AgrEcoMed

FOSTERING AGROECOLOGICAL TRANSITION

"New AGRoecological approach for soil fertility and biodiversity restoration to improve ECOnomic and social resilience of MEDiterranean farming systems"

Deliverable 1.1
Executive project plan

This project is part of the PRIMA Programme supported by the European Union, having received funding from it under grant agreement PRIMA21_00018

PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA

This project is part of the PRIMA Programme supported by the European Union, grant agreement PRIMA21_00018

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1.0	22/11/2022	Michele Perniola, Andi Mehmeti, Vincenzo Candido (UNIBAS)	Final review of contents and submission to EC.

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Acronym and abbreviations

CA	Consortium Agreement
GA	Grant Agreement
AB	Advisory Board
EC	European Commission
SC	Scientific Coordinator
WP	Work package
OA	Open Access
WPL	Work package leader
WP	Work package
DoA	Description of Action
KoM	Kick-off Meeting
PC	Project Coordinator

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Executive summary

The AgrEcoMed project, funded under the European Union's Horizon 2020 research and innovation program PRIMA and Grant Agreement PRIMA21_00018 is a research project aimed to fill the research gaps for implementing a biodiversity-based strategy for primary crops as cereal farming systems through an Agroecological approach adapted to environments in Mediterranean countries, efficient use of natural resources, reduction of pollution, circular economy. Such a goal will be achieved through innovative approaches to support the sustainable production of staple foods in the scenario of the present and future climate changes. To support the strategic coordination and overall management structure of this project, a project execution plan is essential. This document is *Deliverable 1.1, "Executive project plan",* of the AgrEcoMed project, which aims to establish a reference for the functioning of the project and the seamless implementation of its tasks and objectives. It contains all related information for managing and running the project, including partners, work packages and deliverables, the project's workflow, communication rules, reporting issues, the procedures to be followed, the quality assurance processes, and the deliverables and milestones. This document is a living document that is accompanied by a detailed Excel summary of the partners' activities. It will be available to all members at all times throughout the project and can be modified to meet the needs of the project. It does not supplement or replace the EC provisions or official documents, e.g. the EC Grant Agreement, or the Consortium Agreement, but summarizes important information and provides links to all key documents.

Keywords: PRIMA, AgrEcoMed, project handbook, management, coordination,

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1. Project basis

AgrEcoMed is a 36-month Research and Innovation Action (RIA) project under Grant Agreement No PRIMA21_00018 aiming to fill the research gaps for implementing a biodiversity-based strategy for primary crops as cereal farming systems through an Agroecological approach adapted to environments in Mediterranean countries, efficient use of natural resources, reduction of pollution, circular economy. The effective start of the project is 23/05/2022 and the project ends 36 months later, on 31/05/2025. The AgrEcoMed consortium consists of 8 partners from 4 countries (including two EU and non-EU countries). The project is coordinated by the University of Basilicata (UNIBAS, Italy). The list of Project Participants is included in the Grant Agreement, in the Consortium Agreement, and presented in Table 1. The project has an overall budget of 1,308,051.15 €. The budget detailed per beneficiary and the corresponding EU contribution of each beneficiary is detailed in Annex 2 to the Grant Agreement – Estimated budget of the action.

Table 1. Partners of the AgrEcoMed project and representatives.

Participant No *	PI name	Organization	Short name	Country	Type of institution
P1	Michele Perniola	University of Basilicata	UNIBAS	Italy	Higher Education Institution
P2	Luigi Roselli	University of Bari	UniBa	Italy	Higher Education Institution
P3	Maria Assunta D'Oronzio	Council for Agricultural Research and Economics	CREA	Italy	Public Research organization
P4	Ines Yacoubi	Centre of Biotechnology of Sfax	CBS	Tunisia	Public organization
P5	Hanine Hafida	University Sultan Moulay Slimane Beni Mellal	USMS	Morocco	Higher Education Institution
P6	Said Ennahli	National School of Agriculture	ENAM	Morocco	Public Research Organisation
P7	Julio Berbel	Universidad de Córdoba	UCO	Spain	Higher Education Institution
P8	Neus Sanjuan Pellicer	Universitat Politècnica de València	UPV	Spain	Higher Education Institution

2. Project management structure

The structure of the Consortium is defined by the reference documents, in particular by Section 6 of the Consortium Agreement. The Consortium Agreement is the internal contract of the consortium partners which is signed and accepted by all partners. It defines the Consortium's internal rules for project management as well as the Consortium organization and decision-making mechanisms. The Consortium is structured as in Figure 1. The organizational structure of the Consortium comprises the following:

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- Consortium Bodies (CB): General Assembly or Steering Board, made up of one representative per Party, is the ultimate decision-making body of the Consortium.
- Advisory Board (AB) is the consultative body for the execution of the Project, which shall report to and be accountable to the General Assembly.
- The coordinator is the legal entity acting as the intermediary between the Parties and the Agency. The Coordinator shall, in addition to its responsibility as a Party, perform the tasks assigned to it as described in this Consortium Agreement.
- Deputy Coordinator assists the Coordinator.

The Grant Agreement and its annexes will be available for all partners in the project repository accessible only to project partners. The PRIMA Foundation is responsible for all the managerial, administrative, supporting, monitoring, and supervising activities necessary to implement the PRIMA Program. The global project management responsibility relies upon the AgrEcoMed Advisory Board (AB), composed of the Project Coordinator and the Deputy Coordinator, and the WP Leaders.

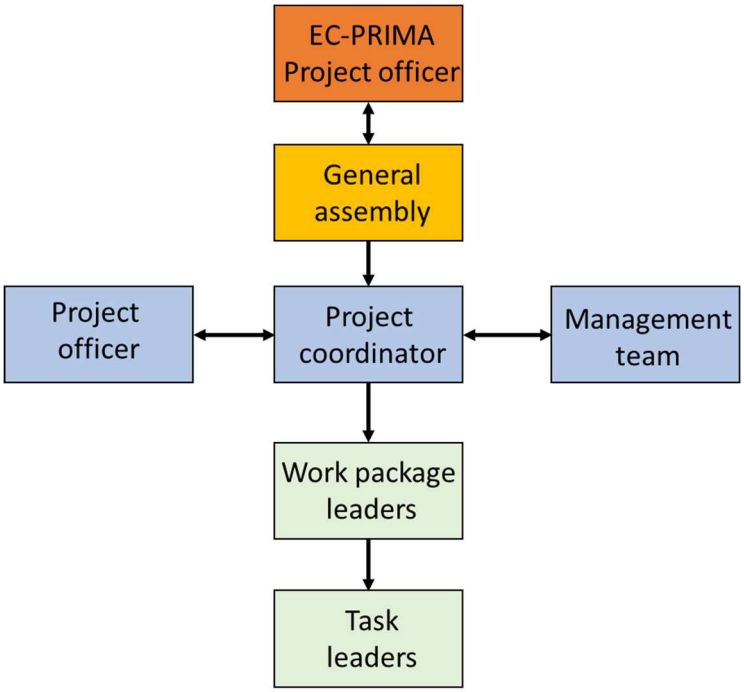

Figure 1. AgrEcoMed management structure.

In the following sections are described, for each body, the main roles and the initial plan for meetings and decision-making procedure.

2.1 Project Reviews with the European Commission

The EC Project Officer and external evaluators will evaluate and discuss with project partners the evaluation of the project progress throughout reference in the occasion of three project reviews.

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2.2 General assembly (GA)

The General Assembly (GA) is the decision-making body of the Project. The GA is chaired by the Project Coordinator and composed of the institutional representative appointed by each of the partner organizations. GA will be responsible for the strategic and political orientation of the project: overall direction of all activities – research, training, and management – and re-orientation whenever necessary, incorporation of new Parties, and measures towards defaulting Parties. It makes sure that the strategy adopted for the Project is preserved. The GA acts by decisions or advice. The role of the GA is:

- To monitor and assess the overall progress and output of the project according to the objectives, timetable, deliverables, and milestones and to recommend solutions for any shortcomings, of the Project;
- To promote the sharing of good practice in research and dissemination activities, to inform the Parties about dissemination opportunities, and to enhance collaboration with research, entrepreneurial, advocacy, and policymaking activities outside the Consortium.
- Coordinate Project activities, results, and communication between Parties, to survey progress and agree on detailed working plans.
- To request additional meetings of the Advisory Consultative Board.

The GA cannot decide to extend or cancel the Project. The Coordinator shall chair all meetings of the General Assembly unless decided otherwise by the GA. Each Party undertakes to take part in the efficient implementation of the Project and to cooperate, perform and fulfill, promptly and on time, all of its obligations under this Consortium Agreement as may be reasonably required from it and in a manner of good faith as prescribed by law. As indicated in the CA, one member of each partner has the right to vote. Should a voting member be unable to attend the GA, he/she can delegate a member of his/her organization after informing the Project Coordinator. Each Party undertakes to notify promptly, following the governance structure of the Project, any significant information, fact, problem, or delay likely to affect the Project. The GA shall strive to make decisions by consensus. If consensus cannot be achieved, decisions on proposals shall be taken by a simple majority.

2.3 Advisory board (AB)

The advisory board (EB) consists of the Coordinator (chair), deputy coordinator, and the work package leaders. The Advisory Board of AgrEcoMed will evaluate and advise on the scientific signs of progress and strategic impacts of the project. It will act as the supervisory body for the execution of the overall Project. AB members will participate in project events as required, will contribute to the requirements, and review project results. Advisory Board (AB) members are shown in Table 2. Each Consultative Board Member may be assisted by a representative from its organization/institution or with the consent of the other Parties (not to be unreasonably withheld or delayed) by an external expert as an advisor after these advisors have been bound by confidentiality. The Coordinator shall chair all meetings of the Advisory Board unless decided otherwise.

Table 2. Advisory Board members.

Member	Email	Organization	Country	Field of Expertise
Chair				
Michele Perniola	michele.perniola@unibas.it	University of Basilicata	Italy	Agronomy
Members				
Luigi Roselli	luigi.roselli@uniba.it	University of Bari	Italy	Agricultural Economics
Maria Assunta D'Oronzio	massunta.doronzio@crea.gov.it	Council for Agricultural Research and Economics	Italy	Bioeconomy
Ines Yacoubi	ines.bouchrityaccoubi@cbs.rnrt.tn	Centre of Biotechnology of Sfax	Tunisia	Biotechnology
Hanine Hafida	h.hanine@usms.ma	University Sultan Moulay Slimane Beni Mellal	Morocco	Food science and technology
Said Ennahli	ennahlisaid@gmail.com	National School of Agriculture	Morocco	Food science and technology
Julio Berbel	berbel@uco.es	Universidad de Córdoba	Spain	Agricultural Economics
Neus Sanjuán Pellicer	nsanjuan@tal.upv.es	Universitat Politècnica de València	Spain	Analysis and Simulation of Agrifood Processes

2.4 Coordinator institute

The coordinator partner of the project is the University of Basilicata (UNIBAS, Italy) represented by prof. Michele Perniola. He is assisted by Prof. Agata Gadaleta of UniBa as Deputy Project Coordinator. It is the direct intermediary and interlocutor of the European Commission with the rest of the consortium for the whole duration of the project. As lead beneficiary, UNIBAS is also in charge of the Work Package "Project Management and Coordination". As part of the obligations of the WP, UNIBAS is expected to fulfill Deliverable 1.1, "Executive project plan", which is the object of this document. The Project Coordinator is an equal partner of the consortium and enjoys the same rights as the other partners. It is, however, subject to additional responsibilities:

- Supporting the day-to-day administration and management of AgrEcoMed;
- Assist all partners as regards administrative, financial, and regulatory issues and the relationship with the European Commission;
- Monitoring compliance by the Parties with their scientific obligations and acting as intermediary for all communications (e.g. grant the extension, scientific/managerial modifications between the beneficiaries, changes that affect the grant agreement) and the European Commission;

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- Preparing the meetings, proposing decisions and preparing the agenda of General Assembly meetings, chairing the meetings, preparing the minutes of the meetings, and monitoring the implementation of decisions taken at meetings;
- Collect, review, and submit reports, other deliverables (including financial statements and related certifications), and specifically requested documents to the Funding Authority.

The Coordinator will not be responsible for the financial management of PRIMA research funding, which will be handled directly between national beneficiaries and their national funding bodies in each participating country. If the Coordinator fails in its coordination tasks, the GA may propose to the secretariat of the AgrEcoMed office to change the Coordinator. The Coordinator shall not be entitled to act or to make legally binding declarations on behalf of any other Party or of the consortium unless explicitly stated otherwise in this Consortium Agreement. The Coordinator shall not enlarge its role beyond the tasks specified in this Consortium Agreement.

The deputy coordinator is obligated to ensure the project is conducted in compliance with applicable laws and regulations and institutional policy governing the conduct of sponsored research. In conclusion, the Project Coordinator and the Deputy Coordinator will handle day-to-day management, quality, and logistics. The Project Manager (UoP, represented by Prof. Vincenzo Candido) is appointed by the Project Coordinator and is under his direct supervision, his role is to assist the work of the coordinator and the steering boards for executing the decisions of the consortium as well as for the day-to-day management.

The Coordinator (Scientific Coordinator and/or Management Team) will liaise with the Project Officer for the agenda and logistics. WP leaders and all partners should contribute and support the Coordinator in preparing the necessary material. More specifically, the Project Manager's role is to:

- Communicate with project partners on a timely basis.
- Track project progress against program objectives.
- Prepare and process technical and financial reports.
- Organize teleconferences/project meetings/workshops/conferences.
- Have the overall responsibility for the complete management of the project.
- Appoint the Management Team

The Management Team led by Dr. Andi Mehmeti (UNIBAS) will work to support the coordinator also in all the activities that need representation within the European Commission. The Management Team is in charge of the day-to-day technical coordination and execution of the project, supported by the Project office (chaired by Vincenzo Candido), which provides administrative support to the parties.

3. Work structure

3.1 Work packages

The AgrEcoMed project is organized into seven Work Packages (**Error! Reference source not found.**). Each Work Package has its own WP leader. Work Package Leaders (WPLs) and Task Leaders (TLs) are responsible for the detailed implementation of the WPs and tasks and the preparation of the corresponding deliverables and milestones. The responsibilities of WPLs include:

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- Technical management of their WPs, including consecution of deliverables and milestones, liaison with task leaders (each WPL will be also responsible for the quality assurance of documents and deliverables produced);
- Technical reporting to the PMB;
- Communication exchange amongst the partners involved in their WP(s);
- Identify risks within a WP and inform the AB and/or the Coordinator.

Project management and coordination are organized in WP0. The general objective of WP0 is 1) to ensure proper management of the activities of the project, 2) to manage administrative, financial, legal, and IP issues (intellectual property) to allow operative units to focus on their research activities 3) coordinate the project activities 4) Organize meetings to plan the activities and to verify the regular development of the project. Scientific activities are regrouped in WP 1-5. The general objective of WP1 is to project and test innovative crop rotations for the Mediterranean environment. This work package aims to:

1) to ensure executive project planning and all the project activities starting from the field experiments
2) Increase of Biodiversity and planning new crop rotations by proposing, cultivating, and choosing in addition to traditional species innovative species aim at triggering resource use efficiency, nutrient balance, control of pathogens, the use of bio-stimulants, environmental sustainability, and enhancing the farmer's income.

Table 3. List of work packages, lead beneficiaries, timing, and WP leaders.

WP no.	WP name	Lead beneficiary	Start Month	End month	WP leader
WP0	Project management and coordination	UNIBAS	1	36	Michele Perniola
WP1	Increase of biodiversity and planning new crop rotations	UNIBAS	1	30	Michele Perniola
WP2	Screening of alternative species and valorization of the natural biodiversity of ancient grains	UNIBA	1	36	Agata Gadaleta
WP3	Resources use efficiency, by products reuse , circular economy and control of environmental impact	UNIBA	1	36	Giovanni Russo
WP4	Economic sustainability of agroecological, regenerative and circular farming	UNIBA	1	36	Luigi Roselli
WP5	Strengthening the knowledge system and cooperation between farmers	CREA	3	34	Maria Assunta D'Oronzio
WP6	Dissemination of results	UNIBAS	6	36	Michele Perniola

The outcomes of WP1 are a) the identification of best agronomic practices with an agroecological imprint; b) the creation of databases and reports about the agronomic response of crops and the inputs and outputs of the conventional and agroecological cropping systems; c) the development of DSS for the precision management of production factors and on the new biomolecules extracts available for the

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control of weeds and pathogens; d) production of dissemination materials for cultivation techniques recommended for an agroecological approach.

The WP2 will assess the wide and largely underutilized phenotypic diversity present in wheat and medicinal germplasm (mainly landraces and diverse subspecies), towards the identification of genotypes fitting with the modern agroecological principles. This work package aims to:

1) Farming and screening of alternative species (Medicinal ones) that better interpret and fit with the Mediterranean context and with which it will rise crop rotation (biodiversity increase);
2) Screening and identification of extracts from medicinal plants by the in vivo tests performed on the model insect Galleria mellonella;
3) Valorization of the natural biodiversity of ancient grains and reintroduction of wheat local or old varieties, better adapted to climate change in Mediterranean conditions;
4) Selection of the most adapted Agro-Ecosystem wheat varieties under innovative production methods and economic viability.

WP3 has as its general objective the study of circular economy principles applied to the new crop rotations carried out following agroecological criteria and with precision agriculture methodologies, to measure its environmental sustainability. For this purpose, life cycle assessment (LCA) methodology according to ISO 14040/44 standards will be applied to evaluate the benefits and trade-offs of fertilizer use efficiency, the use of alternative fertilizers (bio-stimulants and mycorrhizae), organic fertilizers (production of frass) and precision farming techniques and variable-rate fertilization. This work package aims to:

1) Management and valorization of crop residues and plant nutrition enhancement (mycorrhization and biostimulants) ;
2) Valorization of crop residues and by-products of the agricultural chain through bioconversion by the Diptera Hermetia illucens;
3) Evaluate the effectiveness of precision agriculture (PF) techniques to optimize and make more efficient use of production factors;
4) Determine the environmental impact of the crop rotations following conventional and agro-ecological modalities: environmental assessment of the alternative agroecological inputs used (biostimulants, mycorrhizae fertilizers obtained from the metabolization process of insects; products with an agrochemical effect or synergic to pesticides, obtained from the production of medicinal plants with the use of medicinal plants in rotations or specific crops, macerates, extracts, etc.

The WP4 will assess the economic sustainability of the agroecological transition of the farming system in Mediterranean regions towards a regenerative and circular farming approach. It will assess the potential economic benefits for farmers in given contexts, and identify the conditions under which the agroecological farming approach can improve smallholders' incomes and resilience in the Mediterranean regions. This work package aims to:

1) Establish a theoretical and evidence-based framework of the emerging strengths and weaknesses of agroecological farming;
2) Analysis of the current business models;
3) Design of alternative agroecological business models and economic viability assessment;

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4) Analysis of barriers and drivers for scaling up the agroecological business models and possible solutions.

The WP5 will contribute to the strengthening of the Knowledge system and the cooperation between Mediterranean farmers with particular emphasis on gender and youth.
This work package aims to:

1) Transfer of digital knowledge and introduction of new technologies and organizational models;
2) Strengthen cooperation between farmers;
3) Analysis of transition ecological women's good practices;
4) Establishment of an agroecological transition women's network;
5) Analysis of the Mediterranean landscape in the system model of ecological transition.

Finally, WP6 will disseminate and promote the main and significant achievements of the project. Awareness, dissemination, and engagement with targeted stakeholders will be achieved through direct and outreach actions including attendance of scientific conferences and workshops, info-days and field visits, training and exchange of Ph.D. students and staff members between laboratories of the Consortium, online communications via website, media and social media, and development of visual/audio materials.

3.2 Tasks

Each WP is divided into tasks as shown in the Work Breakdown Structure presented in Table 4 and Figure 2. A Task leader (TL) has been designated for each of the tasks in the WPs, performing technical management of the corresponding activities: planning, monitoring, and reporting to the WPL. Each partner will be ultimately responsible for the delivery of technical and administrative outputs assigned to it. The partners will conclude a Consortium Agreement to settle all main issues of the project and the relationship and responsibilities of the Consortium members as well as its organizational structure. The Consortium Plan is provided for reference under Attachment 2, integrating/detailing the activities reported in the Project.
The work of WP0 consists of the following tasks:
- Management of activities to facilitate the achievement of the project results by supporting the coordinator, the leaders of the WPs, and the other partners, by compiling periodic activity reports;
- To manage all financial, administrative, and legal matters of the project;
- Ensure good communication within the project and with the outside world;
- Organize project plenary meetings and keep to defined deadlines, match activities within the project objectives and implement any corrective measures.

3.3 Detailed task description

A detailed description of AgrEcoMed activities and tasks is provided on an Excel database. **Task 1.1** aim to create executive project planning to establish a reference for managing and running the project and the seamless implementation of its tasks and objectives. This activity will start for all the partners with a kick-off meeting in the first month and will finish with the report of the executive project plan on M6. The

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activities include the development of detailed WP implementation plans based on the current proposal, efficient and effective implementation of these plans, and coordinating the activities of the task leaders. The delivery of the executive project with the specific and detailed action of each partner will be provided by UNIBAS. All the partners supported the task leader with all related information in planning, managing, and performing their respective tasks in the WP context.

Table 4. Tasks by WP, participants, and dependencies between tasks.

WP no.	Task no.	Task name	Lead beneficiary	Partner involved	Start	End	Responsible
WP0	Project management and coordination		UNIBAS	CREA	1	36	M. Perniola
WP1	T1.1	Executive project planning.	UNIBAS	All	1	6	M. Perniola
	T1.2	Increase of Biodiversity and planning new crop rotations	UNIBAS	ENAM	7	30	M. Perniola
WP2	T2.1	Farming and screening of alternative species (Medicinal ones) that better interpret and fit with the Mediterranean context and with which it will rise crop rotation (biodiversity increase)	CREA	UNIBAS	6	30	V. Candido
	T2.2	Screening and identification of extracts from medicinal plants by the in vivo tests performed on the model insect Galleria mellonella.	UNIBAS	CREA	12	30	P. Falabella
	T2.3	Valorization of the natural biodiversity of ancient grains and reintroduction of wheat local or old varieties, better adapted to climate change in Mediterranean conditions	UniBa	CBS, USMS	1	36	A. Gadaleta
	T2.4	Selection of the most adapted Agro-Ecosystem wheat varieties under innovative production method (Interaction with W1) and economic viability (Interaction with W4)	CBS	UNIBA, USMS	1	36	I. Yacoubi
WP3	T3.1	Management and valorization of crop residues and plant nutrition enhancement (mycorrhization and biostimulants).	UNIBAS	UNIBA, ENAM	1	30	M. Perniola
	T3.2	Valorization of crop residues and by-products of the agricultural chain through bioconversion by the Diptera Hermetia illucens	UNIBAS	UNIBA, UPV	1	30	P. Falabella
	T3.3	"Precision farming" for efficient use of resources	UNIBAS	UNIBA, UPV	1	30	M. Perniola
	T3.4	Environmental analysis of agricultural processes carried out (LCA)	UNIBA	UPV	3	36	G. Russo
WP4	T4.1	Outlining the theoretical and empirical framework to address economic issues of agroecological farming	UniBa	UCO	2	12	L. Roselli
	T4.2	Analysis of the current business model	UniBa	UCO	7	18	L. Roselli
	T4.3	Design of alternative agroecological business models and economic viability assessment	UniBa	UCO	14	35	L. Roselli
	T4.4	Analysis of barriers and drivers for scaling up the agroecological business models and possible solutions	UniBa	UCO	26	36	Julio Berbel
WP5	T5.1	Transfer of digital knowledge and introduction of new technologies and organisational models.	CREA	UNIBAS	3	30	M.A. D'Oronzio

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	T5.2	Strengthen cooperation between farmers.	CREA	UNIBAS	3	32	M.A. D'Oronzio
	T5.3	Gender equality through the analysis of transition ecological women good practices.	CREA	-	10	30	M.A. D'Oronzio
	T5.4	Women network.	CREA	-	3	34	M.A. D'Oronzio
	T5.5	Analysis of the Mediterranean landscape in the system model of ecological transition will be performed	CREA	UNIBAS	3	30	M.A. D'Oronzio
WP6	Dissemination of results		UNIBAS	All	7	36	M. Perniola

Task 1.2 will identify best agronomic practices with an agroecological imprint, creation of a database and reports about the agronomic response of crops and the inputs and outputs of the two cropping systems, and the development of DSS for the precision management of production factors and the new biomolecule extracts available for the control of weeds and pathogens and production of dissemination materials for cultivation techniques recommended for an agroecological approach. The design and operation of experimental fields to compare the cropping systems under conventional agriculture (CA) and the proposed agroecological approach (AA) will be conducted by UNIBAS. Conventional agriculture includes a field with continuous wheat, sod seeding, uniform fertilization, and chemical weed and pest control during the crop cycle. Agro-ecological practices will include a trial with wheat in rotation with legumes and Cruciferae/medicinal plants, plowing on legumes and minimum tillage on wheat and Cruciferae, organic and mineral fertilization applying precision farm technologies, weed and pest control if necessary (traditional vs biom. comp), use of artificial mycorrhization (Glomus spp.) and biostimulants (seaweed extracts, plant extracts, protein hydrolysate-based, etc., applying fertilization using the variable rate techniques (VRT) and geophysical soil mapping. Field activities will be conducted on a 2.5-hectare experimental field (10 hectares), from October 2022 to July 2024 in Genzano di Lucania (PZ; 40.823939, 16.093814). "La at Generale soc.coop.Agricola. The field activities planned for WP1 will provide data, information, and materials for the activities of WP2, tasks 1,2,3,4, P UNIBAS, UNIBA, CREA-PB, CBS, and ENAM. WP3, task 1,2,3,4, P UNIBAS, UNIBA, UCO, UPV. WP4, task 1,2,3 P UNIBA, UCO, WP5 and WP6. ENAM will develop and set up the experiment designs for the treatment involved in WP1. ENAM will assess the impact of the rotation of the selected crops on plant performance as well soil fertility. Furthermore, will assist consortium partners in the characterization of the plant residues, frass composition as well all aspects of soil fertility.

Task 2.1 will screen a set of germplasm from alternative species as herbs or medicinal to be used as alternative species in rotation with durum wheat in Mediterranean countries. Interest in medicinal plants and their derivatives has been growing steadily in recent years. From a sustainable perspective, medicinal plants have an important role to play when considered as possible new sources of molecules, of natural origin, that are highly effective and potentially useful in dealing with ongoing infectious emergencies in the human, veterinary and agricultural fields. Agricultural production, according to an agroecological approach, cannot do without alternative molecules of natural origin that are useful in ensuring plant production, free of toxic residues, and in the defense of plants against harmful organisms. In the present

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experimental activity, the aim is to test the possibility of including species such as Coriandrum, garlic, mugwort, helichrysum, and oregano in crop rotations that, other than the already known utilizations, show potential antimicrobial, antifungal and insecticidal activities useful in organic and conventional agriculture. The medicinal species Coriandrum sativum L. (Fam. Apiaceae) will be introduced in rotation with cereal crops because of its similar growing cycle (annual) as well as for the efficacy of waste biomasses to increase soil fertility, and plant extracts to use for biological control of pests and diseases of crops. The other four medicinal plants will be tested outside the rotations in plots 20x20 m. Garlic, among countless other properties, has that of being used as a biopesticide (Dusi et al., 2022) and insecticide, as also evidenced by folk uses (Dougoud et al., 2019). Also relevant is its use in food preservation against food pathogens (Polito et al., 2022). Mugwort is counted among the species that can control weeds at different stages of growth (Pannacci et al., 2015; Benvenuti et al., 2017; Pannacci et al., 2020). Helichrysum lists both repellent properties against harmful insects (Ninčević et al., 2019) and herbicidal (Karalija et al., 2020), as well as fungicidal (Djihane et al., 2017).

Task 2.2 has as its objective to evaluate the potential bio-insecticidal effects of extracts from plants, thus identification of crude extracts derived from medicinal plants that could be used as compounds alternative or synergic to pesticides. In vivo tests will be set up on G. mellonella larval stages to evaluate the potential bio-insecticidal effects of extracts from plants. The effects will be evaluated on larval developmental time, larval stages growth, larval size and mortality, adult fertility and fecundity, and larval and adult mortality. Specifically, the development time and weight of larvae, fecundity and fertility of adults, and mortality rate of both adult and larval stages will be evaluated. Crude extract and subsequently purified molecules from medicinal plants will be tested on the Lepidopteran Galleria mellonella (Lepidoptera: Galleriidae). The test will be at different concentrations and on different stages of G. mellonella larvae. The trials will be carried out using two ways of feeding the extracts: 1) mixed with the diet (oral administration), and 2) any direct injection into the hemocoel cavity of the larvae. Each plant extract will be tested on 3 experimental groups of 10 larvae and the effect will be evaluated on the larvae and their respective adults. UNIBAS will design and implement laboratory procedures and execute data collection while CREA will support all related information in planning, managing, and performing their respective task. The experiments will be conducted at the laboratory of Insect Physiology and Molecular Biology, University of Basilicata (Italy).

In **Task 2.3** it will assess the wide and largely underutilized phenotypic diversity present in wheat germplasm focusing on local varieties and landraces present in the countries involved in the project (South of Italy, Tunisia), towards the identification of genotypes fitting with agroecological practices. The research is aimed to restore and characterize the genotypes of local cereal varieties still present in the Mediterranean area. The genetic variability analysis will be carried out through screening methods and then MAS (Marker-Assisted Selection) programs using molecular markers based on DNA and already available at UNIBA on a collection of genotypes collected In the AgrEcoMed Consortium. This strategy will reduce time and enhance the genetic diversity in local populations of durum wheat or other cereal species, identifying and exploiting new alleles for agronomic and quality traits. The evaluation of a collection of 200 genotypes of Triticum turgidum ssp. dicoccoides, turanicum, and polonicum, durum for adaptability, resistance to diseases, and nitrogen use efficiency yield will take place. Phenotyping can be

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carried out in the UniBa field using a modified augmented design field layout including unreplicated accessions and replicated check cultivars randomized within blocks. Check cultivars will be chosen based on known and diverse trait responses. Activities will be conducted in the experimental station of UniBa in Valenzano (Bari) while laboratory activities will be conducted in UniBa laboratories. UniBa will collaborate with Tunisian partner CBS for germplasm composition and field evaluation.

In **Task 2.4** available genetic materials selected as part of a large collection of tetraploid kinds of wheat including breeding lines, modern varieties, "ancient" varieties and wild tetraploid genotypes available at the DiSAAT—UNIBA and CBS Tunisia and Morocco will be characterized under agroecological practices. The characterization will consider the adaptability, resistance to diseases, nitrogen use efficiency, and kernel quality. The research will be focused on the phenotypic characterization of durum wheat lines for high protein, high gluten index, high carotenoid pigments, and fiber contents. The analysis will identify the most interesting materials for productivity and quality traits (protein content, gluten index), leading to the selection of at least 15 lines to test in Mediterranean environments. A set of wheat and medical plant genotypes will be selected and phenotyped for agronomic traits important for Agroecological trials. The most interesting genotypes will be further evaluated in agronomic traits in WP1. Quality attributes evaluation will be carried out in the CBS lab. Field experiments will be carried out under conventional management for two years with single- or twin-row plots replicated. Activities will be conducted in the experimental station of UniBa in Valenzano (Bari) while laboratory activities will be conducted in UniBa laboratories.

Task 3.1 aim to evaluate the effectiveness of artificial inoculation with arbuscular mycorrhizal fungi and the application of other biostimulant substances to enhance plant nutrition and also improve the yield and quality traits of crops. In particular, it will be studied the effects of the application of commercial mycorrhizal formulations and biostimulant products in optimizing the fertilizer supply by evaluating crop response in terms of yield and quality. The effects on crops will be also evaluated by monitoring phenological and physiological traits during the vegetative cycle, and by detecting the use efficiency of the nutrients. This task has also the objective to study the management and valorization of crop residuals through appropriate burying techniques (by mechanization), or via composting techniques. To obtain extracts from medicinal plants to be used in agroecological crops, in this task the inventories of the processes to be applied will be drawn up. The technologies used will be, as far as possible, simple so that they can be used at the level of a single farm or for small consortia see WP (2 tasks 2.1). Phenological, physiological, yield and qualitative traits of the crops will be detected on a sample of 4 m^2 (2m x 2m) for each plot replicated three times. Besides, to evaluate the fertilization efficiency and the effectiveness of the biostimulant's application, the uptake of main nutrients will be measured by monitoring tissue plant content. UNIBAS will conduct applied research. ENAM will help in the characterization of the plant residues (ENAM) while evaluation of the environmental load (using LCA) of the production processes of biostimulants and mycorrhizae used in agroecology will be conducted by UPV/UniBa.

The objective of **Task 3.2** is to analyze the chemical profile of the larval frass, the effect on plant growth, and the effect on the quality of soil amended with them. The task proposes the utilization of H. illucens larval frass, obtained through the bioconversion process of crop residues, as a fertilizer, similar in

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composition to a mixed organic soil conditioner. This fraction is rich in nitrogen and phosphorus as well as compounds of high biological value, including chitin deriving from larval and pupal exuviae, able to stimulate the defense of the plants. Chemical and microbiological profiling, phytotoxicity, and the biostimulation of H. illucens frass on plants will be conducted. Specific biochemical characteristics such as organic and inorganic nitrogen content, bacterial load, pH, organic and humic carbon content, potassium and phosphorus content, and carbon/nitrogen ratio, will be assessed, to validate their use as fertilizers in organic crops. Laboratory data collection on the consumption of organic matter, energy, the quantities of organic fertilizer produced, and any waste from the production cycle will be carried out. Frass production data will be analyzed considering all resource inputs (raw materials, agricultural waste, water and energy consumption, machines used, packaging), and the outputs generated (waste biomass, residual or evaporated water, etc.). Mathematical models will be used to simulate the dispersion of substances for crop protection and nutrient balance equations. The laboratory tests and data collection will be organized by UNIBAS at the laboratory of Insect Physiology and Molecular Biology, University of Basilicata (Italy). The UniBa unit will analyze the production cycle of the pupae to evaluate the environmental load generated by the production of the frass which will later be used as organic fertilizer for agroecological crops. The UniBa unit will also analyze the production cycle of Hermetia illucens. To this end, the input and output data needed for LCA analysis of the process will be collected at the UNIBAS laboratory using dedicated questionnaires from Prof. Giovanni Russo. The collected data will be processed with the help of the UPV unit. The collected data will be stored in a database utilizing the GaBi LCA software and it will be possible to draw up the environmental profile of the fertilizer produced through LCA analysis. This process will then be used to analyze the crops grown with agroecological criteria.

Task 3.3 will evaluate the effectiveness of precision agriculture (PF) techniques to optimize and make more efficient use of production factors. More specifically, it will be investigated the application of PF in optimizing the input of fertilizers, starting from quantifying and classifying soil spatial variability, using the response of the soil to electromagnetic radiation to determine the original causes of the variability. The soil spatial variability will be detected utilizing low induction electromagnetic technique mini explorer, GF Instruments, the distance of 6 m between transects and average measurement distance of 0.8 m along transects. Three electrical resistivity maps will be obtained on three soil depths (0-50 cm, 0-100 cm, and 0-180 cm). The electrical resistivity maps will define soil homogeneous areas; inside each homogeneous area, soil samples will be detected for the main physical-chemical characteristics. The rates of fertilizers to be applied will be calculated based on estimated crop nutrient uptake and soil characteristics of each homogeneous area. At the time of fertilizer application, the fertilizer dose previously calculated, will be further corrected considering real crop vegetational indexes measured by remote sensing. The different fertilizer doses calculated in each homogeneous area will be applied in the experimental field using the variable rate techniques (VRT). In the conventional agricultural treatment (CA) the fertilizer dose generally applied by the farmer, will be applied uniformly on the whole field surface (UA). At harvest, in each VRT and UA treatment, on a sample area of 2x2 m^2 replicated three times yield and its components and qualitative parameters will be measured. On plant tissues of VRT and UA treatment, the main nutrient content will be measured to calculate the efficiency of their application. The research work will test the hypothesis that precision farming techniques and variable-rate fertilization are more efficient than

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uniform application and useful for an agroecological approach. To this end, the physical properties of the soil will be analyzed (slope, grain size, chemical composition, organic content, etc.) and meteorological data, or geo-referenced photographs from satellite or drone will be used. Particular attention will be applied to the methods of application of products for fertilization and crop protection and irrigation, to the machinery used and their variable dosage on the ground. UNIBA's contribution will focus on surveys through the use of drones and satellite photos. UNIBAS will establish and manage the experimental field of WP1 activity. Through the LCA, UniBA and UPV will realize inventories of the processes to measure the environmental damage generated by the cultivation of the products grown defined in the experimental tests of WP1.

In **Task 3.4** the life cycle environmental impact of the crop rotations following conventional agriculture and agroecological agriculture modalities to be implemented in the AgrEcoMed project will be determined. This will also imply the environmental assessment of the alternative agroecological inputs used (biostimulants, mycorrhizae fertilizers obtained from the metabolization process of insects; products with an agrochemical effect or synergic to pesticides, obtained from the production of medicinal plants with the use of medicinal plants in rotations or specific crops, macerates, extracts, etc.). The ISO 14040-14044 standards that define this type of study will be followed. Inventory analysis of all inputs will be carried out considering crop rotations, biocidal crops for the soil, the use of chemical or organic fertilizers, and the use of crop protection products or pesticides derived from officinal crops. The processes resulting from tasks 3.1 and 3.2, which are the environmental assessment of biostimulants, mycorrhizae, and organic fertilizer produced by insects, will be used in the inventories of agroecological crops. The UniBa unit will collect the inventory data relating to the agronomic tests carried out in Italy. The inventory data will flow into a database using the GaBi software which will also allow comparisons between the different wheat crops. The results will be evaluated with the CML2001 methodology or with other analysis methodologies (EDIP, ReCIPe, etc.). Dispersion models of fertilizers and pesticides (UPV unit) will be adopted in the evaluations. The functional unit against which to express the results will be 1 ton of wheat produced, but the unit of 1 hectare of soil cultivated with wheat will also be used based on the need to highlight the results. Particular attention will be given to human, terrestrial, and aquatic toxicity parameters. UniBa and UPV will also carry out sensitivity and scenario analyses to highlight the dependence of the results on input variations or possible alternatives. UPV unit will draw up the inventories of the crops in countries other than Italy through meetings with partners and, whenever possible, visits to the farms where the tests will be carried out. It further helps in the modeling stage, data quality check, sensitivity analysis, and interpretation/review of the results.

Task 4.1 will conduct a review of the extant literature discussing the economic performance of agroecological farming models and circular pathways, to establish a theoretical and evidence-based framework of the emerging strengths and weaknesses. The review will also help to select the most relevant methods and sets of socio-economic indicators that can be used to quantify the economic potential of agroecological farming systems, and to capture their contribution to improving the farmers' conditions in the medium-long term, in terms of more rewarding incomes, greater yields, better market positions, or improved resilience to off-farm prices volatility. The output of this preliminary activity will be a critical literature review.

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Task 4.2 will outline the dominant business model(s), namely "the rationale of how an organization creates, delivers, and captures value", based on which the farms currently operate in each context. The main activity of this Task will consist of data collection and elaboration to grasp the main business model(s) in two case study areas (Distretto Agroecologico delle Murge e del Bradano - Italy; Axarquia (Malaga) - Spain). Technical, economic, and organizational information on farms will be gathered both by sampling official data and documents and by conducting direct interviews with the farmers. The output will be outlining the dominant business model(s) based on which the farms currently operate in a real setting. This would represent the baseline scenario for subsequent evaluation of the potential economic benefits of the transition to agroecological farming.

Task 4.3 represents the core activity of WP4. In light of the scholarly findings (results of Task 1), of the previous economic assessment (results of Task 2), and the direct field experimentations (WP1, WP2, and WP3 activities), innovative agroecological business models will be co-designed with the farmers of the two case study area. The innovative business model(s) will be designed based on the one(s) deemed to be the most appropriate for fitting the agroecological, regenerative approach. The model(s) will be articulated in building blocks that will outline the agroecological businesses' processes and internal activities. Then, the economic viability of the model(s) will be assessed and the economic performance will be compared with the baseline business model(s).

Task 4.4 will contribute to the identification of the barriers (e.g. technological, market, institutional, regulatory) for adopting and scaling up the innovative agroecological business models. Identification of the possible solutions for challenging those barriers and fostering the uptake of innovative models. The identification of the barriers that can constrain the agroecological transition, as well as the possible solutions to overcome them, will be carried out in a participatory way, by inquiring about the stakeholders' perceptions, as well as examining existing documents and case studies.

In **Task 5.1** particular attention will be given to training processes introducing new technologies and organizational models. CREA will create distance learning platforms, lessons, and organizational models. Training will be aimed at all actors in the system (advisors services, farmers, small and medium enterprises, public institutions, young, etc.) and it will develop distance learning platforms. The training topics are agroecology and organizational models. The website (https://agrecomed.crea.gov.it/) will be a space where to organize the needs of farms. In each partner country field visits and workshops on precision agriculture will be conducted. An Experimental/laboratory a place where women farm can share activities and needs will be organized. To encourage their interest in participating in the project this task will organize a specific conference dedicated to agroecological systems coordinated with similar projects. This task is linked with Task 3.3 of WP3 which evaluates the effectiveness of precision farming (PF).

Task 5.2 will activate some workshop activities to create and strengthen cooperation at any supply chain level to promote the agroecological transition and improve the organization of common work processes (sharing of facilities, platforms, and resources by farmers; the promotion of short supply chains and local markets of Mediterranean agroecological system, the development of joint actions aimed at climate change mitigation and adaptation and the development of common and collective approaches

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(environmental practices and the preservation and enhancement of agricultural landscapes). The AgrEcoMed project starts from the experiences of Mediterranean agroecology identifying new paths and practices of youth and female enterprises to be adopted to enhance the local economy and business through new activities and income. This task is linked with tasks 2 and 3 of WP4 for the economic sustainability of an agroecological, regenerative, and circular farming approach.

Task 5.3 aim to the analysis of transition ecological women's good practices to strengthen the knowledge system. The analysis of good practices of Mediterranean women with environmentally friendly production, personal services, social inclusion actions, and attention to the protection of local traditions and biodiversity will be evaluated, also with the organization and classification of women's good practices and emerging innovations. The activities include a socioeconomic analysis of the Mediterranean agroecological system, an analysis of Mediterranean good agroecological practices, and a diffusion of results.

Task 5.4 objective is to create a women's network. The women's network is a place for virtual and territorial meetings, debates, and exchanges between different cultures of the Mediterranean through experiences and paths, created by women and offered to other women. A laboratory towards the establishment of agroecological transition women networks via local workshops to digital knowledge and organization of common facilities. The activities include territorial workshops for women and young people of countries' partners, workshops to discuss the agroecological transition, network development protocol, and guidelines for Mediterranean economic development.

In **Task 5.5** an analysis of potential changes in Mediterranean landscapes due to the agroecological transition through the enhancement of the knowledge, colors, and scents captured by Mediterranean crops (cereals and medicinal plants) will be conducted. The study will be combined with photos and interviews conducted in areas that have experience in agroecology.

The main task of WP6 is I) the Preparation of a website; ii) Distribution via newsletters and social media channels; iii) the Organization of technical meetings; iv) the Organization of a final conference.

Once the project is finished, a detailed report is prepared that will include all it has been done for communicating and spreading the project, as well as the impacts, the materials, and/or actions generated.

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Task Gantt Chart				Year/Month																																							
WP	Task	Activity title	Lead Beneficiary	2022								2023												2024												2025						
				May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
				0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
WP0	-	Project management and coordination	UNIBAS																																					
WP1	1.1	Executive project planning	UNIBAS																																					
WP1	1.2	Increase of Biodiversity and planning new crop rotations.	UNIBAS																																					
WP2	2.1	Farming and screening of alternative species (Medicinal ones) that better interpre	CREA																																					
WP2	2.2	Screening and identification of extracts from medicinal plants by the in vivo tests	UNIBAS																																					
WP2	2.3	Valorization of the natural biodiversity of ancient grains and reintroduction of wh	UniBa																																					
WP2	2.4	Selection of the most adapted Agro-Ecsystem wheat varieties under innovative p	CBS																																					
WP3	3.1	Management and valorization of crop residues and plant nutrition enhancement (	UNIBAS																																					
WP3	3.2	Valorization of crop residues and by-products of the agricultural chain through bi	UNIBAS																																					
WP3	3.3	"Precision farming" for an efficient use of resources.	UNIBAS																																					
WP3	3.4	Environmental analysis of agricultural processes carried out (LCA).	UniBa																																					
WP4	4.1	Outlining the theoretical and empirical framework to address economic issues of a	UniBa																																					
WP4	4.2	Analysis of the current business model.	UniBa																																					
WP4	4.3	Design of alternative agroecological business models and economic viability asses	UniBa																																					
WP4	4.4	Analysis of barriers and drivers for scaling up the agroecological business models	UniBa																																					
WP5	5.1	Transfer of digital knowledge and introduction of new technologies and organisat	CREA																																					
WP5	5.2	Strengthen cooperation between farmers.	CREA																																					
WP5	5.3	Gender equality through the analysis of transition ecological women good practic	CREA																																					
WP5	5.4	Women network.	CREA																																					
WP5	5.5	Analysis of Mediterranean landscape in the system model of ecological transition	CREA																																					
WP6	-	Dissemination of results	UNIBAS																																					

Figure 2. AgrEcoMed Gantt chart.

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3.4 List of deliverables and milestones

The AgrEcoMed shall produce 39 deliverables. The list of deliverables for the 36 months shown by WP is included in Table 5, ordered by work package. During the Project, the deliverables have to be finished and submitted to the EC according to the timetable specified in the Deliverable list. According to the Grant Agreement, the General assembly is responsible for the timely and effective submission of the project's Deliverables to the European Commission. The production timeline for deliverables before the set deadlines are planned in the following manner: - 3-4 weeks before the deadline: drafting, writing, and completing should be done by the partner responsible for the deliverable in coordination with the task and WP leader. Two weeks' due date submission deliverables shall be sent reviewer/coordinator for quality and compliance check. All deliverables have to be submitted electronically via the Participant Portal at the latest on the last day of the month in which they are due. Progress on deliverables is monitored directly by PRIMA through the MEL platform. Publication of the deliverable should be done via the AgrEcoMed website, once the deliverable has been approved by the EC. The deliverable numbering will follow the Deliverables list numbering included in DoA. The title of the document/deliverable must follow the titles included in the work programme. In case of any kind of delay, this should be reported to the Project Coordinator, so the necessary corrective actions are taken and the EC officer is kept informed. The task leaders (who are in charge of the generation of the deliverable) and the WP leaders are responsible for the technical quality of deliverables. In the case of Deliverables, the versions of the documents exchanged among partners before the final submission to the EC will be versioned according to the following format: AgrEcoMed_Deliverable no_title_v.XX [v0.1 = draft version, v1.0 = final version]. The final versions of the document to be submitted to the European Commission will be simply labeled as version "final".

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Table 5. List of deliverables, types, and deadlines.

Del	Title	LB	Responsible	Type	Dissemination level	Delivery month	Delivery date
D1.1	Executive project plan	UNIBAS	M. Perniola	Report	PU	6	23-11-2022
D1.2	Demonstration fields	UNIBAS	M. Perniola	DEM	PU	12	23-05-2023
D1.3	Database and reports	UNIBAS	M. Perniola	Report	PU	18	23-11-2023
D1.4	Scientific paper	UNIBAS	M. Perniola	Article	PU	24	23-05-2024
D1.5	Crop sheet	UNIBAS	M. Perniola	Brochure	PU	31	22-12-2024
D2.1	Identification of medicinal plants suitable for agroecological cultivation in rotation with cereals	CREA	M.A. D'Oronzio	Report	PU	30	22-11-2024
D2.2	Identification of crude extract derived from medicinal plants that could be used as compounds alternative or synergic to pesticides	UNIBAS	P. Falabella	Report	PU	30	22-11-2024
D2.3	Identification of new genotype suitable for cultivation with agroecological practices	UniBa	A. Gadaleta	Report	PU	30	22-11-2024
D2.4	Selection of the durum genotype pool to be used and evaluated under new cropping system	CBS	I. Yacoubi	Report	PU	30	22-11-2024
D2.5	Identification of new genotype with high nutritional values	UniBa	A. Gadaleta	Report	PU	35	23-04-2025
D3.1	Best technique (burying or composting techniques) to valorise crop residues will be identified	ENAM	S. Ennahli/ M. Perniola	Report	PU	26	23-07-2024
D3.2	Best technique for use of artificial mycorrhization and biostimulant to enhance plant nutrition and physiological potential of the crops in the rotation scheme will be tested	ENAM-UNIBAS	S. Ennahli	Report	PU	26	23-07-2024
D3.3	Formulations of larval frass	UNIBAS	P. Falabella	Report	PU	12	23-05-2023
D3.4	Guideline for Precision farming and VRT application	UNIBAS	V. Candido	Report	PU	30	22-11-2024
D3.5	Life Cycle Inventory	UniBa	G. Russo	Report	PU	12	23-05-2023
D3.6	Life Cycle Inventory	UniBa	G. Russo	Report	PU	24	23-05-2024
D3.7	Report with the results of the environmental assessment	UniBa	G. Russo	Report	PU	30	22-11-2024
D4.1.1	Theoretical and methodological framework to analyse agroecological farming	UniBa	L. Roselli	Report	PU	12	23-05-2023
D4.2.1	Report on the baseline business model	UniBa	L. Roselli	Report	PU	18	23-11-2023
D4.3.1	Innovative Agroecological Business Model	UniBa	L. Roselli	Report	PU	30	22-11-2024
D4.3.2	Report on the economic viability assessment	UniBa	L. Roselli	Report	PU	35	22-04-2025
D4.4.1	Report of the barriers to agroecological transition	UniBa	L. Roselli	Report	PU	36	22-05-202
D4.4.2	Strategic Document on possible solutions to overcome the barriers to agroecological transition	UniBa	L. Roselli	Report	PU	36	22-05-2025
D5.1	Contact datasets	CREA	M.A. D'Oronzio	Report	CO	6	23-11-2022
D5.2	Educational digital lab (online)	CREA	M.A. D'Oronzio	DEM	CO	24	23-05-2024
D5.3	Interview	CREA	M.A. D'Oronzio	Report	CO	3	23-07-2022

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D5.4	Protocols of methodologies for training	CREA	M.A. D'Oronzio	Report	CO	8	23-09-2023
D5.5	Protocols of methodologies to be applied to network	CREA	M.A. D'Oronzio	Report	CO	8	23-09-2023
D5.6	2 workshops	CREA	M.A. D'Oronzio	Report	CO	8	23-11-2023
D5.7	Good practices collection	CREA	M.A. D'Oronzio	Report	PU	30	23-11-2024
D5.8	Photographs	CREA	M.A. D'Oronzio	Report	PU	34	23-03-2025
D5.9	Photographs/cartographic process	CREA	M.A. D'Oronzio	Report	PU	30	23-11-2024
D5.10	Report agroecological Mediterranean landscape	CREA	M.A. D'Oronzio	Report	PU	30	23-11-2024
D5.11	Documentary Video	CREA	M.A. D'Oronzio	Report	PU	34	23-03-2025
D5.12	Final Report Lab	CREA	M.A. D'Oronzio	Report	PU	30	23-11-2024
D5.13	Policy brief: agroecological approach	CREA	M.A. D'Oronzio	Report	PU	34	23-03-2025
D6.1	Project website	CREA	M.A. D'Oronzio	Website	PU	6	23-11-2022
D6.2	Contact databases AgrEcoMed's	UNIBAS	M. Perniola	Dataset	PU	6	23-11-2022
D6.3	AgrEcoMed TWITTER account for alerts on new findings	CREA	M.A. D'Oronzio	Website	PU	6	23-11-2022
D6.4	Peer-reviewed Journals	UNIBAS	M. Perniola	Report	PU	24	23-05-2024
D6.5	Reports	UNIBAS	M. Perniola	Report	PU	36	22-05-2025
D6.6	Demonstration fields	UNIBAS	M. Perniola	DEM	PU	12	23-05-2023

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Milestones are project checkpoints representing the end of a project phase, helping the evaluation and monitoring of project progress. 18 milestones (Table 6) have been identified within the AgrEcoMed project to be accomplished during the 36-month implementation. For each milestone, a list of reference deliverables has been identified as means of verification. WP Leaders are responsible for the timely achievement of the milestones. The Scientific Coordinator and the Management Team will monitor their progress throughout the Project.

Table 6. List of milestones.

Milestone No.	Milestone name	Related WPs	Due month	Due date	Means of verification	Responsible
M 1.1	Delivery of the executive project withthe specific and detailed action of each partner.	WP1 task 1	6	2022-11-23	Report with the executiveplan	Michele Perniola
M 1.2	The control point of the results of the field activity at the end ofeach cropping cycle.	WP1 task 2	15-24-30	2023-08-23 2024-05-23 2024-11-23	Report with the correspondence of the data obtained by the field activity with the needs of data for all the WP in the project.	Michele Perniola
M2.1	Availability of the extract derived frommedicinal plants for in vivo test on G.mellonella	WP2 Task 2	24	2024-05-23	In vivo test on *G. mellonella* Larvae to evaluate larval developmental time, larval stages growth, larval size and mortality, adult fertility and fecundity, and larval and adult mortality.	Patrizia Falabella
M2.3	Results of medicinal plants dataset	WP2 Task 1	30	2024-11-23	Collection and verification of databases	Vincenzo Candido
M3.1	Availability of residuals for evaluation on the bioconversion efficiency on 3 different substrates	WP3 Task 2	30	2024-11-23	Evaluation of development time and the weight of finallarval biomass and frass compared to the weight of the original substrate.	Giovanni Russo
M3.2	Availability of field data for inventory analysis of the production process ofbiostimulants and mycorrhizae	WP3 Task 4	From 12° month	2024-05-23	Database (Ecospold)	Giovanni Russo
M3.3	Availability of field data for inventory analysis of the fertilizer production process obtained from agricultural waste and the bioconversion process with *Hermetia illucens* (L.)	WP3 Task 4	20	2024-01-23	Database (Ecospold)	Giovanni Russo
M3.5	Availability of field data for Complete Inventory analysis for CA and AA crops,	WP3 Task 4	24	2024-05-23	Database (GaBi)	Giovanni Russo

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M3.6	Availability of field data for complete environmental analysis for CA and AA crops, uncertainty assessment and scenario analysis	WP3 Task 4	36	2025-05-22	Report	Giovanni Russo
M4.1	Search and selection of the relevant literature	WP4 Task 1	6	2022-11-22	Database	Luigi Roselli
M4.2	Availability of research design for identifying the baseline business model	WP4 Task 2	10	2023-03-23	Experimental design of data and field survey on current business models	Luigi Roselli
M4.3	Availability of research design for developing innovative business models	WP4 Task 3	18	2024-05-23	Experimental design of data survey of innovative business models	Luigi Roselli
M4.4	Availability of documents and case-studies analysis for identifying acknowledged barriers and drivers of agro ecological transition	WP4 Task 4	30	2024-11-23	Overview of acknowledged barriers and drivers	Julio Berbel
M 5.2	Acquisition of historical Mediterranean data	WP5. 5	20	2024-01-23	Data	Maria Assunta D'Oronzio
M 5.3	Availability of field data for Methodology of agro ecological practices selection	WP5. 1	10	2023-03-23	Field survey	Maria Assunta D'Oronzio

4. Communication and dissemination strategy

4.1 Internal communication and coordination

Day-to-day communication will be based on emails. To easily identify the emails related to the project, partners will add the acronym "AgrEcoMed" first in the subject of any email associated with the project and WP number (if applicable) followed by a more specific description of the subject, deadline for feedback or reply, see example: "AgrEcoMed: WPx subject";

If the email requires an action by the recipients, the subject line can also include the phrase 'Action needed. It is required to copy the Coordinator (michele.perniola@unibas.it) and most important e-mail communications. Telephone/web calls are the cases where only a subset of the consortium partners needs to be reached or where sensitive or critical information needs to be communicated. To ensure proper and direct communication among the consortium members, an internal mailing list is created. Such a list will be used to exchange information, and ideas and to ensure cooperation between the consortium members on a WP level.

Any communication of the partners with the EC shall pass through the Project Coordinator. This means that the partners shall not directly contact the European Commission officers for questions regarding the AgrEcoMed project.

Core documents, information, and data managed by AgrEcoMed will be available at all times for all partners of the consortium in the project's Google Drive repository (Figure 3) where all partners are granted full access to access and exchange documents (project reports and deliverable reports, datasets),

event calendars, and relevant management information (e.g., list of contacts, minutes of meetings, etc.). Every member of the consortium has access to the repository.

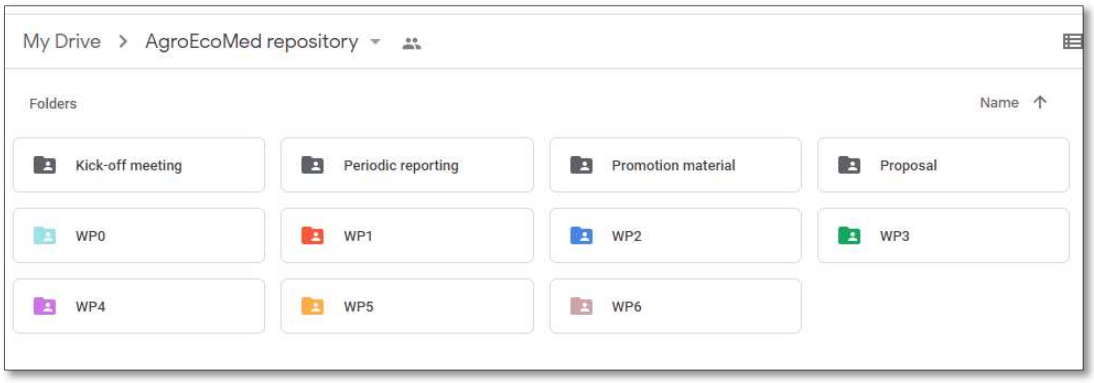

Figure 3. Screenshot of the AgrEcoMed repository in Google Drive.

As part of WP6, AgrEcoMed created a database of contacts (farms, NGOs, public administrations, and more) which will be used to involve them in different activities of the project. News and updates on the project will be distributed via newsletters to ensure that all stakeholders are regularly informed about the latest project developments.

4.2 Templates

Templates for different documents (presentations, deliverables, milestones, etc.) will be produced and provided at the AgrEcoMed repository. It is compulsory to use those templates available for all the documentation generated within the project. The templates could suffer modifications during the project duration so it is recommended to download the templates each time a newer version is going is generated.

4.2.1 Meetings

A series of meetings (Table 7) will be conducted in the framework of AgrEcoMed. The project meeting will be in the form of both face-to-face and remote meetings. The kick-off meeting was already held 10th of June 2022 in Bari Italy. The Coordinator shall convene meetings of the GA twice a year (every six months). Therefore, the GA Assembly of AgrEcoMED will meet at least six times which will be web-based by teleconference or other telecommunication means. The Coordinator shall prepare and send each Party a written (original) agenda. Telcos will be periodically scheduled on a WP level which the participating consortium members will attend. Meetings should be convened with at least fifteen (15) calendar days prior notice for an ordinary meeting, while at least seven (7) calendar days prior notice for an extraordinary meeting and be accompanied by an agenda proposed by the chairperson. An email with an electronic version of the minutes will be circulated after each meeting and after final reviews and comments will be available in the repository. WP progress teleconference meetings will involve at least

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two partners of the project and should include the WP leader, and occasionally the STC. They will be held every two months to monitor and verify the work progress of the respective WPs coordination teleconference meeting: which will involve WP leaders and the Project coordinator. The following meetings are planned.

Table 7. List of meetings and their frequency.

Body	Frequency	Purpose	Means of communication
Kick-off	Once, 10th of June 2022 in Bari, Italy	Create a shared understanding of the project background, and establish common goals and the purpose of the project.	In presence
General Assembly	Every 6 month	Discuss the overall work progress of the project and changes to Annexes I and II. Discuss results, IPR, and exploitation.	Face-to-face (combined with annual consortium meeting).* Extraordinary meetings can be convened at any time, following a written request by (or via) the EB.
Advisory Board	Every 12 months: M12, M24, M36; The next meeting will be in Valencia in April-May 2023.	Discuss technical progress and outlook.	Face-to-face.
WP teams (WPLs and other key investigators participating in the WP)	At any time when requested by the WP leader	Discuss work progress and technical questions of task leaders.	Face-to-face or teleconference. Ad hoc teleconference when needed.
Final meeting	M36	Disseminate project findings.	International Conference

4.2.2 External communication

The communication strategy of the project comprises a set of activities that will communicate the activities and results of the project to relevant target audiences and attract interest in the project. It will use a set of common communication channels such as person-to-person (workshops, presentations, etc.), written/printed channels (newsletters, posters, etc.), technology-based online channels (Internet, social media, etc.), and traditional media.

4.2.3 Project Website

The project website will be the public window of the project and the main tool for disseminating and communicating the project objectives, activities, results, partners, news, and events. The AgrEcoMed project website is online at https://agrecomed.crea.gov.it/. It provides the project partners, stakeholders, researchers, and others interested in the project with updates and news about the project. The main sections and their subsections that are available to each user are listed here:

- Home
- About: Project – Consortium – Partner Project
- The project
- Project Outputs: Deliverables – Public Materials – Videos – Newsletters – Events – Contacts

The website will be continuously updated throughout the project as news and further work become available.

4.2.4 Social media

Dissemination of the AgrEcoMed activities and results is also carried out using social media. As part of WP6, AgrEcoMed developed a Twitter account (https://twitter.com/agrecomed) to disseminate quickly new findings, links to press releases, reporting from field surveys or relevant conferences, and more.

4.2.5 Promotion material

Promotional material is a key element to disseminate information about the project to inform the public when organizing or participating in events. To this end, posters and leaflets will be distributed at the events where the AgrEcoMed project will be present.

For communication activities, the following acknowledgment is recommended:

- *"This project (grant Number PRIMA21_00018), is part of the PRIMA programme, supported by the European Union.*

The suggested Acknowledgements in publications:

- *"This paper is supported by the PRIMA programme under grant agreement PRIMA21_00018, project AgrEcoMed "New AGRoecological approach for soil fertility and biodiversity restoration to improve ECOnomic and social resilience of MEDiterranean farming systems. The PRIMA programme is supported by the European Union.*

To raise awareness for our project, partners should always use the AgrEcoMed logo in all documentation and external communication. The project logo is uploaded to the project repository under the section logos and is depicted in Table 8. You are requested to indicate at all times that the project is part of the PRIMA programme and has received funding from the EU, using the following logos.

Table 8. Logos to be used for communication activities.

Entity	Logos
The AgrEcoMed project logo	AgrEcoMed FOSTERING AGROECOLOGICAL TRANSITION AgrEcoMed FOSTERING AGROECOLOGICAL TRANSITION
EU Logo	The PRIMA programme is supported under Horizon 2020 the European Union's Framework Programme for Research and Innovation.
PRIMA logo	PRIMA PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA PRIMA

4.2.6 Scientific publications and press releases

The results of the project will be communicated to all through publication (Table 9) at renowned conferences and in peer-reviewed Journals by the research partners of the project. To allow expanding access and use of the results of the project to a wider audience partners of the project will be encouraged to publish their data and results following the 'gold' open access principles. AgrEcoMed will join Open Research Europe and F1000Research publishing platforms for fast publication and open peer review. All publications will be available in the download area on the AgrEcoMed website. Data generated will be archived in Zenodo, which is an open and public research data repository funded by the European Commission. Besides, consortium partners might use open institution-based repositories.

Table 9. Information to be reported for scientific publications.

Type of information	Text
Type of scientific publication	Text here
Title	Text here
DOI	Text here
Repository Link	Text here
Link to the publication	Text here
Authors	Text here
Title of the journal	Text here
ISSN or equivalent Number	Text here
Year of publication	Text here

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4.2.7 AgrEcoMed Events

The final meeting of AgrEcoMed will be organized as an international conference to communicate broadly and publically about the outcomes of the projects to stakeholders and more generally to the research community. AgrEcoMed will organize two workshops/focus groups open to the wider community to discuss, document, and learn about agroecology and policy and stimulate the awareness and goodwill of policy and decision-makers. Additionally, throughout AgrEcoMed's duration press and media relations, campaigns will be implemented to raise public awareness.

5. Project monitoring and reporting

5.1 Reporting

Monitoring the project implementation is a continuous task that takes place at any moment during the active period and beyond. Each Party undertakes to take part in the efficient implementation of the Project and to cooperate, perform and fulfill, promptly and on time, all of its obligations under this Consortium Agreement as may be reasonably required from it and in a manner of good faith as prescribed by law. The AgrEcoMed Consortium will provide the Agency with all necessary information upon request, including technical progress, results, deliverables, and compliance with the WP schedule, as well as the monitoring and updating of the identified risks. The project reporting obligations with the Commission are the following:

- 39 Deliverables and 18 milestones - The complete list of deliverables and milestones to be submitted to the Commission is available in section 3.4.
- Six (6) periodic reports are expected to be prepared during the project: at M6, M12, M18, M24, M30, and M36. Interim reports will be used to collect information about the status of the project and the progress achieved by every single partner in the tasks/WPs of their responsibility, as well as the progress of the project as a whole. The periodic report must be submitted by the coordinator within 60 days following the end of each reporting period. It contains periodic technical and financial reports.
- The final financial and narrative report is to be submitted after the project completion, no later than 60 days from the date of the end of the project. Each Party of this Consortium Agreement is responsible for its budget and answers to its respective National Funding Authority. The Coordinator will not be responsible for the financial management of Prima research funding, which will be handled directly between each Party and its National funding body in each participating country.

Both Periodic Reports and Final Reports are formed into Technical and Financial parts. The reports will be generated by the Management Team and the Coordinating PI using as input the internal periodic reports and will be shared with the Consortium for review and approval.

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5.1.1 Technical reporting

The periodic technical report consists of two parts: Part A and Part B (Table 10). Part A includes structured tables from the grant management system including a cover page, summary for publication, web-based tables covering issues related to the project implementation (e.g. work packages, deliverables, milestones, etc.), and answers to the questionnaire about the economic and social impact, especially as measured against the Horizon 2020 key performance indicators and monitoring requirements. Part A is generated by the IT system. It is based on the information entered by the participants through the periodic report and continuous reporting modules of the electronic exchange system in the Participant Portal. The periodic templates including the full description are found at the following link https://ec.europa.eu/research/participants/data/ref/h2020/gm/reporting/h2020-tmpl-periodic-rep_en.pdf. Part B of the periodic technical report is the narrative part that includes explanations of the work carried out by the beneficiaries during the reporting period and an overview of the progress towards the project objectives, justifying the differences between works expected and work performed if any.

Table 10. Structure of the Periodic Report.

Part	Details
PART A	Cover page
	Summary for publication • Summary of the context and overall objectives of the project • Work performed from the beginning of the project to the end of the period covered by the report and the main results achieved so far • Progress beyond the state-of-the-art expected results until the end of the project and potential impacts (including the socio-economic impact and the wider societal implications of the project so far)
	Deliverables Milestones Ethical Issues (if applicable) Critical implementation risks and mitigation measures Dissemination and exploitation of results • Scientific publications • Dissemination and communication activities Intellectual property rights resulting from the project Innovation
Part B	1. Explanation of the work carried out by the beneficiaries and Overview of the progress • Objectives, work carried per WP (*Work Package 1, Work package 2,* Etc.), Impact 2. Update the plan for exploitation and dissemination of results; 3. Update the data management plan; 4. Follow-up of recommendations and comments from previous review(s); 5. Deviations from the original proposal • Tasks, use of resources (subcontracting, unforeseen use of in-kind contributions, etc.)

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5.1.2 Financial reporting

The 'periodic financial report consists of:

- An individual financial statement (EU GA: Annex 4) for each partner, for the reporting period concerned. This financial statement must detail the eligible costs for each budget category. Each partner and linked third parties must declare all eligible costs, even if costs exceed the amounts indicated in the estimated budget.
- An explanation of the use of resources and information on subcontracting and in-kind contributions provided by third parties from each partner for the reporting period concerned; o A 'periodic summary financial statement' will be created automatically by the electronic exchange system, consolidating the individual financial statements of the partners, including the request for an interim payment.

5.1.3 MEL reporting system

Monitoring, Evaluation, and Learning Tool (MEL) structure designed for PRIMA projects. MEL is an online platform for planning, management, monitoring, and reporting of projects, including various elements such as work packages, deliverables, and milestones. The notification system of MEL is designed to facilitate the submission of reports, deliverables, and milestones and ensure that they are delivered on time through sending e-mail notifications. The emails will be sent to Project Coordinators and the POs through the noreply@prima-med.org email. If the email is being sent to the Project Coordinator, the alias email of the PO will be copied to CC. The emails will be personalized by including the name of the addressed person. This reminder email is for Project Coordinators, it will tell them which deliverable is due in the next 15 days. A similar notification will be sent to the PO of the project 5 days before the submission of the deliverable/milestone. This reminder email is for Project Coordinators, it will tell them that the periodic reporting submission is in the next 30 days.

5.1.4 Final report

The final report is automatically generated by the IT tool and is composed of a final technical and a final financial part:

A. **The final technical report is a publishable summary of the entire project**
   - overview of the results and their exploitation and dissemination
   - conclusions on the project
   - its socioeconomic impact on the project
   - an up-to-date link to the project website
   - project logos, diagrams, photographs, and videos illustrating its work (if available).

B. Final financial report

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- the final summary financial statement that is automatically created by the system (consolidating the data from all individual financial statements for all beneficiaries and linked third parties, for all reporting periods) and that constitutes the request for payment of the balance
- in some cases (and for some beneficiaries/linked third parties) it must be accompanied by a certificate on the financial statements – CFS (one certificate per beneficiary/linked third party).

6. Amendments and potential issues

The main aim of the beneficiaries is to carry out the planned tasks and activities within the time scheduled and the foreseen resources as described in the Grant Agreement. Any deviation (e.g. delays, change in the status of a beneficiary, etc.) must be communicated immediately to the PC. The PC shall resolve queries and advice the beneficiaries. If further action is needed, the PC will contact the PO to request clarifications and procedures to be followed. The PC is in regular contact with the Project Officer to report the project progress on the scheduled activities transparently and practically so the PO can continuously monitor the performance of the project by the Description of Action. Such contact may occur by email, phone calls, or physical meetings. Each partner, district leader, and WP leader will report project progress to the Technical Coordinator on a six-monthly basis. This will cover technical progress, results, deliverables, and compliance with the WP schedule, as well as the monitoring and updating of the identified risks. Periodic contractual technical reviews will be performed by the EC to assess the work carried out in the project. Initially, one project review per reporting period is expected. The technical coordinator will be supported by the management in all the processes and the revision of legal and administrative aspects. This progress report will be validated by the Executive Board and by General Assembly before being sent to the European Commission.

The partners have agreed within the Consortium Agreement (Section 11.8) to attempt to solve amicably their conflicts, either on technical, financial, or procedural issues. Both the Scientific Coordinator and Management Team should immediately be informed about conflicts and should help in the conflict resolution as necessary and as long as the such dispute does not involve the Coordinator. If possible, disputes should be dealt with at the lowest decision-making body level. In the event of a disagreement, as regards the interpretation or performance of the Consortium Agreement, the Parties shall endeavor to settle their dispute through the GA. Should the disagreement persist, the matter shall be referred to the European Courts having jurisdiction.

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