This project is part of the PRIMA programme supported by the European Union

PRIMA-SECTION 2-2022

"Modelling and Technological Tools to Prevent Surface and Ground-Water Bodies from Agricultural Non-Point Source Pollution Under Mediterranean Conditions"

NPP-SOL

Kick off and I Steering Committee meeting minute

Deliverable number: D6.1

Non-Point Pollution SOLutions (NPP-SOL)

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Deliverable 6.1: Kick-Off and Steering Committee Minute

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Non-Point Pollution SOLutions (NPP-SOL) D6.1: Kick-Off and Steering Committee Minute

Date: from 6 to 8 November 2023

Place: The “Cittadella Universitaria” of the University of Cagliari in Monserrato, Cagliari, Italy

Coordinators: Prof. Antonio Coppola (UNIBAS) and Prof. Stefania Da Pelo (UNICA)

Project Management Board: Prof. Antonio Coppola (UNIBAS), Prof. Stefania Da Pelo (UNICA), Dr Irene Marras (UNICA) and Dr Shawkat B.M. Hassan (UNIBAS)

In attendance

Name	Organisation
Antonio Coppola*	University of Basilicata (UNIBAS)
Shawkat B.M. Hassan	University of Basilicata (UNIBAS)
Antonio Funedda	University of Cagliari (UNICA)
Simona Scalas	University of Cagliari (UNICA)
Stefania Da Pelo	University of Cagliari (UNICA)
Andrea Vacca	University of Cagliari (UNICA)
Francesca Podda	University of Cagliari (UNICA)
Riccardo Biddau	University of Cagliari (UNICA)
Irene Marras	University of Cagliari (UNICA)
Mostafa S.M. Abdelmaqsoud	University of Cagliari (UNICA)
Georgios Kleftodimos	Mediterranean Agronomic Institute of Montpellier (CIHEAM IAM)
Aybike Bayraktar	Mediterranean Agronomic Institute of Montpellier (CIHEAM IAM)
Hanaa El Yadari	Mediterranean Agronomic Institute of Montpellier (CIHEAM IAM)
Albert Soler Gil	University of Barcelona (UB)
Manuela Barbieri	University of Barcelona (UB)
Rosanna Margalef Marti	University of Barcelona (UB)
Abdelmjid Zouahri	Moroccan National Institute of Agricultural Research (INRA)
Souad El Hajjaji	Mohammed V University of Rabat (UM5)
Roy Posmanik (remotely)	Agricultural Research Organization – Volcani Institute (ARO)
Roey Egozi (remotely)	Ministry of Agriculture and Rural Development (MOAG)
Angelo Basile	Italian Nation Research Council (CNR)
Marialaura Bancheri	Italian Nation Research Council (CNR)
Paolo Botti	Hydrographic District Authority of Sardinia (ADIS)
Mario Lorrai	Hydrographic District Authority of Sardinia (ADIS)
Maurizio Testa	Sardinia's Regional Agency for Environmental Protection (ARPAS)
Gianluca Zuddas	Oristano Land Reclamation and Irrigation Consortium (CBO)
Maurizio Scanu	Oristano Land Reclamation and Irrigation Consortium (CBO)

Serafino Meloni	Oristano Land Reclamation and Irrigation Consortium (CBO)
Sebastiano Curreli	Arborea's Farmers Association (3A)
Nadia Maio	Independent Advisor
Alessandra Morandi	Independent Advisor
Alessandra Scardigno (Remotely)	Mediterranean Agronomic Institute of Bari (CIHEAM Bari)
Chiara Ciannamea	Mediterranean Agronomic Institute of Bari (CIHEAM Bari)
Laura Scivetti	Mediterranean Agronomic Institute of Bari (CIHEAM Bari)
Marco Orlando (Remotely)	PRIMA Foundation

Agenda

Day 1: 6 November 2023 – Welcome and Introduction

After registration and presentation of the agenda, the project coordinator, Prof. Antonio Coppola, introduced and gave the floor to Dr Simona Scalas. Dr Simona Scalas welcomed all the participants to the kick-off on behalf of the University of Cagliari's Rector. Dr Scalas is the responsible of the EU/USA project support sector of the University of Cagliari. She thus gave some details on the ongoing research projects and collaborations involving the University of Cagliari within the UE/USA projects framework.

Then, Prof. Antonio Funedda, the head of the Department of Chemical and Geological Sciences at the University of Cagliari (DCGS), also gave an opening word to welcome the participants.

Prof. Coppola gave a short presentation to introduce the NPP-SOL project, including its objectives, activities, proposed technologies and study areas.

Presentation of the Work Packages (WPs) and Case Studies (CSs)

Dr Georgios Kleftodimos, from CIHEAM IAM Institute in Montpellier, presented the Work Package 1 (WP1) of the project: *Co-creation, scaling up and scaling out*. Dr Kleftodimos focused on creating the stakeholders and researchers' hub (SHR-HUB), which will be seated in CIHEAM IAM, and that will consist of four sub-units called the living hubs for the four case studies. SHR-HUB will help the continuous interactions among different stakeholders and partners and co-design each of the Site-Specific Best Management Practices (SSBMP).

Dr Roy Posmanik from Volcani Institute (ARO) and Dr Roey Egozi, from the Israeli Ministry of Agriculture and Rural Development (MOAG), presented the Work Package 2 (WP2): Technology development, as well as the Israeli case study in the "Model Farm for Sustainable Agriculture" at Newe Ya'ar Research Center (The northern campus of Volcani Institute). They gave details about the experimental field and the technologies (anaerobic digester and bioreactor) to be developed in the model farm within the NPP-SOL project for attenuating the groundwater and surface water bodies pollution from diffuse nitrate agricultural sources.

Prof. Albert Soler, from the University of Barcelona (UB) - MAiMA research Group, presented MAiMA group's expertise in assessing water pollution, monitoring remediation strategies using isotopic tools, as well as evaluating treatment efficiency. Dr Manuela Barbieri, then, presented the Work Package 3 (WP3) of NPP-SOL project: Experimental tests and the data collection in the study areas. Dr Barbieri spoke in detail on the WP3 deadlines, tasks and deliverables, and their connection to the four case studies. She also proposed an internal organisation for the WP3 partners (e.g., proposal of bi-monthly virtual meetings among partners involved, reminder on reporting from Task Leaders to WP Leader each 3 months, etc.). Then, Dr Rosanna Margalef presented the Spanish case study in Lerma Basin, involving the development of Constructed Wetland for stimulating and accelerating the denitrification processes of the drainage and runoff water coming from agricultural fields. Dr Margalef also gave details on the isotopic method to be used within the NPP-SOL activities for identifying the main agricultural pollution sources in the different case studies.

Dr Abdelmjid Zouahri, presented the Moroccan team involving National Institute of Agricultural Research (INRA) and Mohammed V University of Rabat (UM5) represented by Prof Souad El Hajjaji. Then, he presented the Gharb Region where the project will be implemented. Dr Zouahri explained the geographic, climatic, soil and hydrogeologic characterisation of the area. He also illustrated the agricultural activities and the subsequent groundwater pollution by nitrate in the study area. He then explained the use of bioreactor that will be carried out to reduce water nitrate contamination in the region.

Dr Shawkat B.M. Hassan, from the University of Basilicata (UNIBAS) presented the first part of Work Package 4 (WP4): *Modelling for technologies optimization and Modelling for best practices development*, followed by a Dr Kleftodimos, who presented the second part of Work Package 4: *Bioeconomic modelling*. From the presentations, it was clarified how the two models should be combined for building the Modelling Tools to be used within the NPP-SOL project, with the aim of identifying Site-Specific Best Management Practices (SSBMP) and some design parameters of the technologies to be developed. In particular, Dr Hassan illustrated the agrohydrological model FLOWS, with more details about the model modules mostly matching the project objectives (e.g., pollutant attenuation and interception). Similarly, Dr Kleftodimos provided information on how to use the bioeconomic model, which integrates household farm models into field and regional scale models, for the NPP-SOL aim.

Prof. Stefania Da Pelo, from the DSCG of the University of Cagliari, presented the Italian case study in Arborea. She illustrated the main groundwater monitoring network already existing in the area, as well as details on the main agricultural pollution sources. Thus, she showed how bioreactors could be useful to attenuate the nitrate pollution problems in the area.

Day 2: 7 November 2023 – Italian Stakeholders

On the second day, Italian Stakeholders gave presentations on the Italian case study.

Dr Paolo Botti and Dr Mario Lorrai, from the Hydrographic District Authority of Sardinia (ADIS), illustrated the main issues related to water resources management in Sardinia, with a special focus on the water availability and water quality in the Arborea Plain, the Italian study area within the NPP-SOL project. Dr Botti and Dr Lorrai spoke on the water governance in Sardinia in accordance with the European Union's Water Framework Directive (WFD). They illustrated the high seasonal and spatial variability in precipitation and runoff in Sardinia. They included in their presentation the administrative and organisational structure of the water resources authority. Finally, they addressed the Nitrogen-Vulnerable Zone (NVZ) in Arborea and the groundwater monitoring network there, as well as the data that will be used to plan and design the bioreactors.

Dr Maurizio Testa, from the Regional Agency for Environmental Protection of Sardinia (ARPAS), gave a presentation on the water quality monitoring network in the Arborea Plain, with a focus on the groundwater monitoring network and potential groundwater nitrate contamination sources in the area. Dr Testa emphasised the variability in nitrate concentrations and different temporal evolution trends in these concentrations between shallow and groundwater aquifers resulting from different sources of drainage water.

Dr Gian Luca Zuddas, from Oristano Land Reclamation and Irrigation Consortium (CBO) presented details on the planning and the design of the drainage systema and bioreactors to be implemented to treat drainage water in the Arborea Plain. Dr Zuddas introduced bioreactors (BR) purposes, design aspects and necessary guidelines for BR design. He then focused on the woodchip BR design, including the subsurface drainage networks, the BR bed, the outlet structure and the monitoring network. In his presentation, Dr Zuddas spoke on the planning of BR construction by showing the pilot farms where the landowners are ready to collaborate with the CBO in the project.

Dr Sebastiano Curreli, from Arborea's Farmers Association (3A), gave a presentation on regeneration of resources in the agro-livestock supply chain with a view to the circular economy. He addressed the 3A's plan for managing and monitoring of Arborea's agro-zootechnical sector. He also spoke on the environmental certifications obtained by Arborea milk supply chain. Finally, he showed the environmental action plan of building an anaerobic biodigester to treat and reuse 130,000 m^3/year of sewage corresponding to approximately 6,500 adult cattle representing 40% of the nitrogen surpluses generated by the sector. The project aims at Produce 250 m^3/h of biomethane which will be reused via electrical and thermal vectors directly in the milk processing plant to reduce energy costs, and produce 16,000 tons/year of organic fertilizer with a high nitrogen content to be sold to third parties so as to relocate the nitrogen surpluses present in the Arborea area. Eventually, Dr Curreli recommended that to overcome the challenges related to animal welfare and environmental sustainability in the supply change, we need a mix of technical, socio-economic and technical-administrative measures, which take into account the ethical aspects.

Two parallel sessions to discuss the creation of Local Stakeholders and Researchers Hubs were held respectively with the Italian partners and stakeholders animated by Dr Maio and Dr Morandi and another in hybrid form with the other partners animated by Dr Bayraktar. In the parallel sessions, it was presented

to the partners and stakeholders, what the concept of the "Hub" means in the framework of the NPP-SOL project and why it was considered important to include hubs in this project.

The implementation of local hubs in each territory should reduce the gap between the research and the field implementation. The aim is to build communities of practice where partners and key stakeholders work together to identify problems, co-create solutions, and test and evaluate them in real-life settings. By creating value within a multistakeholder process, local hubs should help overcome implementation constraints to focus on the common good. The ambition is to go beyond the implementation of activities in terms of inputs and outputs and make the experience of the NPP-SOL project leverage to trigger real change, empowering the partners and local hubs participants. A road map for the next steps has been presented and is being set up.

Day 3: 8 November 2023 – Steering Committee

Prof. Antonio Coppola went through the Work Packages of the project and their related tasks. During this discussion, several points were raised. The following table summarises the main comments and remarks on the project tasks and deliverables necessary for planning the future activities within NPP-SOL project.

WP	Task	Notes
1	1.1	The task is mainly about the creation of the SHR-HUB. SHR-HUB will be seated in CIHEAM IAM and the documentation for its creation is the deliverable D1.1.
	1.2	The task is mainly concerned with providing principles for conceptual and operational interlinkage between different modelling approaches.
	1.3	For scaling up and scaling out, the partners pointed out that we have to interact with other projects. We can also interact with other consortia not directly involved in NPP-SOL, i.e., find overlaps with other projects and create a seed for new projects.
2	2.1	This task is related to designing the bioreactors (BR) in the Italian, Moroccan and Israeli case studies. The participants agreed to keep communication among partners for co-design. The Italian partners agreed to study whether to improve the existing BR in the Italian case study or build a new one. They will start building and installing drainage systems and BR in Arborea in the spring 2024. The Moroccan partners defined the location of the station. They will suggest a system within one month since they have the drainage system in place. The Moroccan local stakeholders' hub will include the head of the experimental station to help design the BR. The Israeli partners are in the middle of constructing the BR. They are planning to complete it this month to catch the winter season. They may change the design learning from the kick-off presentations. The Israeli, Italian and Moroccan partners eventually agreed to organise a remote meeting to discuss the design and materials for the bioreactor, especially for Italy and Morocco. The date of the meeting will be decided the date of the meeting with an open doodle (in progress).

	2.2	The task is related to reconditioning and setting up the constructed wetland (CW) in the Spanish case study. The UB team agreed to keep reciprocal exchange of knowledge with partners and stakeholders. The wetland already exists. The possibility of extending the anoxic treatment capacity will be evaluated and – if the case – implemented within the next months. Laboratory experiments will be carried out to test and select the most suitable local cost-effective electron for biostimulation.
	2.3	This task is mainly related to the design of the anaerobic digester (AD) in the Israeli case study. The AD aims at recycling organic waste for compost, biogas and anaerobic digestate production.
3	3.1 3.2 3.3 3.4	WP3 is concerned with the experimental tests and data collection (i.e., monitoring) in all Case Studies (Italy, Spain, Morocco and Israel). Prof. Da Pelo proposed to install the BR in the pilot site in Arborea (for the Italian Case Study) where the monitoring systems are already installed and where information on isotopes analyses are collected. As for the Moroccan and the Israeli teams, they already have available measurements. Dr Zouahri pointed out that the INRA has data at a macro scale. Prof. Coppola pointed out that we need to know if any partner has to carry out more analyses or collect more data. Eventually, all partners suggested a road map for the sequence of this process. According to other colleagues' requests, Prof. Soler Gil said that the UB team, after remote meetings with partners from CSs (each CS has its own specific characteristics), will create and share a protocol for data collection and minimum database, that could be then updated and modified during the progress of the project. Prof. Da Pelo (UNICA) offered, later, to prepare and send to UB a first draft of the protocol.
4	4.1	The task aims at integrating FLOWS and DAHBSIM models for field-scale simulations. The WP leaders, Prof. Coppola and Dr Kleftodimos agreed that the water and solute transport simulations will be mainly focused on the unsaturated zone, which can be combined with another model for the saturated zone. Prof. Coppola pointed out that the software of FLOWS model was already in progress and its handbook was being finalised (D4.1).
	4.2	This task aims at using MT to support the development of the SSBMP. The partners agreed that the datasets proposed in the project proposal (i.e., climatic data, soil data, groundwater data (mostly, depth to water table, contaminant concentrations in the groundwater), vegetation data, and management data (applied irrigation volumes, applied fertilizer, mostly nitrogen, and pesticide quantities and forms) are the minimum database required; after the remote meetings, the database requirements will be clearer. Dr Kleftodimos pointed out that the software of DAHBSIM model was already in progress and its handbook was being finalised (D4.2).
	4.3	This task aims at using the MT to support designing the Pollutant-Prevention Technologies (PPT). Prof. Coppola illustrated that the MT are thought to be applied in sequence to develop SSBMP first and thus to designing PPTs in a concatenated procedure where PPT are designed based on the SSBMP developed in the previous step.

	4.4	The goal of this task is the elaboration and structuration of household farming systems and agro-hydrological use database. CIHEAM IAM will construct specific farm surveys to characterise the irrigated farming systems diversity.
	4.5	The task aims at the development, parameterization and use of integrated DAHBSIM and FLOWS models for testing scenarios. Prof. Coppola focused on the importance of improving DAHBSIM model by integrating it into FLOWS, and then adapting DAHBSIM for the assessment of the socio-economic and environmental impacts of the co-designed SSBMP and PTT based-scenarios (task 1.2) on the sustainability of the various farm types of the case studies.
5	5.1 5.2 5.3 5.4	This WP is on the dissemination and communication within the NPP-SOL project. Dr Ciannamea from CIHEAM Bari spoke on it in details. She also referred to the link (https://prima-med.org/communication-and-dissemination/) in her presentation to learn more about the European Union's obligations in communication and dissemination. Dissemination should extend to stakeholders not included in NPP-SOL. A template will be designed for all elements of communications (e.g., a toolkit for designing all communication means like presentations and deliverables). As for task 5.1, the key message will be determined based on the data collected during the project. As for the media relations, each partner should help in communicating with local media. A newsletter was suggested to be issued twice a year.
6	6.1 6.2 6.3 6.4	This Work Package is related to the coordination and project management. UNIBAS manages activities, suggestions and responsibilities. The UNIBAS team emphasised on coordination among all the participants with discussions and involvement. Dr Bayraktar and Dr Maio can extend the data management plan in deliverable D6.2 to them to be included in the stakeholders and researchers' hub. Dr Barbieri suggested to establish an internal early deadline for the Deliverables before the official deadline for submission by the Coordinator to EU-PRIMA. It was discussed to set this early deadline at 2-3 weeks before the official one (to be defined). At this date, the Deliverable Leader will share the Deliverable's Draft with some internal reviewers, which will be in charge of interactions with each Deliverable's Leader and team until the final version. Dr Maio suggested assigning two reviewers for each deliverable, each belonging to a partner-entity different from the Deliverable Leader. According to Dr Maio suggestion, UB agreed to be in charge of preparing the draft list of reviewers for each Deliverable. Dr Posmanik asked if there is a digital platform to share any materials. Dr Ciannamea suggested building a digital platform for this purpose.

After this session, Dr. Chiara Ciannamea from CIHEAM Bari Institute presented in details the Communication and Dissemination strategy related to Work Package 5, along with a description of the activities to be implemented during the whole project. The presentation also provided a general framework outlining the main EU communication and visibility rules (https://prima-med.org/communication-and-dissemination/) to be taken into consideration in the planning and

implementation of the communication and dissemination activities. A brief description of the targets, strategic aspects and examples of internal and external communication flows were also provided. The crucial role of the partner's contribution, as well as the involvement of other projects and stakeholders not included in NPP-SOL, were highly stressed and underlined during the discussion. As a further step, a **COMMUNICATION ASSESSMENT TEMPLATE** will be designed and circulated among Partners, in order to gather all the necessary information to design and implement the first communication activities (e.g., communication toolkit, setting of the communication channels, outward strategy etc.). As for task 5.1, the key messages will be developed on the basis of the data collected during the project. As for the media relations and the building of the different communication products, each partner shall support the project by communicating with local media and by providing the necessary inputs, data and materials. These inputs will be very useful to develop the project's newsletter (to be issued twice a year), support the social media communication and feed the project's website.

The issues of the Grant Agreement and the Consortium Agreement have been discussed. The Consortium Agreement was signed by Prof. Antonio Coppola (UNIBAS), Prof. Stefania Da Pelo (UNICA), Prof. Albert Soler Gil (UB), Dr Hatem Belhouchette (CIHEAM IAM), Dr Roy Posmanik (ARO), Dr Roey Egozi (MOAG), Dr Abdelmjid Zouahri (INRA) and Prof. Souad El Hajjaji (UM5). The Grant Agreement (GA), concluded at the level of the country involved with the respective funding agency, is as follows:

- Italy: GA is currently being drafted
- France: GA was signed on 01.06.2023. Even if signed before the official start of the project, Dr Kleftodimos validated that they will be able to manage the funds until the official end of the project.
- Spain: the agreement between the Spanish National Funding Agency (MCIN/AEI) and UB has been signed on June 2023, with official starting day of the Project on 1/10/2023.
- Israel: GA was signed on Oct. 1st 2023. The official start of the 36 months project is Oct. 1st 2023.
- Morocco: GA was signed but still waiting for receiving the funds.

Dr Marco Orlando then gave a presentation on tips on reporting and communication with PRIMA Foundation. His presentation included notes on how to fill in and utilize the Monitoring, Evaluation and Learning (MEL) platform. One of the most important parts to fill in the MEL platform is the info & budget sheets. As for reporting on MEL platform, Dr Orlando focused on the mid-term (18-month) and final (36-month) technical and final reports as well as the deliverables. He also emphasized the acknowledgement of the project (NPP-SOL) and PRIMA in all forms of communications and publications and, if possible, include the EU and PRIMA logos.

Steering Committee (SC)

All participants agreed that the main partners of the project will be the project's steering committee:

Antonio Coppola	University of Basilicata (UNIBAS)
Stefania Da Pelo	University of Cagliari (UNICA)
Alber Soler Gil	Universitat de Barcelona (UB)
Hatem Belhouchette	Mediterranean Agronomic Institute of Montpellier (CIHEAM-IAM)
Roy Posmanik	Agricultural Research Organization – Volcani Institute (ARO)
Roey Egozi	Ministry of Agriculture and Rural Development (MOAG)
Abdelmjid Zouahri	National Institute of Agricultural Research (INRA)

Souad El Hajjaji	Mohammed V University of Rabat (UM5)

Stakeholders and Researchers Board (SHRB)

It replaces the Scientific Advisory Board (SAB) and it is composed by at least one Stakeholder Entity representative for each case study and at least one researcher for each project partner, excluding the project PIs. It will recommend on the users' needs, advise on formats for research outputs, and help brainstorm challenges that are identified during the project.

The Project Management Board (PMB)

The board was introduced as Prof. Antonio Coppola (UNIBAS), Shawkat B.M. Hassan (UNIBAS), Prof. Stefania Da Pelo (UNICA) and Irene Marras (UNICA).

Communication Manager

The communication manager will be a member from CIHEAM IAM. Also, the Work Package leaders should be well involved in reporting tasks and deliverables and stay in contact with all the partners.

The parties agreed the minute and the Project Coordinator, Chair of this Steering Committee, concluded the Steering Committee at the 13 PM.