



## **Technical annex**

**Water demand management knowledge base in the  
Mediterranean**

**WADEMED**

**August 2002**



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# 1 Objectives

## 1.1 General objectives of the research

The general objective of the WADEMED concerted action is to constitute an integrated knowledge base on water demand management experiences in the Mediterranean, including the comparison of modern and traditional irrigation techniques and their impact on effective irrigation efficiency, the designing and implementing of economic instruments and their impact on irrigated agriculture and the water resources, and new institutional arrangements to associate water users associations to water demand management. WADEMED will focus specifically on North-Africa, because of its experiences in integrated water demand management, the intense water shortage and the large number of research efforts that have been conducted in recent years. More specifically, WADEMED aims:

1. To share experiences in the comparison of traditional and modern irrigation techniques and their impact on water use and agricultural production in the context of conjunctive use of surface and groundwater in the Mediterranean
2. To share experiences in the application of economic instruments and their impact on irrigation practices, the water use and the agricultural production in North-Africa
3. To share experiences on new institutional arrangements in the shared water management of irrigation schemes, involving irrigation authorities and water users associations, and their impact on water use and agricultural production
4. To determine the constraints and opportunities in the application of water demand management policy measures in irrigated agriculture in North Africa
5. To provide policy recommendations on water demand management policy measures

## 1.2 Specific scientific and technological objectives

The aims of WADEMED are to establish a knowledge base on water demand management. It endeavours to :

1. Synthesise and share existing experiences in the application of modern irrigation techniques, the shared management of irrigation systems, and in the application of water saving policies in North Africa:  
*Short, synthetic papers will be presented during the thematic seminars, following a standard format established by the seminar organisers. These papers will be made available in the seminar proceedings on paper, and will be accessible on the WADEMED web site.*
2. Promote a common multidisciplinary framework for assessing the impact of improved irrigation technologies and water use efficiency policies in order to facilitate comparisons between case studies.  
*For each thematic seminar a common grid and related indicators will be developed for the comparison of different case studies. A grid will be based on a qualitative checklist of key issues, which will be substantiated through quantitative indicators.*
3. Provide policy recommendations for improving new technologies acceptability and effective transfer.  
*Policy briefs (2-3 pages) will be prepared on strategic issues during each thematic seminar.*
4. Favour the emergence of regional expert groups, who can be called upon by policy makers, managers, researchers and farmers' groups for the analysis and evaluation of water use efficiency policies and technologies.  
*A knowledge base will be constituted, accessible through internet, containing different case studies with the relevant expert groups on each thematic area.*
5. Disseminate to a larger public the acquired knowledge on water demand and use in irrigated agriculture in North-Africa

*A set of scientific and technical references on water demand management in North-Africa, assembled in a book, will be produced as an output of the synthesis seminar. This book will be accessible to a large audience of professionals (administrations, water boards, water users associations...), scientists, policy makers, students. A bilingual web-site will capitalise on the knowledge acquired under the project and make it more widely available.*

## 2 Work plan

### 2.1 Introduction

The general objective of the WADEMED concerted action is to constitute an integrated knowledge base on water demand management experiences, including the comparison of modern and traditional irrigation techniques and their impact on effective irrigation efficiency, the designing and implementing of economic instruments and their impact on irrigated agriculture and the water resources, and new institutional arrangements to associate water users associations to water demand management. On each of these themes, an **international seminar** will be organised on: (1) “**Modernisation of irrigated agriculture**”, (2) “**Economic instruments for efficient water use and sustainable irrigated agriculture**”, (3) “**Institutional arrangements for integrated water management**”. It is increasingly recognised that different policy and management interventions need to be formulated and analysed in an integrated manner. Experiences with new methodologies that facilitate the development of common representations and analytical tools for integrated water demand management will be discussed. The international seminars will be **co-ordinated locally** by the organising institution, ensuring the participation of all local stakeholders.

These international seminars will provide a platform for sharing the various practical experiences in Mediterranean countries on water demand management through short technical papers. The seminars, which will be announced through different media and networks, will be open to contributions of consortium members as well as to persons and institutions that are not part of the consortium. A scientific organisation committee (SOC) will evaluate the different contributions, based on the submission of an abstract. Each presentation shall focus on tools and methods used, on benefits obtained and try to identify the key points explaining the success/failure of the operation. Relevant experiences referring to methodological advances and implementation of original water policies will also be discussed and analysed in the seminar. Two external resource persons will be mobilised during each seminar. During each seminar, a training session will also be organised to present and discuss new tools and methodologies. A special emphasis will be given to the effective role that tools and innovative methodologies (decision-support, negotiation supports...) can play in improving water management practices. The WADEMED seminars will be an opportunity to discuss policy options with the different stakeholders. In particular, a joint analysis of a typical irrigation scheme involving policy makers, managers, users associations, producers and researchers will help formulating policy recommendations that take into account the multiple aspects of demand management in an integrated approach. Regional expert groups, who can be called upon by policy makers, managers, researchers and farmers' groups for the analysis and evaluation of water use efficiency policies and technologies, will be formed.

This joint analysis will be carried out on the basis of a common multi-disciplinary framework that will be developed during a **preparatory workshop** that will take place two months before the seminar in the same location. A Workshop and seminar Organisation Committee (WOC), consisting of about 3 consortium members will be responsible for organising this workshop, in which 6-8 consortium members will participate, constituting the scientific organisation committee (SOC). This workshop will also serve to select a relevant irrigation system and involve the different stakeholders (policy makers, authorities and water users associations) in the preparation of the seminar. During the workshop, the training session of the seminar will be defined and the trainers invited. Three external resource persons will participate in the preparatory and synthesis workshops as well as in the international seminar. They will ensure that the consortium is open to relevant experiences beyond of

the consortium members, and will participate in the SOC. They will also assure the facilitation of the training session during the seminar.

A **synthesis workshop** will be organised one month after the completion of the seminar in order to facilitate the production and editing of the deliverables (proceedings, policy recommendations, case study report). This workshop will take place in another country than that where the preparatory workshop and seminar have taken place in order to consult other resource persons and ensure that the seminar findings are generic to a wide range of situations.

On the basis of the deliverables produced, the **knowledge base** will be constituted and upgraded. This knowledge base will be made up of different supports. Firstly, proceedings will be produced for each of the seminars to properly document the different experiences presented as well as the various discussions. Secondly, a case study report will document the findings of the joint analysis undertaken with different stakeholders. Thirdly, 1 or 2 page policy briefs will briefly describe the main recommendations of the seminar. Fourthly, upon the completion of the fourth seminar, a reference book on water demand management will be produced and edited, involving a journalist in order to ensure a better communication of the acquired knowledge. Fifthly, a bilingual (english-french) web-site will be launched so as to capitalise on the knowledge acquired under the project and make it more widely available.

The web-site will have a dual aim:

- to inform the general public about water management issues in North Africa,
- to facilitate relations between project members.

From year one, the open area of the site will provide information on the problems and issues. The project will also be presented, giving its objectives and the approach adopted. Each year, the site will be used to promote seminars: announcements, programmes, on-line registration, etc. After each seminar, the scientific papers presented will be available, with the conclusions adapted for a wider audience (multi-media animations, quiz, etc). A restricted-access area will enable project members to consult non-public items (administrative and financial documents, etc) and exchange information (forum, communication tools), particularly with a view to preparing and synthesising seminars.

Once the project is completed, the site could help to sustain and extend the information base and continue to serve as a forum. The WADEMED concerted action will thus be a careful, step-by-step construction in order to create a dynamism in the field of water demand management that will continue beyond the duration of the Inco-Med project. Since North-Africa is facing severe water droughts, prompting the different stakeholders to effectively manage their water demand, this region can be considered as a pilot site for developing tools and methods and experimenting integrated management of water resources. These experiences will help prepare Europe and other regions around the world to managing water shortages.

## 2.2 Participants

### 2.2.1 List of all the participants

|    | PA Nr. | Institution | Country | Expertise   |
|----|--------|-------------|---------|---|
| CO | 1      | Cirad       | France  | Institutional water management;<br>Integrated modelling; soil and water quality                 |
| CR | 2      | Cemagref    | France  | Irrigation system performances and scheduling;<br>groundwater and surface drainage water reuse; |

|    |    |                     |          |   |
|----|----|---------------------|----------|---|
|    |    |                     |          | institutional water management; economic instruments; hydraulics of irrigation canals   |
| CR | 3  | IAV                 | Morocco  | Irrigation system performances and scheduling; groundwater and surface drainage water reuse; socio-economics of water resources |
| CR | 4  | INAT                | Tunisia  | Economic instruments; irrigation system performances  |
| MB | 5  | Université de Tunis | Tunisia  | Economic instruments, water pricing   |
| MB | 6  | IRNGREF             | Tunisia  | Irrigation system performances and scheduling; reuse of marginal resources for agriculture                                      |
| MB | 7  | DGGR                | Tunisia  | Economic instruments, economic reforms  |
| MB | 8  | IRD                 | France   | Integrated water management; groundwater management; socio-economics of water resources   |
| MB | 9  | ISA                 | Portugal | Irrigation systems performances and scheduling; socio-economics of water resources  |
| MB | 10 | USF                 | Germany  | Institutional arrangements; integrated water management; economic instruments, water markets                                    |
| MB | 11 | ETSIA               | Spain    | Economic instruments, water markets   |
| MB | 12 | INAA                | Algeria  | Irrigation system performance and scheduling; groundwater and surface drainage water reuse                                      |

## 2.2.2 Provisional list of seminar attendees

The project will fund the participation of 70 persons, 50 % of which are from the participating institutions and 50 % local stakeholders to the different seminars. In addition, these seminars are open to other researchers and personalities, who will be asked to bear their own travel and lodging and will be required to pay a subscription fee for the seminar.

## 2.3 Work packages

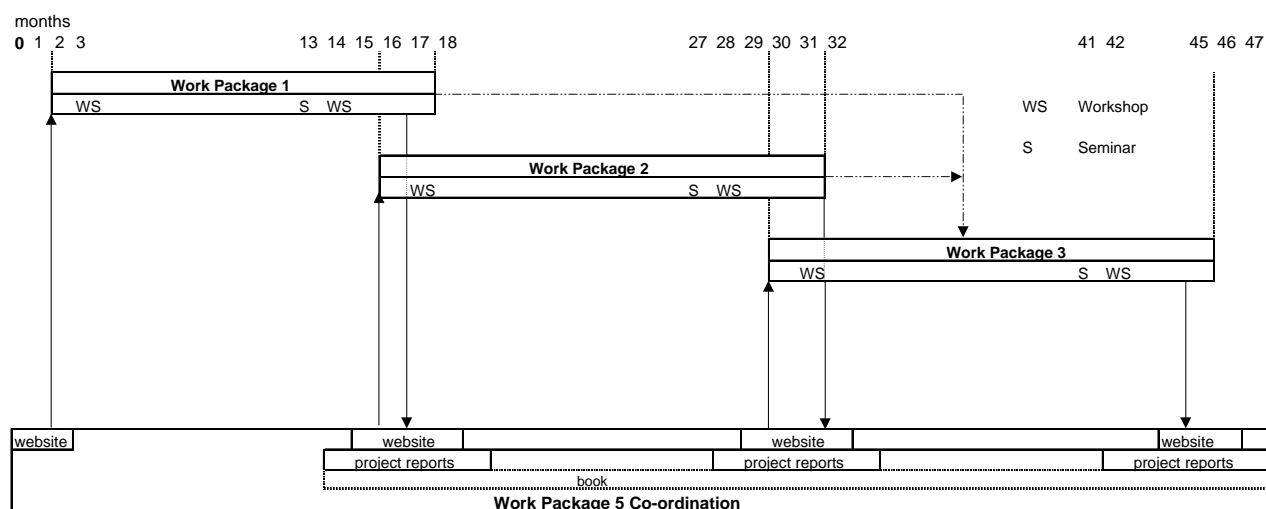
### 2.3.1 Work package list

| WP n° | Work package title   | Principal contractor No | Member participants No | Persons-months | Start Month | End month | Deliverable No   |
|-------|--|-------------------------|------------------------|----------------|-------------|-----------|--|
| 1     | Modernisation of irrigated agriculture   | 3                       |                        | 9              | 0           | 11        | D2, D5-D7  |
| 2     | Economic instruments for efficient water use and a sustainable irrigated agriculture | 4                       |                        | 9              | 12          | 23        | D9, D12-D14  |
| 3     | Institutional arrangements for improved water management                             | 2                       |                        | 8              | 24          | 35        | D17, D19-D21   |
| 4     | Project co-ordination  | 1                       |                        | 14             | 0           | 47        | D1, D3, D4, D8, D10, D11, D15, D16, D18, D22, D23, D24, D25, |

|  |              |  |  |    |  |  |          |
|--|--------------|--|--|----|--|--|----------|
|  |              |  |  |    |  |  | D26, D27 |
|  | <b>Total</b> |  |  | 48 |  |  |          |

### 2.3.2 Time table

The timetable of activities and the relations between work packages are described in the diagram below. The web site will provide the relevant information for the work package participants and the results of the work packages contribute to the building of the web site knowledge base and to the project reports (half yearly and annual reports).



### 2.3.3 List of deliverables

| Deliverable No | Deliverable title  | Delivery date |
|----------------|--|---------------|
| D1             | Creation web site  | 3             |
| D2             | Minutes of preparation workshop year 1                             | 3             |
| D3             | Half-yearly progress report year 1                                 | 5             |
| D4             | Annual report year 1   | 12            |
| D5             | Proceedings “Modernisation of irrigated agriculture”               | 14            |
| D6             | Policy briefs on modernisation of irrigated agriculture            | 14            |
| D7             | Case study, modernisation of an irrigation system                  | 14            |
| D8             | Knowledge base (technical aspects) available on web site           | 14            |
| D9             | Minutes of preparation workshop year 2                             | 17            |
| D10            | Half-yearly progress report year 2                                 | 17            |
| D11            | Annual report year 2   | 24            |
| D12            | Proceedings “Economic instruments”                                 | 28            |
| D13            | Policy briefs: Economic instruments                                | 28            |
| D14            | Case study, economic instruments                                   | 28            |
| D15            | Knowledge base (technical, economic aspects) available on web site | 28            |
| D16            | Half-yearly progress report year 3                                 | 30            |
| D17            | Minutes of preparation workshop year 3                             | 31            |

|     |   |    |
|-----|---|----|
| D18 | Annual report year 3  | 36 |
| D19 | Proceedings “ Institutional arrangements for integrated water demand management ” | 42 |
| D20 | Policy briefs: Institutional arrangements for integrated water demand management  | 42 |
| D21 | Case study, Institutional arrangements for integrated water demand management     | 42 |
| D22 | Knowledge base (technical, economic, institutional aspects) available on web site | 42 |
| D23 | Half-yearly progress report year 4  | 42 |
| D24 | Integrated knowledge base available on web site                                   | 47 |
| D25 | Book: policy analysis and recommendations   | 47 |
| D26 | CD-ROM gathering the knowledge acquired during the project                        | 47 |
| D27 | Final report  | 47 |

### 2.3.4 Thematic Work package description

|  |   |      |   |              |  |  |  |
|--|---|------|---|--------------|--|--|--|
| <b>Work package number :</b>               | <b>WP1</b>                                    |      |   |              |  |  |  |
|  | <b>Modernisation of irrigated agriculture</b> |      |   |              |  |  |  |
| <b>Relative start month <sup>1</sup> :</b> | 0   |      |   |              |  |  |  |
| <b>Participant number:</b>                 | 3   | 5,10 | 2 | 1,7,9,<br>13 |  |  |  |
| <b>Person-months per participant:</b>      | 4   | 1,5  | 1 | 0,5          |  |  |  |

#### Objectives

The objective of the work package is to share knowledge on North African’s experiences in modernisation and/or improvement of traditional irrigated agriculture. New concepts in irrigation efficiencies, assessed at the basin scale level and including groundwater and surface water drainage reuse and sustainability related to water quality and soil degradation will be discussed.

#### Description of work

**Task 1.1.** An 8 day **seminar** will be organised, in which the various experiences in North African’s countries will be presented through short technical papers. Each presentation shall focus on tools and methods used, on benefits obtained and try to identify the key points explaining success/failure of the operation. A case study will be visited during the seminar in an irrigation scheme where reuse of water with environmental sustainability issues are relevant. A training session will also be organised to present new tools and in particular software developed by the partners on irrigation scheduling. Experiences on the following items will be welcome: (1) modernisation of on-farm irrigation techniques, (2) irrigation scheduling, (3) groundwater or surface drainage water reuse, (4) assessment programmes on irrigated systems performances at different scale levels, (5) socio-economic assessment of modernised irrigation practices, (6) research advances on technology and methods transfer to users. Policy briefs will be prepared on the basis of the outcomes of the seminar.

**Task 1.2.** A 4 day **preparation workshop** will be organised 2 months ahead of the seminar. The field visits in the representative case study in the organised country will be selected and prepared. This workshop will also orient the selection of a series of case studies to be presented in the seminar. The analytical framework guidelines will be elaborated.

**Task 1.3.** A 4 day **synthesis workshop** will be organised by consortium member 10 in another country to produce the deliverables of the work package.

Two committees will be created, a Workshop Organising Committee (WOC) in charge of the co-ordination the workshops and of the seminar (partners 3, 10, 2) and a Scientific Organising Committee (SOC) which participates in the preparation and the synthesis workshops (partners 1, 2, 3, 5, 7, 10, 13, 14). All the partners

participate in the plenary seminar.

**Deliverables** Minutes of preparation workshop (D2), conference proceedings (D5), policy briefs (D6), case study report (D7)

**Milestones and expected results** The work package is expected to synthesise and share existing knowledge on modernisation of irrigated agriculture by producing the different deliverables (proceedings, web-site, policy briefs). The work package will also favour the emergence of regional expert groups, and improve the co-operation and dialogue between policy makers, researchers, farmers association, river basin authorities and other professionals of the water and agricultural sector. In addition, this work package will provide material for the web site knowledge base (WP 4).

|  |                             |     |    |                |  |  |  |
|--|-----------------------------|-----|----|----------------|--|--|--|
| <b>Work package number :</b>               | <b>WP2</b>                  |     |    |                |  |  |  |
|  | <b>Economic instruments</b> |     |    |                |  |  |  |
| <b>Relative start month <sup>1</sup> :</b> | 12                          |     |    |                |  |  |  |
| <b>Participant number:</b>                 | 4                           | 2   | 12 | 1,3,6,8,<br>11 |  |  |  |
| <b>Person-months per participant:</b>      | 4                           | 1,5 | 1  | 0,5            |  |  |  |

**Objectives**  
 The general objective is to bring together experiences in the field of designing and implementing economic instruments in irrigation systems in North-Africa and to assess their impact on the water use efficiency, on the performance of irrigated agriculture (farm and scheme level) and on the sustainability of the water resources (groundwater, surface water).

**Description of work**

**Task 1.1.** An 8 day **seminar** will be organised, in which the various experiences in North African’s countries will be presented through short technical papers. Each presentation shall focus on tools and methods used, on benefits obtained and try to identify the key points explaining success/failure of the operation. During the seminar, a joint analysis, involving policy makers, managers, producers and researchers, will be carried out on a typical irrigation scheme in the organising country on the base of an analytical framework. A training session will also be organised to present new tools and in particular software developed by the partners on evaluating the impact of water markets. Relevant experiences referring to methodological advances and implementation of original water policies such as water markets will also be discussed and analysed in the seminar. Policy recommendations will be formulated, taking into account the Mediterranean experiences as well as methodological advances elsewhere. The participation of policy makers will contribute to this objective. Experiences on the following items will be welcome: (1) water pricing experiences and their impact on water demand, (2) interest and potential impact of water markets, (3) economic instruments in practice: socio-economic and technical acceptability, (4) integration of economic instruments and other technical and institutional measures

**Task 1.2.** A 4 day **preparation workshop** will be organised 2 months ahead of the seminar. The field visits in the representative case study in the organised country will be selected and prepared. This workshop will also orient the selection of a series of case studies to be presented in the seminar. Each presentation shall focus on tools and methods used, on benefits obtained and try to identify the key points explaining success/failure of the operation.

**Task 1.3.** A 4 day **synthesis workshop** will be organised by consortium member 2 in another country to produce the deliverables of the work package.

Two committees will be created, a Workshop Organising Committee (WOC) in charge of the co-ordination the workshops and of the seminar (partners 4, 2, 12) and a Scientific Organising Committee (SOC) which participates in the preparation and the synthesis workshops (partners 1, 2, 3, 4, 6, 8, 11, 12). All the partners participate in the plenary seminar.

**Deliverables** Minutes of preparation workshop (D9), conference proceedings (D12), policy briefs (D13), case study report (D14)

**Milestones and expected results** The work package is expected to synthesise and share existing knowledge on the implementation of economic instruments and its impact on water use and irrigated agriculture by producing the different deliverables (proceedings, web-site, policy briefs). The work package will also favour the emergence of regional expert groups, and improve the co-operation and dialogue between policy makers, researchers, farmers association, river basin authorities and other professionals of the water and agricultural sector. In addition, this work package will provide material for the web site knowledge base (WP 4).

|  |  |     |     |   |       |  |  |
|--|--|-----|-----|---|-------|--|--|
| <b>Work package number :</b>               | <b>WP3</b>   |     |     |   |       |  |  |
|  | <b>Institutional arrangements for integrated water demand management</b> |     |     |   |       |  |  |
| <b>Relative start month <sup>1</sup> :</b> | 24   |     |     |   |       |  |  |
| <b>Participant number:</b>                 | 2  | 5   | 11  | 9 | 1,5,6 |  |  |
| <b>Person-months per participant:</b>      | 4  | 2,5 | 1,5 | 1 | 0,5   |  |  |

**Objectives**  
 The objective of this work package is to share experiences on institutional arrangements in the management of water resources in the agricultural sector in the context of decentralisation and modernisation of irrigation schemes.

**Description of work**

**Task 1.1.** An 8 day **seminar** will be organised, in which the various experiences in North African's countries will be presented through short technical papers. Each presentation shall focus on tools and methods used, on benefits obtained and try to identify the key points explaining success/failure of the operation. The different success stories and failures in this field will be compared in order to identify the institutional constraints and opportunities to a more sustainable irrigated agriculture. Presentations will also focus on tools and methods used, on benefits obtained and try to identify the key points explaining success/failure of a more integrated approach of managing water demand. During the seminar, a joint analysis, involving policy makers, managers, producers and researchers, will be carried out on a typical irrigation scheme in the organising country on the base of an analytical framework. A training session will also be organised to present new tools and in particular software developed by the partners on agent-based modelling. Policy recommendations will be formulated, taking into account the Mediterranean experiences as well as methodological advances elsewhere. The participation of policy makers will contribute to this objective. Experiences on the following items will be invited: (1) adaptation of water allocation rules and rights, (2) role of water users associations in the modernisation of irrigation schemes, (3) co-ordination between water users association and agencies, (4) use of tools and methodologies to support decision-making and negotiation processes

**Task 1.2.** A 4 day **preparation workshop** will be organised 2 months ahead of the seminar. The field visits in the representative case study in the organised country will be selected and prepared. This workshop will also orient the selection of a series of case studies to be presented in the seminar. Each presentation shall focus on tools and methods used, on benefits obtained and try to identify the key points explaining success/failure of the operation.

**Task 1.3.** A 4 day **synthesis workshop** will be organised by consortium member 11 in another country to produce the deliverables of the work package.

Two committees will be created, a Workshop Organising Committee (WOC) in charge of the co-ordination the workshops and of the seminar (partners 2, 9, 11) and a Scientific Organising Committee (SOC) which

participates in the preparation and the synthesis workshops (partners 1, 2, 5, 6, 9, 11). All the partners participate in the plenary seminar.

**Deliverables** Minutes of preparation workshop (D17), conference proceedings (D19), policy briefs (D20), case study report (D21)

**Milestones and expected results**  
 The work package is expected to synthesise and share existing knowledge on the institutional arrangements in the integrated management of water resources in the agricultural sector by producing the different deliverables (proceedings, web-site, policy briefs). The work package will also favour the emergence of regional expert groups, and improve the co-operation and dialogue between policy makers, researchers, farmers association, river basin authorities and other professionals of the water and agricultural sector. In addition, this work package will provide material for the web site knowledge base (WP 4).

2.3.5 Co-ordination work package

|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
| <b>Work package number :</b>               | <b>WP4</b>   |  |  |  |  |  |
|  | <b>Scientific co-ordination and dissemination of knowledge</b> |  |  |  |  |  |
| <b>Relative start month <sup>1</sup> :</b> | 0  |  |  |  |  |  |
| <b>Participant number:</b>                 | 1  |  |  |  |  |  |
| <b>Person-months per participant:</b>      | 14   |  |  |  |  |  |

**Objectives**  
 The general objective of the work package is co-ordinate the WADEMED concerted action and to ensure the dissemination of the knowledge acquired during the project

**Description of work**  
**Task 5.1.** A bilingual (English-French) web-site is to be launched so as to capitalise on the knowledge acquired under the project and make it more widely available. The site will have a dual aim:

- to inform the general public about water management issues in North-Africa,
- to facilitate relations between project members.

In addition, a CD-ROM will be prepared representing the knowledge acquired during the course of the project, and based on the configuration of the web-site.

**Task 5.2.** A reference book on water demand management will be produced based on the knowledge acquired under the project, and after holding the “integrated water demand management” seminar in year 4.

**Task 5.3.** Half-yearly progress reports will be submitted to the European Commission.

**Task 5.4.** Annual reports will be submitted to the European Commission.

**Task 5.5.** A final project report will be submitted to the European Commission.

**Deliverables**  
 4 half-yearly reports (D3, 10, 17, 24); 3 annual reports (D7, 14, 21); 1 final report (D31); a bilingual web site regularly updated (D1, D8, D15, D22, D28); 1 CD gathering the acquired knowledge of the project (D30); a reference book (D29)

**Milestones and expected results**  
 The knowledge base that will be constituted at the start of the project and will be extended, based on the outcomes of work packages 1 to 4. The web-site will be regularly updated. The dissemination of the acquired knowledge will be made available through this web-site, but equally through a CD-ROM and through the publishing of a reference book.

### 3 Participants

#### 3.1 Description of the consortium

The proposed consortium is formed by researchers having a great expertise on water demand management issues in the agricultural sector in the Mediterranean, and more specifically in North African countries. The information summarised in Table 1 shows that the main topics of the project (irrigation techniques, socio-economic and institutional aspects, integrated water management) are part of the expertise and mandate of both EU and North African institutions.

The EU institutions complement each other. ISA is mainly concerned with irrigation techniques, ETSIA with socio-economy and USF with economic instruments and water management. The French institutions (Cirad, Cemagref and IRD) will cover all fields but they already co-ordinate their activities on water resources management through a common programme on irrigation systems (Programme Commun Systèmes Irrigués, PCSI), which was launched in 2000. The institutions involved in the project have developed bilateral relationships in recent past through R&D projects:

- ISA and Cemagref are presently co-operating in irrigation and drainage assessments and modelling for two projects within the 4<sup>th</sup> and 5<sup>th</sup> EU framework program, respectively the Yellowatsave project, INCO-DC, ERBIC18CT970170 ending in 2002 and the Cirman-aral project, ICACT200010039, ending in 2004;
- USF and Cemagref are also presently involved in two EU sponsored projects within the 5<sup>th</sup> EU framework program: the FIRMA project (Freshwater Integrated Resource Management with Agents) on participatory agent based social simulation, is currently working on five European case studies, ending in 2003; the HarmoniCOP project (Harmonising Collaborative Planning) that investigates the public participation in making provisions for sustainable water resources management and the implementation of the new European Water Framework Directive in nine European countries; this project will begin in 2003;
- Cirad, Cemagref and IAV are involved in a project in the Tadla irrigation scheme (Morocco) on the farmers' strategy of reuse of groundwater by individual pumping; a common PhD arrangement is in place between these institutions to favour the exchange and interactions of PhD candidates; currently, 3 PhD's are being prepared;
- Cemagref and INA of Algiers are jointly supervising several PhD's on groundwater and surface drainage water reuse;
- IRD and INAT have carried out a national program on integrated water management in the Kerouan's region (Tunisia);
- IRNGREF and Cemagref are involved in a water-saving program in the Northern region of Tunisia (Lower Mejerda Valley).

#### 3.2 Summary description of the role of the participants

|    | PA No. | Institution | Country | Role   |
|----|--------|-------------|---------|--|
| CO | 1      | Cirad       | France  | <b>Project co-ordination</b><br><b>WP4 co-ordination</b>   |
| CR | 2      | Cemagref    | France  | <b>WP3 co-ordination</b> ; will host the preparatory workshop and the seminar on "institutional arrangements for |

|    |    |                     |          |   |
|----|----|---------------------|----------|---|
|    |    |                     |          | integrated water demand management ” ( <b>WP3</b> ), will host the synthesis workshop on “economic instruments”   |
| CR | 3  | IAV                 | Morocco  | <b>WP1 co-ordination</b> ; will host the preparatory workshop and the seminar on “modernisation of irrigated agriculture” ( <b>WP1</b> )  |
| CR | 4  | INAT                | Tunisia  | <b>WP2 co-ordination</b> ; will host the preparatory workshop and the seminar on “economic instruments”   |
| MB | 5  | ENA Meknès          | Morocco  | Will assist the co-ordinators of <b>WP1</b> and <b>WP3</b> in the organisation of the seminars on “modernisation of irrigated agriculture” and “institutional arrangements for integrated water demand management”  |
| MB | 6  | Université de Tunis | Tunisia  | Will assist the co-ordinators of <b>WP2</b> and <b>WP3</b> in the organisation of the seminars on “economic instruments” and “institutional arrangements for integrated water demand management ”                   |
| MB | 7  | IRNGREF             | Tunisia  | Will assist the co-ordinator of <b>WP1</b> in the organisation of the seminar on “modernisation of irrigated agriculture”   |
| MB | 8  | DGGR                | Tunisia  | Will assist the co-ordinator of <b>WP2</b> in the organisation of the seminar on “economic instruments”   |
| MB | 9  | IRD                 | France   | Will assist the co-ordinators of <b>WP1</b> and <b>WP3</b> in the organisation of the seminars on “modernisation of irrigated agriculture” and “institutional arrangements for integrated water demand management ” |
| MB | 10 | ISA                 | Portugal | Will host the synthesis workshop on “modernisation of irrigated agriculture” ( <b>WP1</b> )   |
| MB | 11 | USF                 | Germany  | Will host the synthesis workshop on “institutional arrangements for integrated water demand management ” ( <b>WP3</b> )   |
| MB | 12 | ETSIA               | Spain    | Will assist the co-ordinator of <b>WP2</b> in the organisation of the preparatory workshop and seminar on “economic instruments”  |
| MB |    | INAA                | Algeria  | Will assist the <b>WP1</b> co-ordinator in the organisation of the preparatory workshop and seminar on “modernisation of irrigated agriculture”   |

#### 4 Management of the project

The Moroccan, Tunisian and Algerian research partners have developed strong links with the stakeholders and end-users of their countries, who will be involved in the different preparatory workshops and seminars, thus contributing to the constitution of the WADEMED knowledge base. The project is co-ordinated by Cirad in charge of the WP4. For each of the work packages 1 to 3, two committees will be created, a **Workshop and seminar Organising Committee** (WOC) in charge of the organisation and co-ordination of the preparatory and synthesis workshops and of the plenary seminars and a **Scientific Organising Committee** (SOC) which will be meeting during the preparatory and synthesis workshops and will ensure the scientific co-ordination of the seminar. The SOC and the WOC will assist the work package co-ordinators in the timely finalisation of the work package deliverables. Each work package is co-ordinated by the institution (lead contractor) which organises the seminar in its country. The preparation workshop will take place in the same country (cf. Table 1). The synthesis workshop will be organised in a different country by an institution involved in

the WOC and the SOC of the respective work package. All partners participate in the plenary seminar. A picture of the general organisation of the work packages 1 to 4 is given in figure 1. The project co-ordinator is part of all the SOC's of the work packages 1 to 4 to ensure the overall scientific co-ordination of the project.

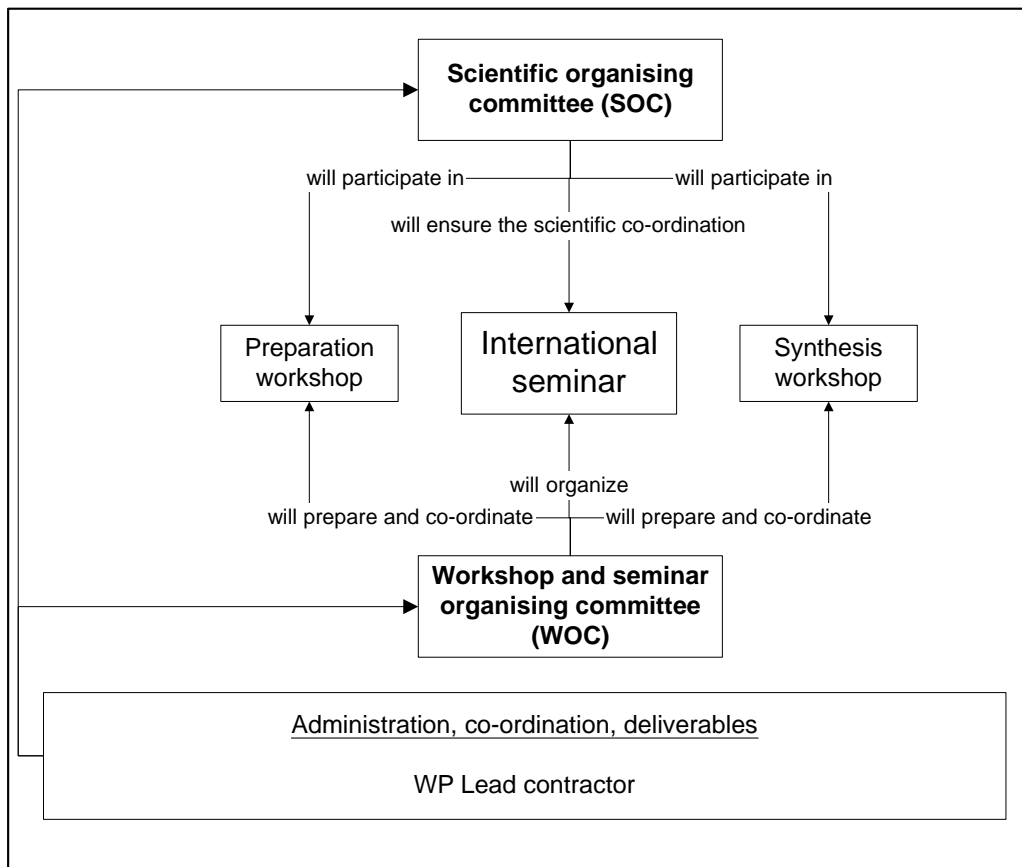


Figure 1. Role and constitution of each committee for WP1 to WP4.

#### 4.1 Preparatory and synthesis workshops

The project is organised into 4 different work packages. Work package 4 covers the project co-ordination, assuring the timely delivery of project reports (half-yearly, annual), the dissemination of acquired knowledge through internet and a reference book. Work Packages 1 to 3 consist basically of the organisation of an international seminar, prepared through a preparation workshop, and concluded through a synthesis workshop. The lead contractor of each work package will ensure the timely organisation and of the different workshops and seminars and will produce the work package deliverables as defined in B5.2. For each work package, to assist the lead contractor, a **Workshop and seminar Organising Committee (WOC)**, consisting of about 3 consortium members, will be responsible for organising a **preparatory workshop** that will take place two months before the seminar in the same location. 6-8 consortium members will participate in this workshop, constituting the scientific organisation committee (SOC). A **synthesis workshop** will be organised one month after the completion of the seminar in order to facilitate the production and editing of the deliverables (proceedings, policy recommendations, case study report). Table 2 provides an overview of the implication of the different consortium members in the WOC's and SOC's of the different work packages. The project co-ordinator will participate in the SOC's of all the work packages to ensure the overall scientific co-ordination.

**Table 2.** Participation of the consortium members in the Workshop and seminar Organising Committees (WOC) and the Scientific Organising Committees (SOC) of Work Packages 1 to 3.

| Partner Number | Institute name      | Country  | WOC |     |     | SOC |     |     |
|----------------|---------------------|----------|-----|-----|-----|-----|-----|-----|
|                |                     |          | WP1 | WP2 | WP3 | WP1 | WP2 | WP3 |
| 1              | Cirad               | France   |     |     |     | X   | X   | X   |
| 2              | Cemagref            | France   | X   | SW  | LC  | X   | X   | X   |
| 3              | IAV                 | Morocco  | LC  |     |     | X   | X   |     |
| 4              | INAT                | Tunisia  |     | LC  |     |     | X   |     |
| 5              | ENA Meknès          | Morocco  | X   |     | X   | X   |     | X   |
| 6              | Université de Tunis | Tunisia  |     |     |     |     | X   | X   |
| 7              | IRNGREF             | Tunisia  |     |     |     | X   |     |     |
| 8              | DGGR                | Tunisia  |     |     |     |     | X   |     |
| 9              | IRD                 | France   |     |     | X   | X   |     | X   |
| 10             | ISA                 | Portugal | SW  |     |     | X   |     |     |
| 11             | USF                 | Germany  |     |     | SW  |     | X   | X   |
| 12             | ETSIA               | Spain    |     | X   |     |     | X   |     |
| 13             | INAA                | Algeria  |     |     |     | X   |     |     |

LC: work package lead contractor

SW: synthesis workshop organiser

X: other WOC and SOC participants

#### 4.2 Communication in the project

Communication between project members will take place during the different encounters scheduled during the life of the project (workshops, seminars). The project web-site will host a restricted-access area for project communication in order to enable project members to consult non-public items (administrative and financial documents, etc.) and exchange information (forum, communication tools), particularly with a view to preparing and synthesising seminars.

**Two periodic reports (half-year, annual) per year** will be provided to the EC commission, one report including the cost review. A **final report** will be submitted at the end of the project.

Every partner will be in charge of keeping its own archives. Any partner should be able to produce on demand any scientific, administrative, financial justification of its work and obligation during the project length and 5 years after the project.

#### 4.3 Monitoring

**Monitoring the project progress will be done through:**

- The minutes of every Workshop and seminar Organising Committee meeting that takes place during the project.
- The progress review of each task and work package has been delegated to the work package leaders under the supervision of the project co-ordinator.
- Regular mail contact between the project co-ordinator and work package leaders.
- The use of specific tools such as the list of milestones and deliverables already defined

These functioning rules will be included in the consortium agreement to be signed by every partner of the project.

## 5 Dissemination

The **dissemination of knowledge** is at the core of the WADEMED concerted action. WADEMED will target several different audiences, ranging from scientists to water sector professionals and equally to the general public interested in issues related to water scarcity, the Mediterranean, research and rural development. The WADEMED concerted action is clearly inspired by the Science and Society Action Plan prepared at the request of the EU Research Council of 26 June 2001, and wants to promote interactions between science and society.

Practically, key findings of the different seminars, organised by WADEMED, will be transcribed and disseminated through novel approaches (multi-media animations, quiz, etc) that can be accessed through a bilingual (english-french) **web-site**. A **CD-ROM** will be produced for those that have difficult access to internet. Acquired knowledge will also be synthesised and shared through a **reference book** that will contain synthetic accessible texts and images (iconography) on water demand management in North-Africa. A journalist will be engaged to ensure a good match between the knowledge available and the information gaps of the general public.

The organisation of four seminars will provide the opportunity for the consortium members as well as for outsiders to produce synthetic scientific papers, refereed by a scientific committee. For each of these events, quality **seminar proceedings** will be edited to make these papers available to the international scientific community. Individual authors will be encouraged to produce **scientific publications** based on methodological advances and field experiences in several locations, brought together through the seminars. The International Committee on Irrigation and Drainage (**ICID**) will be approached to publish the best papers of some of the seminars through its **ICID journal**, an international refereed journal.

Information will equally be made available to policy makers and professionals of the agricultural sector (authorities, water users associations...). This will contribute to formulating policy recommendations that take into account the multiple aspects of demand management in an integrated approach. This information will be edited in the form of 1-2 page **policy briefs**.