D1.1

Project Acronym: PRECIMED

Project full Name: Precision Irrigation Management to Improve Water and Nutrient Use Efficiency in the Mediterranean Region

Project Management Procedure

Due date	01/12/2019
Actual submission date	10/04/2020
Project start date	01/10/2019
Duration	36 months
Action(s) concerned	Project Management
Nature	PU
Author	CSIC
Contributor	

Document history

Date	Author	Action	Status
25/03/20	M.F. Ortuño (CSIC)	First version draft	First draft for review from partners
02/04/20	M.F. Ortuño (CSIC)	Final version	Final version for review from partners
07/04/20	M.Semiani (INRAA)	Minor revision	Approved for release
09/04/20	N. Katsoulas (UTH)	Minor revision	Approved for release
09/04/20	A. Skarmeta, J.A. Martínez (ODIN)	Minor revision	Approved for release
10/04/20	M.F. Ortuño (CSIC)	Release of the revised final version	Final version

Note: The organization and coordination of other aspects of PRECIMED project that unexpectedly required priority have caused a delay in the delivery of the D1.1 and D1.2 deliverables. However, this delay does not disturb the dynamics and the correct development of the project.

Contents

1. Introduction

1.1. Purpose of the Project Management Plan

The purpose of this document is to define how the project will be managed, executed and controlled. This document will define the basis of all the project work and will refer to more detailed subsidiary plans to integrate and consolidate all management activities into a comprehensive document.

1.2. Area of Application

This document applies to all activities aimed to achieve the overall goal of the project which is to enable the emergence of new cross-border and cross-sectoral value chains. Overall, the Project Management Plan will set a common framework for the different project activities to operate efficiently. These activities include al coordination and management actions, as well as, communication and dissemination activities and other activities and strategies to support innovation in farms.

The intended audience of this Project Management Plan is all internal project stakeholders including the European Commission, senior leadership and the project team.

This document will be reviewed and updated periodically through a series of integrated processes that extend to the closure of the project. This process will result in a project management plan that is progressively elaborated by updates.

1.3. Establishment Process

1.3.1. Preparation

As a prerequisite to the preparation of this Project Management Plan, the Project Management Team has undertaken a review of the Consortium Agreement requirements to determine the necessary management, technical and other necessary activities that need to be planned and implemented. The necessary operations, processes and techniques have been planned and scheduled accordingly.

The Project Management Plan is linked to the Partnership Agreement and the activities to be performed during the project and is subjected to document control. In addition, this Project Management Plan will refer to other relevant processes and procedures, subsidiary plans and other applicable contractual requirements.

1.3.2. Approval/Submission

The Project Management Team will be in charge of developing the Project Management Plan and keeping it up-to-date. The Coordinator is responsible for approving the Project Management Plan before its submission to the European Commission.

1.3.3. Implementation

The Project Management Team will ensure adherence of all project activities to the processes and procedures promoted by the Project Management Plan will execute the efficient implementation of this plan and monitor and control its overall performance.

1.3.4. Reviews, Revisions and Change Control

The Project Management Plan will be reviewed periodically by the Project Management Team throughout PRECIMED Project´s life cycle. Revisions to the Project Management Plan will be submitted to European Commission in accordance with 1.3.2 above without any necessary delay.

The Project Management Team will ensure that any changes related to the Project Management Plan are controlled and diligently recorded.

1.4. Referred Documents

This project management plan refers to the following general project documents as they have served as an input to the development of the plan.

- Consortium Agreement PRECIMED

This document will also refer to other subsidiary plans that contribute to define with specific detail the overall management framework of the project.

- Quality Assurance Plan*
- Risk Management Plan
- Communication Strategic Plan
- Data Management Plan
- Sustainability Plan

*   Last edition will be applicable

2. Executive Summary

2.1. General Information

In the current socio-economic situation of the Mediterranean Region, agriculture in semi-arid zones is one of the most dynamic and productive sectors, but also the most vulnerable to water scarcity. Therefore, an adequate irrigation management is proposed as one of the most effective solutions to favor the economic development of these regions. For this reason, the main impact foreseen by PRECIMED is to improve the farm productivity through the reduction of costs and the increase of the crop yield with a solution. This solution minimizes the environmental impact due to the sustainable use of resources (water, fertilizers and energy consumption) and reduces the human laborious tasks while feasible business models are generated for the

different farming scenarios. In this sense, PRECIMED is committed to the development of sustainable agriculture by using precision irrigation techniques, adopting and implementing new water and nutrient management practices. PRECIMED is formulated to present a professional irrigation scheduling expert system associated to a set of results coming up from real case studies on fruit and citrus trees and vegetable crops. Specifically, a Standards-based Decision Support System (DSS) for a data-driven irrigation/fertilization management will be developed and validated. The DSS will offer management services and remote actuations to improve the lives of Mediterranean farmers and also to improve water and nutrients use efficiency in EU and non-EU countries. PRECIMED will impact a range of stakeholder groups along the agro-food ecosystem: farmers, businesses, citizens/society, public authorities and external communities. In short, PRECIMED aims to lead the Digital Transformation of the European Agri-Food Sector based on the rapid adoption of advanced IoT technologies, data science and smart irrigation assuring the viability and sustainability of the sector long term. The consortium will collaborate to validate PRECIMED solution for subsequent commercialization.

2.2. Project Objectives

The main objective of PRECIMED will be the development, validation and transfer of a data driven irrigation management system, in order to improve Water and Nutrient Use Efficiency (WUE and NUE, respectively) in the Mediterranean Region, by integrating the knowledge about fertilizers and irrigation water management with Information Communication Technologies (ICTs).

To achieve the intent of the project, 4 Key Objectives have been identified:

- Objective 1: To Improve WUE and NUE in the Mediterranean Region by using intensive ICT solutions

- Objective 2: To facilitate the interchange of technology and best goods practices between EU and non-EU Mediterranean countries in order to improve WUE and NUE in all the Mediterranean Region

- Objective 3: To develop and validate (in different demonstration farms) a Standards-based Decision Support System for data-driven irrigation/fertilization management that evaluates the medium-term evolution of crop nutritional status, soil salinity, yield and fruit quality and safety, optimizing the water and fertilizers needs and the energy costs at farm level.

- Objective 4: To ensure that the project activities and outcomes reach the relevant target groups, especially end-users (farmers), thus enhancing the market uptake of PRECIMED's solutions.

2.3. Project Activities

PRECIMED will follow a scientific approach based on experimental results to describe the operation of the framework and their analysis to get, on the one hand, feedback to improve the designed solutions and on the other hand to publish and disseminate the evaluation results and also disseminate and discuss the lessons learned and best practices based on the gained experience. The activities to be carried out during the project have been carefully designed to achieve the project goals and most importantly, to deliver maximum socioeconomic impact, transfer of knowledge, and deal with challenges in the water sector. PRECIMED project is organized in 5 work packages.

WP1 Project Management

The aim of WP1 is to enable an efficient coordination and guide the project partners to achieving the overall project objectives while following the directives set by the EC in the PRIMA grant agreement and the consortium regulation provisions set by the consortium agreement.

> T1.1 (M1-M36) Team and project coordination.
> T1.2 (M1-M36) Management of activities between the consortium members
> T1.3 (M1-M36) Project Progress reports' technical coordination
> T1.4 (M1-M36) Financial and Administrative coordination

WP2 Establishments of end-user's requirements

The aim of WP2 is to establish what are the characteristics and issues related to the agricultural crop production in the Mediterranean basin and the requirements that must be recognized.

> T2.1 (M1-M18) Identification of farmers participating in the project and establishment of experimental approach in the pilot farms
> T2.2 (M1-M18) Analysis of nutrients and water availability and management in the context of climate change.
> T2.3 (M12-M36) Assessment analysis of each agricultural-exploitation linked to practical feasibility of irrigation scheduling.

WP3 Decision Support System Development

The aim of WP3 is to perform the Decision Support System development. The goal of these activities is to deliver a demonstration prototype at the end of the project that fits perfectly the farmers needs assessed throughout the project.

> T3.1 (M1-M30) Design and Development of IoT-data management platform with cost-effective devices for optimized irrigation scheduling.
> T3.2 (M1-M18) Models to determine fertirrigation management in greenhouse and in open air.
> T3.3 (M12-M36) Development of BigData algorithms for irrigation and fertilization services for decision support of precision irrigation and fertilization.

WP4 Validation and Demo of Decision Support System

The aim of WP4 is to test the PRECIMED performance in field conditions to evaluate its performance and versatility for different agricultural conditions, and to see the aspects that can be improved so that the precision irrigation is more accurate.

> T4.1 (M13-M36) Deployment and validation of the DSS system in the different agricultural exploitations.
> T4.2 (M18-M36) Demo and evaluation of the DSS performance in agricultural exploitations according to plant physiology parameters and crop nutrient status in open air crops and horticultural crops under greenhouse conditions.
> T4.3 (M24-M36) Analysis of the users' feedback and business model testing

WP5 Communication, Dissemination and Exploitation

The aim of WP5 is to increase the impact of the project through the wide dissemination of project outcomes. Communication activities will also actively support the involvement of end-users in particular for iterative design and development process and business model formulation.

T5.1 (M1-M36) Communication and Dissemination activities

T5.2 (M18-M36) Exploitation and IPR management of the project's results

T5.3 (M18-M36) Sustainability Plan

3. Management Structure and Resources

3.1. Organizational Structure

For the successful execution of PRECIMED, an adequate and effective project management is a key factor. This organizational structure will be created according to the size and complexity of the project and applies not only to the coordination and administration of the tasks and deliverables but equally to the well-being of the consortium itself as a cooperative and virtual organization. PRECIMED clearly defines management structures at different levels. The management is structured in such a way that it allows the project to address issues such as dynamic resource reallocation (effort and time between partners) and change management, by providing processes and controls for fair and effective internal administration. The management structure of PRECIMED is based on:

- The Management structure is hierarchical, yet completely subsidiary, thus ensuring a transparent reporting structure where all parties can be involved in and see the results. There will be individual identified at every level to ensure this responsibility. Each level will be empowered to make its own decision within the flexibility identified in the project management procedures which are based on the text of this proposal. Each WP has a specific leader already allocated, who is also responsible for chasing if necessary and for recognizing and resolving potential conflicts between the partners.

- Simplicity, flexibility and transparency are key factors to be considered in the management of activities of the project.

- A clear assignment of resources that will be monitored and redefined if necessary during project progress.

- There is a strong and experienced leadership within each WP by organization who have strong background with similarly sized and natured projects. The parties in charge of each WP have been selected based on their management expertise in EC projects and technical background, to be able to effectively steer the WP technical progress. Furthermore, previous cooperation between some of the partners in previous EC projects has encouraged this relationship.

The organizational structure may be modified according to suggestions from the EC, and it will be defined during negotiations. The management structure (roles, instruments and control mechanisms) of PRECIMED and the precise detail of each one is given in table below. In PRECIMED's organizational structure all operational aspects related to activity is controlled by the Coordinator, which reports to the European Commission and to all partner organizations. In addition to that, a General Assembly is created representing all partners with weightings relevant to partner monetary/month contribution (defined in the consortium agreement). PRECIMED includes in the Project Executive Board (PEB), under the Project Coordinator figure, five main actors in order to ensure the success of the project. This PEB is made up by a Data Manager, a Technical Manager, an Administrative Manager, a Quality Manager and in order to reflect the importance of innovation strategies and the exploitation and communication of project results, it will be appointed an Innovation, Exploitation and Communication Manager
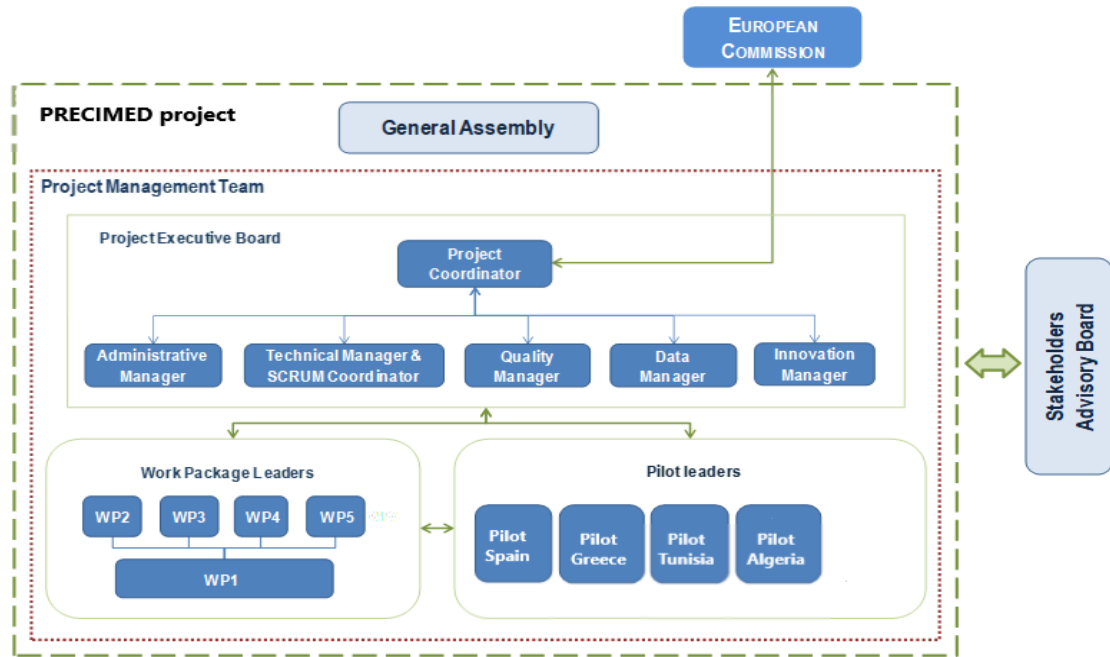
Figure 1: PRECIMED organizational structure

3.2. Key Roles and Responsibilities

European Commission (EC)

EC is represented by the Project Officer (PO) or other officials in the European Commission. The Coordinator will be the liaison between the EU and the consortium except in specifically mandated or agreed circumstances General Assembly

General Assembly (GA)

The General Assembly is the ultimate decision-making body of the Consortium and will be responsible for taking major strategic decisions and determining the long-term strategy and direction of PRECIMED. The GA is the forum in which all partners are represented. Its purpose is to monitor and harmonize the activities and progress of the project, and serve as a communication channel to keep all partners updated on the global progress of PRECIMED. The GA will physically meet at least once a year (ordinary) as part of the project plenary meetings. Nevertheless, extraordinary meetings may be held at any time upon written request of the Project Executive Board or 1/3 of the Members of the GA. The GA formally approves or declines critical decisions of the Project Coordinator. It also agrees amendments to the Consortium Agreement (CA) after the project official start date (Note: The CA will be agreed upon by all partners before the project starts). It also actively promotes consensus in case of conflict and, if no consensus can be found, takes decisions according to the procedures and rules defined in the CA.

Project Executive Board (PEB)

The Project Executive Board will consist of the Coordinator and the Parties appointed by the GA. It will be in charge of preparing the meetings, propose decisions and prepare the agenda of the GA. It will be responsible for seeking a consensus among the partners if needed, the proper execution and implementation of the

decisions of the GA and monitoring the effective and efficient implementation of the project. In addition, the PEB will collect information at least every 6 months on the progress of PRECIMED, examine that information to assess the compliance of the project with the Consortium Plan and, if necessary, propose modifications of the Consortium Plan to the GA. The PEB will meet at least quarterly, or at any time upon written request of any of their members. These meetings may also be held by teleconference or other telecommunication means.

Project Coordinator (PC)

The Project Coordinator is a legal entity (Partner), which represents the Consortium in the negotiations with the European Commission (EC) and will be the intermediary between the consortium parties and the EC during the project.

The PC carries out the leadership and overall coordination of the project activities as well as the executive function. Besides fulfilling its obligations in the Description of Work and applicable contracts, it acts upon instructions from the General Assembly and ensures that the Consortium Agreement is adhered to. The PC shall also fulfil the majority of the WP1 (Project Management and Coordination) including the provision of a Project Office. The PC will be in charge of financial control activities. The Project Coordinator in PRECIMED is Mrs. María Fernanda Ortuño Gallud from CSIC, who has strong experience in coordinating projects.

Administrative Manager (AM)

Overall administration of PRECIMED is undertaken by the Administrative Manager. The AM is in charge of processes and controls for fair and effective internal administration. The AM is responsible to ask to the partners of the consortium the administrative issues about their organization with regards to submissions of cost statements, deliverables or other administrative information requested by the PO. The AM for the project is Mr. Juan José Alarcón from CSIC, with proven experience in administration tasks in European projects.

Technical Manager (TM)

In order to ensure a high technical performance of PRECIMED, a Technical Manager will be appointed, which in this case will be Mr. Antonio Skarmeta from ODIN. The TM will act as a high-level advisor in charge of the supervision and monitoring, in joint with the rest of technological partners, of the progress of the different tasks with respect to the development of PRECIMED.

Quality Manager (QM)

The Quality Manager will establish the Quality Assurance framework of PRECIMED, lead its follow-up throughout the project and be responsible of its fulfilment. The QM will develop the Quality Assurance Plan (QAP) of the project. It will contain all procedures, plans and other documents applicable to the project as well as specify the activities (managerial and technical) to be implemented in terms of quality assurance. Besides, the QM will lead the impact analysis of PRECIMED in terms of tracking of established KPIs, identification of deviations, establishment of corrective actions, and monitoring of their implementation within the project. The QM role will be assumed by Mr. Francisco Pedrero Salcedo from CSIC, with a wide experience as Quality Manager in I+D projects,

Data Manager (DM)

Based on the commitment that the project has with the management and protection of the data generated during the project, in particular those belonging to the end-users that will participate in the tests of PRECIMED, it will be appointed a Data Manager (DM). The DM will be responsible for maintaining the accuracy, integrity and security of users' data, applying knowledge of regulations, policies, protocols and/or procedures to control and maintain accurate records. Besides, the DM will be in charge of assisting in standardizing agricultural data

management procedures within the project and maintaining confidentiality of data as required. This task will lie with Mr. Juan José Alarcón from CSIC.

Innovation, Exploitation and Communication Manager (IE&CM)

For the success of the project, PRECIMED will appoint an Innovation, Exploitation and Communication Manager. The role of the IE&CM is to provide a deep understanding of both market and technical problems, with the overall goal of successfully implementing appropriate creative ideas into the project. This allows the consortium to respond to external or internal opportunities. Other responsibilities of the IE&CM are the coordination of the exploitation activities of the project, but with a strategic innovation vision, ensuring that the project outcomes influence the market as much as possible. The goal is to ensure that PRECIMED's results are as visible and influencing as possible. The IE&CM is also in charge of performing a market watch, by collecting existing approaches, products and research projects. This function will allow PRECIMED to keep in sync with the outside world and ensure new relevant information feed into the project. The IE&CM will also be in charge of the Intellectual Property Management. This role will be performed by Mr. Mohammed Semiani from INRAA, with a strong background in the field.

The Communication Team (CT) is comprised by the Project Coordinator, the Technical Coordinator, and a representative of WP5 leader. The main task to be carried out by this team is to support communication activities that partners should accomplish.

Project Manager Team (PMT)

The Project Manager Team is the overall technical management body of the project. The PMT is comprised by the Project Coordinator (PC), Technical Manager (TM), Administrative Manager (AM), Quality Manager (QM), the Innovation, Exploitation and Communication Manager (IE&CM), the Data Manager (DM) and the WP leaders. The main tasks of the PMT are to coordinate the interaction between the WPs strategies, monitor progress, and advice and decide on major WP revisions, exchanges of tasks & budgets, intellectual property, dissemination strategies, communication, data management, interaction with other activities and political issues. The PMT will meet regularly but at least monthly. Where necessary and appropriate, additional meetings can be held. The PMT has the power to make short-term decisions on a daily basis.

Work Package Leaders (WPL)

The project is structured in 5 WPs, each one having more than a participant assigned with specific tasks. Each work package has a leader. Each WPL has the task of presenting the status and progress of their individual WP to the Project Manager Team and report feedback to the participants of their own WP. They are responsible for the management and technical coordination of their WP on a daily basis and they will translate decisions of the Project Manager Team into daily (management) tasks, organize call meetings with the WP participants when necessary and report results and potential critical issues to the Project Manager Team. Additionally, the WPL will remain in contact with all WP participants and ensure the flow of information from both inside and outside of their WP. They also will liaise with other WP leaders towards aligning and harmonizing the work in the respective WPs and the overall PRECIMED goals.

Pilot Leaders (PL)

The Pilot leaders will be in charge of coordinating all end-user tests during the project development, and keeping them aligned with the project objectives, regarding the deployment and reach of the PRECIMED system. The PLs will consolidate the issues raised during the execution of the prototype demonstration and present them to the rest of the consortium, for further assessment and decision making about how to proceed.

Stakeholder Advisory Board (SAB)

A Stakeholder Advisory Board will be included in the management structure of PRECIMED. The SAB is conceived as a cooperation body that will represent experts at European level to speed-up the impact of the project. The SAB has a key role for PRECIMED, since the first contacts with these external advisors have been carried out from the very beginning of the project. The first observers for PRECIMED have shown their interest through the letters of support. The experts comprised within the SAB will deliver PRECIMED consortium advice and give feedback on specific issues that could arise. The SAB will continuously evaluate the progress and advise the project consortium.

3.3. Decision-Making Mechanism

Management by Exception

The GA sets tolerances for time, cost and quality. Tolerances are permissible deviations from the plans that need not be brought to the attention of the GA and where the PC is authorized to take corrective actions as necessary to ensure fitness for purpose.

Issue Management

Issues are adverse events that affect the project. Any project team member may report an issue to the WP Leaders or GA. WPL should be the first to collect issue reports and try to resolve issues within the tolerances set by the PC; otherwise they will be escalated to the PC. Issues will be also escalated if, for example, they affect more than one work package or are more significant.

Change Management

Scope changes can occur for many reasons: changes in requirements and specifications (due to internal or external reasons), deviations from plans, changes in Partners issues, risks etc. Besides from the project scope, changes may have an impact on schedule, budget, quality/performance (or combinations). WPL are authorised to implement changes within the tolerances set by the PC; otherwise a request for change is used to escalate changes to the GA.

Conflict Resolution

Attempts will be made to resolve conflicts as close as possible to the source of conflict. WPL and the PC will employ a problem-solving approach in order to achieve consensus, ensuring a win-win outcome for conflicting parties. If conflicts cannot be resolved at that level, the GA will be asked to intervene. If this cannot be achieved, then the rules of the Consortium Agreement dealing with this topic will come into play.

Decision making

The decision-making process is structured in multiple tiers based on the tolerances set by the GA. Therefore, WPL can take decisions on budget and effort changes, without consultation from the GA provide they are below the agreed tolerances.

3.4. Project Stakeholders

The main stakeholders for PRECIMED are the farmers, cooperatives and agricultural players based in the Mediterranean basin with the main characteristics of erratic rainfall, mild temperatures, irregular topography and nearness to large water bodies. In this area farming is intensive, highly specialized and varied in the kind of crops raised. PRECIMED will develop the pilot activities in the main Mediterranean farm types (orchard/ vegetables/ fruits trees/ viticulture and greenhouse/ open fields farming) counting with farmers from the design phase with different size, soil and climate conditions of holdings. Farmers need to improve the holdings´ resource efficiency and productivity, but they also need to maintain the high quality of products and fight against the red tape and bureaucracy. They will be involved in the project to evaluate and validate the proposed DSS solution at different pilot farms located in different countries (Algeria, Tunisia, Greece, and Spain).

Other type of stakeholders will be impacted by the project across the Mediterranean basin of European and non-European countries. They are: Providers of agricultural products: PRECIMED guarantees a better planning of resources for providers of fertilizers and irrigation communities. Food producers and distributors: PRECIMED offers a timely and guaranteed delivery of agricultural products due to an improved predictability of yields (in both quantity and quality) that would benefit for both the food producers since the productivity of their farm will be increased. Public administrations and policy makers: PRECIMED will support the regional development by implementing programs, initiatives and aids that can facilitate the market uptake of smart precision farming products. Environmental organizations: PRECIMED can have an important impact in the climate change mitigation due to its expected impacts in the reduction of the use of water and fertilizers. Scientific community: New irrigation, fertilization and phenology models validation that are provided by PRECIMED will support all the scientific community for further researches. This would lead to reduce the gap between farmers and scientific community. Society as a whole: As a lump sum, PRECIMED is a contribution to this whole modern society, providing tools to improve the quality and productivity of agriculture in affected areas by climate change (arid and semi-arid areas).

3.5. Assigned Resources

3.5.1. Project Budget

The total costs of PRECIMED project in the proposal were estimated to be 1.017.415,56 € with a forecasted EC contribution of 810.780,00 €. The budget was calculated and distributed among partners according to their expected personnel and time contribution throughout the project.

The following table shows the cost breakdown per resource type approved in the PRECIMED proposal. Refer to this document for more detailed information, regarding the specific breakdown of the approved budget by partners. However, these values vary according to the agreements of each partner with their national financial agencies.

Cost Type	Amount
Personnel Costs	672.952,56 €
Consumables	69.428,57 €
Travel & subsistence	59.814,00 €
Equipment	75.000,00 €
Other Direct Costs	104.950,00 €
Overheads	35.270,43 €
Total	**1.017.415,56 €**

3.6. Work Breakdown Structure

The implementation of PRECIMED will be carried out in the pilot farms established in the four countries involved in the project (Algeria, Greece, Spain and Tunisia), being the first approach the tasks considering in WP2 where the establishment of end-user´s requirements will be used to develop the different PRECIMED innovations. These innovations will be performed mainly in WP3 which main goal is to deliver a Decision Support System that fits perfectly the farmer needs assessed through the project. This "Decision Support System" will be validated and tested in the plant pilot farms previously selected (WP4), considering the versatility for different agricultural conditions. All these activities will be coordinated and guided in WP1 (Project management) in order to achieve the overall objectives and in very close relationship with management equipment will be also developed the WP5 (Communication, dissemination and exploitation) that will facility the impact of the project and which activities will involve end-users since the beginning of the project. The next figures show the relations among WPs and Tasks.
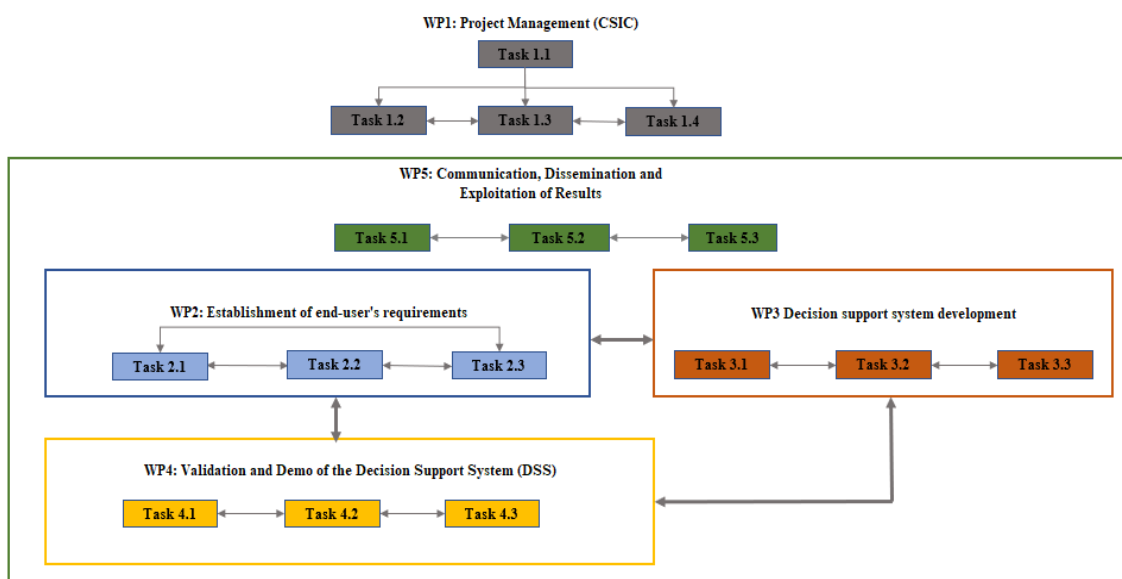

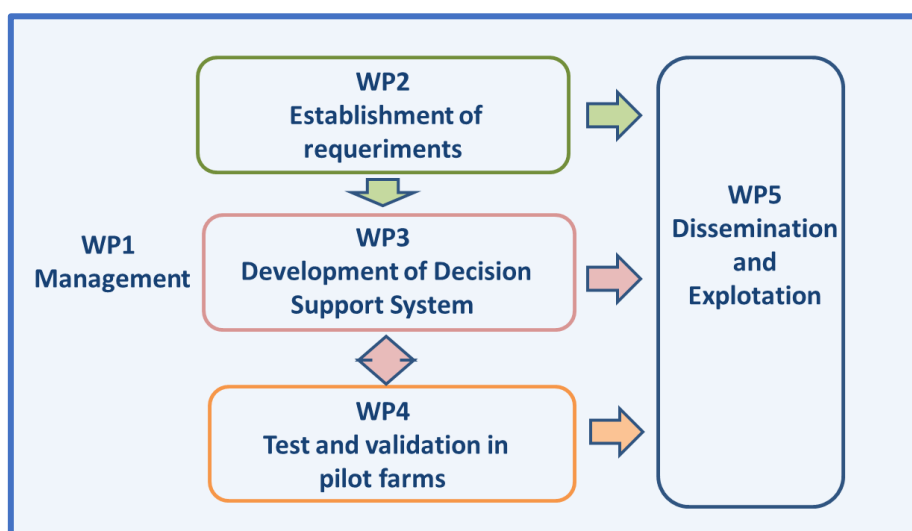*Figure 2: WPs and Tasks relationships*

Figure 3: WPs interactions

3.7. Deliverable Schedule

Note: the correct delivery date of the deliverables is the one presented herein and indicated in Table 3.1b (List if work packages) of the PRECIMED proposal. Thus, the delivery dates shown in Table 3.1c (List of Deliverables) of the PRECIMED proposal are corrected according to the table below.

Deliverable (number)	Deliverable name	Work Package number	Short name of lead participant	Type	Dissemination level	Delivery date (in months)
D1.1	Project Management Procedure	WP1	CSIC	R	PU	M2
D1.2	Quality Assurance Plan	WP1	CSIC	R	PU	M2
D1.3	1st Annual EC report	WP1	CSIC	R	PU	M14
D1.4	2nd Annual EC report	WP1	CSIC	R	PU	M26
D1.5	Final EC report	WP1	CSIC	R	PU	M38
D2.1	Assessment of pilot farms for the design of the PRECIMED DSS	WP2	CSIC	R	PU	M12
D2.2	Report on the agronomical and environmental requirements of the main agricultural crops of the Mediterranean Basin	WP2	UTH	R	PU	M36
D2.3	Farmer practical guides	WP2	CSIC	R	PU	M36

D3.1	IoT-based platform with cost-effective gateways for optimizing irrigation	WP3	ODIN	OTHER	CO	M16
D3.2	Integrated models of irrigation and fertilization for open-field crops and greenhouses	WP3	UTH	OTHER	CO	M17
D3.3	BigData algorithms for precise irrigation and fertilization services	WP3	OPTIM	OTHER	CO	M32
D4.1	Deployment of Enhanced Prototype of IoT-standards-based Decision Support System	WP4	ODIN	DEM	CO	M32
D4.2	Identification of different irrigation managements effects on crop physiology and nutritional value of fruits	WP4	CSIC	OTHER	CO	M18,36
D4.3	Performance Evaluation of Crop Productivity and Resource Efficiency	WP4	CSIC	OTHER	CO	M36
D4.4	Analysis of User Experience and Business Model Testing	WP4	UTH	OTHER	CO	M36
D5.1	Communication and Dissemination Plan	WP5	INRAA/UTH	R	PU	M3
D5.2	Data Management Plan	WP5	CSIC	R	PU	M6
D5.3	Preliminary Plan for Dissemination and Exploitation of Results	WP5	CSIC	R	PU	M12
D5.4	Intermediate Sustainability Plan	WP5	INRAA	R	CO	M18
D5.5	Plan for the Dissemination and Exploitation of Project Results	WP5	CSIC	R	PUU	M32
D5.6	Final Sustainability Plan	WP5	INRAA	R	CO	M34

3.8. Project Management Information Systems

To ensure the correct management of project documentation and improve collaboration between internal and external stakeholders, the following PMIS will be used.

- Project Management Platform
- PRECIMED Project Website
- Social Medias

Specifics on the functionalities of each platform are described in the Quality Assurance Plan.

4. Project Management Processes

4.1. Scope Management

For each work package there will be an associated Work Package Leader (WPL). It is the role of the WPL to review the requirements stated in the PRECIMED Project Agreement, collect additional requirements that could come-up throughout the development of the project and decompose its work package into detailed activities to ensure the scope stated in the Grant Agreement is met and that the required project deliverables are provided on time.

The activities will then be used to develop a detailed schedule with the goal of meeting the deliverable timeline set in the Project Grant Agreement. The Project Management Team (PMT) will use this activities and deliverable schedule as the scope baseline. This document will therefore become the main source to control and validate project scope as well as to control any additional deviation from the original plan.

The Project Coordinator, together with the project executive board and the project management team will work together to measure scope performance against the scope baseline or deliverable schedule and validate that the completed scope of work is acceptable to the customer.

4.2. Change Control Management

Over the course of the project changes to the original scope and baselines will be inevitable. In order to manage change efficiently and avoid scope creep during the project, changes must be recorded on a regular basis and there must be a change control procedure in place.

On a day to day basis, work package leaders are authorized to implement changes in their activities within the tolerances set by the Project Coordinator and using the Project Grant Agreement and Consortium Agreement as a framework. When there is a change that implies a significant variation or an amendment in an approved document a change request must be issued to the Project Coordinator in order to start the change management procedure.

The change management process starts by the submittal and record of a change request. Once the change request is issued, the project coordinator together with the project executive board will evaluate the impact of the change and identify different options. Once this is done the change request will be approved or rejected internally. Finally, the Project Coordinator will communicate the change to the European Commission if this is required and will assign the new resources required or implement the actions stated in the approved change

4.3. Schedule/Time Management

Using a similar structure to the scope management procedure, the deliverable schedule together with the milestone schedule approved in PRECIME project will establish a high-level schedule baseline for the project. This high-level baseline will be further developed using a rolling wave planning method by each work package leader as the project evolves. This will lead to a high-level schedule baseline for the whole project and a detailed activity schedule for upcoming activities with more reliable and clearly defined data.

The project management team will monitor progress against both schedule baselines on a weekly basis, and update the project executive board on variances against the schedule baselines on a regular basis. The Project Manager will be responsible for ensuring the project schedule is updated with the latest information and never more than ten business days out of date. For variances on executive milestones greater than 10%, the project manager may choose to escalate the issue to the project coordinator in order to initiate actions to mitigate risks.

Ref	Work Packages and Tasks	Leader
WP1	**Project Management**	**CSIC**
T1.1	Team and project coordination.	CSIC
T1.2	Management of activities between the consortium members	CSIC
T1.3	Project Progress reports's technical coordination	CSIC
T1.4	Financial and Administrative coordination	CSIC
WP2	**Establishments of end-user's requirements**	**UTH**
T2.1	Identification of farmers participantig in the project and establishment of experimental approach in the pilot farms	CSIC
T2.2	Analysis of nutrients and water availability management in the context of climate change	UTH
T2.3	Assessment of each agricultural farm linked to practical feasibility of irrigation scheduling based in sensing plant and soil water status	CSIC
WP3	**Decision Support System Development**	**ODIN**
T3.1	Design and Development of IoT-data management platform with cost-effective devices for optimized irrigation scheduling	ODIN
T3.2	Models to determine fertirrigation management in greenhouse and in open air.	UTH
T3.3	Development of BigData algorithms and end-user services for decision support of presice irrigation and fertilization	OPTIM
WP4	**Decision Support system validation and demo**	**OPTIM**
T4.1	Deployment and validation of the DSS system in 4 different agricultural exploitations	ODIN
T4.2	Demo and evaluation of the DSS performance in agricultural exploitations according to plant physiology parameters and crop nutrient status in open air crops and horticultural crops under greenhouse conditions	CSIC
T4.3	Analysis of the users' feedback and business model testing	UTH
WP5	**Dissemination**	**INRAA**
T5.1	Communication and Dissemination activities	INRAA/UTH
T5.2	Exploitation and IPR management of the project's results	CSIC
T5.3	Sustainability Plan	INRAA

4.4. Cost/Budget Management

	WP1	WP2	WP3	WP4	WP5	Total Person-Months per Participant
1.CSIC	20	19	10	24	12	85
2.ODIN	1	6	20	17	5	49
3.UTH	4.6	5	15	24	6	54.6
4.INRAA	0	24	4	6	90	124
5.OPTIM	10	16	46	72	12	156
Total Person Months	**35,6**	**70**	**95**	**143**	**125**	**468,6**

1.CSIC	Cost (€)	Justification
Travel and Open access publications	**12714**	4 Consortium meetings 2 WP meetings 1 people x 6 x 1,100 (€ 6600); - Local travels 10 x 290 (€2900); - Participation in international symposia (€ 1714); - Publication in peer review open access journals (€1,500)
Consumables	**25000**	Sensors for climate and crop data collection and storage (€4,500); - Fertilizers, pesticides and different field costs related with the maintenance of the two pilot farms located in Murcia (3000 per year = 9000); Analysis consumables and chemical products for laboratory used in the studies of crop production, fruit quality and safety (11500).
Other goods and Services	**25000**	Outsourcing of expertise companies related with the Project Management (WP1) and Dissemination activities (WP5), such as organisation of events (stakeholders' meetings, open days in field trials), redaction of scientific reports

2.ODIN	Cost (€)	Justification
Travel	**0**	OdinS will participate in all project meetings in both EU and No-EU countries including review and dissemination events. However, Spanish agency (CDTI) does not fund these travels that will pay with own funding.
Equipment	**0**	OdinS does not need extra equipment for research works of the PRECIMED project.
Other goods and Services	**32050**	OdinS will purchase prototypes of gateways CPS in the framework of the DSS development (15000€) and hardware certification (7,500€). The remaining budget will cover the technical support from University of Murcia about LPWAN networks (7.000€) and the administrative auditing (2.550€).

3.UTH	Cost (€)	Justification
Travel	**12000**	4 Consortium meetings 2 WP meetings 1 people x 6 x 1,250 (€ 7,500); - Local travels 6 x 350 (€2,100); - Participation in two symposia 1 people x 2 x 1200 (€ 2,400)
Equipment	**25000**	Three sets of sensors (one for each pilot) for climate and crop data collection and storage (€1,500); - Three units for data recording and registration to the web-based server, connected with meteorological sensors (€8,000); Portable real time data visualisation tools (PC, tablet €2,000)
Other goods and Services	**13428.57**	-Open days in field trials (3*500 euro) (€1,500), consumables for data collection, for laboratory and trial inputs for the development and test of the DSS in the greenhouse (tomato plants, substrates, fertilisers, plant protection products, diesel for greenhouse heating) for two years (€10,428.57); Publication in peer review open access journals (€1,500)

4.INRAA	Cost (€)	Justification
Travel	**13600**	Visit trials implemented in Spain (01 researcher) and in Greece (01 researcher). 4 Consortium meetings 2 WP meetings x1 people x 1,200 (€ 7200); - Participation in conferences 1 people x 2 x 1200 (€ 2400)
Equipment	**37000**	Acquisition of Online weather stations (7000 Euros); Acquisition of two Diviner 2000 for the measurements of soil water content (16000 Euros); Acquisition of 02 devices (suction lysimeter SPS with vacuum pump) with accessories to collect soil solution for soil chemical analysis to manage the irrigation and nitrogen fertilizers (3000 Euros); Soil column cylinders' device for soil sampling (3000 Euros); Renewing computing materials, purchasing accessories, software and consumables (7000. Euros); Maintenance and repair (1000. Euros);
Other goods and Services	**49400**	Scientific events (5000 Euros); Consumables (2000. Euros); Electronic, mechanical and audio visual components (2000. Euros); Stationery and office furniture (1000. Euros); Laboratory furniture (4000 Euros); Printing and publishing (1000. Euros); Postage charges (400. Euros); Other costs (taxes, custom duty, financial costs, insurance, storage costs, etc.) (1000. Euros); Data bank (acquisition and subscribing) (8000. Euros); Car rent for research in the field (1000. Euros); Costs of training and support of project holders (8000. Euros); Costs of valorization services (8000. Euros); Costs for demonstrations (8000. Euros).

5.OPTIM	Cost (€)	Justification
Travel	**21500**	4 Consortium meetings 2 WP meetings x 2 people x 1,200 (€ 14400); - Participation in conferences 1 people x 3 x 1200 (€ 3,600); - Local travels 14 x 250 (2500)
Consumables	**7000**	Consumables for data collection, for laboratory and trial inputs/ground truth for the development and test of the DSS for two years (€7000)
Equipment	**13000**	Electronic, audio visual components (€2000); - GPU card for data learning and processing: (€ 6,000); - Hard drive for backup data (€1,000); - Portable real time data visualisation tools (PC, tablet €2,000); - Sensors, gateway and connector to collect data from the farm (€2000)
Other goods and Services	**22500**	Open days in field trials (8*500 euro) (€4,000), - Publication in peer review open access journals (€1,500), - Car rent for research in the field (€1,000); - Printing and publishing (€2000) for local dissemination;- Experts and consultants' fees (€1000); -Workshop (farmer and scientist): (€ 10000), - Internet connection from the field for monitoring data acquisition: (€500, - Participation to exhibition of agriculture: (1500 €), -Fertilizers and soil analysis (€1000)

Note: The budget in the tables above are those detailed in PRECIMED proposal. However, these values vary according to the agreements of each partner with their national financial agencies.

4.5. Quality Management

The Quality Manager (QM) will establish the Quality Assurance framework of PRECIMED, lead its follow-up throughout the project and be responsible of its fulfilment. The QM will develop the Quality Assurance Plan (QAP) of the project. It will contain all procedures, plans and other documents applicable to the project as well as specify the activities (managerial and technical) to be implemented in terms of quality assurance. Besides, the QM will lead the impact analysis of PRECIMED in terms of tracking of established KPIs, identification of deviations, establishment of corrective actions, and monitoring of their implementation within the project.

4.6. Communication Management

Communications from the project must be aligned with its objectives, especially about the value proposition that the project presents, which is to "Resolve the irrigation problem caused due to lack of optimization and real applications adapted to the farmer by integrating and adapting technologies in an efficient system which is environmental friendly and economically feasible". Any further messages must be concentrated on the project's specific results and progress of the proof of concept. WP leaders will identify opportunities for communication and dissemination (e.g. congress, press releases, interviews, etc.) and scale it to the WP5 leader. A detailed communication and dissemination plan will be prepared within the WP5 at the beginning of the project, in order to ensure the key messages, reach the target audiences. PRECIMED project understands Communication as a broad activity that can be supported by a strategy, differentiating the message for each target group. The communication strategy will be built on messages targeted to different audiences, which will be addressed by customizing the content and selecting the right communication channels, aiming to effectively transmit the purpose of the messages.

4.7. Risk Management

ID	Risk Description	Level of likelihood	Proposed risk-mitigation measures	WP involved
1	Coordination and/or management of PRECIMED fails	Medium	The project coordinators as well as most of the consortium members have exhaustive experience in managing and running EU research, and the professional project management will plan and pro-actively avoid deviations and failures.	WP1
2	Difficulty to find and motivate the appropriate people within the consortium for group work and feedback gathering	Low	All partners are strongly committed to the objectives from the proposal phase. A close monitoring will be established and, if interests change during project lifetime, additional professional workshops or other motivating initiatives would be organized.	WP1
3	Partner does not report financial or effort consumption in time to	Medium	The project management will enforce timely and correct reporting. In the worst case, the missing data for reports and cost statements will be handed later or after the final reporting period.	WP1

ID	Risk Description	Level of likelihood	Proposed risk-mitigation measures	WP involved
	realize the management report			
4	Partner overspending resources and/or allocated budget	Medium	The project management team will monitor the partner spending through WP reports and through partner's progress reporting. If necessary, a reallocation of resource of partners will be initiated	WP1
5	Bankruptcy of a partner and financial risks	Medium	It is envisaged to minimise the risk of not being able to reclaim funds from a bankrupt partner for work not yet accomplished in the project, by continuously monitoring the project progress. On top of that, the coordinator will open and use a trusted bank account that is separated from the assets of the coordinator	WP1
6	Lack of communication or consensus within the consortium	Low	Management procedures have been defined for enabling effective decision making. The project coordinator and the members of the General Assembly and Executive Board have the necessary skills to resolve such conflicts by adequate negotiation. Additionally, it is planned to keep close contact within the consortium by regular telephone conferences and virtual meetings.	WP1 and WP4
7	Identification of limited amount of business models to exploit PRECIMED system	Low	The fact that there is a specific WP, number 5, to work on the identification and selection of potential business models for the exploitation of PRECIMED, will help to identify the enough number of models from which select the most suitable for PRECIMED. In addition to that, those business models will be tested under the iterative design and development process during PRECIMED's development. That will allow the consortium to gather inputs from the market in order to improve the system and make it exploitable.	WP2
8	Lack of interest in PRECIMED from market players	Low	All the partners have enough expertise in agriculture market, and they are up-to-date with respect to the state of the art of technology and user's needs. Moreover, the partner OdinS is an innovative technology provider at European level, and will lead the activity of identification, selection and testing of business models.	WP2
9	Problems in meeting the user requirements at the end of the system development period	Medium	The use of iterative design and development process for PRECIMED's development will allow the consortium to gather inputs from the end-user at the end of each sprint. Thus, any improvement or suggestion asked by end-user will be implemented in the system as it is developed. Therefore, the final product should meet enough end-user expectations.	WP3
10	Issues with the end-users/farmers(engagement,	Low	Special attention will be given to all participants and users on pilots in order to keep them well informed and up-to-date	WP3

ID	Risk Description	Level of likelihood	Proposed risk-mitigation measures	WP involved
	resistance to change, etc)		with the progress and how their concerns are being solved.	
11	Scarce involvement of key stakeholders	Low	Reinforcement of the communication tools used	WP4
12	Partners are not reacting as expected, lack of communication	Low	Use of further interactive communication means (use the phone when e-mail is not enough) and/or liaises with additional persons in the institution. Ultimately, apply mitigation measures contained in Consortium Agreement.	WP5
13	Dissemination of the project results is not sufficient to create impact	Medium	The consortium is strongly determined to create sustaining impact, and the partners have substantial experience in the international R&D business as well as a commercial background	WP5
14	Lack of interest by public bodies or policy makers	Low	Several partners are in good position to approach relevant European actors, and similar/ complementary projects. Public bodies or policy makers are also approached by project workshops and seminars.	WP5
15	Technology will evolve significantly during project execution	Low	Technology watch will be undertaken throughout the project to ensure latest developments are accommodated. In fact, an Innovation, Communication and Exploitation manager (ICEM) has been appointed within the project management team in order to keep the eyes on the market and feed the project with new insights that may bring value to PRECIMED	WP5
16	Not suitable quality of deliverables	Medium	Definition of a reviewing process for all deliverables in the Quality Assurance Plan developed in WP5, including the formal appointment of reviewers (partners) for each deliverable.	WP5
17	Key person leaves consortium	Medium	If the partner cannot provide a replacement, a re-allocation of responsibilities between partners will be implemented.	All
18	Partner leaves consortium	Medium	The Project Coordinator will find a capable new partner. The delay of the project will be kept to a minimum by contributing additional resources to remaining partners.	All

4.8. Innovation Management

PRECIMED will leverage on past efforts from its consortium members who have accumulated a large and diverse experience in over different related projects. This will save a lot of time and resources to achieve PRECIMED objectives, and will enable the partners to focus their effort on developing new products/services and value creation. PRECIMED will also use outputs of IoT-A and FIWARE projects as the starting point for its design of Decision Support System extending it with functionalities and components required to achieve precise irrigation/fertilization services. Seven distinct agricultural exploitations will be used to identify technical and functional requirements and validate the proposed solution. PRECIMED will leverage and synergise with past and current research projects, including

Innovations/Advancements with respect to relevant Research Projects
FP7 FIWARE: Some Cloud, BigData, Management Services and Generic Enablers defined by FIWARE will be extended within PRECIMED maintaining compatibility while improving elasticity and scalability aspects thanks to the distributed PRECIMED architecture. Special attention to follow will be considered with the NSGI open data model and defined ETSI CIM ISG.
IrrigNET was a European Project within the **FRACTALS call** to research and develop a Plant-specific Model-based Irrigation using Wireless Sensors Networks for sugar cane fields in order to optimize water management. PRECIMED will integrate the knowledge about data-driven irrigation models.
H2020 CPaaS.io is researching and developing an interoperable BigData platform for smart services in cities. PRECIMED will incorporate the OdinS experience on FIWARE platform with its BigData components to enable improved management services.
CDTI IoT@AS aims to investigate new wireless communication technologies LPWAN (Sigfox, LoRa, 5G, NB-IoT), standard internet protocols (IPv6, 6lowpan, MQTT, COAP) and new information service architectures based on FIWARE or SOFIA standards at a European level for remote control and management of irrigation communities allowing interoperability between different agents (public and private) of the agricultural sector.
RIS3Mur REUSAGUA researches the use of alternative water resources (regenerated water) together with information and communication technologies (ICT) with the aim of developing management practices and protocols for irrigation management, necessary to achieve sustainable agricultural production. With this project, a Decision Support System (DSS) was designed and developed for the agricultural production that integrates: wireless sensor networks to analyze water quality; action systems that allow irrigation control; alarm services in case of poor quality water. PRECIMED will extend the DDS system for irrigation and fertirrigation services.
Life DRAINUSE: provides a demonstrator to corroborate the feasibility of the use of re-circulation systems for soilless crops in the Euro-Mediterranean region, where more than 60% of the production in greenhouses is settled. PRECIMED will integrate the main output of this project that is the design of a modular and scalable control system, as well as the greenhouse plant itself, so that it can be adapted to most of the scenarios in Mediterranean area. The system is designed according to the volume of drains per day that needs to be recirculated in greenhouses.
AISRI Connected Industry 4.0 consists in the intensive monitoring with a wide range of agronomic sensors in the crops to improve the irrigation process in an accurate way with the amount of water needed according to the environmental and crop conditions to optimize the growth of plants and agricultural production in greenhouses.
FP7 SIRRIMED (Sustainable orchard irrigation in the Mediterranean Region) where different approaches to improve the water use efficiency, like application of regulated deficit irrigation strategies and use of reclaimed and high salinity water, were considered. **FP7 OPIRIS** (Online professional irrigation scheduling expert system) which main objective was establishing the bases for an online precise irrigation scheduling. **Both FP7-Projects have been coordinated by CSIC**, and their innovations and contributions will be implemented in one unique project (PRECIMED) that will give a whole solution to improve water and nutrient use efficiency in the Mediterranean agriculture.
HIDROLEAF has the objective of developing and validating a pilot system for the production of horticultural leaf plants in soilless culture, both in greenhouses and specially insulated indoor enclosures with artificial lighting (for places with very adverse climatic conditions). The **DSS** system will consist of a climate control unit, another for the preparation of nutritive solutions and a unit for recirculating the drainage water and disinfecting it. The project arises from the demand to produce vegetables near the places where they will be consumed

Innovation potential that the proposal represents:

The main ambition of the PRECIMED project is the innovation in sustainable ICT technological solutions for the agricultural sector. This motivation is aimed at the efficient production of healthy and high-quality food. The technological innovations are focused on the development of a precision irrigation and fertilization solution that is more sustainable and efficient in resources such as water, soil and energy. In addition, this project aims to narrow the gap between new technologies and final farmers to accelerate the expansion in the agricultural market as shown in the following table:

Technology	State of the art	Outputs from PRECIMED
Plant and water sensors	Commercial devices capable to measure and map plant and water variables. Limitations: Expensive, many sensors required.	Advanced prototypes easy to install, low cost, no maintenance, allocated at the most representative points.
Ground sensors	Different companies offer soil moisture, soil temperature sensors and soil analysis sensors. Limitations: Expensive sensors with "too many" functionalities.	Common interfaces for integration of different low-cost sensors capable of operating for many years on a single battery facilitating interoperability.
Environmental sensors	Monitoring of multiple environmental parameters involving a wide range of applications. Limitations: Generic/Public weather stations	Support the integration of different sources of information offering interfaces of open data and others like local conditions, supporting economic and real time information.
Agricultural algorithms for Bigdata sensors processing	Mainly used in intensive crop production systems. Simple algorithms based on offline measurements. Limitations: - Agronomic recommendation calculated by an important low number of indicators. -Incoherent formulas due to the large number of variables. - Recommendations made with different agronomical criteria	Automated BigData data processing and recommendations to farmers. Integration of different irrigation and fertilization algorithms into a single platform for real-time data processing. Automatic learning techniques for a continuous improvement of the algorithms.
Precision irrigation systems	Technological start-ups are creating a range of agricultural software, services and irrigation techniques to bring more data and efficiency to the sector. Limitations: there is still a large gap between new technologies and farmers	Development of precision irrigation services with low investment, low operation cost and better adapted to the farmers.

New Products/Services from PRECIMED.

Technology	Existing products/services	New products/services from PRECIMED
Cost-Effective Low-Power Long-Range Wireless Devices	Commercial devices integrating sensors/actuators and transmitting this data to a central computer. Limitations: Expensive, Low autonomy and insufficient coverage with 2G/3G dependency.	Advanced CPS gateways based on Low-cost LPWAN networks (Sigfox, Lora, 5G, NB-IoT, LTE-M) that will be easy to install in the most representative points with low-power, low-cost and long-range in wireless networks without expensive repeaters or routers.

Technology	Existing products/services	New products/services from PRECIMED
Decision Support System (DSS) based on European FIWARE platform	Many companies provide close systems to monitor and control water usage. Limitations: real time systems dependent on massive data provided by expensive sensors and expensive proprietary wireless dataloggers.	Standards-based solution provided by the new DSS FIWARE platform that will support open inexpensive hardware based on standards protocols (MQTT, REST, NGSI, etc.) and reduced number of required sensors thanks to open data sources such as weather conditions (i.e. AEMET) for real-time BigData computing.
Irrigation Services based on SaaS business model (Software as a Service)	Most of commercial irrigation software requires licenses paying, local server deployment and internet connection provided by the farmer. Limitations: high initial investment, low scalability, and computer knowledge to maintenance.	New SaaS services for irrigation/fertirrigation recommendations enable high scalability and low-costs in initial-investment and maintenance without the needs of software licenses or computing servers in order to facilitate their wide expansion in the agricultural market.

Substantial impacts not mentioned on the work programme:

Improving Innovation Capacity through data aggregation, silo-breaking, interoperability and standards. In accordance with the ambition of the call, PRECIMED will take advantage of the large representation of stakeholders in the consortium representing demand and supply from both sides of the Mediterranean (Europe and Africa) to cover a representative sample of their needs and demands, thus, answering to the market potential and innovation enablement aspects of the call. A multi-actor approach will guide the whole process. We will detail next how PRECIMED will improve the innovation capacity across both the supply and the demand sides of the Mediterranean ecosystem.

PRECIMED fosters innovation across the Mediterranean agri-food sector through silo-breaking and new IoT-induced capabilities: The involvement of the demand-side (farmers with holdings of various sizes, cooperatives, farm advisors, food processors, logistics) throughout the whole pilot implementation process, will ensure that PRECIMED delivers solutions solving their real-life problems and matching their needs for improvement.

More innovative, data-centric farms through access to aggregated datasets, smarter IoT tools and cross-fertilisation with other peers: PRECIMED will provide evidence of how the use adequate IoT-based solutions improves the sustainability and competitiveness of the large number of farms involved in our seven pilots, and through a well-designed dissemination and training strategy (WP5) this evidence will reach a larger share of Mediterranean farmers, likely sparking their interest in adopting IoT. Another trigger for innovation in Mediterranean farms will be the cross-fertilisation work that PRECIMED's partners will undertake among the different pilots and use cases. At farm level, this will allow to learn, compare and replicate uses and best practices in the application of IoT in farms across different the Mediterranean countries.

Innovation in IoT enhanced farming and advisory services: This consortium has identified innovative initiatives which will be commercially exploited during the project by our partners. Collectively, these innovations are examples of data aggregation contributing to IoT enhanced farming and advisory services. WP3 and WP4 will deliver the functional interoperability of PRECIMED's IoT Smart Farming ecosystem. WP4 will create a set of best practices, recommendations for technical architectures, standards and interoperability which will become the reference for IOT based advisory services.

More Innovative supply and logistics through end-to-end data aggregation, interoperability, and controlled data sharing: The aggregation and standardized sharing of data from different sources (IoT-generated, but also static data bases) is one of the most innovative elements of PRECIMED. The project will provide examples of how the availability of data from farm to supply can break silos and enhance cooperation between farms and processors, and decision making, planning and traceability at the food processor.

5. Project Monitoring and Control.

5.1. Project Reporting

Minutes of meetings

The Chairperson of a Consortium Body shall produce written minutes of each meeting which shall be the formal record of all decisions taken. It shall send the draft minutes to all Members within 10 (ten) calendar days after the meeting. The minutes of the Project Participant Assembly will especially provide for any decisions concerning Results and the adequate protection of Intellectual Property Rights in Results, eventually updating the Data Management Plan and the Plan for the Exploitation, Dissemination and Communication of Results.

Mid-term Report, Final Report and other interim progression reports to be submitted to PRIMA-IS

The Executive Board, chaired by the Coordinator, will produce three reports in months 12, 24, 36, illustrating the Project activity conducted respectively in the first period (from the Project Starting Date to 18 -eighteen- months after the start), and in the second period of the Project (from 18 eighteen- to 36 -thirty-six- months after the Project Starting Date). The three reports will be submitted to the PRIMA-IS following the instructions and the deadline that will be provided by this institution, and will contain: technical progress including the Results obtained during the execution of the Project; the most up-to-date version of the Project Implementation Plan, the Data Management Plan and the Plan for the Exploitation, Dissemination and Communication of Results; justification of costs if required; any other information requested by the PRIMA-IS.

Circulation of minutes and reports and responses of the Participants

The minutes and reports will be communicated by each Project Participant Assembly Member only to its staff involved in the Project. The Participants will then have 10 (ten) calendar days from the date of communication of the minutes and reports to object to the propositions contained in them. Beyond this period, consent shall be deemed to have been given. A Participant may object if:

- a Participant's Legitimate Interest is affected by propositions contained in the document; or
- a Participant's Results and Background are adversely affected; and
- the objection contains a precise request for modifications to the report.

The Participants shall discuss how to overcome the objections and should take appropriate measures in order to reach a final consensus including but not limited to amendments to the minutes or report within three (3) calendar months starting from the date of their submission. The objecting Participant shall not unreasonably continue to object if appropriate actions have been taken. Once accepted, the Coordinator shall send the final version of minutes and reports to all Members of the Project Participant Assembly. The Coordinator will safeguard the documents.

5.2. Project Meetings

EXPECTED PROJECT MEETINGS

GENERAL ASSEMBLY: Once per year (face to face) and when required. Next meetings proposed locations and dates:

1. October-2020. Greece (UTH)
2. October-2021. Algeria (INRAA)
3. October-2022. Tunisia (OPTIM)

PROJECT EXECUTIVE BOARD (PC, AM, TM, QM, DM, IM):

Face to face/ Skype each two months.

WP LEADERS:

Skype each six months.

Summary

The deliverable [D1.1: Project Management Procedure (M2)] focuses on defining how the project will be managed, executed and controlled. This document reports on the basis of all project work and will refer to more detailed subsidiary plans to integrate and consolidate all management activities into a comprehensive document.