate:

The following summarises general considerations related to when and how to use PME (GN11, WB 2008):

- PME activities are best initiated at the very beginning of the project to increase the likelihood of mainstreaming PME in the project cycle.
- The constraints in resources availability warrants the need to prioritize when to use PME, to ensure that is used when it is more likely to be useful.
- The project together with the beneficiaries and implementers decides the timing of specific PME activities.
- There is a need to continuously assess the need for an affordable degree of participation by the possible stakeholder groups.

Participatory evaluations are particularly useful when (TKN4; UNPFA 2004)

- there are questions about implementation difficulties or program effects on stakeholders; or
- information is wanted on stakeholders’ knowledge of program goals or their view of progress.

A **conventional approach to evaluation** may be more suitable when (a) there is a need for independent outside judgment,(b) specialized information is needed that only technical experts can provide (c) key stakeholders don’t have time to participate, or (d) when serious lack of agreement exists among stakeholders that a collaborative approach is likely to fail (GN11, WB 2008).

#### 3.3.2 Who to involve in the PME

The following questions can guide the decision-making in deciding who to involve in PME (Guijt, 1999):

- Who has a perspective or knowledge that is essential?



- What skills does the monitoring/evaluation analysis require? Whose capacity should be strengthened to ensure sustainability of development efforts? The more difficult the analysis, the more caution should be used in encouraging broad participation unless it is clear who it will benefit and how.
- Whose absence will jeopardize the efforts?
- To what extent will participants change over time (e.g. if they are elected officials or seasonal farmers)?”
- What does each of the participating groups expect from the monitoring process?
- Is the process of organising and calculating the information important, or only the final information?
- Who is going to use the final evaluation? Those who are to use it should understand what the data is based upon and how it was collected and analysed.

### 3.3.3 Types of Stakeholders

- The community whose situation the program seeks to change
- Project field staff who implement activities
- Program Managers who oversee program implementation
- Funders and other Decision-Makers who decide the course of action related to the program
- Supporters, critics and other stakeholders who influence the program environment.

Source: (UNPFA 2004)

### 3.4 Indicators

Indicators are quantitative and qualitative variables that provide a means to measure change over time. They are used to assess the performance of a project against planned targets, and to demonstrate that the observed change is the result of the project interventions (WB 2008).

**Indicators should be developed for all levels of the project hierarchy;** to enable monitoring progress with respect to inputs, activities, outputs, outcomes and development objectives, and to provide feedback on areas of success and where improvement is required (See columns 1 and 2 of table 3 above)

Table 4 provides the definitions of the different types of indicators used, based on the structure of the results based approach to project design and management.

#### 3.4.1 Criteria for selecting the indicators:

GN3 of WB 2008 presents a table of criteria against which indicators should be tested before adopting them.

These are summarized below:

- **Relevant** to the project implementation aspects and the intended outcomes and impacts
- **Clearly** defined in the project context in a manner that is understood and agreed by all stakeholders
- **Specific** with respect to intended changes, timeframe, location, targets and stakeholder groups
- **Measurable** in quantitative or qualitative<sup>3</sup> terms; within the capacity of the monitoring organisation
- **Consistent** values over time when collected using the same methods (i.e. values of indicators should be reliable and comparable over time).
- **Sensitive** to the expected changes; this is especially applicable for leading indicators.
- **Attributable** (i.e.) indicator is based on an established relationship expected to cause the intended change

**Table 4: Structured indicators for project monitoring and evaluation**

<b>Impact indicators:</b> measures of medium or long term physical, financial, institutional, social, environmental or other developmental change	<b>Leading (early outcome) indicators:</b> advance measures of	<b>Cross-cutting indicators:</b> measures of	<b>Exogenous (external) Indicators:</b>
---	--	--	---

<sup>3</sup>Measurability in qualitative terms refers to the ability to collect data about the indicator rather than to quantify it, for example, collection of expert and stakeholder assessments of the capability of an organisation to carry out a specific management function (GN3-WB2008).



that the project is expected to contribute to.	whether an expected change will occur for outcomes & impacts.	crosscutting concerns at all levels.	measures of necessary external conditions that support achievement at each level.
<b>Outcome indicators:</b> measures of short-term change in performance, behaviour or status of resources for target beneficiaries and other affected groups.		Example: gender-disaggregated differences;	
<b>Output indicators:</b> measures of the goods & services produced and delivered by the project.		regulatory compliance;	
<b>Progress indicators:</b> measures of the progress and completion of project activities within planned work schedules.		legislative provision;	
<b>Input indicators:</b> measures of the resources used by the project.		capacity building.	

Source:GN3 - WB 2008

### 3.4.2 Good Practices in Identifying Indicators

Tool number 6 of UNPFA 2004 highlights the following good practices:

- **Ownership;** by involving key stakeholders in the selection of the indicators;
- **Start with program design** since implications for data collection need to be fully integrated in the design of the program, including a budget to cover data collection costs;
- Where change is being assessed, **obtain baseline information** at the start of the programs, and, if possible, data on past trends;
- **Use existing data sources and reporting systems where possible.** If data is not available, cost-effective and rapid assessment methodologies should be considered for supplementary data collection;
- **Establish Partnerships** with key stakeholders to collect the data so as to reduce costs;
- **Information management** involving planning how the flow of information relating to the indicators will be managed, stored and retrieved in a user-friendly data base.

The same source also lists some **common problems which are encountered in identifying indicators and general considerations that that the reader may find useful when selecting indicators**

### 3.5 Evaluation

As indicated earlier, program evaluation is a **management tool**. It is a time-bound exercise that attempts to **assess** systematically and objectively the design, implementation and results **of on-going and completed programs and projects**. **Evaluation should be based on the logical framework**, using the five criteria commonly used in the evaluation of development projects, and of sector and policy level interventions ([chapter 3.2.4 above](#) and Table 3).

There are several kinds of evaluations, **ranging from program reviews, interviews with key stakeholders, focus group meetings, performance audits, etc.** (not requiring much of additional data) **to full scale impact evaluation**. In the early phases of implementation, evaluation may be no more than the annual review of inputs and outputs to guide the allocation of further resources during the next year, but as one progresses up the results chain, the tasks of evaluation can become increasingly more challenging as they require more data (FAO-WB 2008). According to GN9 of the World Bank 2008, the role of evaluation is:

- Analyses why intended results were or were not achieved
- Assesses specific causal contributions of activities to results
- Examines implementation process
- Explores unintended results



- Provides lessons, highlights significant accomplishment or program potential, and offers recommendations for improvement

### 3.5.1 Objectives of program evaluation

Below is a summary of the objectives listed in TKN2 of the WB-UNPFA 2004:

- To **inform decisions on operations, policy, or strategy** related to on-going or future program interventions;
- To **demonstrate accountability** to decision-makers thus leading to better results and more efficient use of resources.
- To enable **corporate learning** on what works and what does not work and why;
- To **verify/improve** program **quality** and **management**;
- To **identify successful strategies** for extension/expansion/replication;
- To **modify unsuccessful strategies**;
- To **measure effects/benefits** of program and project interventions;
- To **give stakeholders the opportunity to have a say** in program output and quality;
- To **justify/validate** programs to donors, partners and other constituencies.

### 3.5.2 Evaluation Steps

These normally include the following steps (TKN 2-UNPFA 2004)

- **Defining standards** against which programs are to be evaluated. Such standards are defined by the program indicators;
- **Investigating the performance** of the selected activities/processes/products to be evaluated based on these standards. This is done by an analysis of selected qualitative or quantitative indicators and the program context;
- **Synthesizing the results** of this analysis;
- **Formulating recommendations** based on the analysis of findings;
- **Feeding recommendations and lessons learned back** into program and other decision-making processes.

### 3.5.3 Impact evaluation

Impact evaluation focuses specifically on the developmental changes that have occurred and to what they can be attributed. It has a critical role to play in increasing knowledge about what works and what does not. Impact evaluations can be immensely valuable but are not easy to carry out. **It can be undertaken at any level: project, sector or country.** Ideally, it requires information on key indicators before (baseline data), during and after the specific intervention or reform and draws on the MIS to provide data for making comparisons over time and against comparable “control” information, but it also requires information from the clients – the intended beneficiaries.

It is important that, where an impact evaluation is assumed that it will be carried out; **careful thought is given at the very start of the project to the selection of indicators to be monitored** so that they catch the most critical stages of the expected mechanisms through which the program/project services are to be transmitted. This would minimise the additional data demands of the evaluation (FAO-WB 2008).

The guidance note No. 9 of the WB 2008 presents the overarching themes that should be addressed when planning and implementing an impact evaluation, in addition to the associated techniques which are beyond the scope of this background paper.

## 4. THE DATA FRAMEWORK

In order to meet the needs for the different indicators at each of the four project levels (inputs, outputs, outcomes and impact), the M&E system needs to draw on information coming from a variety of different sources; involving both primary data (collected directly by the party/agency concerned) and secondary data



(collected by other organisations for purposes not specific to the project concerned). **However potential problems with secondary data can arise in a number of ways.** For example (GN6-WB 2008):

- incomplete coverage of the specific project area;
- inability to disaggregate the data to match the boundaries of the project area or affected population;
- inconsistencies in data collection in surveys implemented in different areas,
- inaccuracies due to inappropriate choice of measurement and collection methods or inadequate training and supervision of data collection staff.

The periodicity, extent of coverage and accuracy requirements varies according to the level of the indicators. Input indicators which are required to inform short-term decision-making need to be produced frequently and regularly (every 1-6 months). Output indicators, involving longer reporting period can be produced once in a year. Moving further up the results chain, data collection becomes more complicated, the tools less reliable, and the results more questionable. It is hence advisable to use information from different sources and to use different methods to arrive at a reasonable estimate of the project outcome under review (FAO-WB 2008)

Any data collection system used for a project M&E should be assessed in terms of (GN6-WB 2008):

- **Reliability:** the extent to which the data collection system is stable and consistent across time and space
- **Validity:** implying that indicators measure as directly and accurately as possible the changes of relevance to project management and
- **Timeliness:** measured with regards to *regularity* data collection; *currency* (how recently data have been collected and how this matches implementation ‘milestones’); and *availability* (provision of information at the right time to support management decisions).

#### 4.1 Planning requirements:

Arrangements for monitoring and uses of M&E information should be identified early on during the project design including data sources, data reliability and data collection arrangements and its associated costs. Early identification of mechanisms for analysis, reporting, and use of the findings, will also help avoid over-collection of data (GN6-WB 2008). Any plan for the project M&E system should be based on a clear and detailed assessment of the following:

- **What** are the data to be collected, from which sources, in what form, with what degree of aggregation or consolidation, and for what purpose
- **When;** in terms of the frequency of data collection and reporting
- **Who** are the responsible persons, their responsibilities and capacities
- **How** will data be collected, checked, validated and stored, analysed, reported, and used
- **Where** is the data location and processed, and the destinations for reported information.

#### 4.2 Data Management (collection, storage, analysis and reporting)

Indicators for inputs, processes and outputs will generally come from project management records originating from field sites, and will be part of the project management information system. Measuring outcomes and impact typically requires the collection of primary data from formal sample surveys, used in combination with other qualitative methods which range from ad hoc meetings and interviews to the more expensive, accurate, valid and time consuming surveys, census and field experiments).

Selection of the data collection method will depend on the project and project area characteristics, resource and time availability and the needs of the information users, all of which should be weighed when seeking to achieve the required levels of reliability, validity and timeliness discussed in [chapter 4](#) above. Hence, for “implementation monitoring” which requires timely provision of information, using the less structured and costly collection strategies would be preferred. In contrast, rigorous approaches to impact evaluation will generally require a more formal and structured approach. For major data collection exercise, carrying out pilot



testing can help reveal whether a data collection tool can reliably produce the required data, and how best the data collection procedures can be put into operation.

Existing secondary data may also provide an alternative (subject to the limitations discussed in [chapter 4](#) above). There must be adequate capacity for baseline data collection and repeat surveys that will compile a continuous or periodic time series of data for key indicators. Where possible, it may be better to add project-specific regular surveys on to existing national or area surveys than to create a new data collection facility (GN6 – WB 2008).

M&E Information is stored and managed either in a management information system or on in separate, but related, monitoring system.

**In order to ensure the quality of the M&E, it is important to:**

- Ensure training and supervision of field staff and stakeholders involved in data collection.
- Ensure that data checking and validation are routine in-office activities carried out for all data collected from the field prior to final data entry, storage and analysis. Data coming in from the field needs to be checked for coverage, completeness and as far as possible for obvious sources of error, bias and inaccuracy prior to computer entry. Consistency checks can be developed and applied to test the internal validity of the data collected.
- Once data entry is completed then the computerised records should also be checked against the original survey forms used.

**Data Analysis**

Procedures for computing indicators from the raw data should be established in advance. Documentation made available to the data analyst should be provided. These include information needed to interpret the data, and to conduct the analysis.

In case of qualitative data, most learning is obtained by writing descriptive summaries and collating and sorting these summaries into categories of response. Qualitative information drawn from interviews, observations and documents can be processed through content analysis involving looking for patterns in the data and moving beyond description toward developing and understanding of program processes, outcomes, and impacts. As far as possible stakeholders should be involved or consulted as open-ended discussions about the analysis will help explain the data and develop a collective and iterative learning process (GN6-WB 2008)

**Reporting and using M&E findings**

A **communication strategy needs to be developed at the beginning of the project** that will address who will receive what information, in what format, and when. It should also state who will prepare, deliver and report the M&E findings. Reporting M&E findings will generally entail comparing actual outcomes to targets showing the indicator trend with regard to its target value as a function of time and space (GN6-WB 2008).

The main point of the M&E system is to get relevant information to the appropriate users in a timely fashion so that the performance feedback can be used to better manage projects and organisations. M&E information should be used for adaptive management involving refining or revising the project approach and adapt to changing circumstances. The mid-term review is usually a good opportunity to assess the project approach and, if necessary, revise it with partners. M&E information should be collected, analysed, and reported in advance to prepare for this review, and necessary diagnostic studies commissioned where there are performance problems.

Another important use of M&E information is to improve operational resource allocation decisions and identify and plan for additional needs and resources requirements, especially by monitoring disbursements flows and outputs.

Finally, M&E information helps build ownership by the communities involved and awareness. Internally produced information on outputs, outcomes, and impacts can also be broadcast.



## 5. SETTING UP A STRATEGY FOR ESTABLISHING AN M&E SYSTEM

Setting up a project M&E system involves nine steps that need to be considered in the planning stage and throughout project implementation (WB 2008): These are summarised below:

1. **Assess the existing readiness** and capacity within the organisation and its partners responsible for project implementation for monitoring and evaluation. Identify which organisations (universities, private consultants or government agencies) have the capacity to provide technical assistance and/or training.
2. **Establish the purpose and scope of the M&E system** by providing answers to the following questions:
  - Why is M&E needed and how comprehensive should the system be?
  - What are the national requirements with regard to M&E?
  - What should be the scope and degree of rigour of the evaluation of final project impact?
  - Should the M&E planning and implementation process be participatory?
3. **Identify and agree with main stakeholders on the project's outcomes and development objective(s).** This is a prerequisite for specifying outputs, activities and inputs, indicators, baselines and targets
4. **Select key indicators** (for all levels of project logic) **and evaluation framework** which sets out the methods to be used to address whether change observed through monitoring indicators can be attributed to the project interventions
5. **Set baselines** which establish the pre-project condition against which change can be tracked and evaluated **and plan data collection and analysis.** Baseline data must be gathered for the key indicators possibly through implementation of a baseline survey unless existing data sources are adequate. Subsequent data gathering and repeat surveys during the period of the project and beyond should then be planned. Data collection may be continuous or periodic depending on the nature and purpose of an indicator. Ideally there should be sufficient capacity and resources to allow ad hoc special studies or investigations to be carried out to address specific problems or issues revealed by the on-going evaluation of monitoring data.
6. **Select results targets** taking into account planned resource provision and activities and following logically from defining outcomes, indicators and baselines. A target is a specification of the quantity, quality, timing and location to be realised for a key indicator by a given date. Starting from the baseline level for an indicator the desired improvement is defined. Most targets are set annually, but some could be set quarterly or for longer periods. Targets may be expressed to reflect a range of achievement and should be revised -to take account of changing factors beyond the control of project management – but not to disguise poor performance. As outcomes are typically longer term it is usually necessary to establish targets as short-term outputs on the path to achievement of an outcome. For project management, targets for 'leading indicators' are particularly useful. Interim targets over shorter time periods for which inputs can be better known or estimated, and set with reference to desired outcomes and impact, are also important for process-orientated interventions for which work plans and resource provision are not fully planned in detail in advance.
7. **Plan monitoring, data analysis, communication and reporting:** 'Implementation monitoring' to track the inputs, activities and outputs in annual or multiyear work plans, and 'results monitoring' to track achievement of outcomes and goals, are both needed. The demands for information at each level of management need to be established, responsibilities allocated, and plans made for what and how data will be collected and analysed and when, who collects and analyses data; and who reports information, in what form, and to whom and when. An assessment of the flow of information and degree of detail needed by each level of management will help to clarify the indicators to be measured. Participation of stakeholders in the M&E system will have important implications on data collection mechanisms, analysis, reporting, and use.
8. **Plan the form and timing of critical reflection and interim evaluations:** Evaluation should be a continuously available mode of analysis for managers that should be utilised whenever evaluation results



can be useful. Scheduling of management team meetings can be useful to ensure that analysis of progress and critical reflection takes place. Similarly, periodic project review workshops to facilitate analysis and discussion with the stakeholders may be necessary. Supervision requirements may require periodic and formalised evaluations to take place. Planning for the data needs and analysis requirements for midterm, terminal and ex-post evaluations should be linked to the planning of monitoring and choice of evaluation framework. A timetable of formal evaluation reports should be established. An indication also needs to be given at the design stage about feedback mechanisms for evaluation results.

9. **Plan for the necessary conditions and capacities.** This includes planning the organisational structure for M&E, including whether an M&E unit is needed. Appropriate organisational structures for M&E should be discussed with stakeholders and partners and responsibilities and information requirements established. Planning should cover: staffing levels and types, responsibilities and internal linkages, incentives and training needs, relationships with partners and stakeholders, horizontal and vertical lines of communication and authority, physical resource needs and budget.

### 5.1 Main Components of a good M&E system

A good M&E system has six main components to help ensure that M&E is relevant to the project, and is used to good effect.

1. Clear statements of measurable objectives for the project and its components.
2. A structured set of indicators covering: inputs, process, outputs, outcomes, impact, exogenous factors and cross-cutting factors.
3. Data collection mechanisms capable of recording progress over time, including baselines and a means to compare progress and achievements against targets.
4. Where applicable, building on data collection with an evaluation framework and methodology capable of establishing causation (attribution).
5. Clear mechanisms for reporting and use of M&E results in decision making.
6. Sustainable organisational arrangements for data collection, management, analysis and reporting.

## 6. HIGHLIGHTS OF LESSONS LEARNT & THE POSSIBLE IMPLICATIONS FOR THE PROPOSED M&E SYSTEM:

- Ideally, the proposed M&E system should be result-based, involving two levels, the PDOs and the outcomes. However LFA remains the best way to establish the causal sequence from project inputs, activities, outputs to outcomes and PDOs. The design of monitoring systems largely focuses on the establishment of the indicators that permit to assess the achievement of at the respective levels. The application of this approach to the PIM/IMT programs meets the difficulty that often countries do not state clearly the outcomes to be achieved but are implicit in the implementation approach followed.
- Given the objective of the system set out in the BACKGROUND of this document, the system is envisaged to monitor performance rather than results. It would also target government officials (at the level of General Directors) and WUAs leaders. These are mainly interested in outputs (involving longer reporting periods) to ensure the successful implementation of the PIM/IMT process and the efficient performance of the WUAs, with a view to prompt/bring about corrective actions and adaptive measures at both the lower and higher levels. With this in mind, the development of indicators to monitor activities is not necessary. However countries which have already embarked on the process would have to select the prospective outputs that correspond to their stated outcomes and objectives (if they are explicitly stated) and realign their activities to ensure that the desired outputs of the process are achieved. This implies that the system has to be broad enough to account for the PCs specificities. For those countries which did not yet launch the PIM/IMT process, it would be easy to design the activities while taking into consideration the relevant outputs defined in the system.



- Regardless of the stage of development of the PIM/IMT process in the PCs, certain propositions have to be made and vetted in a participatory approach with the countries including the following:
  - A set of desired outputs as a result of the implementation of good practices in the PIM/IMT;
  - A set of output indicators corresponding to possible outcomes that would be realised if outputs are achieved. The system should allow the partners to specify the baseline and targeted values, as applicable;
  - A set of indicators to assess the impacts associated with PIM/IMT process (social, economic and environmental)
- The references consulted in this part of the document provide good guidance ~~for on~~ the criteria for the selection of indicators, and the steps for setting up a project M&E systems which need to be considered in the planning stage and throughout project implementation. The nine steps represent a set of best practices that should guide the planning and implementation of the proposed Regional M&E system, whenever applicable.
- The following shall guide the implementation of the system in the pilot areas:
  - ~~During the implementation of the system in the pilot areas, involving~~ Involving the local partners in the refinement of indicators to suit local conditions is essential to ensure ownership.
  - Existing data sources and reporting systems will be used to feed information into the proposed M&E system.
  - In order to minimise the cost of data collection, arrangements for the provision of secondary data from non-partner organisations should be made, provided this data matches the specific requirements of the system ([Chapter 4](#) above)
  - Arrangements for monitoring and uses of M&E information should be identified early on during the pilot implementation (including data sources, frequency of data collection, and reporting requirements, relevant staff responsibilities for data validation, processing, storage and retrieval, etc.)
  - Arrangements for training of relevant staff on the M&E system and in data collection and processing, and how to use the findings of the M&E should be made including the identification of who will report to whom



## PART B. REVIEW OF SELECTED M&E SYSTEMS USED BY INTERNATIONAL AGENCIES FOR ASSESSING PIM/IMT PROGRAMS

This part focuses on the M&E methodologies that some international agencies use to assess the PIM/IMT programs in their different phases. The number of bibliographical references on this topic is limited due to the fact that not many international organizations are active in supporting the establishment of WUAS or similar organizations. In fact, the present document focuses on three main references, namely: the “Toolkit for Monitoring and Evaluation of Agricultural Water Management Projects” by the WB of 2008, the FAO- IWMI publication on “Irrigation management transfer. Worldwide efforts and results” of 2007 and the USAID report No. 59 “Irrigation management transfer: framework for monitoring and evaluation” of 2002

### 1. BACKGROUND

At present some 60 countries are engaged in the implementation of PIM/IMT programs in the world with a great diversity of strategies and objectives to be achieved. Despite this heterogeneity, researchers tend to distinguish between two main categories. The first one has the objective of transferring all the management responsibilities to the farmers’ organisations and they correspond to the Irrigation Management Transfer (IMT) model. Mexico, Turkey, Colombia, Peru and others are good examples of such approach. The other model aims at a participatory management where some functions are transferred to the farmers’ organisations while others are retained by the government agencies. This is known as Participatory Irrigation Management (PIM). Examples of such system are found in Morocco, Jordan, Egypt and many other countries.

These two models are also characterized by different time horizons. The IMT model tends to be shorter in time since generally governments want to achieve a profound institutional change in a relatively short period while the PIM model has a propensity to be of much longer time horizon since the institutional change are of more gradual nature.

In any case, these programs are not like an engineering project where all the inputs and expected results are well defined before starting. They are characterized by a great degree of variability in the inputs and results. They are learning processes and therefore the M&E plays an important role since it permits to modify the course of actions according to the lessons learnt.

A final consideration is that the “PIM model” is prevailing in the South Mediterranean Region and this has some implications in the design and management of any M&E system that may be used in this context. Some of the apparent implications are:

- It is important to monitor the degree of maturity of the farmers’ organisations to eventually take up more responsibilities. Hence the M&E systems should place considerable emphasis in evaluating the performance of the WUAs under their present responsibilities.
- As the time horizon is long, assessing the “implementation speed” is of less relevance, although it is always important to know the area covered by the PIM program with the passing time.
- It is also of relevance to assess the institutional changes in the Irrigation Agency and other cooperating government organisations since they are likely to affect the number of functions that are delegated to the WUAs.

### 2. REVIEW OF THE M&E SYSTEMS APPLIED TO PIM/IMT PROGRAMS BY SELECTED INTERNATIONAL ORGANISATIONS

The following references were selected from the international organisations that have developed guidelines for M&E systems for PIM/IMT:



- Guidelines No. 15 and 16 of the “Toolkit for Monitoring and Evaluation of Agricultural Water Management Projects” (2008) from the World Bank. These guidelines are reported here with some detail.
- The FAO- IWMI publication “Irrigation management transfer. Worldwide efforts and results” (2007) where an M&E system was used to assess the results of the PIM/IMT programs in 33 countries.
- The USAID report No. 59 “Irrigation management transfer: framework for monitoring and evaluation”, (2002) prepared by the IMT M&E Working Group for USAID in Egypt. The report contains a large number of suggested indicators to cover different processes, outputs and outcomes.

It should be noted that the above references are international guidance tools for designing M&E systems within the context of PIM/IMT programs. They are not the only ones but those selected are the most commonly used. In addition, there are quite a number of countries that have developed their own M&E systems. For instance, Egypt, Jordan and Tunisia have developed their own M&E systems but they are tools used within the administrative competences of the respective organisations and it is difficult to find the published documentation. However, through the findings of the questionnaires undertaken by SWIM-SM and documented in Part C of this document, some information about these systems is provided.

### 3. THE WB M&E SYSTEM FOR WUAs FORMATION (GUIDELINES NO. 16) AND FOR THE OPERATION AND MAINTENANCE (O&M) OF IRRIGATION SYSTEMS (GUIDELINES NO. 15)

This WB publication is a very complete guidance manual focusing on how to undertake M&E within the context of WB projects. In addition to the main text it contains 16 guidelines for specific situations. Two of them are particularly relevant to the purpose of this document and they are briefly summarized here. Although the guidelines are very useful, it should be kept in mind that they are for specific World Bank projects of limited duration and with highly focused objectives and therefore their use in long implementation processes like PIM/IMT will require considerable adaptations.

#### **3.1 M&E for WUA formation and support (Guidelines No. 16)**

Most of the Agricultural Development Projects of the WB include one component or more on WUAs formation and support. To complement the institutional changes brought about by WUA formation, a majority of WB projects include irrigation and water resources agency restructuring components.

The main objectives of participatory irrigation management are three-fold: to involve and empower stakeholders in the management of their water resources; to increase efficiency and cost effectiveness in service delivery; and to put in place a sustainable management framework. Guidance note (GN) No. 16 focuses on the first objective, whilst GN 15 provides more detailed information on the last two objectives.

##### ***a) Activities, outputs and outcomes***

The important issue underlined here is that for every specific situation it is necessary to define well the activities, outputs and outcomes and the Project Development Objectives. Only by properly establishing these bases, one can define the corresponding indicators. In the guidelines an attempt has been made to establish a sort of logical sequence among the inputs, activities, outputs, outcomes and objectives as reflected in Table 5

**Table 5: Typical implementation and results framework for interventions to establish and support WUAs**

Assessment level	Examples
Project development objective	Effective and sustainable water users’ institutions and organisations established



Assessment level	Examples
<b>Project outcomes</b>	<ol style="list-style-type: none"> <li>1. Responsibility for management, O&amp;M and financing of Irrigation and Drainage (I&amp;D) systems effectively transferred from government to water users</li> <li>2. Government effectively regulating WUAs and Federations of WUAs</li> <li>3. Irrigation water delivery is reliable, adequate, timely and equitable</li> <li>4. Systems are adequately and sustainably maintained</li> <li>5. Water users are satisfied with water service provision</li> <li>6. Agricultural production is not constrained by (lack of) I&amp;D service provision</li> <li>7. Adequate fees are recovered from water users to cover Management, Operation and Maintenance(MOM)costs</li> </ol>
<b>Project outputs</b>	<ol style="list-style-type: none"> <li>1. Legal framework for WUAs formulated or revised and in use</li> <li>2. Effective and functioning WUA Support Units</li> <li>3. WUAs legally formed and functioning effectively – democratic, representative, efficient and effective in work functions</li> <li>4. WUA Federations legally formed and functioning effectively</li> <li>5. National WUA Association formed and functioning effectively</li> <li>6. WUA Regulatory Unit formed, staffed and functioning effectively</li> <li>7. WUA offices established, equipped and functioning effectively</li> <li>8. WUA personnel trained and effective in their job functions</li> <li>9. Water users contacted and made aware of roles and responsibilities</li> <li>10. Relevant government agency staff identified and made aware of roles and responsibilities for WUAs and themselves</li> </ol>
<b>Project activities</b>	<ol style="list-style-type: none"> <li>1. Enact new or upgrade existing legal framework for establishing WUAs and Federations</li> <li>2. Formation of WUA Support Units</li> <li>3. Formation and establishment of WUAs</li> <li>4. Publicity, communication and awareness campaigns</li> <li>5. Training and capacity building programs</li> <li>6. Development of management capability, including record keeping and performance monitoring</li> <li>7. Development of financial management capability</li> <li>8. Development of technical management capability (system operation and maintenance)</li> <li>9. Support for the purchase of maintenance machinery and equipment</li> <li>10. Development of processes and procedures for WUA Regulatory Authority</li> <li>11. Formation and establishment of Federations of WUAs</li> <li>12. Formation and establishment of National Association of WUAs</li> </ol>
<b>Project inputs</b>	<ol style="list-style-type: none"> <li>1. Specialist inputs – legal specialists, WUA specialists, institutional development specialists, training specialists</li> <li>2. Beneficiary participation</li> <li>3. Offices, machinery, equipment, vehicles and materials</li> </ol>

For each of the activities in table 5, the guidelines try to identify some of the possible outputs and outcomes. As an example table 6 illustrates the outputs and outcomes for the activities number 1 and 2.

**Table 6: Key activities, outputs and outcomes for WUAs formation and support**

No.	Activity	Possible outputs	Possible outcomes
1	Enact new , or upgrade existing , legislation for establishing WUAs and	<ul style="list-style-type: none"> <li>• Existing water law revised</li> <li>• New WUA law enacted</li> </ul>	WUAs legally registered under new WUA law



	federations	<ul style="list-style-type: none"> <li>• Model WUA statutes drafted</li> <li>• Model WUA by-laws drafted</li> </ul>	
2	Formation of WUA Support Units	<ul style="list-style-type: none"> <li>• WUA Support Units (SUs) formed and functioning with offices, vehicles and equipment</li> <li>• Trained Support Unit personnel</li> </ul>	Formed and functioning WUAs, ably supported by the WUA Support Unit

This exercise has been done for all 12 activities and it can be consulted in the original publication (WB 2008). The resulting number of outputs and outcomes is excessive but it is an interesting exercise to identify outputs and outcomes.

For each of the assessment levels the corresponding indicators should be developed. However, during the project life, managers are particularly concerned with monitoring the activities since this will provide a good assessment of how the implementation is proceeding. Furthermore the “logical framework” theory assumes that if the activities are carried out satisfactorily the outcomes are automatically achieved. Hence monitoring the activities implies indirectly monitoring the outputs. However, it should be noted that achieving the outputs does not imply that the outcomes are automatically achieved since the project risks may influence their achievements.

**b) Implementation monitoring**

As pointed out above, managers are particularly concerned with monitoring the implementation of their project or programs. This means that close monitoring of the activities is necessary. Therefore, it is particularly relevant to develop a set of indicators for each activity that provides good information on the progress made in the achievement of the activity. As “implementation monitoring” is normally part of the management process of the project, the proposed indicators should be regularly collected, the interval (quarterly, bimonthly, annually) depends of the nature of the activity. This type of monitoring is less suitable for situations in which the project is approaching its end, whereby monitoring of project outcomes and results becomes more relevant.

In the mentioned guidelines the authors have developed a tentative list of indicators for each of the 12 activities. As an example, Table 7 illustrates the proposed indicators for five out of the twelve activities indicated in Table 5.

**Table 7: List of possible activities and indicators for monitoring implementation of WUAs establishment and support**

No.	Activity	Indicators
1	Enact new, or upgrade existing, legislation for establishing WUAs and Federations	Status of legislation (drafted, enacted, in use)
2	Formation of WUA Support Units	<ul style="list-style-type: none"> <li>• Number of Support Units formed (each quarter, year)</li> <li>• Number and types of staff</li> <li>• Training events carried out (for Support Unit staff)</li> </ul>
3	Formation and establishment of WUAs	<ul style="list-style-type: none"> <li>• Number of WUAs formed (each quarter, year)</li> <li>• Milestone achieved (formed, staff hired, O&amp;M plan prepared, etc.)</li> <li>• Area covered by WUAs (area and as a percentage of the total irrigable area in the country)</li> <li>• Number of WUAs formed in each Region</li> <li>• Assets transferred from government to WUA account</li> </ul>



No.	Activity	Indicators
4	Publicity, communication and awareness campaigns	<ul style="list-style-type: none"> <li>• Status of campaigns (needs identified, material produced, campaign started, activities done, etc.)</li> <li>• Number and types of people, communities, agencies, etc. contacted through the campaigns</li> <li>• Impact evaluation (pre- and post-campaign awareness assessment)</li> </ul>
5	Training and capacity building programs	<ul style="list-style-type: none"> <li>• Status of program (needs identified, training plan produced, training material produced, trainees identified, training course run, etc.)</li> <li>• Number and types of training courses carried out</li> <li>• Number and types of people trained</li> <li>• Training evaluation (pre- and post-training knowledge tests, pre- and post-training assessment of understanding, knowledge and skills)</li> </ul>

Each of the indicators mentioned in Table 7 needs to be defined and the score given. Annex 1, table 38 provides an example of such definitions and the suggested score system.

Performance indicators of WUAs are normally grouped in three categories, namely: institutional, financial and technical.

- The **institutional** indicators focus on the membership, level of representation and level of accountability within the WUA.
- The **financial** indicators focus on the area irrigated and the level of fee collection from the irrigated area. Best practices in financial management processes are also considered by checking if the WUA has an accountant, and that the association’s books have been audited and found satisfactory.
- The **technical** indicators focus on water distribution and system maintenance, with a check that sufficient funds are being invested in the maintenance of the infrastructure. The authors give an example of a list of 18 indicators with relative scores used in a project, which can be consulted in the original publication. The technical performance of WUAs is treated in much detail in the Guidelines No. 15 in ([chapter 3.2 below](#)).

In developing the Implementation monitoring systems it is important to consider the achievement of milestones. Milestones are particularly important activities reflecting that an important part of the project or program has been achieved. For instance in table 7 above activities number 1 and 3 could be milestones.

**c) Results and Participatory monitoring**

Most of the material presented above is applicable also to “results monitoring” and it only needs a more rigorous logical framework applied to the specific program in a given country. It is not a simple exercise and requires a careful definition -during the design phase of the project- of the results to be achieved. Results monitoring is particularly useful in programs or projects which have been ongoing for some time and the government desires to verify if the output and outcomes/results have been or will be achieved.

Participatory M&E has already been defined in the Part A and has great advantages in assessing institutional changes at the local level since it provides means to collect and systematically capture data that reflects local people’s views and perceptions. Participatory monitoring is fully compatible with the results monitoring involving the participation of stakeholders in defining the results.



**d) Impact monitoring**

Interim impact studies can be carried out by the project through a program of pre-and post-intervention data collection. This assessment measures the performance before and after WUA formation and system rehabilitation, producing data for the following indicators:

- Cropping intensity (%)
- Water supply per unit command area (m<sup>3</sup>/ha)
- Water supply per unit irrigated area (m<sup>3</sup>/ha)
- Total gross value of production per unit command area (\$/ha)
- Total gross value of production per unit water supply (\$/m<sup>3</sup>)
- Total Irrigation Service Fee (ISF) collected per unit command area (\$/ha)
- Total ISF collected per unit water supply (\$/m<sup>3</sup>)
- Percentage payment to Service Provider (%)
- ISF collection rate (%)
- ISF collected as a percentage of gross value of production (%)
- O&M expenditure per unit command area (\$/ha)
- O&M expenditure as percentage of total ISF collected (%)
- Maintenance expenditure per unit command area (\$/ha)

**3.2 M&E of operation and maintenance of Irrigation systems (Guidelines No. 15)**

Many projects of the WB include a component aimed at improving the management, operation and maintenance (MOM) of the irrigation and drainage systems. Improving the MOM may not be necessarily linked to the establishment of WUAs but often does. Usually this institutional component covers also a number of activities addressed to modify the way in which the government Irrigation Agency operates. The latter activity is mentioned in several of the tables and indicators of the subject guidelines but it is not necessarily a formal part of the WB project.

It should be noted that these guidelines assume that the organisation responsible for the management of the irrigation system (be it a government irrigation agency or a WUA), has the responsibility for the operation, maintenance and financial management of the system.

**a) Activities, outputs and outcomes**

As in the previous guidelines the authors present a tentative link among the inputs, activities, outputs, outcomes, project outcomes or results and development objectives. Table 8 presents the details. Comparing this table with Table 5 provides an interesting insight of two processes that have some similarities but are essentially different.

**Table 8: Typical implementation and results framework for interventions to improve management, operation and maintenance of irrigation and drainage systems**

Assessment level	Examples
<b>Project development objective</b>	(a) Improved and sustainable increase in irrigated agricultural productivity; or (b) Increased productivity of water; or (c) Sustainable management of water resources for irrigation
<b>Project outcomes</b>	<ol style="list-style-type: none"> <li>1. Improved level of service delivery</li> <li>2. Reduction in total volume of water diverted for irrigation</li> <li>3. Increase in agricultural productivity per unit of water diverted</li> <li>4. Reduction in area waterlogged or salinized</li> <li>5. Reduction of, or reversing, the decline in groundwater levels</li> <li>6. More reliable, timely and adequate irrigation water supplies to all parts of the</li> </ol>



Assessment level	Examples
	irrigation network 7. More reliable, timely and adequate drainage of the irrigated area 8. Improved setting and recovery of irrigation service fees (ISFs) 9. Income and expenditure on O&M matches requirements
<b>Project outputs</b>	1. Restructured government I&D agency 2. Knowledgeable and skilled personnel 3. Improved O&M and fee recovery processes and procedures 4. Trained O&M personnel 5. O&M manuals produced and in use 6. Asset management processes established and in use
<b>Project activities</b>	1. Study options for re-organizing/restructuring of government I&D agencies 2. Establish a service delivery culture within the I&D agency 3. Establish or update procedures for management and administration of I&D systems, incorporating the use of modern technology (computers, communication systems, etc.) 4. Study and develop, or update, norms for financial requirements for sustainable management, operation and maintenance (of I&D systems 5. Establish systems for setting and recovery of Irrigation Service Fees (ISFs) 6. Establish or update procedures for operation of I&D systems, both at the main system and on-farm level 7. Establish, or update, processes and procedures for maintenance of I&D systems 8. Establish asset management procedures for long-term sustainability of I&D infrastructure 9. Establish costs for sustainable maintenance of I&D systems 10. Preparation of MOM manuals 11. Training and capacity building of I&D staff, and water users
<b>Project inputs</b>	1. Specialist inputs (in management, operation and maintenance, institutional development, and training) 2. Beneficiary participation 3. Equipment, vehicles and materials

For each one of the 11 activities some possible outputs and outcomes have been elaborated in the guidance note but are not presented here because they are exercises that may vary considerably and already one example was provided under the formation of the WUAs (See subheading a) and b) under [chapter 3.1](#), part B above)

### **b) Implementation monitoring**

The distinction between results monitoring and implementation monitoring is less clear-cut in the case of **interventions to improve management, operation and maintenance** of irrigation and drainage systems<sup>4</sup>, than it is in the case of rehabilitation and modernization aspects of a project characterized by construction of

<sup>4</sup>M&E of the construction of physical components of rehabilitation projects primarily focus on the **quantity, quality, cost** and **timing** of the works carried out, with a relatively simple set of performance indicators required. Key tools in the M&E process are project management packages, such as Microsoft Project, or spread sheets in which the planned and actual situation can be recorded, plotted and compared (Source: GN 14, WB2008)



physical components. The focus of implementation monitoring in the former is on progress made towards achieving the outputs as defined in Table 8, such as:

- Completion of the training needs assessment and preparation of the Training Plan;
- Commencement of training and numbers trained
- Preparation of the guidelines for preparing asset management plans;
- Progress with carrying out asset surveys of the system, systems or parts of system(s);
- Surveys to identify maintenance requirements and costs;
- Preparation of guidelines for preparation of ISF tariffs;
- Progress with awareness campaigns on ISF tariff and ISF collection.

### c) Results monitoring

The guidelines emphasize the need for establishing an M&E systems based on the outcomes or results to be achieved. The improvement of the MOM seeks mainly to provide a more reliable, adequate and timely delivery of the irrigation water (the performance of which is measured using the indicators outlined in bullet (d) below). Examination of these indicators shows that this would ultimately lead to some of the outcomes mentioned in the Table 8. However, it should be taken into consideration that not all of the listed outcomes apply to all projects.

Based on these considerations the authors propose a list of 26 indicators grouped by the main categories of observation as illustrated in Table 9. The proposed indicators are reported in [Annex 1](#), Table 39.

### d) Irrigation Water delivery indicators

As water delivery is one of the essential functions of WUAs it may be desirable to analyse it in greater detail. For this purpose it will be necessary to consider the following criteria

- Reliability
- Adequacy (of supply)
- Timeliness
- Equity
- Efficiency
- Productivity
- Cost (and cost effectiveness)

For each of the mentioned criteria several indicators are recommended as detailed in table 10

**Table 9: Number of indicators proposed for the main areas of results monitoring of improved operation and maintenance of Irrigation systems**

Main areas of monitoring	Number of indicators <sup>5</sup>
Agricultural production	8
Irrigation water delivery	5
Financial	7
Drainage and water removal	1
Environmental protection	5

**Table 10: Water delivery indicators**

Criteria	Performance Indicators	Definition	Notes
Reliability	Relative Water Supply (RWS)	(Volume of irrigation water supply)/(Volume of irrigation water demand)	Variation of the RWS at the main canal intake and at tertiary intakes during the season indicates the level of reliability of

<sup>5</sup>See also Table 38 in Annex 1



Criteria	Performance Indicators	Definition	Notes
Adequacy (of supply)	Delivery Performance ratio (DPR)	(Volume of irrigation water supplied)/ (Target volume of irrigation water supply)	water supply and delivery Variation of the DPR at tertiary unit intakes during the season indicates the level of reliability water delivery
	Relative Water Supply (RWS)	(Volume of irrigation water supply)/(Volume of irrigation water demand)	Measured at main canal intake and each tertiary unit intake. Target value = 1.0, less than 1.0 indicates water shortage
	Delivery Performance Ratio (DPR)	(Volume of irrigation water supplied)/ (Target volume of irrigation water supply)	Measured at main canal intake and each tertiary unit. Target value = 1.0. If there is a water shortage the target supply may be less than the actual irrigation water demand.
Timeliness	Dependability of Irrigation Interval	(Actual irrigation interval)/ Planned/Required irrigation interval	The planned/required interval between irrigations is either that planned (such as in a planned irrigation rotation regime) or that dictated by the crop's soil moisture status.
	Timeliness of Irrigation Water Delivery	(Actual date/time of irrigation water delivery)/ (Planned/Required date/time of irrigation water delivery)	Compares the actual date and time of delivery (planned in the rotation or requested by the farmer) compared to the actual delivery date and time.
Equity	Relative Water Supply	(Volume of irrigation water supply)/ (Volume of irrigation water demand)	Variation of the RWS at tertiary intakes indicates degree of equity or inequity
	Delivery Performance Ratio	(Volume of irrigation water supplied)/ (Target volume of irrigation water supply)	Variation of the RWS at tertiary intakes indicates degree of equity or inequity
Efficiency	Relative Water Supply	(Volume of irrigation water supply)/ (Volume of irrigation water demand)	Comparison of the RWS at the main canal intake and the tertiary unit intakes indicates the level of losses
	Overall scheme efficiency	(Volume of water needed by crop)/ (Volume of water diverted/pumped from source)	Useful indicator. Relatively easy to obtain a meaningful value. Estimate crop irrigation water demand at the field (using FAO CROPWAT program, or similar) and measure actual discharge at main canal intake
	Main system water delivery efficiency	((Volume of water delivered (to tertiary unit))/ (Volume of water diverted/pumped from source)	Measure discharges at main canal intake and off-takes to tertiary units. Value may change due to the seasons (wet/dry), with drainage inflow possible in wet season
	Crop production per unit water supply	(Total crop production)/ (Volume of water diverted/pumped from	As measure of efficiency use to determine change in production per unit of water diverted at source. Useful for monoculture



Criteria	Performance Indicators	Definition	Notes
Productivity	Crop production per unit water supply	source) (Total crop production)/ (Volume of water delivered (to tertiary unit or field))	schemes Increasingly important indicator. Need to be careful where there is mixed cropping.
	Value of crop production per unit water delivered	(Total value of crop production)/ (Volume of water delivered (to tertiary unit or field))	Increasingly important indicator. Use the value of crop production where there is mixed cropping
Cost effectiveness	ISF <sup>6</sup> collected to GVP ratio	(Total irrigation service fee (ISF) collected)/ (Total gross value of production (GVP))	Assesses the cost of the ISF compared to the total gross value of production. Broad indicator only, as other costs are involved.
	ISF to total crop input costs ratio	(Irrigation service fee (ISF) due for the crop)/ (Total input costs for the crop)	Assesses the costs of the ISF as a fraction (or percentage) of the total input costs for planting, harvesting and marketing the crop. Often found to be in the range of 4-10% of total input costs where the ISF is set at adequate levels to recover sustainable MOM costs.

Source: Adapted from Bos et al, 2005 and Malano and Burton, 2001

Most of the indicators recommended above imply that the WUA has a good control of the water delivery system, the crop production and the costs. It is worth noting that some indicators like “Relative Water Supply” and “Crop production per Unit of water supply” can serve several criteria. This is generally necessary in order to have a more complete view of the selected criteria. In general terms, the above list of indicators is a good guide but is not unique in the sense that, for every criterion, additional indicators can be included, in order to obtain even a more comprehensive evaluation; depending on the information available in the WUAs.

These guidelines are complemented with a number of useful examples on specifications for data collection, irrigation output performance, assessment of costs and others.

#### 4. FAO - IWMI M&E SYSTEM OF WATER REPORT NO. 32

This document was jointly prepared by FAO and IWMI with the purpose of understanding better the implications of the irrigation sector embarking on large institutional reforms involving IMT programs. It concentrates on the results derived from the surveys undertaken in 33 countries. Three types of information were developed for each country, namely: 1) Country profiles developed on the basis of questionnaires, 2) case studies in some selected countries to make in depth studies and 3) legislation on water users associations. The report intends to be a knowledge synthesis document that captures the global experiences emerging from a wide-reaching process targeting the reform of the irrigation sector concerning IMT processes. The report is structured as follows:

- Chapter 1.introduces inter-alia the concepts underlying the IMT and the extent of IMT activities world wide
- Chapter 2 presents the policy and legal framework for IMT

<sup>6</sup> ISF= Irrigation service fees



- Chapter 3 focuses on the elements present in the implementation of IMT programs. It addresses IMT strategies (e.g. the scale of transfer, the scope of activities included and the speed of implementation).
- Chapter 4 brings together the outcomes and impacts derived or expected from IMT reform.
- Chapter 5 summarizes key conclusions and recommendations.

#### 4.1 Main indicators used

In the process of collecting the information necessary for this comparative study, use was made of many indicators that were intended to illustrate what every country has achieved in the domain of the main areas analysed in the report. It should be understood that such indicators were developed for comparative purposes and not as part of an integral M&E system. Nevertheless they are quite relevant since they permit the comparison of what has been achieved in the PIM/IMT programs in different countries and regions of the world.

An attempt has been made here to summarize the indicators used in the main sections of the report in Table 11.

**Table 11: Main questions and indicators used in FAO-IWMI report**

Number	Indicator	No. of possibilities or cases considered for each indicator
<b>Chapter 2: POLICY AND LEGAL FRAMEWORK</b>		
1	Factors motivating the adoption of IMT	9
2	Authority transferred (functions devolved )	6
3	Type of organisation taking over management after transfer	7
4	Entity providing water delivery and canal maintenance	7
5	Element included in the institutional framework	11
6	Legal rights and responsibilities granted to water users associations	4
7	Purposes of water users associations as specified by law	6
8	Legal rights of WUASs	6
9	Rights and responsibilities of WUA members	6
10	Roles of government irrigation sector agencies relative to WUAs and water users	12
11	Policy and institutional issues for IMT	17
<b>Chapter 3: IMPLEMENTING IRRIGATION MANAGEMENT TRANSFER</b>		
12	Steps included in IMT	13
13	Problems and issues in implementing IMT	19
14	Support services needed by WUAs after IMT	15
15	Reorientation of the irrigation agency	11
16	Additional institutional changes needed after IMT was adopted	17
17	Key lessons learned about irrigation management transfer	25
<b>Chapter 4: IRRIGATION MANAGEMENT TRANSFER RESULTS</b>		
18	Share of basic O&M functions performed by WUAs after management transfer	5
19	Sources of financing for WUA after IMT	5
20	Changes in O&M costs after IMT	6
21	Quality of maintenance	3
22	Rate of fee collection	3
23	Timeliness and equity of water delivery	6
<b>IMPACTS</b>		



Number	Indicator	No. of possibilities or cases considered for each indicator
24	Irrigated area	3
25	Crop yield	3
26	Farm income	3
27	Soil salinity and water logging	3
	Total number of possibilities or cases	230

The above table merits some comments:

1. With only 27 indicators or questions, the authors were able to provide a good overview of the implementation of the IMT in 33 countries. This provides a good reference about the number of indicators that may be necessary for analysing the IMT or PIM processes, when attempting comparison of results.
2. The number of cases or situations considered in each indicator is highly variable ranging from 3 to 25 and this is logical, since some of the questions are of more general nature while others are more specific. In any case, the total number of cases (230) is significant and indicates that the number of data to be managed is important but can be handled easily with simple storing and processing tools.

As illustrative examples of the different cases considered in each indicator, table 12 and table 13 are included. They correspond to the possible cases listed under indicators no. 10 and 19 of table 11 above.

**Table 12: Roles of government irrigation sector agencies relative to WUAs and water users**

Roles	Asia (11)	Latin America (7)	Africa (3)	Europe (3)	World-wide (24)
Make policy, laws, strategy, plans about WUAs	11	7	3	3	24
Establish WUAs & approve WUA statutes	11	7	3	3	24
Regulate, supervise & inspect WUAs	11	6	3	3	23
Provide technical assistance & training	10	3	3	3	19
Construction & rehabilitation	10	2	2	2	16
Manage main system/large systems	9	3	2	1	15
Help settle disputes	7	4	2	0	13
Grant water allocations & concessions	5	6	1	1	13
Conduct technical & management audits	6	3	1	1	11
Arrange maintenance contracts with WUAs	4	0	0	1	5
Approve WUA O&M plans & budgets	1	2	1	0	4
Set water service charges	3	0	0	0	3

**Table 13: Sources of financing WUAs after IMT**

Sources of financing	Asia (11)	Latin America (7)	Africa (3)	Eastern Europe (3)	USA, Australia, New Zealand	World-wide(27)
Water charges & dues	10	7	3	3	3	26
Fines	7	7	1	3	3	21
Government subsidies & contracts	6	4	2	1	2	15
Loans	5	4	2	1	3	15
Private sales & business	5	4	0	0	3	12



The report elaborates some interesting conclusion and recommendations based on the data collected. However, they may be out of the scope of this document, but readers are encouraged to read them since they provide a good overview of the achievements and shortcomings of PIM/IMT programs.

## 5. THE USAID REPORT NO. 59

The report No. 59 “Irrigation management transfer: framework for monitoring and evaluation”, (2002) was prepared by the IMT M&E Working Group for USAID in Egypt. The large team of authors included staff of the Egyptian Ministry of Water Resources and Irrigation (MWRI), US Agency for International development and the Agricultural Policy Reform Program. The report presents the results of the work carried out in completion of a study to develop a Monitoring & Evaluation (M&E) framework for the Irrigation Management Transfer (IMT) program at MWRI, and to be used as the basis for M&E components of other future water privatization efforts.

The report identifies 11 categories of indicators that should be collected. Table 14 provides an overview of the number indicators to be collected by category and subcategory. Compared with the former publications the number of indicators appears quite large and is questionable how such large amount of data can be collected, processed and managed, especially when the WUAs are many.

**Table 14: Number of indicators per category and subcategory**

Number	Category of indicators	Number of Indicators Per subcategory			
		For process	For outcomes	For impact	Total
1	System performance indicators	21	26	10	57
2	Indicators on changes in cost of Irrigation/drainage System maintenance	7	6	4	17
3	Indicators for Costs of Irrigation/Drainage System Operations	4	6	4	14
4	Water Utilization/Water Saving Indicators	2	3	5	10
5	Rural Economic Indicators		6		6
6	Industrial Economic Indicators		1		1
7	Environmental Indicators	4	6	3	13
8	Organisational / Institutional Management Indicators	10	5	5	20
9	Operations and Management Responsibility Performance indicators	4	6	4	14
10	Capacity-Building Indicators	5	1	2	8
11	Social Change Impact Indicators		12		12
	<b>Total</b>				<b>172</b>

Every category of indicators is divided in 3 subcategories namely: indicators for process issues, for outcomes issues and for impact. These subcategories are defined as follows:

- **Process issues** are about the dynamics of change, procedures and achievement of specific targets. A process assessment attempts to understand if implementation is being undertaken appropriately. They tend to require more qualitative indicators than do outcome and impact assessments.



- **Outcome issues** are about the immediate, direct effects of a reform program, or the achievement of essential objectives. An assessment of outcomes asks, “Are the stakeholders accomplishing their stated objectives?”
- **Impact issues** are about the ultimate, indirect effects of a reform program, or the realization of the basic goals and purposes of the IMT program. If reforms are implemented as intended, it is important to know whether the intended ultimate effects on people and the environment have been achieved. Normally, this takes longer to assess than outcomes. Impact assessment is more closely associated with evaluation than monitoring.

The report is a good source of indicators and their definitions. But the organisation of the indicators by the above categories and subdivision in subcategories is not in line with the present trend of M&E systems which focus on outcomes. However within the above categories, the report is a useful source of indicators that can be used in other contexts.

The report has also an interesting section that provides guidance for data gathering, analysis and reporting. However much of the guidance provided there is already covered in [chapter 4](#) of Section 1, Part A of this report.

## 6. LESSONS LEARNT FROM THE REVIEW

The three publications have defined the respective M&E system for different purposes and therefore cannot be compared but assessed in their own merits.

- The WB publication is certainly the most didactic by recommending a methodology that is followed in two examples: (a) the formation and support of the WUAs and (b) the operation maintenance of irrigation systems. The methodology focuses in the Logical Framework (LOGFRAME) structure and places great emphasis on the definition of the outcomes. Once they are defined, the necessary outputs are identified and subsequently the activities that are necessary to achieve the outputs. Once all these factors are defined the respective indicators are defined. This approach is sound but requires a careful definition of the outcomes, outputs and activities.
- Another significant feature of the WB publication is that it makes a clear distinction between “Implementation monitoring” and “results monitoring”. Implementation monitoring is part of the normal management of any project and is therefore part of the day to day task of managers. Results monitoring is more flexible and oriented towards assessing if the outcomes are achieved over longer processes.
- The WB publication provides quite a number of useful indicators, most of them included in this document, that can be used in similar context provided that they fit the local conditions
- The FAO-IWMI publication uses an M&E methodology for a comparative study among 33 countries to learn the lessons arising from the implementation of PIM/IMT programs in these countries. The report uses only 27 indicators to cover a wide spectrum of situations all over the world. Hence they are found quite useful when comparative, or similar regional, studies are planned and they should be kept in mind when defining the Regional M&E system.
- The USAID is of much earlier date (2002) than the other two and follows a methodology which is somewhat different from other accepted practices of M&E in present times. Nevertheless, it is a good source of indicators since some 172 are included. It has also useful considerations for the data gathering and processing in M&E systems.
- Only the WB reference (see Annex 1) touches briefly on the subject of providing scores for the indicators which is an essential issue for evaluation. A possible explanation for this gap is the largely subjective character of defining scores.



## Section 2: Analysis of responses to the questionnaire/checklist on the availability of data for the monitoring and evaluation of PIM/IMT programs in the SWIM countries

The following section presents a summary of the results of the regional review on the availability of data to monitor and evaluate the PIM/IMT process in the SWIM Project Countries (PCs). The results build on the analysis of the countries' responses to the questionnaire that was developed and disseminated to Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestine, and Tunisia. Similar to the two parts of the previous section, section 2 of this report served as background information for the Expert Group Meeting for the development of a regional M&E system related to PIM/IMT, which was held in Athens between 2 and 4 September 2013. This proved to be a useful approach since the proposed system covers many of the information gaps that were identified in the responses to the questionnaires.

### 1. STRUCTURE OF THE QUESTIONNAIRE

**The questionnaire was developed in two parts:**

**Part A** applies to the project countries where a formal M&E system has been developed to monitor the progress and status of implementation of the PIM/IMT programs. **Part B** applies to all countries regardless whether they have an M&E system or not. For reasons of clarity, **Part B** was **divided in four subsections: A, B, C and D** which correspond to the main phases of the PIM/IMT programs:

- Subsection A. Information regarding the process of establishing the water users associations (WUAs)
- Subsection B. Information regarding the implementation program of WUAs
- Subsection C. Information regarding the management performance of WUAs
- Subsection D. Information related to assessing the impact of the establishment of WUAs

The questionnaire solicited inputs from the relevant national government departments in the PCs regarding the following:

- The existing M&E system in the project countries that are used to monitor and evaluate the PIM/IMT process, and the practices associated with the implementation of these systems (in order to identify existing good M&E practices and shortcomings) without going into the details of the topics investigated within these systems. –This is applicable to Part A of the questionnaire.
- The availability of relevant statistical data, information and indicators (regardless whether the country has an M&E system or not), which would be needed to develop a regional M&E system that assesses the progress made in the different phases of the PIM/IMT program, and the extent to which good practices are observed throughout the process, to get informed about the urgency of an M&E system that can also capture qualitative information related to the implementation of key good practices (Part B of the questionnaire).

### 2. RESPONSIVENESS TO THE QUESTIONNAIRE

The questionnaire was sent during early April 2013 to the following 8 active partners countries (PCs) Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestine, and Tunisia. Responses were received from 7 countries, namely: Algeria, Israel, Jordan, Morocco, Palestine, Tunisia and Egypt. Lebanon indicated that they could not fill the questionnaire since there is no PIM/IMT program in the country. Hence, the completed questionnaires represent 87.5 % of the potential universe and accordingly provide a highly representative regional view of the countries concerned.



### 3. OVERVIEW OF THE PROCESS FOR ESTABLISHING WUAs IN THE PARTICIPATING COUNTRIES

In order to understand better the results of the questionnaire, it is necessary to introduce the evolution of the PIM/IMT processes in the responding countries. A short summary for each country is given below (Source: SWIM-SM (2012); "Regional Assessment - Water Users' Associations in the SWIM-SM Partner Countries"; assessment carried out by IAMB/Bari).

**Algeria** has done significant efforts to decentralize the management of the water resources. The law of 2005 introduced the concept of users' participation in all water affairs and some young associations have been established. However the associations are lacking the institutional and legal arrangements for the management of the irrigation systems.

The establishment of WUAs in **Lebanon** has been constrained by the long negotiations over a new legislation that will make feasible their establishment. Finally a draft strategy for water development by the Water Establishments (WE) that clearly states the need for creation of WUAs was approved in March 2012. However, to date, no formal WUAs have been established and some few cooperatives have been created that cover the function of water distribution.

**Egypt** is characterized by many initiatives resulting in a mosaic of numerous WUAs that cover diverse hydraulic range of canals (mesqas, secondary canals and few branch canals). However they still lack a legal entity. Egypt is the only case where thousands of associations were established for maintaining the drainage systems in the old lands.

**Jordan** has been active in the establishment of WUAs since 2002 and already 80% of the irrigated areas have been transferred to WUAs which have limited responsibilities. The Jordan Valley Authority maintains an active M&E system over the WUAs based on which transfer of the intended functions is made.

In **Israel** the water distribution is shared between major government organisations (Mekorot) that control most of the water sources and major distribution. At local level water is mainly managed by water associations and agricultural cooperatives. One cannot really speak of a PIM program in Israel but of some decentralization of the water management at local level through water associations and cooperatives.

Although WUAs were legally established shortly after independence in **Morocco** they only had some power after a government decree of 1998. The Regional Agricultural Development Offices, ORMVAs (Offices Régionaux de Mise en Valeur Agricole) continue to fully manage the large irrigation systems and the WUAs only carry out some specific tasks in medium and small systems. Gradually they are becoming more influential in the national irrigation policy.

**Palestine** is a sort of special case where much of the initiatives depend on the agreements with Israel. The Palestinian Water Authority (PWA) advocates the users' involvement and there are some positive examples of several cooperatives that manage their water resources but they are far from being self-sufficient and their number is small.

Since 1992 **Tunisia** became very active in the organisation of water users into Agricultural Development Groups (Groupements de Développement Agricole-GDA). Their legal status was updated in 2007. By 2011 all systems were transferred to GDAs but many are not fully operational.

### 4. A REGIONAL PERSPECTIVE OF THE FINDINGS

Part A of the questionnaire which was mostly addressed to identify which countries have an M&E system in place and its main characteristics, indicated that Egypt, Jordan and Tunisia have an M&E system for assessing their respective PIM/IMT national programs. Morocco indicated that they have only a national table with some few data with the last updates made in 2003. Jordan and Tunisia have similar

About 62.5% of the SWIM countries do not have an M&E system needed for monitoring PIM/IMT activities throughout the implementation process.



systems with a total number of indicators of around 20, while Egypt has a system with more than 100 indicators most of which are of technical nature. The rest of the countries have only some indicators about the performance of their farmers' organisations and few related to the PIM/IMT processes. Therefore a significant majority of the countries (62.5 %) do not have an M&E system for monitoring PIM/IMT activities, throughout its implementation phases.

The answers to Part B indicate that all the countries are collecting some information about the performance of existing WUAs or similar organisations (cooperatives) which suggests interest in obtaining information about their performance. However, often such information is not collected in a structured M&E system. Hence there is good potential for developing a regional M&E system that could serve all the potentially interested countries.

## 5. OUTCOMES OF PART A: EXISTING M&E SYSTEMS IN THE PCS

As indicated above **only three countries (Egypt (EG), Jordan (JO) and Tunisia (TN)) have an active M&E system for the PIM process**. The main salient points of the systems are summarized below:

### a. M&E System Objectives and Number of Indicators Used (A2<sup>7</sup>, A3 and A4)

The M&E system of Jordan (JO) covers most of the listed objectives (six out of seven), as per table 15 below, while the Tunisian M&E system covered 4 objectives, and Egypt 5. It should be noted that assessing the geographical coverage of the transferred irrigation systems is not considered among the system objectives in the case of the Egyptian System. Since no "other" objectives are specified by the countries, it is assumed that those indicated in the questionnaire cover satisfactorily the main purposes of the M&E.

Table 15 shows the responses of the three countries for greater information. To be noted is that the common objectives of the three systems are bolded and shaded in table 15 below.

**Table 15: Objectives of the Existing M&E systems and the number of Indicators used**

<b>Objectives</b>	<b>JO</b>	<b>TN</b>	<b>EG</b>
To assess the geographical coverage (area (ha), number of irrigation systems transferred, locations and farmers involved ) of the PIM/IMT program)	2	4	
To assess the degree of political commitment towards the process	3		
To assess the adequacy of the existing institutional arrangements in support of the establishment of the WUAs	2		9
To assess the technical and institutional performance of the WUAs	8	5	24
To assess the financial performance of the WUAs	2	2	4
To assess farmers needs for support to ensure the satisfactory performance of the WUAs	4	3	20
To assess the impact of WUAs establishment (crop production and socio- economic issues)			10
Others - Please specify the "Others" if any:			42

The total number of indicators used to monitor the above listed objectives ranges between 18 and 21 for Jordan, 14 for Tunisia and 109 for Egypt. While there is a good similarity between Jordan and Tunisia, the number of indicators for Egypt appears excessive to be practical. Despite the large number of indicators in the case of Egypt some important indicators are missing, which could explain why they consider that the number of indicators should increase to 130. On the contrary, Tunisia and Jordan consider that the number of indicators they use is adequate for their needs.

Table 15 also shows that the existing M&E systems concentrate on the evaluation of the performance of the WUAs, with few indicators dedicated to monitor the political support and the institutional

<sup>7</sup> The Letter refers to the Part while the numeric value refers to the number of the question in the questionnaire.



arrangements. In other words, how the process of PIM/IMT is carried out receives limited attention. In addition, only Egypt has designated indicators (in fact too many of them) for assessing the impacts of WUAs establishment.

**b. Updating of related M&E information and tools used to gather information (A5 and A6)**

Tunisia and Jordan indicate that the information is updated annually and that they use several tools for collecting information which include: participatory workshops, periodical assessments, midterm reviews, implementation completion reviews, baselines assessments and others. Egypt points out that the information is not updated at regular intervals but indicates in the comments that the M&E system is updated every 6 months including analysis of the results, and making reports about WUAs performance, and accordingly plan for further training. Hence this is interpreted that the information is regularly updated. Egypt also reported using the same information gathering tools.

**c. Type of M&E system (A7)**

Jordan has selected an “objective driven approach” while Tunisia and Egypt have selected a “participatory approach”. Both approaches are adequate.

**d. Availability of data and targets to be achieved (A8 and A9)**

Unlike Tunisia, Jordan considers data collection a serious constraint (2 and 4 points given, respectively to the degree of importance of the constraint). Egypt considers data availability a medium constraint (3 points). Considering the high number of indicators used in Egypt’s M&E system, this observation is surprising. All systems have targets to be achieved.

**e. Methods to collect M&E information (A10)**

All countries use most of the good practices in the collection of data for the M&E system indicated in the questionnaire which included; interviews with farmers (periodical sampling), field appraisals, participatory meetings, interviews/questionnaires to leaders of the WUAs, periodical reporting by WUAs on agreed data and indicators.

**f. Responsibility and Manual for data collection (A11 and A12)**

In the case of Jordan and Tunisia, the responsibility of data collection lies with the central office and local offices of the responsible governmental office. Egypt however, indicates that only the staff of the central office is responsible. This latter statement needs to be clarified considering the size of the country, its administrative division in governorates and the number of WUAs in the country. All countries have prepared a “user manual” in support of the M&E systems with instructions for collecting data, calculating the indicators and transmitting the information.

**g. Integration of the M&E system in the operation of the WUAs (A13)**

The three countries report that only some indicators are integrated in the operation of the WUAs. Tunisia indicates that the system is also fully integrated in the management of the associations. This latter statement however appears to entail contradiction with the partial integration (stated in their answer to the preceding question within the same subsection).

**h. Use of the information collected (A14)**

The three countries indicate that they use the M&E information collected to adjust or modify the policies and plans of the PIM/IMT program. However, Tunisia uses such information more extensively to (a) improve the performance of the WUAs, (b) share them with stakeholders for better understanding of the process, and (c) as information to the Central Office, while Jordan shares Tunisia with the first 2 good M&E practices (a and b)..None of these options (a to c) are considered in the case of Egypt.



### i. Comments (A15)

Comments were made by Morocco (MO) and Algeria (DZ). Morocco indicates that they only have a national table with some few data mostly concerning the geographical location of the WUAs. The comment of Algeria was mostly descriptive of the WUAs in Algeria which have limited responsibilities. Egypt indicates that the M&E system is updated every six months.

### 5.1 General observations about Part A of the questionnaire

It is remarkable to note the high degree of similarity among the answers of the three countries. This is a good indication that these countries have developed their M&E systems following similar strategies, which largely respond to the following accepted best practices:

- The monitoring systems are regularly updated (every 12 or 6 months depending on the countries). All countries use adequate gathering tools.
- Countries have used the “outcomes” or “participatory” models for developing their M&E systems. Although the participatory model is more desirable, the other one is also a very valid alternative.
- All three countries have set targets to achieve.
- Data collection is considered a high to medium difficulty which is in line with most of the monitoring systems.
- All countries use ample methods for data collection.
- Ultimate responsibility for data collection remains with the central offices; with regional and local offices supporting this work in the countries (except Egypt, which warrants some explanation considering the size of the country and the number of WUAs).
- All countries have prepared manuals for the data collection.
- All countries use the information collected to improve or modify their PIM/IMT plans but also some other purposes are covered by to different extent by the countries.

On the other hand, the integration of the M&E system in the normal operation of the WUAs seems only to be partial. The major differences between the three countries emerge from the number of objectives covered by the existing M&E systems. The Jordanian system is the broadest, Egypt is the second and Tunisia the most limited in scope which certainly justifies the smaller number of indicators.

While the number of indicators for Jordan and Tunisia are in line with the expected outcomes, the large number of indicators of Egypt (109) calls for attention. This difference seems to emerge from the fact that Egypt has many indicators dedicated to monitor environmental aspects (42), technical aspects (15) and farmers’ needs (20).

The little number of indicators that are dedicated to monitor the political support, the institutional arrangements and the impacts of WUA establishment indicates that any regional system should attempt to bridge this gap to enable **monitoring** how the PIM/IMT process is carried out (politically, institutionally and financially) and **evaluating** inter-alia the economic and environmental impacts of the operational WUAs.

### Other implications of the above observations on the planned Regional M&E system are:

- The system should use as much as possible the existing information and complement some of the existing gaps.
- The system needs to be integrated in the normal operation of the WUAs. Processing of the information is a responsibility that is normally carried out at central level
- The experience of Egypt indicates that a large number of indicators is not necessarily a constraint.
- The system should be developed in a participatory manner.



## 6. PART B, SUBSECTION A: AVAILABLE INFORMATION REGARDING THE PROCESS OF ESTABLISHING WUAs AND PRACTICES ASSOCIATED WITH THIS PHASE

As earlier indicated, Part B of the questionnaire is aimed at knowing what type of information is collected in the countries with regards to the farmers' organisations and the PIM/ IMT processes even if they are not part of a systematic M&E system and the extent to which good practices are observed throughout the process.

Part B is subdivided in four subsections. Subsection A is concerned with the available information related to the indicators needed during the process of establishing WUAs and the good practices associated with the implementation of this phase. The following subsections summarize the responses of the countries. It should be noted that Israel (IL) did not respond to this subsection since they consider that the WUAs are well established in the agricultural sector of the country, and the questions in this subsection were therefore not applicable.

### a. Assessment of the geographical coverage of the PIM/IMT programs (B.1)

Only Jordan and Tunisia have all the information listed in the questionnaire as necessary to assess and monitor the geographical coverage of the PIM/IMT program; i.e.:

- a. Total area covered by the PIM/IMT program
- b. Number of irrigation systems under the partial or total management of the farmers
- c. Number of farmers benefiting from the program
- d. Distribution of the transferred irrigation systems by administrative area/district

Algeria and Palestine (PA) have some data on (a) the area covered by the PIM systems and on (c) the number of farmers, while Egypt has none. In general the availability of the information related to these indicators is "low" to "medium".

**NOTE:** Six out of seven countries responded to Subsection A of Part B of the questionnaire. For this subsection the following denominations have been used to qualify the number of countries that use a given indicator:

- 1) Up to 2 countries: "low",
- 2) Up to 4 countries: "medium",
- 3) Up to 6 countries: "high".

This is referred to as Performance in the tables

Table 16: Geographical coverage of the PIM/IMT programs

	No. of countries with Positive Responses	Performance <sup>8</sup>
Total area covered by the PIM/IMT program	3	Medium
Number of irrigation systems under the partial or total management of the farmers	2	Low
Number of farmers benefiting from the program	4	Medium
Distribution of the transferred irrigation systems by administrative area/district	3	Medium
<b>Regional Average</b>	<b>3</b>	<b>Medium</b>

### b. Adequacy of institutional arrangements (in the planning process) (B.2 )

It is important to identify if the institutional arrangements are satisfactory for the implementation of the PIM/IMT programs, for instance lack of coordination among the institutions involved is a serious limitation

<sup>8</sup> See the NOTE in the box at the top right side of this page for the basis of performance grading



for the provision of coordinated inputs. Hence, the questions listed in this subsection represent good practices related to the subject. Most responses consider that the objectives of the PIM/IMT program are clearly defined in their countries. This may need further clarification given the fact that some countries have little progress in the PIM/IMT program.

**Table 17: Adequacy of institutional arrangements**

	No. of countries with positive responses	Performance
Are PIM/IMT program objectives clearly defined?	5	high
Is there any Coordination Committee (or similar mechanism) established?	4	medium
Is the coordination effective?	3	medium
Is there clear line of command in the implementation of the PIM/IMT Program	2	low
Are the roles and responsibilities of the actors involved clearly defined	3	medium
Have adequate training programs been defined for major stakeholders	4	medium
<b>Regional Average</b>	<b>3.5</b>	<b>medium</b>

Regarding the mechanism of coordination, 4 countries responded positively, of which three reported effective coordination. The performance of the countries on the institutional arrangements during the planning phase can be generally considered medium, with the lowest performance being on clarity of “line of command” (2 positive responses out of six), followed by effective coordination and clarity of roles and responsibilities (3 positive responses out of 6).

On the other hand, most of the countries considered that the training programs were defined adequately for major stakeholders.

### c. Financial commitments towards the process (B.3)

According to the countries’ responses, most of the financing support for the PIM/IMT process comes from the central Government and/or from the irrigation agency, while the role of the local governments is absent in all countries **except Algeria**; scoring 5 on the level of importance of local governments’ role, and less pronounced in Tunisia (score of importance: 2).

**Table 18: Availability of information related to the financial commitments towards PIM/IMT**

Type of Information	No. of countries with positive responses	Performance
Total annual financial resources allocated to the irrigation agency for the program	3	Medium
Total human resources allocated to irrigation agency for the program	4	Medium
Percentage of increase or decrease of the total budget of the irrigation agency.	3	Medium
Financial allocations by the irrigation agency for the training programs	5	High



Type of Information	No. of countries with positive responses	Performance
Financial allocations allocated by the irrigation agency for the rehabilitation or improvement of transferred irrigation systems	5	High
<b>Regional Average</b>	<b>4</b>	<b>Medium</b>

International donors also play a very important role in half of the responding countries. In the case of Palestine, national and international NGOs are also very important financiers of the process. None of the countries reported any financial commitment from the farmers that is noteworthy suggesting that rehabilitation or improvement of the physical infrastructure is made without farmer's contributions..

Regarding the availability of financial data to measure the governments' financial commitment towards PIM/IMT (table 18), Algeria, Jordan and Tunisia indicate they have very good level of information. Palestine does not seem to have any of the information required for such indicator. The rest of the countries only ticked two or three options. However, all countries indicated good availability of financial information regarding the rehabilitation of irrigation systems. The countries general score on this set of indicators is medium.

#### d. Legal reforms for WUAs (B.4)

Legal reform is a prerequisite for empowering WUAs. In the case of the PCs, only two countries (Palestine and Tunisia) out of six have undertaken legal reforms to support WUAs. However Palestine's legal reform seems to have some shortcomings since the law does not cover the legal rights of the WUAs and the users (Table 19). Tunisia does not seem to recognize other model of WUAs but their definition of Agricultural Development Groups (Groupements de Développement Agricole-GDA) is quite ample and covers several types of farmers' organisations. With only two countries undertaking legal reform, the PCs score low on this very important aspect of the PIM/IMT program.

**Table 19: Legal Reforms for WUAs**

	PA	TN
Has the water law changed to grant new rights to the WUAs	Yes	Yes
<b>If yes, Answer the following:</b>		
Are the purposes of the WUAs specified in the law?	Yes	Yes
Have the legal rights of the WUAs been specified in the law?	No	Yes
Have the legal rights of the user been specified in the law?	No	Yes
Has the voluntary or compulsory model of WUAs been adopted?	Yes	Yes <sup>9</sup>
Do the legislations recognize the different types of associations that can be established	Yes	No

#### e. Reforms affecting the irrigation agency (or concerned ministry) (B.5)

Algeria, Jordan, Palestine and Morocco indicate that they have enacted policy reforms to reorient the mandate of the concerned irrigation agency as a result of PIM/IMT. New roles and responsibilities resulting from PIM/IMT are reported to have been added to the irrigation agency in both Jordan and Egypt (with the establishment of a unit responsible for WUAs). Remarkably Tunisia reports that practically no changes have been introduced in the irrigation agency.

<sup>9</sup>The answers by the countries are not informative on the predominant model in their countries "compulsory" or "voluntary".

**Table 20: Reforms affecting the irrigation agency (or concerned ministry)**

	No. of Countries with Positive Responses	Performance
Has the government enacted a policy to reorient the mandate of the irrigation agency?	4	Medium
Have new roles been added to the irrigations agency, as result of the PIM/IMT program	3	Medium
Has the government taken administrative measures to redeploy staff previously dedicated to O&M?	2	Low
Has the number of government staff dedicated to O&M been reduced?	3	Medium
Is there a budget allocation for the training of the staff of the irrigation agency?	4	Medium
Has the irrigation agency transferred any O&M equipment to the WUAs?	1	Low
<b>Regional Average</b>	<b>2.8</b>	<b>low to Medium</b>

One of the outcomes of the PIM/IMT programs is the transfer of O&M activities to the WUAs. Only Jordan, Morocco and Egypt report that this has been the case (although the extent and level of such transfer cannot be determined by the questionnaire). Jordan and Egypt indicated that the governments have taken administrative measures to redeploy staff previously dedicated to O&M. On the other hand all the countries except Palestine, report that there is a budget allocation for the training of the staff of the Irrigation Agency. In conclusion, the general performance of the PCs on the recommended practices related to the implementation of necessary reforms as a result of PIM/IMT is closer to low than medium. Only Palestine reports that they have transferred some equipment to the WUAs.

### 6.1 General observations about Part B, Subsection A of the questionnaire

The salient features emerging of Subsection A of Part B of the questionnaire are:

- Relatively low information is available on the number of irrigation systems under the partial or total management of the farmers. The extent of data availability on the remaining aspects of geographical coverage (area covered, the regional distribution of the transferred systems, and number of farmers involved) is a shortcoming for assessing the progress of the PIM/IMT program in any envisaged M&E system in the responding countries, unless such information gets collected. This represents an objective difficulty to assess if the annual targets are met.
- The adequacy of the countries with respect to the institutional arrangements during PIM/IMT planning process is of medium level. However a clear line of command appears a common shortcoming, followed by effective coordination and clarity of roles and responsibilities.
- Most of the financing comes from the central Government and multilateral organisations. NGOs also play an important role. The level of financial information appears satisfactory.
- Legal reforms have been undertaken only by two countries. Surely this is one of the major reasons that explain why the PIM/IMT process in the region progresses slowly and without satisfactory results. Legal reform is one of the best practices needed to support and empower WUA formation.
- Four Irrigation Agencies, or concerned ministries, have enacted some reforms as result of the PIM/IMT processes in their countries. This is a significant result, especially when considering that three of these countries report a reduction in the number of O&M staff.



**The possible implications of the above observations on the planned regional M&E system are:**

- The M&E system has to build a solid monitoring section that allows monitoring of the number of irrigation systems that have been transferred, their regional distribution, the number of farmers benefiting from the transfer and other related data. These are essential data to assess the progress in the implementation of the PIM/IMT program.
- The M&E system should be able to monitor the institutional changes that take place as a result of the PIM/IMT implementation.
- Legal reforms are much below expectations. This needs periodical updating of the situation and checking of the farmers’ satisfaction with the present legal system.
- Staff changes in the irrigation agency need monitoring, as well as periodical control of the relevant functions of the agency. Assessment of the capacity building of the irrigation agencies staff needs also to be monitored

**7. PART B, SUBSECTION B: INFORMATION REGARDING THE IMPLEMENTATION PROGRAM OF WUAs AND PRACTICES ASSOCIATED WITH THIS PHASE**

Subsection B tries to understand how the implementation program of WUAs was undertaken.

It should be noted that Israel has responded partially to this subsection but in reality the country does not have a PIM or IMT program under implementation although management of agricultural water is largely done by rural cooperatives.

**a. Organizing awareness campaigns and related events (B.6)**

All the six<sup>10</sup> countries which responded, report that they have undertaken awareness campaigns among the farmers affected by PIM/IMT, of which three countries report that they have monitored and evaluated the results of the campaigns, with the results being available in only two of these countries. Tunisia seems to be doing very well concerning all the good practices in this domain, followed by Jordan. Only these two countries report having used TV and radio to inform farmers about the PIM/IMT program. Five countries report that they have organized meetings with the concerned stakeholders, while study tours targeting farmers and government staff were organized by three countries. The general performance of the countries on the good practices related to raising awareness on PIM/IMT is of medium level, with the poorest performance related to monitoring and evaluating the campaign results.

In summary, implementing awareness campaigns is a good practice that has been followed by most of the countries with greater or smaller intensity. However, it may be necessary for a future M&E to investigate the extent of farmers’ coverage with such campaigns.

**Table 21: Awareness campaigns and related events**

	No. of Countries with Positive Responses	Performance
Has the implementing irrigation agency organized an awareness campaign among the concerned farmers	5 <sup>11</sup>	High
If yes, have this campaign been monitored and	3	Medium

<sup>10</sup>Six out of seven countries also responded to this subsection. Thus the same performance ranking introduced in the box at the beginning of chapter 6 is still applicable.

<sup>11</sup>Algeria reports they implemented awareness campaigns, which is contradictory to their response under subheading b. Hence, the positive answer reported by Algeria is not counted in this table, and it is assumed that Algeria might have done awareness campaigns for other purposes. This assumption does not affect the regional performance of the countries on this aspect.



	No. of Countries with Positive Responses	Performance
evaluated?		
Are the results available?	3	Low
Are TV and radio used to inform farmers of the PIM/IMT program?	2	Low
Has the implementing agency organized planning meetings with the concerned stake holders?	5	High
Has any study tour been organized for the leaders for the program (farmers and government staff)	3	Medium
<b>Regional Average<sup>12</sup></b>	<b>3.7</b>	<b>Medium</b>

#### b. Steps undertaken by the Irrigation Agency in the establishment of the WUAs (B.5)

The process of implementing PIM/IMT has been divided into 12 Steps (Table 22). Jordan and Egypt report that they have covered the 12 steps while Tunisia and Morocco report that they have covered seven steps and Palestine five. This provides the idea that Jordan and Egypt have been very thorough in the implementation of the 12 steps, while the other countries have undertaken significant shortcuts, resulting in an overall performance of medium level. But what is even more important is the implications of such shortcuts on the performance of the WUAs, due to insufficient support. For this reason it is relevant to know within the envisaged M&E system which step(s) is/are not undertaken and why, in order to facilitate further evaluation and adjustments of the PIM/IMT process.

**Table 22: Coverage of the steps undertaken by the Irrigation Agency in the establishment of the WUAs**

	No. of Countries with Positive Responses <sup>7</sup>	Performance
Awareness campaigns	5	High
Establishment of the Constituent Committee	3	Medium
Training of the Constituent Committee	4	Medium
Preparation of the Rules and regulations of the WUAs	4	Medium
Determining membership	3	Medium
Transfer agreement	5	High
Strategic Development Plan of WUAs where the responsibilities of Government and WUAs are set for the next five years	3	Medium
First meeting of the General assembly and election of President and Administrative Board	3	Medium
Training of leaders and staff of the associations	5	High
Establishment of the water concession to the WUA	3	Medium
Establishment of the fees of the WUA	1	Low
Establishment of M&E system	2	Low
<b>Regional Average</b>	<b>3.4</b>	<b>Medium</b>

#### c. Support services provided after establishing WUA. (B.7)

In the questionnaire 12 different support services were listed as possible. Again, six out of seven countries responded. On average, the number of support services provided by the responding countries is about six

<sup>12</sup>Only six countries responded



but it goes to a maximum of 9 (Tunisia) and a minimum of 4 in Palestine. The general performance on the support services provided to the WUAs after establishment is medium; with the lowest being scored on support to agribusiness, marketing and providing credit for WUAs followed by dispute resolution. In general, there is a high coverage of what one may call basic services, namely: extension, training, support in the rehabilitation and improvement works, easy communication with the irrigation agency and ensuring fair elections. The other services that are more related to facilitate the production outputs are generally at low level. Although this appears logical at the initial phase of PIM/IMT programs, with time it becomes necessary to increment this second category of services.

**Table 23: Coverage of the main support services provided after establishing the WUAs**

	No. of Countries with Positive Responses <sup>7</sup>	Performance
Extension	5	High
Agribusiness	1	Low
Marketing	1	Low
Credit for WUAs and farmers	1	Low
Dispute resolution	2	Low
Training in technical aspects	6	High
M&E of management performance	3	Medium
Subsidy for the cost of water	3	Medium
Government assistance for the rehabilitation and improvement	5	High
Easy communication with the irrigation agency	4	Medium
Government support for the establishment of networks of WUAs at regional or national level	3	Medium
Ensuring fair elections	5	High
<b>Regional Average</b>	<b>3.3</b>	<b>Medium</b>

**d. Main problems encountered in the implementation (B.8)**

Nineteen problems were listed and respondents were asked to rank them from 1 to 5 (5 being of high importance). Only five countries responded, with a similarity between some countries on some of the problems but also with considerable differences on others. The more important problems (for which an average score of three or more was scored by the countries) are depicted in table 24. The same table also lists the less important problems for which an average of two or less is scored. The results for all the problems assessed are in table 25.

**Table 24: The most and least important problems in the establishment of WUAs in the PCs**

Most important problems <sup>13</sup>	Least important problems <sup>14</sup>
WUA cannot apply sanctions	Politician’s resist IMT
Weak legal framework for IMT	Agency reform & staff disposition or relocation
Inadequate farmers’ payment for O&M	Resistance to IMT by local government
Irrigation Systems heavy deterioration	Farmers resist IMT
Inadequate support services	No clear/single IMT policy or program
	Democratic elections of WUA officers difficult to achieve
	Conflicts between farmers/villages

<sup>13</sup> Listed in the order of most importance

<sup>14</sup> Listed in the order of least importance



Although the above table represents the regional overview, there are considerable differences among the countries and a more detailed examination of the information of the questionnaire provides a good insight of the main difficulties of each country.

**Table 25: Significance of Problems encountered in the establishment of WUAs (by country)**

	DZ	IL	JO	MO	PA	TN	EG	Regional Average
Irrigation systems heavily deteriorated			3	3	4	3	2	<b>3</b>
Weak capacity to train WUA			1	3	2	4	2	<b>2.4</b>
Weak legal framework for IMT			2	2	4	5	4	<b>3.4</b>
Inadequate farmer payment for O&M			4	4	3	3	3	<b>3.4</b>
Weak technical and management capacity of WUA			2	4	4	3	2	<b>3</b>
Inadequate training for government staff			2	3	3	2	2	<b>2.4</b>
Agency reform & staff disposition/relocation			4	2		1	2	<b>1.8</b>
Farmers resist IMT			3	2	1	2	2	<b>2</b>
No clear/single IMT policy or program			2	2	1	2	3	<b>2</b>
Resistance to IMT by local government			1	3	1	3	3	<b>2.2</b>
Democratic elections of WUA officers difficult to achieve			3	3	1	2	3	<b>2.4</b>
Conflicts between farmers/villages			1	2	3	1	3	<b>2</b>
Politician's resist IMT			1	3	1	2	1	<b>1.6</b>
Inadequate support services			2	4	5	2	2	<b>3</b>
WUA cannot apply sanctions			1	4	4	5	5	<b>3.8</b>
Farmers lack access to credit			2	2		2	4	<b>2</b>

Reading table 25 in a horizontal manner provides a vision of the importance of the problems at the regional level. For instance, “WUAs cannot apply sanctions” is considered as the most important problem with a regional score of 3.8, while the least important problem is related to politician’s resistance to IMT” with a corresponding score of 1.6 points. This last result contrasts much with the international experience but the regional perspective provides a good overview of the most and least important problems. However, this view changes considerably when looking at each country’s situation. For instance, in the case of Jordan, the most important problems are: “Agency reform & staff disposition/relocation” and “Inadequate farmer payment for O&M” while the least important problems are: “Weak capacity to train the WUAs”, “Resistance to IMT by local government”, “Conflicts between farmers/villages” and “WUA cannot apply sanctions”. In general countries are more interested in solving their own problems than those of regional nature.

In any case the envisaged M&E system should have the capacity to identify the main problems but also the aspects that are more satisfactory in the new system of management under the WUAs. It is the role of the evaluator to indicate the possible solutions to the problems which are always country specific.

**e. Sources of information for the reported problems (B.9)**

From the several sources given in the questionnaires those that were most widely used were: “government reports” and “specific questionnaires”. Only two countries (Egypt and Jordan) made reference to the M&E system and WUAs reports as source of information for the problems indicated in subs heading “d”. This point was raised to check that the above problems are not only the views of government officers.

**f. Is the information of the sub heading “d” (used to guide /modify the PIM/IMT program)? (B.9)**

Jordan and Tunisia responded positively to this question. The rest responded “No” or not responded at



all. This could indicate that there is not a good feedback of the problems encountered into the development of the programs and/or the sources of information are not used.

### 7.1 General observations about Part B, Subsection B of the questionnaire

The salient features emerging of Subsection B of Part B of the questionnaire are:

- All countries appear well informed of the need for awareness campaigns for the farmers and they have used different methodologies to carry them out
- Only two countries have followed the main steps “road map” for the establishment of WUAs. The rest have covered about half of the potential steps. This indicates important shortcomings in the implementation strategy.
- The PCs appear to have a generally good support services after transfer indicating good understanding of the WUAs needs. However, the lowest performance is scored on the provision of support to agribusiness, marketing and credit for WUAs and dispute resolution. This needs to be improved in the future since improvement on production income is largely influenced by these services.
- The problems affecting the process are known but this information is rarely used to improve the implementation strategy except in the case of Tunisia and Jordan which use the information to improve the process. This is alarming evidence since it indicates that even when the problems are known they are not considered for the improvement of the implementation procedures.

#### The possible implications of the above observations on the planned regional M&E system are:

- While all countries seem aware of the need for awareness campaigns for the farmers, the M&E system should be able to provide greater information on the scope and reach of the campaigns.
- It is evident that there are clear gaps in the “roadmap” for the establishment of the WUAs and the system should be able to identify them and assess the degree of accomplishment in this regard to enable taking the necessary corrective measures.
- Periodic control on the services provided by the irrigation agency to WUAs is also needed. This will be helpful to identify possible gaps
- The M&E system should be capable of identifying the reason for dissatisfaction/satisfaction with the new system of management (WUAs). This may imply the need for carrying out specific questionnaires among farmers.

## 8. PART B, SUBSECTION C: INFORMATION REGARDING THE MANAGEMENT PERFORMANCE OF WUAs AND PRACTICES ASSOCIATED WITH THIS PHASE

This subsection is mostly concerned with the **information regarding the management performance of WUAs** and was answered by the 7 countries; mostly because it applies to all kind of farmers’ organisations. The **questionnaire included 8 questions, each one with several options.**

### a. Functions of the WUAs (B.10)

Operation and maintenance are functions of the WUAs in nearly all countries with maintenance functions by the WUAs being limited in Jordan to soft maintenance (maintenance of farm gates), while in Egypt, O&M functions appear to be still retained by the central government. Drainage function is carried out by WUAs in Tunisia only. Financial and administrative control by WUAs is carried out in Israel, Morocco, Palestine and Tunisia. Agribusiness is not undertaken in any country which is surprising considering that cooperatives are included. This could partially explain why support to agribusiness is not provided by the governments after establishing the WUAs (See chapter 7 of this section of the report, bullet C). Management of wells by WUAs is covered in Israel, Morocco, Tunisia and Egypt. Rehabilitation or improvement of irrigation systems is carried out in the first three countries (Israel, Morocco, and Tunisia) in addition to Palestine, while collaboration on watershed management is carried out by WUAs only in Morocco. The emerging picture is



that Israel, Morocco Palestine and Tunisia cover half or more of the functions mentioned. However the rest of the countries have large gaps indicating limited functions assigned to the WUAs that will require attention in the future.

**Table 26: Functions of the WUAs**

	DZ	IL	JO	MO	PA	TN	EG	Total	Performance <sup>15</sup>
Distribution of irrigation water	√	√	√	√	√	√		6	High
Drainage(soft maintenance)						√		1	Low
Maintenance		√	√	√	√	√	√	6	High
Financial and administrative control		√		√	√	√		4	Medium
Agribusiness								0	Non-existent
Management of wells		√		√		√	√	4	Medium
Rehabilitate or improvement of irrigation system		√		√	√	√		4	Medium
Contribute to the watershed management				√				1	Low
<b>Total by country</b>	<b>1</b>	<b>5</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>6</b>	<b>2</b>		
<b>Regional Average</b>	<b>3.3</b>								<b>Medium</b>

**b. Hydraulic coverage of the WUAs (B.11)**

The responses to this question are very scarce (only 3 countries responded). Egypt and Tunisia indicated that their systems cover “secondary canal and sometimes primary canals”. Additionally, Egypt indicates that their WUAs cover tertiary and secondary canals. Jordan indicates that they cover only tertiary canals.

The absence of responses needs clarification. The fact that Jordan only covers tertiary canals is indicative of small associations with limited financial capabilities and scope.

**c. Technical services providers (B. 12)**

To the question “Does the WUA hire some technical staff to undertake some activities like: distributing water, maintain pumping equipment, keep the financial control, and others?” Israel, Morocco, Jordan and Tunisia responded positively. This is a clear indication that the management of the WUAs in the remaining countries surely has serious technical problems, and/or limited responsibilities that can seriously affect their performance. In these countries the government continues to perform functions that are normally transferred to WUAs possibly because they consider that they are not mature enough to take up these responsibilities. In these cases is important to assess the degree of maturity of the WUA to take up those responsibilities.

**d. Legal rights of the WUAs (B.13)**

Morocco, Israel, and Tunisia cover all or most of the eight types of rights mentioned in the questionnaire (See table 27). Egypt covers 5, Jordan 4 and Palestine 2. Only 3 countries (Israel, Morocco and Tunisia) indicate that the WUAs have “water concession” and also only three countries (Israel, Morocco and Palestine) specify that WUAs can cut water supply to members. These are important shortcomings for the effective performance of WUAs. Without a water concession, the WUA will never be sure of how much water they are entitled nor can they defend their rights in scarcity situations or when resources are relocated. Furthermore, if WUAs leaders cannot cut water supply to farmers that do not comply with the rules they are in a difficult position to exercise the required authority.

<sup>15</sup>Since all the countries (totalling seven) responded to subsection C of part B of the questionnaire, the performance ranking was adjusted at the higher end, such that if 5 to 7 countries are using the same indicator, the regional performance on the given indicator is considered high.

**Table 27: Legal rights of the WUAs**

	DZ	IL	JO	MO	PA	TN	EG	Total	Performance
Water right or Water concession		√		√		√		3	Medium
WUAs Can cut water supply to members		√		√	√			3	Medium
WUAs Can fine members		√		√	√	√	√	5	High
WUAs Can have a bank account		√	√	√		√	√	5	High
WUAs Can have properties		√	√	√			√	4	Medium
WUAs Can contract services		√	√	√		√		4	Medium
WUAs canals have right of way			√	√		√	√	4	Medium
WUAs Can impose payments of fees to members		√		√		√	√	4	Medium
<b>Total by country</b>	<b>0</b>	<b>7</b>	<b>4</b>	<b>8</b>	<b>2</b>	<b>6</b>	<b>5</b>		
<b>Regional Average</b>								<b>4</b>	<b>Medium</b>

Although three countries (Israel, Morocco and Tunisia) have a reasonable coverage of the main rights of the WUAs, the rest have serious shortcomings in this essential aspect. The regional average for the performance of the countries on granting the different kinds of legal rights to the WUAs is four points, which correspond to a medium performance but on the high side (medium is three-to four points) and therefore the regional vision is that WUAs have a discrete coverage of the rights listed but at country level some important ones are missing. This highlights again the importance of capturing such qualitative information in the envisaged M&E system, as they reflect good practices that should accompany the PIM/IMT implementation.

#### e. Rights and responsibilities of members of WUAs (B. 14)

A large variability in the answers received characterizes this topic. Table 28 summarizes the total number of countries that included the mentioned rights of the members of the associations.

**Table 28: Rights and responsibilities of the members of the association**

Rights of the member of the association	Number of countries with positive responses	Performance
Water right held by the members	3	Medium
Voting rights	7	Very High
Member can get compensations for damages	2	Low
Members must provide land for construction/repairs of Infrastructure	4	Medium
Payment of fees	5	High
Membership is obligatory	1	Low
<b>Regional Average</b>	<b>3.7</b>	<b>Medium</b>

The above table shows that only three countries conform with the obligation of providing water rights to the users. The largest coverage of the mentioned rights goes to Jordan (the first five rights) followed by Egypt and Tunisia (four rights).

#### f. Adequacy of the operation of the irrigation system (B. 15)

Jordan reports that they have information on the 7 indicators of the questionnaire, Algeria on 5 and Tunisia on 4. Egypt points out that the mentioned indicators are not responsibility of their department and Palestine reports that they have only information on one indicator.



The emerging picture is that there is a large gap in the information related to the indicators required to assess the adequacy of the operation of the irrigation system for most of the countries, except Jordan.

**Table 29: Adequacy of the operation of the irrigation system**

	DZ	IL	JO	MO	PA	TN	EG	Total	Information Availability
Degree of farmers' satisfaction with irrigation scheduling			√		√		See Footnote <sup>16</sup>	2	Low
Delivery performance index	√		√			√		3	Medium
Delivery reliability index	√		√					2	Low
Head/tail water allocation index	√		√			√		3	Medium
Number of disputes over water allocation			√					1	Low
Adequacy of annual water allocation	√		√			√	√	4	Medium
Irrigation distribution efficiency	√		√*			√	√	4	Medium
<b>Total by country</b>	<b>5</b>		<b>7</b>		<b>1</b>	<b>4</b>	<b>2</b>		
<b>Regional Average</b>	<b>2.4</b>								<b>Low</b>

#### g. Adequacy of the maintenance (B. 16)

A highly satisfactory coverage of information on the following 8 indicators is mentioned by Algeria, Jordan and Tunisia (7 indicators out of 8):

1. Gap between desired levels of maintenance and those achieved
2. Level of siltation of canals and drains \*
3. Frequency of maintenance works
4. Increase /decrease in the water-logging and drainage affected areas
5. Increase/ decrease of the maintenance costs
6. Time needed to repair major breakdowns
7. Number of breakdowns of pumping equipment
8. No. of complaints
9. Others

Here again, Egypt reports that this type of data is not the responsibility of their department. The rest of the countries indicate total absence of information availability for assessing the adequacy of maintenance works carried out by WUAs. The availability of relevant information for this group of indicators is again low to medium.

#### h. Adequacy of the financial system (B. 17)

The first part of the topic covers the type of information that the governments have, to enable assessment of the adequacy of their financial system. Israel, Jordan, Morocco and Tunisia have a good coverage of information regarding the financial system. Egypt has very limited information and for the rest of the countries, nothing is reported. Accordingly low to medium availability of information can be concluded.

**Table 30: Adequacy of the financial system**

	DZ	IL	JO	MO	PA	TN	EG	Total	Information Availability
Annual financial resources available at the WUA.		√	√	√		√	√	5	High
Government subsidies to WUA expenditures		√	√	√		√	√	5	High

<sup>16</sup>The mentioned indicators do not fall within the responsibility of the department which filled the questionnaire



	DZ	IL	JO	MO	PA	TN	EG	Total	Information Availability
Distribution of the collected money by destination (amount/percentage that goes back to the irrigation agency, to the WUAs, etc.)			√			√		2	Low
Water users' payment rate		√	√	√		√		4	Medium
Cost of major rehabilitation works			√	√		√		3	Medium
Rate of government/farmers contributions to major rehabilitation works				√		√		2	Low
<b>Total by country</b>		<b>3</b>	<b>5</b>	<b>5</b>		<b>6</b>	<b>2</b>		
<b>Regional Average</b>		<b>3.33</b>							<b>Low to medium</b>

The second part of the topic covers the extent to which good financial practices are present in the WUAs. The associations in Israel, Jordan, Morocco and Tunisia seem to cover most of the good practices. In general the countries scored low to medium on compliance with these practices.

**Table 31: Accounting practices**

	DZ	IL	JO	MO	PA	TN	EG	Total	Performance
Accounting system according to national regulations		√	√			√		3	Medium
Rules for the distribution of costs among users		√		√		√	√	4	Medium
Existence of a committee that control the correctness of the accounts		√	√			√		3	Medium
Annual budget compared with the planned expenditures						√		1	Low
<b>Total by country</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>1</b>		
<b>Regional Average</b>		<b>2.5</b>							<b>Low to medium</b>

The third part concerns the water tariffs for which Palestine did not respond. Algeria and Tunisia report payment by area while Israel, Jordan and Morocco report payment by volume; a practice that is conducive to water savings.

**i. Assessment of the quality of the management (B.18)**

Of the 14 practices needed to ensure good quality of management at the WUAs, Jordan, Tunisia and Egypt cover most of these practices listed in table 32 below. Israel covers only three, while the rest of the countries did not report any information. The general performance on such practices by the PCs is low to medium.

**Table 32: Assessment of the quality of the management**

	DZ	IL	JO	MO	PA	TN	EG	Total	Performance
Manual of organisation and functions			√			√	√	3	Medium
Criteria for selection and evaluation of staff			√				√	2	Low
Established communication system with the water users			√			√	√	3	Medium
Guidelines for the preparation of the Strategic Development Plan for the coming 5 years						√	√	2	Low



	DZ	IL	JO	MO	PA	TN	EG	Total	Performance
Procurement practices and contract negotiation						√	√	2	Low
Monitoring and Evaluation (M&E) system			√			√	√	3	Medium
The M&E system is well integrated with the PIM/IMT process of implementation						√	√	2	Low
Documentation unit (technical and financial) of the WUA			√			√		2	Low
Number of meetings held by the Administrative Board		√	√			√	√	4	Medium
Rules of the Administrative Board		√	√			√	√	4	Medium
Guidelines for budget preparation			√			√		2	Low
Website established and updated regularly							√	1	Low
Training programs for the WUA staff			√			√	√	3	Medium
Preparation of annual reports		√	√			√	√	4	Medium
<b>Total by country</b>	<b>0</b>	<b>3</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>12</b>		
<b>Regional Average</b>								<b>2.6</b>	<b>Low to medium</b>

### 8.1 General observations about Part B, Subsection C of the questionnaire

This subsection, which is essentially concerned with the performance of the associations, presents a dichotomy. On the one hand, there is a group of three or four countries that have relatively good information about the relevant indicators related to the adequacy of the operation of the irrigation systems, adequacy of the maintenance and the financial system at the WUAs while the remaining group has a very low level of information. The group that has more information does not always coincide with all the countries that have a monitoring system, suggesting that their monitoring systems do not cover the listed indicators. In any case there are very substantial gaps in the information collected in this regard.

The main emerging points of subsection C are summarized below:

- Functions of the WUAs.** The emerging picture is that Israel, Morocco Palestine and Tunisia cover most of the functions mentioned. However the rest of the countries have large gaps indicating limited functions assigned to the WUAs that will require attention in the future.
- Hydraulic coverage of the WUAs.** Most of the WUAs have limited hydraulic responsibility (tertiary canals) but in few countries they cover much larger areas or the whole irrigation system. The limited coverage of area has a strong effect on the economic viability of the WUAs
- Technical services providers.** About half of the countries do not use the services of technical staff for the management of the WUAs which surely affect their performance
- Legal rights of the WUAs.** The coverage of the legal rights listed is high for three countries and medium for the rest indicating shortcomings that will affect the performance of the WUAs.
- Rights and responsibilities of members of WUAs.** There is a medium coverage of the rights listed with a great variability among countries. This indicates weaknesses in the legal framework
- Adequacy of the operation of the irrigation system.** The information available on the different parameters that permits some judgment on the adequacy of the operation of the irrigation system is low. Hence evaluation of the performance of the WUAs is predominantly incomplete at present.
- Adequacy of the maintenance.** Algeria, Jordan and Tunisia indicated a good coverage of the maintenance information but the rest of the countries have low or medium coverage. This limited information is again a limitation for assessing the performance of WUAs
- Adequacy of the financial system and good accounting practices.** Israel, Jordan, Morocco and Tunisia



have a good coverage of information to assess the adequacy of the financial system. Egypt has very limited information and for the rest of the countries, nothing is reported. Accordingly low to medium availability of information can be concluded.

The associations in Israel, Jordan, Morocco and Tunisia seem to cover most of the good practices. In general the countries scored low to medium on compliance with these practices.

- i) **Assessment of the quality of the management.** Only three countries (Jordan, Tunisia and Egypt) cover most of the practices listed to ensure good quality of management at the WUAs. The general performance on such practices by the PCs is low to medium with large discrepancies among countries..

**The possible implications of the above observations on the planned regional M&E system are:**

The availability of data necessary to assess the adequacy of the operation, maintenance and financial performance of the WUAs is generally inadequate with some countries showing more gaps than others. This, coupled with significant limitations in the WUAs functions, hydraulic coverage, technical responsibilities, legal rights, and implementation of other good practices listed above, implies that the proposed M&E system should cover such issues.

## 9. PART B, SUBSECTION D: INFORMATION RELATED TO ASSESSING THE IMPACT OF THE ESTABLISHMENT OF WUAS

This subsection is concerned with the assessment of the information that tries to measure the impact of the transfer of responsibilities on the performance of WUAs and related government agencies

### **a. Information related to operation and maintenance (B.18)**

Algeria reports that they collect information on the five indicators mentioned in table 33 below and Tunisia on three. Israel, Jordan and Morocco cover a small number of indicators (2,2 and1; respectively), while the rest of the countries do not collect any information on this topic. In summary the coverage is low to medium for most of the countries.

**Table 33: Information related to operation and maintenance**

	DZ	IL	JO	MO	PA	TN	EG	Total	Information Availability
Increase/decrease in water resources transferred to the WUA	√	√	√			√		4	Medium
Reduction of the overall water use per hectare by the farmers	√	√	√					3	Medium
Reduction of use of polluted water in irrigation	√							1	Low
Irrigation system expanded	√			√		√		3	Medium
Change in irrigated area	√					√		2	Low
<b>Total by country</b>	<b>5</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>		
<b>Regional Average</b>	<b>2.6</b>								<b>Low to medium</b>

### **b. Information related to recovery of costs (B.19)**

Only three indicators have been included in this topic (table 34) and Algeria and Jordan cover all of them. Tunisia and Egypt cover two of them and Israel 1. No coverage for the rest. Here the coverage is high for 4 countries and very low for the remaining.



**Table 34: Recovery of costs**

	DZ	IL	JO	MO	PA	TN	EG	Total	Information Availability
% Annual Reduction of government expenditures in O& M of irrigation systems	√		√			√	√	4	Medium
Water users' payment rate	√	√	√			√		4	Medium
Farmers awareness about costs, benefits & risks	√		√				√	3	Medium
<b>Total by country</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>		
<b>Regional Average</b>	<b>3.7</b>								<b>Medium</b>

**c. Information related to the management of the WUAs (B.20)**

Also 3 indicators were included here (Table 35). Jordan and Egypt cover all of them while the rest does not collect any information except Tunisia which covers one of the indicators (Farmers awareness about their rights , functions and responsibilities ). The regional coverage is low (2.3).

**Table 35: Management of the WUAs**

	DZ	IL	JO	MO	PA	TN	EG	Total	Information Availability
Number of farmers supporting WUA management			√				√	2	Low
Percentage of leaders of the association that are women			√				√	2	Low
Farmers awareness about their rights , functions and responsibilities			√			√	√	3	Medium
<b>Total by country</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>		
<b>Regional Average</b>	<b>2.3</b>								<b>Low</b>

**d. Information related to socio economic issues**

Jordan and Tunisia have a good coverage of the seven indicators mentioned (see table 36) with information available on seven and four indicators; respectively. The rest of the countries coverage ranges between zero and two. In general terms the coverage is low with the exception of Jordan and Tunisia.

**Table 36: Socio economic issues**

	DZ	IL	JO	MO	PA	TN	EG	Total	Information Availability
Annual cropping intensity		√	√		√	√		4	Medium
Crop yield per unit of water used		√	√					2	Low
Land profitability			√					1	Low
Gross value of production (GVP)			√			√		2	Low
Gross value of production / Irrigated cropped area			√					1	Low
GVP/Crop Water Requirements (CWR)	√		√			√		3	Medium
Water profitability			√			√		2	Low
<b>Total by country</b>	<b>1</b>	<b>2</b>	<b>7</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>0</b>		
<b>Regional Average</b>	<b>2.1</b>								<b>Low</b>

**e. Information related to the environment (B.21)**

Only two indicators were included here as shown in table 37. Algeria and Tunisia report availability of information on the area lost due salinity and water logging and Israel indicates that they have information on the incidence of the water related diseases. In general the coverage is low however it is possible that countries cover other environmental indicators.

**Table 37: Information related to the environment**

	DZ	IL	JO	MO	PA	TN	EG	Total	Information Availability
Production area lost due to soil salinity and water logging	√					√		2	Low
Incidence of water related diseases		√						1	
<b>Total by country</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>		
<b>Regional Average</b>	<b>1.5</b>								<b>Low</b>

**9.1 General observations about Part b, Subsection D of the questionnaire**

An effort was made in drafting the questionnaire to reduce the number of indicators in this subsection because it is usually one of the weak points of the M&E system. Despite that, it is evident that the coverage of the information regarding the impacts is generally low. This appears a serious shortcoming which indicates that at regional level, little is known about the positive or negative impact of PIM/IMT policies and programs.

**The obvious consequence of the above on the planned regional M&E system** is the need for integrating in it most of the impact indicators mentioned above. During the pilot implementation, special arrangement for ensuring the provision of data from secondary sources is warranted.

A final note on the envisaged M&E system is in order here. The actual number of indicators in the final version of the regional M&E system will certainly reflect the results of the regional Experts Group Meeting Workshop taking into consideration data availability and the potential cost of collecting additional data. To the extent possible, the M&E will have more of qualitative indicators, for which logical answers of “yes” or “no” are conceivable. Such indicators would be able to evaluate the extent to which best practices are observed to ensure successful PIM/IMT process, and empowered and sustainable WUAs. However, quantitative indicators will also be necessary, but to a much lesser extent.



## REFERENCES

### SECTION 1, PART A

- Estrella, Marisol and Gaventa, John. 1997 "Who Counts Reality? Participatory Monitoring and Evaluation: a Literature Review", Institute of Development Studies (IDS) Working Paper 70. Brighton, U.K. Available at: <http://www.ids.ac.uk/files/Wp70.pdf>
  - FAO and WB. 2010. The use of monitoring and evaluation in agriculture and rural development projects. Findings from a review of implementation completion reports; FAO investment center. Best practices in investment design. Rome. Available at: [http://www.fao.org/fileadmin/user\\_upload/tci/docs/BPID1-Use%20of%20m&e%20in%20ag%20and%20rural%20development%20projects.pdf](http://www.fao.org/fileadmin/user_upload/tci/docs/BPID1-Use%20of%20m&e%20in%20ag%20and%20rural%20development%20projects.pdf)
  - GDPRD, FAO and WB, 2008. Tracking results in agriculture and rural development in less-than-ideal conditions A sourcebook of indicators for monitoring and evaluation. Rome. Available at: [www.donorplatform.org](http://www.donorplatform.org); [www.worldbank.org](http://www.worldbank.org) and [www.fao.org](http://www.fao.org)
  - Guijt, I. 1999. Participatory monitoring and evaluation for natural resource management and research. Socio-economic Methodologies for Natural Resources Research. Chatham, Department for International Development (DFID). Available at: <http://www.nri.org/publications/bpg/bpg04.pdf>
  - [http://en.wikipedia.org/wiki/International\\_development#cite\\_note-4](http://en.wikipedia.org/wiki/International_development#cite_note-4)
  - Jody Zall Kusek and Ray C. Risten 2004. Ten Steps to a Results-Based Monitoring and Evaluation System. A Handbook for Development Practitioners. World Bank. Washington D.C. Available at: [http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2004/08/27/000160016\\_20040827154900/Rendered/PDF/296720PAPER0100steps.pdf](http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2004/08/27/000160016_20040827154900/Rendered/PDF/296720PAPER0100steps.pdf)
  - UNDP 2009: Handbook on planning, monitoring and evaluating for development results. New York, USA. Full version available at: <http://www.gesci.org/assets/files/Media/UNDP%20Handbook%20on%20ME%202009.pdf>
  - UNPFA, August 2004. Program Manager's Planning Monitoring & Evaluation Toolkit, Division for Oversight Services. Available at: <http://www.unpfa.org/monitoring/toolkit.htm>
- WB, 2008. Toolkit for Monitoring and Evaluation of Agricultural Water Management Projects. Agricultural and Rural Development Department, Water team, Washington. Available at [www.worldbank.org](http://www.worldbank.org)

### SECTION 1, PART B

- Bos, M.G., M. Burton, and D.J. Molden. 2005. Irrigation and drainage performance assessment – practical guidelines. CABI publishing, Wallingford, UK.
- FAO and IWMI, 2007. Irrigation Management Transfer. Worldwide efforts and results. FAO Water report No. 32, Land Water development Division. Rome. Available at: [www.fao.org](http://www.fao.org)
- GDPRD, FAO and WB, 2008. Tracking results in agriculture and rural development in less-than-ideal conditions A sourcebook of indicators for monitoring and evaluation. Rome. Available at: [www.donorplatform.org](http://www.donorplatform.org); [www.worldbank.org](http://www.worldbank.org) and [www.fao.org](http://www.fao.org)
- Halcrow. 2003. Water Users Association Survey 2003. Second Irrigation and Drainage Rehabilitation Project, Albania. Halcrow Water, Burderop Park, Swindon, United Kingdom.
- HAMDY, a. 2007. Irrigation management transfer: monitoring and evaluation concepts and approaches. The 4th Asian Regional Conference & 10th International Seminar on Participatory Irrigation Management, Tehran-Iran.
- Malano H. and M. Burton. 2001. Guidelines for benchmarking performance in the irrigation and drainage sector. IPTRID Secretariat, Food and Agriculture Organisation of the UN, Rome.
- UNDP, 2009. Handbook on Planning, Monitoring and Evaluating for Development Results. New York, NY 10017, USA. Handbook Web site: <http://www.undp.org/eo/handbook>,



- USAID, 2002 "Irrigation management transfer: framework for monitoring and evaluation", Report No. 59 prepared by the IMT M&E Working Group for USAID, Egypt .
- WB, 2008. Toolkit for Monitoring and Evaluation of Agricultural Water Management Projects. Agricultural and Rural Development Department, Water team, Washington. Available at:[www.worldbank.org](http://www.worldbank.org)
- WB, 2004. Ten steps to a results-based monitoring and evaluation system: a handbook for development practitioners by Jody Zall Kusek and Ray C. Rist. Washington. Available at: [www.worldbank.org](http://www.worldbank.org)

## SECTION 2

- SWIM-SM, 2012. "Regional Assessment - Water Users' Associations in the SWIM-SM Partner Countries"; assessment carried out by IAMB/Bari.



## ANNEX 1: SELECTED M&E INDICATORS USED BY INTERNATIONAL AND BILATERAL ORGANISATIONS FOR SPECIFIC ACTIVITIES, OUTPUT, AND OUTCOMES RELATED TO WUAs ESTABLISHMENT

### 1. MONITORING THE PERFORMANCE OF WUAs

The WB provides a useful example with a list of indicators to assess the performance of WUAs. They classified the indicators in 6 main categories and provide scores to be applied in each indicator, as indicated in the table below.

**Table 38: Example of key indicators used to monitor the performance of Water Users Associations**

Indicator	Definition	Scoring
<b>1. Establishment of WUA</b>		
Area transferred to WUA	(Area transferred to WUA)/(Total gross area serviced by the system)	2 = 100% 1 = 50-99% 0 = <50%
<b>2. Membership, Representation and Accountability</b>		
WUA membership ratio	(Total number of WUA members)/(Total number of irrigators in service area)	2 = >50% 1 = 25-50% 0 = <25%
Annual General Meetings	Annual General Meeting held	2 = Yes 0 = No
Annual General Meeting attendance	(Number of WUA members attending AGM)/(Total number of WUA members)	2 = >50% 1 = 30-50% 0 = <30%
Administrative Council meetings held	Number of meetings held during the year (January-December)	2 = >5 1 = 1-5 0 = 0
Administrative Council elections	Number of elections for members of Administrative Council held in last 2 years	2 = Yes 0 = No
Women members of Administrative Council	Number of women members of Administrative Council	2 = 1 or more 0 = None
<b>3. Area Irrigated</b>		
First irrigation crop area ratio (of total service area)	(Total annual recorded (first) irrigation crop area)/(Total gross area serviced by the system)	2 = >50% 1 = 30-50% 0 = <30%
Crop audit correction factor	(Reported area of first irrigation)/(Crop area measured from crop area audit survey)	2 = >90% 1 = 75-90% 0 = <75%
<b>Financial</b>		
Employment of Accountant	Accountant employed and duration of employment	2 = Yes, >4 months 1 = Yes, <4 months 0 = None
ISF collection per	(Total ISF collected)/(Total gross area serviced	2 = >1800* Lek <sup>17</sup> /ha

<sup>17</sup>1 US\$ = 140 Lek (2002) (official currency of Albania)



Indicator	Definition	Scoring
hectare of service area	by the system) * Adjusted to current value	1 = 1000-1800 Lek/ha 0 = <1000 Lek/ha
ISF collection as percentage of target	(Total ISF collected)/(Target total annual Irrigation Service Fees)	2 = >90% 1 = 60-90% 0 = <60%
ISF collection per hectare irrigated	(Total ISF collected)/(Total annual irrigated crop area) * Adjusted to current values	2 = >2500* Lek/ha 1 = 1000-2500 Lek/ha 0 = <1000 Lek/ha
Financial Audit of WUA	Level of approval of WUA financial affairs by independent auditors	2 = Accounts approved 1 = No audit undertaken 0 = Accounts qualified/rejected
<b>4. Operation</b>		
Area managed by Water masters	Number of Water Masters employed by WUA	1 = > 250 ha 0 = No Water Masters
Degree of flow measurement	Level of flow measurement at the head of the system (either primary canal or secondary canals)	2 = Full water measurement record 1 = Some water measurement 0 = No measurement
<b>5. Maintenance</b>		
Annual maintenance planning	Extent of annual maintenance planning, costing and implementation Note: The inspection plan must be reviewed and scored by the PMU staff.	2 = Inspection undertaken and detailed plan produced 1 = Maintenance plan produced without proper inspection 0 = No plan produced.
Maintenance expenditure per unit of total service area	(Maintenance cost*)/(Total gross area serviced by the system) * Adjusted to current values	2 = >1000* Lek/ha 1 = 500-1000 Lek/ha 0 = <500 Lek/ha
Maintenance expenditure to revenue ratio	(Maintenance expenditure)/(Gross revenue collected)	2 = >70% 1 = 40-70% 0 = <40%
Total Score	Sum of scores for performance indicators. Top scores indicate Water Users Association that needs no further support.	2 = >32 1 = 20-32 0 = <20

Source: Halcrow, 2003

**Table 39: Key indicators for outcome monitoring and evaluation of irrigation and drainage system management, operation and maintenance**

	Definition	Notes <sup>18</sup>
<b>Agricultural production</b>		
Total seasonal area cropped per unit command area (Cropping intensity)	(Total seasonal area cropped)/(Total command area of system)	a
Total seasonal crop production (Tonnes)	Total seasonal crop production by crop type within command area	a
Total seasonal crop production per unit command area (crop yield; kg/ha)	(Total seasonal crop production)/(Total command area of system)	a
Total seasonal value of crop production	(Total seasonal value of agricultural crop production	a



	Definition	Notes <sup>18</sup>
(\$)	received by producers)	
Total seasonal value of crop production per unit command area (\$/ha)	(Total seasonal value of crop production)/(Total command area of system)	a
Total seasonal crop production per unit water supply (kg/m <sup>3</sup> )	(Total seasonal crop production)/(Total seasonal volume of irrigation water supply)	a
Total seasonal value of crop production per unit water consumed (\$/m <sup>3</sup> )	(Total seasonal value of crop production)/(Total seasonal volume of crop water demand (Etc.))	a
Total seasonal value of crop production per unit water supplied (\$/m <sup>3</sup> )	(Total seasonal value of crop production)/(Total seasonal volume of irrigation water supply)	a
<b>Irrigation water delivery</b>		
Total seasonal volume of irrigation water supply (MCM)	Total seasonal volume of water diverted or pumped for irrigation not including diversion of internal drainage)	a
Seasonal irrigation water supply per unit command area (m <sup>3</sup> /ha)	(Total seasonal volume of irrigation water supply)/(Total command area of system)	a
Main system water delivery efficiency	(Total seasonal volume of irrigation water delivery)/(Total seasonal volume of irrigation water supply)	b
Seasonal relative irrigation water supply	(Total seasonal volume of irrigation water supply)/(Total seasonal volume of crop water demand)	a
Water delivery capacity	(Canal capacity at head of system)/(Peak irrigation water demand at head of system)	-
<b>Financial</b>		
Total seasonal MOM expenditure per unit command area (\$/ha)	(Total seasonal MOM expenditure)/(Total command area of system)	c
Total seasonal MOM expenditure per unit irrigation water supply (\$/m <sup>3</sup> )	(Total seasonal MOM expenditure)/(Total seasonal volume of irrigation water supply)	c
Total seasonal maintenance expenditure per unit command area (\$/ha)	(Total seasonal maintenance expenditure)/(Total command area of system)	c
Total seasonal maintenance expenditure fraction	(Total seasonal maintenance expenditure)/(Total seasonal MOM expenditure)	c
MOM funding ratio	(Actual annual income)/(Budget required for sustainable MOM)	d
Fee collection ratio	(Irrigation (and drainage) service fees collected)/(Irrigation (and drainage) service fees due)	d
Farm profit	Total farm income – total farm expenditure	e
<b>Drainage water removal</b>		
Average depth to groundwater (m)	Average seasonal depth to groundwater calculated from water table observations over the irrigation area	f
<b>Environmental protection</b>		
Salinity of soil water (mmhos/cm)	Electrical conductivity of soil water	f
Soil salinity (mmhos/cm)	Electrical conductivity of soil	f
Salinity of water in open drain (mmhos/cm)	Electrical conductivity of water in open drains	f
Drainage water quality: Biological (mg/litre)	Biological load of drainage water expressed as Biological Oxygen Demand (BOD)	f
Drainage water quality: Chemical (mg/litre)	Chemical load of drainage water expressed as Chemical Oxygen Demand (COD)	f



<sup>18</sup> Location and sampling interval:

- a. Determine for total command area and individual tertiary units
- b. Discharges measured at the main canal intake and tertiary unit intakes
- c. Determine for total command area, main system only and individual Water Users Associations
- d. Determine for individual service providers (government agency or Water Users Associations)
- e. For individual water users
- f. Periodic sampling at selected locations