CALL TEXT AND SUPPORTING INFORMATION

Call: Section 2 – Multi-topic 2019

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Thematic area: Management of Water

Topic 2.1.1 RIA Bridging the gap between potential and actual irrigation performance in the Mediterranean

Challenge

In a context of increased population and water demand, expectations of increased aridity and salinity due to climate change, and raising environmental standards, Mediterranean water balances and thus, water used for irrigation and the irrigation performance must be close to optimum. However, a wide gap extends between actual water balances and optimum irrigation performance in terms of surface water ecological flow or groundwater levels to be abstracted for irrigation, irrigation efficiency, irrigation economic efficiency, social inequalities water and soil pollution and energy for pumping. This gap concerns both individual farmers and their water users associations. Irrigation is by far the largest water consumer in the Mediterranean basin. Therefore, bridging the water balances optimal management and irrigation performance gap in all its dimensions will lead to progress in sustainable water use and water levels protection (water security and safety) in Mediterranean aquifers and rivers.

Scope

In the Mediterranean basin, water balances and water used for irrigation including irrigation performance is often lower than potential at the farm and at the water users association level. This gap is evident for average performance, but it is particularly important when the dispersion among farmers and their associations is considered. Attaining Sustainable Mediterranean irrigation requires to assess the real water balances in the area of irrigation, amount of water available for irrigation ensuring that water levels are environmentally safe for ecosystems and other needs. Furthermore, optimising irrigation performance requires to combine technological, managerial and governance innovations taking into account the availability, safety and quality of water resources, existing institutional arrangements, as well as crop agronomy planning.

Proposals need to identify representative case study areas; characterize the right water balances and availability (ensuring ecologically safe water levels), the magnitude and the dispersion of the gap in technical and economic irrigation efficiency, water and soil pollution and energy use; establish a dialogue with local stakeholders to identify the causes for low performance; develop a set of site-specific, technical, organizational and policy innovations targeting the detected bottlenecks; cooperate with local actors to pilot these innovations in the case study areas also through capacity building activities. The latter are particularly important to improve the long-term impact of the new management practices. For this purpose, proposals should develop and demonstrate suitable means to support the qualification of local professionals (e. g. water utilities, regulatory bodies, water users' associations, and individual farmers) to ensure the right knowledge to calculate water balances, assess water availability and amount available for irrigation and ensure knowledge for optimisation of irrigation performance techniques. Wherever needed and appropriate, proposals should take into account both academic and vocational training and education activities.

Proposals should also quantify plausible gap reductions at the farm, water users association and basin levels and contribute to the sustainability of Mediterranean aquifers and rivers in qualitative and quantitative terms.

Expected impact

Proposals should contribute to implement priorities set in the PRIMA SRIA and show the clear link of how expected impacts from the projects are going to implement the expected outputs indicated in PRIMA SRIA[1].

The project results must contribute to PRIMA Operational Objective 1/WATER SAVING SOLUTIONS.[2]

The project results are expected to contribute to:

- Develop right water balances and estimate right amount of water available for irrigation ensuring water safety and security (water quality and quantity)
- Decision support systems based on cost-effective devices and sensors for irrigation under water quality/quantity constraints
- Water treatment technology for specific irrigation requirements (e.g., precision irrigation);
- Improved performance indicators at the on-farm and collective irrigation levels
- Water use converging to irrigation water requirements for optimised irrigation efficiency
- Economic efficiency leading to high water balance protection, water productivity, similar or higher to that of alternative societal water uses
- Attaining stable, safe water levels and ecological flows and soil salinity levels, compatible with common local crops
- Limiting the nitrate load of irrigation return flows through improvements in fertilization, irrigation and ensuring right strict measures to fight eutrophication of water bodies
- Combine the protection of farmers' income with the environmental protection of Mediterranean water bodies thus contributing to the livelihoods of rural communities while preserving environment
- Enhanced skills and capacities of local professionals in support of employability and economic empowerment, understanding water balances and real availability of water, ensuring integrated planning skills balancing agricultural activities with water availability and, in the longer term, reduced shortage of skilled labour

[1] PRIMA SRIA Expected Outcomes Thematic Area Water Management, page 25.

[2] Annex 1 of the Annual Work Plan 2019 pages 114-117: Table linking AWP 2019 call topics expected impact to SRIA expected outcomes.

Topic 2.1.2 RIA Management of low-quality waters under water scarcity and climate change conditions

Challenge

The decreasing availability of freshwater makes increasingly necessary the use of saline-sodic and/or of treated wastewaters for irrigation to sustain crop productivity, with the consequence of increasing the risk of soil and water salinization/sodification.
Inappropriate or non-existing water balances and availability estimates, poor irrigation management and governance (with cases of illegal irrigation), lack of drainage and groundwater overexploitation have been identified as the main drivers of soil salinization and sodification. External pressures intensify these processes, which are favoured by typical Mediterranean climatic conditions (i.e., low rainfall, high air temperature and evapotranspiration).
The main impacts of soil salinization/sodification are unemployment, land abandonment, desertification and degradation of local water resources (in quantitative and qualitative terms). Sound water management can lead to strategies and policies protecting soil against salinization and sodification. Since these processes result from the interaction between soil, water and climate, the challenge is to explore site-specific management options leading to sustainable use of saline-sodic waters in areas susceptible to salinization and sodification.

Scope

The application of physically-based simulation models makes it possible to examine the effects of climate (and climate change) and soil-water management on soil salinization and sodification, as well as to identify viable management and policy options leading to sustainable land use. The characterization of soil physical and chemical properties is a key step for the application of these simulation models.
Experimental and demonstration sites representative of different Mediterranean conditions in terms of water scarcity, presence and use of low-quality irrigation waters (saline-sodic and/or treated wastewater), climate, crops, conflicting water uses and governance schemes, should be set up. These study cases will lead to the development of sustainable solutions for the use of low-quality water in Mediterranean agricultural systems. Solutions may focus on water allocation, water use and water reuse. Physically-based simulation models, novel technologies, management practices and governance schemes should be investigated, experimented and showcased through activities focusing on:

- Impacts of using untreated (waste and saline-sodic) or treated (desalinated) water on (i) soils having different physical, chemical and hydrological properties; (ii) soil salinization at different depths, including the risk of groundwater salinization; (iii) surface and groundwater, and the associated ecosystems.
- Development of water balances (supported by simulation, experimentation and observations) leading to: optimal water allocation, analysis of long-term scenarios and long-term impacts on soil, water and crops
- Design of long-term, large-scale management and governance strategies to prevent and control soil/water salinization and sodification.

Proposals are strongly encouraged to consider capacity building to improve the long-term impact of the recommended practices. Proposals should engage with relevant stakeholders for developing and demonstrating suitable means to support the qualification of local professionals (e.g., water utilities, regulatory bodies, water users' associations, individual farmers). Wherever needed and appropriate, proposals should take into account both academic and vocational training and education.

Expected impact:

Proposals should contribute to implement priorities set in the PRIMA SRIA and show the clear link of how expected impacts from the projects are going to implement the expected outputs indicated in PRIMA SRIA.[3]

The project results must contribute to PRIMA Operational Objective 1/WATER SAVING SOLUTIONS.[4]

The project results are expected to contribute to:

- Preserve soil and water productivity by maintaining adequate balances of water and salts during the use of low-quality waters.
- Integrate desalination and treated wastewater into Mediterranean water management systems, assessing their economic and environmental impacts with a regional perspective.
- Improve soil and water management practices in relation to salinization/sodification, taking into account the regional variability of soils, water management schemes and groundwater.
- Develop adaptation strategies in relation to the effect of climate change on crop productivity.
- Build capacities of local professionals in support of employability and economic empowerment.
- Optimize the management of low quality waters for irrigation at the farm and collective levels (water users associations or basin authorities), preventing social conflicts in the use of water resources of different qualities.

[3] PRIMA SRIA Expected Outcomes Thematic Area Water Management, page 25.

[4] Annex 1 of the Annual Work Plan 2019 pages 114-117: Table linking AWP 2019 call topics expected impact to SRIA expected outcomes.

Thematic area: Farming Systems

Topic 2.2.1 RIA Small scale farming systems innovation

Challenge

Small-scale farmers, including fisher folks, forest dwellers and pastoralists, contribute between 50 and 70 percent of the global food supply. The small-scale farming system is considered one of the most important factors in agricultural and rural development in all Mediterranean countries, since smallholders and family farmers remain essential actors for food security, employment, poverty eradication and environmental conservation. This is especially so because of the growing phenomenon of land fragmentation and its negative impact on agricultural production, efficiency in the use of natural resources and food security, as well as on the living conditions of small farmers and their families. The question of small-scale farming systems is also directly linked to a need for more coordination among actors along the value chains. Despite this important role, small-scale family farming and its actors face several challenges which hinder their active participation in sustainable agricultural rural and territorial development in Mediterranean countries. Their specific needs in terms of technological innovation are not always considered, and the main innovations are often not tailored to the specific conditions of small holders. To respond to the Small holders' specific needs, it is necessary to link better the provider of innovation and the users. All these challenges require an innovation-friendly environment, developing co-innovation and acting for their local deployment, suitable for local deployment, based on experimental physical and virtual spaces (living labs platforms) that enable participation of relevant stakeholders into the research and innovation process, facilitating an open innovation approach to increase the technological providers' capacity to bring innovation close to the market.[5]

Scope

Proposals must target improved innovation capacity of small farming systems to give effective solutions to the identified challenges, taking into consideration the specificities of the Mediterranean climate, agro-ecosystems, food diets and social structure.
Proposals shall contribute to make agriculture more sustainable, attractive, profitable, inclusive and a credible employment option for youth, as potential drivers of innovation and income. The living lab should focus on a multi-actor approach and engage as final users: farmers, grower cooperative boards, farming technology suppliers, research and extension services, with the scope to facilitate the cooperation between different stakeholders.
Project could deal with farming systems and/or livestock systems in an integrative way.
Proposals should contribute to territorial development and operate new sustainable production systems, which improve interactions among local, national and regional agents of the agri-food chains, and support the creation of added value for smallholder productions, while preserving natural resources and relying on agro-ecological principles. The financed living labs could support the testing of the innovations proposed by the companies.

[5] Almirall, E., Wareham, J. (2011). Living Labs: Arbiters of Mid- and Ground- Level Innovation. Technology Analysis and Strategic Management, 23(1), 2011 pages 87-102.

Despite the local nature of living labs, regional and international proposals could rely on virtual spaces organization or networks, and include the analysis of the variability of solutions resulting from the innovation process in the Med region.

Expected impact

Proposals should contribute to implement priorities set in the PRIMA SRIA and show the clear link of how expected impacts from the projects are going to implement the expected outputs indicated in PRIMA SRIA[6]

The project results must contribute to PRIMA Operational Objective 4/ SMART AND SUSTAINABLE FARMING.[7]

The project results are expected to contribute to:

- Enhance innovation capacities and appropriate technology transfer of existing or new infrastructures.
- Enhance sustainability of the small-scale farming systems and preservation of natural resources. Enhance the capacity of the staff of the living labs to provide assistance to the SMEs and to continue the project activities after the end of the project.
- Sharing experiences and innovations (including process) among multi-stakeholders development of innovations targeted to the final users' needs.
- Foster better access to the market of the innovation developed

[6] PRIMA SRIA Expected Outcomes Thematic Area Farming System, page 27.

[7] Annex 1 of this document pp. 114-117: Table linking AWP 2019 call topics expected impact to SRIA expected outcomes.

Topic 2.2.2 RIA Use and management of biodiversity as a major lever of sustainability in farming systems

Challenge

The agro-biodiversity depletion represents a threat to the planet because it reduces variety of available food and the ability of agroecosystems to effectively respond to environmental challenges. Nowadays only three crops – rice, wheat, and maize - provide more than half of plant-derived calories consumed worldwide. The mono-cultural approach of intensive agriculture decreases the ability to naturally cope with biotic and abiotic stresses exacerbated by climate change, and to reduction of soil fertility, despite intensive use of chemical fertilizers and pesticides, for maintaining high agricultural production. Biodiversity restoration and the use of wild crop relatives is a new production paradigm that guarantees a wider range of food and more sustainable agronomic practices. Mixing cropping systems yielded beneficial effects in term of soil and water conservation, nutrient recycling, carbon sequestration, pest and disease control, and better ecosystems services. The valorisation and management of functional biodiversity to enhance ecosystem functions and resulting ecosystem services, is a major area of investigation. Traditional agricultural systems are important sources of information that, combined with the recent advances of scientific knowledge, may usefully assist in the application of biodiversity-based agriculture. Different fields of research and innovation can be explored for managing biodiversity in the agriculture systems, integrating the large variety of local natural resources in the Mediterranean area, with the involvement and contribution of local farming systems and private and public stakeholders of the agri-business system.

Scope

Proposals shall implement activities contributing to the development of a biodiversity-based agriculture in the Mediterranean countries, which will be able to enhance the sustainability of farming systems.
Proposals analysing how traditional agricultural systems make use of biodiversity, identifying the strengths and weaknesses of these systems and showing how they can provide lessons for the cropping systems of tomorrow, are encouraged. Integration with new knowledge and technologies in assessing biodiversity and its role in adaptation and sustainable crop production is especially sought. The bases to implement biodiversity-based agriculture should be investigated. This includes the evaluation of performances of wide ranges of species (including service plants) and varieties/breeds (for crops and/or integrated crop systems). Understanding, modelling and valorising the multiple biotic interactions at play (including aboveground-belowground interactions and resistance/resilience effects) and their management by agricultural practices are also at stake. Proposals addressing new biodiversity-based crop systems impacts on the agroecosystem functioning and performances over time, for example in terms of sustainable productivity, maintenance of soil fertility, and long-term control of pests and diseases, are in the scope of the call. Integrative approaches looking for farming systems that exploit synergies and minimise problems due to mono-culture, thus ensuring sustainable crop performances are encouraged. Interdisciplinary approaches based on agro-technical, biotechnical and socio-economic research to design biodiversity-based farming systems and social procedures supporting them, such as local governance, adaptive learning or product valorisation will be fostered. Transdisciplinary proposals seeking complementarities between scientific and stakeholders' approaches and knowledge are also expected.

Expected impact

Proposals should contribute to implement priorities set in the PRIMA SRIA and show the clear link of how expected impacts from the projects are going to implement the expected outputs indicated in PRIMA SRIA[8]

The project results must contribute to PRIMA Operational Objective 4/ SMART AND SUSTAINABLE FARMING[9]

The project results are expected to contribute to:

- Valorisation of traditional and novel use of biodiversity in farming systems
- Increase sustainability and resilience of farming systems, particularly regarding the environmental and social (e.g. health of farmers) dimensions
- Increase of farmers' income through ecologically sustainable productions
- Preservation of natural resources, including biodiversity
- Improvement of agroecosystem services and valorisation of soils and crops

[8] PRIMA SRIA Expected Outcomes Thematic Area Farming System, page 27 and Cross cutting themes on Soil sustainability page 30.

[9] Annex 1 of the Annual Work Plan 2019 pages 114-117: Table linking AWP 2019 call topics expected impact to SRIA expected outcomes.

Thematic area: Agro-food Value Chain

Topic 2.3.1 RIA Extending shelf-life of perishable Mediterranean food products by sustainable technologies and logistics and by optimized pest and microbial control

Challenge

Post-farming losses remain very high in many Mediterranean countries, representing in some cases up to 30% of the production, while population growth in the region requires more and more actions to guarantee food security and minimize food waste. Transportation inefficiencies, broken cold chains and non-optimal logistics negatively affect the quality and durability of products that often become inaccessible to remote rural areas. Climate change in Mediterranean will result in the temperature increase of 2-4ºC by 2050, thus adding another negative threat to food storability and transportation. Efficient functioning of food chains is greatly requested to face the challenge, but it relies upon physical infrastructure providing up-to-date technologies, and services specifically studied for the Mediterranean production and distribution system. Ultimately, the food chain should make smooth and possible agro-food exportations between the two Mediterranean shores, facilitated by sharing common standards for quality and safety. As agro-food production is characterised by significant volumes of wastes derived by post-farming processes, with a deep impact on the water/carbon footprint, implementation of alternative processes that valorise side-and by-products derived by the mainstream production system should be considered.

Scope

Proposals should focus on developing and implementing context-adapted solutions to reduce post-farming food losses, also extending shelf-life of perishable Mediterranean food products such as added value fruits and vegetables, meat products and dairy. Proposals should also include capacity building activities supporting dissemination of good practices and relative information for storage and handling, and training activities dedicated to food chain operators. Proposals should fall under the concept of the "multi-actor approach" by engaging retailers, consumers or other stakeholders including SMEs and facilitating the cooperation between different stakeholders.
Application of ICT technologies based on cost-effective devices and sensors to support consumption of Mediterranean productions should also be considered. Proposals should also include at least one of the following aspects:

- Application of post-farming strategies and logistic solutions to reduce food losses during storage and transportation;
- Adoption of sustainable preservation technologies based on physical treatments, mild-heating sanitisation, natural preservatives and smart packaging technologies with low risk of microbial cross-contamination, validated in actual Mediterranean production systems;
- Demonstration of the efficacy of natural antimicrobials and probiotics from the Mediterranean biodiversity (bio-preservation) to guarantee product stability and reduce incidence of foodborne pathogens;
- Exploration of traditional knowledge and know-how for Med food storage (e.g. fermentation), demonstration of their efficiency and transfer to SMEs;

- Application of ICT technologies based on cost-effective devices and sensors to support Mediterranean consumers on the management of food stocks contributing to reduce food waste;
- Implementation of alternative processes valorising side- and by-products derived by the mainstream food production system, currently constituting environment impacting wastes.

Expected impact

Proposals should contribute to implement priorities set in the PRIMA SRIA and show the clear link of how expected impacts from the projects are going to implement the expected outputs indicated in PRIMA SRIA[10]

The project results must contribute to PRIMA Operational Objective 7/ REDUCE LOSSES AND WASTES[11]

The project results are expected to contribute to:

- Improved processing and storage efficacy and efficiency providing food products with longer shelf-lives and more favourable microbial stability;
- Improved food chains sustainability by using alternative agri-food processes or tools focused mainly on meat and vegetable production
- Identification and exploitation of added value by- and side-products derived from the Mediterranean agro-food system;
- Optimization of logistics for food storage and distribution either at local or transnational level resulting in higher income for small holders and SMEs.

[10] PRIMA SRIA Expected Outcomes Thematic Area Farming System, page 27.

[11] Annex 1 of the Annual Work Plan 2019 pages 114-117: Table linking AWP 2019 call topics expected impact to SRIA expected outcomes.

Topic 2.3.2 RIA Enhancing horizontal and vertical integration of Mediterranean agro-food value-chains to foster innovation and sustainability

Challenge

The integration of the Mediterranean agro-food value-chains could be a valid response to growing market complexity because it allows faster decisions, higher profitability for all the partners, greater product quality and sustainability and more responsiveness to markets demand and adoption of innovation.
The Mediterranean agro-food value-chains are mainly represented by small actors, which are not able to reach the minimum conditions for investing in innovation. Moreover, the high number of disconnected enterprises makes it difficult to achieve an efficient cooperation and integration of the different actors. These characteristics pose a challenge in the effective management of the quality along the food chain with food losses, slow responding safety systems, the uneven market distribution, especially between rural and urban areas. Besides the weak vertical links among the different stakeholders in the same food supply chain, also the absence of trans-sectorial interactions among different productive systems, possibly from the same territory, provoke lower performances in the utilization of natural resources, resulting in low uptake of by-products from one value chain in another that prevent a complete valorisation.

Scope

Proposals should aim to strengthen the vertical (from production to consumption) and horizontal (collaboration between actors in the same segment of the same or other connected value chains) integration of the Mediterranean agro-food value-chains. Both vertical and horizontal integration are important for the business success, representing two approaches with the same aim to exchange information, competences and knowledge among different players supporting the growth of all of them. Proposals should promote the creation of local/national/trans-Mediterranean innovation structures (Med PRIMA-Communities) that under the open innovation and open science approach will identify common challenges and develop technological innovative solutions to enhance the integration of the Mediterranean agro-food value-chains. PRIMA-Communities should be led by local knowledge providers/local innovation brokers with the scope to elaborate new agro-food business models and action plans to improve supply chain management, sustainability and valorisation of Mediterranean local food products. Proposals should fall under the concept of the “multi-actor approach” engaging of retailers, consumers and SMEs and facilitating the cooperation between different stakeholders. Proposals should focus on innovative mechanisms and tools supporting chain’s leaders to induce greater profitability and sustainability along the agro-food value chain.

Expected impact

Proposals should contribute to implement priorities set in the PRIMA SRIA and show the clear link of how expected impacts from the projects are going to implement the expected outputs indicated in PRIMA SRIA[12]

[12] PRIMA SRIA Expected Outcomes Thematic Area Farming System, page 27.

The project results must contribute to PRIMA Operational Objective 8/ NEW AGRO-FOOD BUSINESS MODELS[13]

The project results are expected to contribute to:

- New business models for quality and sustainability, suited especially to SMEs, and creation of a new generation of young entrepreneurs;
- Innovative planning and management control systems for quality and sustainability;
- Innovative horizontal and vertical organisational reorient mind-set, considering entrepreneurship, education, capacity building and information sharing
- Improve social inclusion and increase economic development through fair distribution of profitability along the chain, due to strengthening of partnerships between different organizations and institutions
- Increase the overseas export of the local products through market access and share added value among companies.
- Increase the overseas exports to improve the added value of the local products.

[13] Annex 1 of the Annual Work Plan 2019 pages 114-117: Table linking AWP 2019 call topics expected impact to SRIA expected outcomes.

Supporting information for the Section 2 Call for Proposals

Type of action	***Research & Innovation Activities (RIA[14])***
Total indicative amount allocated to this call	EUR 34.9 million
Funding level	depending on National Regulations
Expected number of grants	Approximately 35
Expected duration of the projects	36 or 48 months according to national regulations
Additional eligibility conditions	The standard admissibility, and eligibility conditions apply (section 5.2.2 and 5.2.3 of Annual Work Plan 2019)
Submission and evaluation procedure	Two-stage application procedure. For the first stage, a pre-proposal (maximum 10 pages) must be submitted by the first deadline. Successful applicants in the first stage will be invited to submit a full proposal (maximum 50 pages) for the second stage. A timeline for the submission and evaluation of applications can be found in table 12 of the AWP 2019.
Evaluation Rules	The scoring, thresholds and weightings for RIAs listed in section 5.2.6 of the AWP 2019 will be used.
Grant Agreement	Each national funding body will fund the beneficiaries established in its own country, thus, the national funding rules apply. Each national funding body will sign a grant agreement (or any official documents acting as contract) with their national beneficiaries taking part in the selected project (section 5.2.11 of AWP 2019). The coordinator of the project has to decide with his/her partners of a common starting date of the project and send this information to all the funding bodies involved in funding this project in order to ensure that the national contracts are synchronized in time to cover all the period of the project.
Consortium Agreement	A consortium agreement mentioning the distribution of the tasks among partners (as listed in the proposal) must be concluded. Some national funding bodies may require

[14] Please note that the acronym RIA is used both for Section 1 and Section 2. In Section 1 the rules applying to these actions are the standard Horizon 2020 rules for participation (RfP). While the rules used in Section 2 are to some extent analogous to the Horizon 2020 RfP, specific rules, concerning participation and funding rates, apply. As the projects selected in Section 2 are funded directly by the national funding bodies, they will be subject to the respective national regulations. For more details regarding the rules for Section 2 please refer to the guidelines for applicants on the PRIMA website.

	this document before signing the grant agreement then it is necessary to refer to the national regulations and draft this document accordingly (section 5.2.11 of AWP 2019)