



PRIMA

PARTNERSHIP FOR RESEARCH AND INNOVATION
IN THE MEDITERRANEAN AREA

Input to the PRIMA Interim Evaluation

Analysis on data available at the end of 2021



The PRIMA programme is supported by Horizon 2020, the European Union's Horizon 2020 research and innovation.

**PRIMA Partnership for Research and Innovation
in the Mediterranean Area**

Decision (EU) 2017/1324
Delegation Agreement H2020 PRIMA

PRIMA Foundation
<https://prima-med.org>

AUTINO Antonella
antonella.autino@prima-med.org

Acronyms

AWP	Annual Work Plan
BoT	Board of Trustees
CSA	Coordination and Support Action
DIS	Dedicated Implementation Structure
ESS	Electronic Submission System
ESR	Evaluation Summary Report
EU	European Union
GAs	Grant Agreements
GAP	Grant Agreement Process
H2020	Horizon 2020
MEL	Monitoring and Evaluation Platform
MPC	Mediterranean Partner Countries
HE	Horizon Europe
IA	Innovation Action
IS	Implementation Structure
NFA	National Funding Agency
OA	Other Activities
OCT	Overseas Countries and Territories
PRIMA	Partnership for Research and Innovation in the Mediterranean Area
PS	Participating States
PSIA	Participating States' Initiated Activities
RfP	Horizon 2020 rules for participation
RIA	Research and Innovation Action based on Horizon 2020 rules (in Section 2: Research and Innovation Activities, based on national regulations)
SAC	Scientific Advisory Committee of PRIMA Foundation
SME	Small and Medium-sized Enterprises
SRIA	Strategic Innovation and Research Agenda
SSC	South-South Cooperation
TC	Third Country
TFEU	Treaty on the Functioning of the European Union
TOF	Transfer of Funds
TOR	Terms of Reference
TRL	Technology Readiness Level
WEFE	Water Energy Food Ecosystem

Acronyms	1
Chapter 1 Executive Summary	4
Chapter 2 Background	10
2.1 PRIMA History	10
2.2 PRIMA in a nutshell	11
Chapter 3 Implementation of the annual work plans and the resulting activities	14
3.1 Definition of priorities in the Annual Work Plans	14
3.2 PRIMA Architecture	15
3.3 PRIMA Calls: Rules for Participation in Section 1 and Section 2 Calls	15
3.4 Budget, Union contribution (Section 1) and national funding (Section 2)	16
3.5 Call announcements	16
3.5.1 Calls Section 1, with EU contribution	17
3.5.2 Call Section 2 – national contributions	17
3.6 Submissions received, admissibility, eligibility, Section 1 and Section 2 (Stage 1, Stage 2)	18
3.7 Evaluation of proposals	18
3.8 Funding Decision and communication to applicants	19
3.9 Grant Agreement preparation	20
3.9.1 Section 1 Grant Agreement Process	20
3.9.1 Section 2 Grant Agreement Process	21
3.10 Measures adopted by National Funding Agencies to address key issues in Section 2 calls implementation	21
Chapter 4 Projects funded calls 2018-2021, Section 1 and Section 2	24
4.1 Overview of projects	24
4.1.1 Projects funded with EU funds calls 2018-2021, Section 1	29
4.1.2 Projects funded calls 2018-2021, Section 2	32
4.2 Prizes	35
4.3 Participant States Initiated Activities-PSIAs, Section 3	36
Chapter 5 Financial Management	39
5.1 Administrative budget with EU funds	39
5.2 Allocation of EU Contribution to PRIMA grants (Section 1)	39
5.3 Payments to PRIMA project's beneficiaries (Section 1)	39
5.4 Payment of administrative costs with PS funds	40
5.5 PS financial contributions to the programme	40
5.6 Allocation of PS financial contributions to grants (Section 2 Activities)	42
5.7 Payments to PRIMA project's beneficiaries (Section 2 Activities)	42
5.8 National contributions to the Participant States Initiated Activities_PSIAs (Section 3)	44
5.9 Payments on national contributions to PSIAs beneficiaries (Section 3)	44
5.10 Other activities (Section 3)	44
5.11 Monitoring of the Leverage effect (2018-2021)	46
5.11.1 Leverage calculation from EU and PS disbursed payments to beneficiaries.	47
Chapter 6 Data on the programme implementation	48
6.1 Submissions, eligibility, admissibility, funded projects	48
6.2 Detailed statistics on evaluators in PRIMA evaluation panels	48
6.3. Call dates, timescales	49
6.4 Redress and Grant Agreements	49
6.5 Value of eligible proposals for Section 1 and Section 2, by country, in 2018, 2019, 2020 and 2021.	50

6.6	Value of coordinating entities in funded projects for Section 1 and Section 2, by country, in 2018, 2019, 2020 and 2021.	51
6.7	Participations in funded proposals by country out of 2018, 2019, 2020 and 2021 calls (Section 1 and Section 2)	52
6.8	Value of funded projects for Section 1 and Section 2, by type of action (RIA, IA, CSA) in 2018, 2019, 2020 and 2021.	55
6.9	Value of funded projects by thematic area for Section 1 and Section 2 for 2018, 2019, 2020 and 2021.	55
6.10	Nationality and type of organisation of the coordinating entity (SECTION 1)	56
6.11	Nationality and type of organisation of the coordinating entity (SECTION 2)	56
6.12	Type of beneficiary in funded projects	57
6.13	Details on projects	59
	Outputs of actions and activities funded under Sections 1 and 2.	72
	Outputs of all activities funded under Section 3	76
Chapter 7	Monitoring and evaluation of PRIMA	81
Chapter 8	Progress made towards scientific, management and financial integration	86
8.1	Scientific integration	86
8.2	Management integration	87
8.3	Financial integration	87
Chapter 9	Progress made towards the achievement of the specific objectives	89
9.1	Alignment of national R&I programmes and procedures	91
9.2	The critical mass of actors and resources	93
9.3	Strengthening innovation capabilities	95
Chapter 10	Progress made towards the achievement of the operational objectives	97
10.1	Increased coordination of national research and innovation agendas	97
10.2	Increased collaboration	97
10.3	Increased capacities	99
10.4	Fund projects supporting innovation and policy	100
Chapter 11	International visibility and positioning	103
Annexe 1	Project success Factsheets	105
Annexe 2,	S1 and S2 projects publications	106

Chapter 1 Executive Summary

PRIMA is a ten-year Public-Public Partnership (2018-2028), set up according to [DECISION \(EU\) 2017/1324](#) as an Article 185 initiative under Horizon 2020, the European Union's Framework Programme for Research and Innovation from 2014 to 2020.

PRIMA's vision is to foster joint research and innovation (“R&I”) approaches among Mediterranean countries to improve water availability, sustainable agriculture, and food production in a region heavily distressed by climate change, urbanisation, and population growth.

PRIMA has the ambition to support the transition towards greener, more inclusive, healthier Mediterranean societies' transformation, bringing the EU Green Deal in South Mediterranean countries.

With an overall budget of EUR 474 million (272 million from PS and 220 million from EU), PRIMA implements the Programme mainly through calls for proposals and on a coordinated and well-structured set of activities, procedures, decision-making processes, and operations at national and supra-national levels, described in detail in this report.

PRIMA - a partnership with a focus on the Mediterranean region.

PRIMA is a partnership characterized by a **regional focus** in the Mediterranean region having particularly relevant for both global and regional cooperation issues.

A distinctive feature of this initiative is its membership, comprising 19 Participating States (PS) from the Northern and Southern shore of the Mediterranean Basin (referred to as EU PS and non-EU PS, respectively, in this report) based on the principle of **equal footing** applied through co-decision, co-financing and co-management.

The partnerships include eleven EU MS and eight third countries, three of which are Associated to H2020 and five¹ have signed an international agreement on science technology with the EU to participate with equal rights as the **PRIMA Participating States**. PRIMA has provided a unique opportunity to reinforce and widen EU MS and third countries cooperation, which has been possible by implementing projects that address common challenges faced in the Region and globally.

PRIMA - an effective cooperation model and a solid instrument of science diplomacy

PRIMA is proving to be an **effective cooperation model**, having promoted scientific excellence and increased integration in research and innovation among its Participating States fostering regional collaborations (both North-North and North-South) in the Mediterranean region.

Considering the scale and scope of the challenges in the Mediterranean, international cooperation is required to tackle societal challenges global by nature and to increase competitiveness at the local, subregional and regional levels. The PRIMA initiative launched in 2017 as a follow-up of the Euro-Mediterranean Conference on Research and Innovation (Barcelona, 2012) aims to foster R&I while strengthening cooperation across both shores of the Mediterranean Sea. Over the four first years of implementation, the Programme has strengthened existing collaborations from previous projects funded under FP7 and H2020², focusing on Euro-Med cooperation by exchanging information, developing mutual understanding, identifying areas for coordinated and collaborative activities. Based on the principle of equal footing, building trust among its members, PRIMA has been able to achieve the required scale and scope, increase the participation of researchers of the region in international calls and projects, and align national policies on key areas such as water management, sustainable agriculture and food value chain, ensuring coherence with the major agendas and initiatives for the region, such as the SDGs and relevant EU legislation.

The excellent level of cooperation among researchers across the two borders of the Mediterranean basin achieved by PRIMA through its projects has been facilitated by the specific legal framework of the PRIMA Programme, i.e., the particular rules of participation (Derogations to H2020 RfP) and the bilateral agreements between the third countries involved and the EU. PRIMA has proven successful in fostering participation for the less R&D intensive countries such as Southern Mediterranean countries. Noteworthy, PRIMA not only succeeded in reinforcing North-South but also South-South Cooperation. For instance, legal entities from PS having political conflicts succeeded in working together in the same projects.

¹ Algeria, Egypt, Jordan, Lebanon, Morocco.

² Medspring, ERANETMED, ARIMNET¹ and ², 5TOI, ⁴PRIMA

PRIMA - profound scientific integration through a common long-term Strategic Research and Innovation Agenda (SRIA).

PRIMA has increased integration in research and innovation among its Participant States through the development of a long-term Strategic Research and Innovation Agenda (SRIA) laying down guiding principles and identifying research priorities, fostering the alignment of national programmes national policies in critical areas such as sustainable agriculture, water management, food value chains.

The PRIMA SRIA is a long-term document with a broad scope, which offers a certain degree of flexibility within the PRIMA legal framework's objectives (PRIMA Decision), to respond to emerging challenges and opportunities.

The SRIA outlines the key research and capacity gaps for increasing sustainability in the water management and agri-food value chain in the Mediterranean Area.

PRIMA's SRIA, building on joint foresight and mapping and nationally identified priorities and H2020 priorities, was elaborated through a participatory approach involving the PRIMA Secretariat and all PRIMA PS. Input from relevant national actors, particularly research funding agencies, ensured alignment with the national programmes while building a solid sense of trust, inclusiveness and ownership. SRIA priorities are addressed through calls as well as activities fully managed and supported by the PRIMA States, so-called Participating States' Initiated Activities (PSIAs) which are within the scope of PRIMA.

PRIMA — operating according to annual work plans.

PRIMA annual work plans are drafted, discussed, and approved according to a well-established sequence of interactions among key actors (Scientific Advisory Committee, Board of Trustees, National Funding Agencies European Commission) and then implemented by the PRIMA Secretariat established in Barcelona (ES). To achieve its objectives, PRIMA has provided financial support mainly through grants to participants funded either with EU funds (Section 1) or with national funds (Section 2). Grants are selected with open and competitive calls for proposals under the responsibility of PRIMA Foundation. Section 3 activities are also fully part of the Programme but are entirely managed and funded by national funds.

PRIMA - a three-tier architecture for success

The PRIMA Programme is structured along three [sections](#) according to the funding source, management and rules. In principle, PRIMA actions and activities are implemented following [Horizon 2020 RfP](#). Nonetheless, specific rules concerning participation and funding rates apply for the activities implemented with national funds.

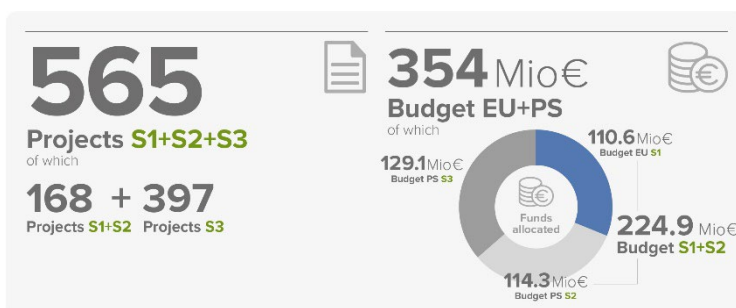
Addressing three different programming levels with funding from either H2020 or national sources, the Partnership effectively targets key R&I issues in the Region, influences R&I strategies among its members and streamlines national processes and procedures.

For Section 1 calls, in the 2018-2021 period, there were 1441 *submissions* in total, with an average number of around 360 proposals each year, resulting in **53 projects funded**. The total financial contribution for Section 1 calls (with EU funds) to PRIMA projects amounts to **EUR 110.6 million**.

For Section 2 calls, there were around 218 proposals per year out of 875 proposals submitted, with 115 projects **funded** overall—national financial contributions across the Programme amount to **EUR 114.3 million**. PRIMA has managed both Section 1 and Section 2 calls efficiently and transparently, according to H2020 rules, including rigorous criteria to select the evaluators at each call and stage.

168 projects with a financial contribution of **EUR 224.9 million** were selected out of Section 1 and Section 2 calls. While criteria for selection of proposals are the same for Section 1 and 2 calls, funding rules are relatively different, following H2020 rules for Section 1 and national rules for Section 2 projects.

Section 3 includes projects and activities (such as knowledge hubs, brokerage and dissemination events, capacity building and mutual learning exercises) that are directly funded and implemented by the PRIMA



Participating States. These activities, encompassing 13 Participating States Initiated Activities (PSIAs) and 20 Other Activities, with a total budget of 129.1 million EUR, complement the grants-based funding schemes and support the Programme by addressing gaps not covered by research projects. During the four first years of implementation (2018-2021), 397 projects have been selected and monitored by PRIMA out of Section 3 PSIAs.

PRIMA - efficiently managing calls and payments

After four years of management of international calls, PRIMA has proven successful as an implementation entity, and the Programme has gained the necessary expertise and maturity for achieving its objectives. The Programme Secretariat managed to reinforce the initiative's reputation by maintaining high levels of efficiency despite the difficulties inherent to the pandemic and their inevitable impact on the day-to-day operations.

As for Section 1, the total planned financial contribution from the EU for PRIMA calls for the first four years amounts to EUR 112.3 million, of which 98.5% is allocated for contracted projects. Out of this sum, PRIMA Foundation has already disbursed EU funds for the PRIMA Programme for EUR 59 million to pay Section 1 projects beneficiaries according to the Grant Agreements and to cover the PRIMA Secretariat's evaluation monitoring and administrative costs. In particular, PRIMA has disbursed the first pre-financing payment to the beneficiaries of 53 Section 1 projects and the interim payment to 11 projects to date, linked to the positive outcome of the midterm review.

As for PRIMA financial contributions by the Participating States to Section 2, funds allocated by PRIMA National Funding Agencies for 2018, 2019 and 2020 projects amount to EUR 114.3 million and are very close (80%) to the those committed in the relative Annual Work Plans (total to EUR 141 million), showing an outstanding performance in the funding of Section 2 calls. The amounts disbursed by National Funding Agencies to beneficiaries of Section 2 PRIMA projects (87 running projects in total, funded in the response of 2018-2020 calls) are EUR 36.2 million, equivalent to 32 % of the total allocated amount.

Efficiency in payments also concerns Section 3 Activities (PSIAs and Other activities), for which the amount disbursed by NFAs (by 31 December 2021) is EUR 74.6 million EUR, equivalent to 58% of the 129.1 million allocated for Section 3.

PRIMA - aligning national regulations and administrative procedures.

At the beginning of the Programme, some heavy internal administrative procedures in some PS, namely IT, ES, EG and JO, have delayed payments to Section 2 project's beneficiaries. Changes triggered by PRIMA in the national regulations have speeded up the procedures and thus payments. Notwithstanding COVID-19 pandemics' containments measures adopted by some Funding Agencies, payments have sensibly increased in the last years. (See paragraph below.

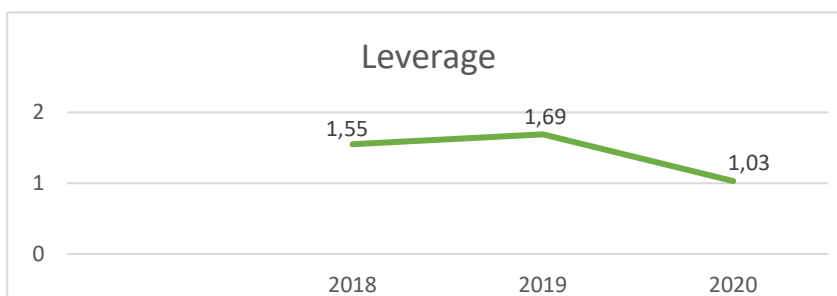
PRIMA - leverage effect in 2018-2020

Thanks to the functioning of the PRIMA programme, each Participating State has been able to attract more investments and funding to the benefits of its respective research and innovation community. PRIMA has been able to raise the level of coordinated national investment in its thematic fields, mobilising a considerable financial resource. The national funds made available by each State have allowed leveraging additional funding coming from the European Commission. Such leverage effect has significantly increased R&I activities in the region, has ensured stability in the funding, and has allowed addressing a variety of topics crucial for the Mediterranean.

The capacity of the partnership to mobilize public R&I contributions from PS and to multiply Horizon 2020 budget resources is measured by the budget leverage factor.

PS contributions take into account not only the direct financial contributions to beneficiaries from PS (Section 2

calls), but also the costs incurred by all funding bodies in the implementation of indirect actions (*in-kind* contributions of Section 2 calls), and the costs of other activities (*in-kind* contributions for Section 3 activities). The Leverage ratio has shown stability during the first three years of programme implementation, with a



slight decrease in 2020 due to delayed payments to Section 2 beneficiaries.

The Leverage total ratio for 2018-2020, calculated on disbursed amounts, was consistently above 1 over the three years (2018-2020), attaining on average **1,40**. The value of 2021 leverage could not be determined yet, as the payments to Section 1 beneficiaries (with EU funds) could not be made since the Grant Agreement signature process is still ongoing.

PRIMA - well-balanced project portfolio

The PRIMA project portfolio after four years of implementation counts on 168 projects addressing topics that are at the centre of the EU and regional agenda, aiming to provide solutions to the challenges caused



or exacerbated by climate change in the Mediterranean. The growing project portfolio reaffirms the positive trends in financing actions, geographical distribution and strategic orientations covered. The projects selected out of Section 1 and 2 Calls embed the socioeconomic dimension and a nexus approach taking into account as many sectors as possible and the links among them.

Out of the 168 projects selected by PRIMA;

37 projects are under the water management thematic area corresponding to 23% of the total project's budget,

81 projects under the farming systems thematic area, equivalent to 44% of the project's budget

81 projects under the farming systems thematic

43 projects under the agri-food value chain thematic area, equivalent to 24.6% of the project's budget.

Under **the nexus theme**, **7 projects** (8% of the project budget) consider the interconnections among water, energy, food, and ecosystems (WEFE).

PRIMA - a pioneer for the WEFE Nexus

As the first of its kind, PRIMA is addressing the Water-Energy-Food-Ecosystems (WEFE) nexus in the region. Due to population growth, urbanisation and climate change, the increasing competition for water, energy and food undermines sustainable development and social stability in the region. The WEFE Nexus theme has been adopted in PRIMA calls as of 2019 and is strategically important for the Programme to achieve PRIMA's objectives.

Since Water, Energy, Food and Ecosystems (WEFE) are strongly interlinked, good management in the Region cannot be achieved simply by considering the management of WEFE resources as separate ones (with a silos approach) but rather in a holistic manner, identifying trade-offs as being strategically beneficial for all sectors involved.

Applied systematically, the nexus approach will help decrease environmental risks and ecological scarcities under climate change conditions and ensure economic development in the Region, thus delivering on the UN Agenda 2030 and the European Green Deal goals. PRIMA has considered a significant budget for the Nexus theme and intends to streamline the nexus approach for most projects, which is now a distinctive feature and an added value of the Programme in all its future actions.



PRIMA - Uniting EU and non-EU PS across the Mediterranean

With political and financial support by all countries, it has gained an essential role as science-based research and innovation platform, able to strengthen the ties among the different shores of the Mediterranean

In the first four years of the Programme's implementation, legal entities from the EU MS and Non-EU Countries PRIMA Participating States (PS), including third and H2020 Associated countries, actively responded to PRIMA calls.

Non-EU countries' participation in the PRIMA Programme is considerable. Data analysis found that as of the end of 2021, EU-based legal entities have been involved in 554 projects

with **974 beneficiaries**, while non-EU members have participated in 411 projects with **597 beneficiaries**. The data shows that non-EU entities participated in 42.5% of all projects and accounted for 38.6% of legal entities involved receiving on average 32% of the EU financial contribution. (Well above the target indicated in the PRIMA Decision³ of 25%)

Given the importance of strengthening participation from southern Mediterranean countries outside the EU, these data are good compared with other EU programmes such as H2020 and HE.

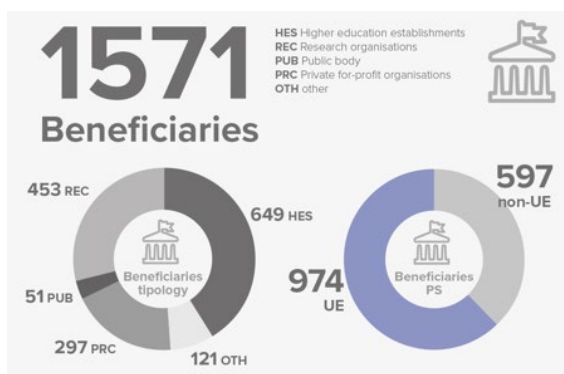
PRIMA - boosting innovation in the Mediterranean

PRIMA, with its projects, are strengthening innovation potential in the Region, empowering Mediterranean businesses and, in particular, smallholders and small farms with ready-to-use sustainable solutions to increase their productivity and income.

PRIMA is oriented toward strengthening innovation in the Mediterranean area bringing the innovations developed to the market and providing additional support for SMEs aligning this process with real (market and social-oriented) needs. PRIMA has progressively moved towards more innovative projects and actions over the years, especially in Section 1 calls showing PRIMA efforts to increase the innovation potential and quickly deliver applicable and replicable solutions. To reach the market, PRIMA projects consortia need to be supported to enable those innovations developed in their maturation process to reach the market. Moreover, it is also crucial to stimulate an entrepreneurial mindset to help consortia achieve this goal. PRIMA projects will take advantage of an activity developed by PRIMA to identify through a methodology similar to the [Innovation Radar](#), the best-fit projects that the EC [Horizon Result Booster](#)⁴ will further support through ad-hoc activities to increase the exploitation potential of their research results.

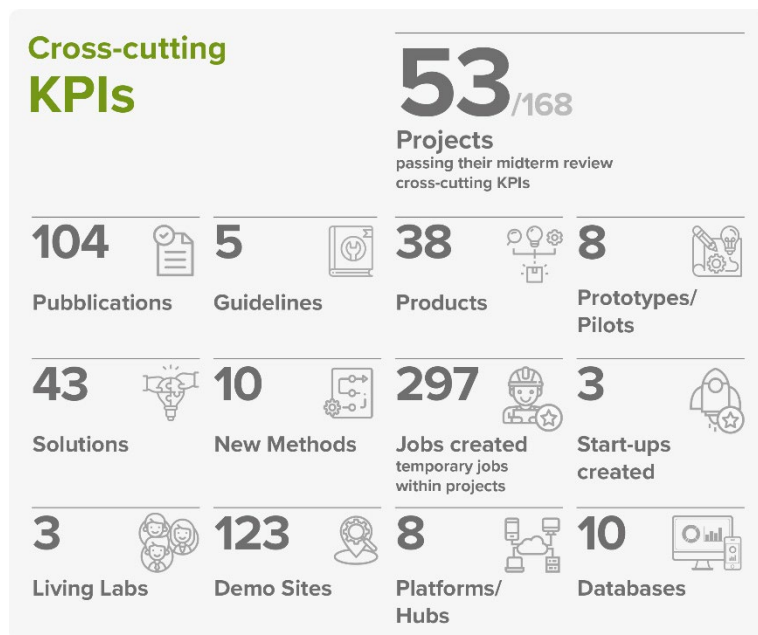
PRIMA - achieving its specific objectives as defined in the SRIA

PRIMA's three specific objectives, alignment of research and innovation policies and programmes, fostering a critical mass of actors and resources and strengthening innovation capabilities, have been progressively met thanks to various instruments. In particular, the functioning of Section 2 funded projects, the role of nationally-funded programmes and activities, a large number of final calls' beneficiaries (around 1600), the implementation of capabilities' development training and workshops, and the progressive attention towards innovation and large-scale projects over the years have been crucial, together with specific actions undertaken at the project level across the PRIMA project portfolio funded to date.



³ PRIMA Decision "In achieving the objectives of PRIMA, and in line with the applicable rules and principles, such as the principle of scientific excellence, PRIMA-IS should aim to provide, through the annual work plan, an appropriate share of its funding, approximately 25 % of the Union financial contribution, reflecting the commitments of Mediterranean Partner Countries to PRIMA, to legal entities established in targeted third countries considered to be Participating States".

⁴ Horizon Results Booster services is a package of specialised services provided free of charge for Horizon 2020 projects aiming to improve project's existing exploitation strategy, develop a business plan and go-to-market strategies that build commercialisation plans, explore implementation options and identify funding strategies.



Concerning the progress to achieve operational objectives, data collected to date from projects passing their mid-term review indicates good progress on a number of result KPIs of particular importance to the programme. For instance, the “Total number of peer-reviewed publications” (104) and the Number of products and Solutions“ (81 in total) are a few examples of the extent of their effectiveness.

In addition, given the importance of strengthening Technology Readiness Levels (TRLs) through Innovation Action projects, “the number of demonstration sites” up to 123 to date is also an important indicator as these provide a testbed to try out innovative new technologies and new approaches.

The first PRIMA projects started in 2019 and have achieved significant results, which will produce an impact only at a later stage. Overall, the quality and relevance of the projects funded indicate that the research outputs generated and results achieved will strongly contribute to the desired effects of PRIMA. The high number of innovative products, services and solutions developed to date, and the number of demonstration sites in operation is notable results worth highlighting.

PRIMA - Strategically positioned and internationally visible

PRIMA has a significant geostrategic role to play. It could foster the green transition in the Mediterranean, capitalising its results and leveraging on the new opportunities of the [European Green Deal](#).

Significantly, PRIMA is considered a key player in the region, thanks to its collaboration with international organisations such as [FAO](#) and [ICARDA](#) and intergovernmental organisations such as the Union for the Mediterranean (UfM). There, PRIMA is a candidate for implementing the newly established Mediterranean priorities, defined in the context of the EC-UfM Research and Innovation Platform.

Finally, at the European level, PRIMA is collaborating with Horizon Europe instruments, e.g. the Horizon Europe Missions, notably through coordinated calls to share its knowledge, infrastructure and network supporting the Mission’s shared objectives to increase soil health and sustainability.

PRIMA is also exploring interesting synergies with present Horizon Europe Partnerships such as [EIT Food](#) and [EIT Climate-KIC](#), and with candidate Horizon Europe Partnerships, planned to start in 2022, such as Water4All and other upcoming partnerships sharing relevant thematic objectives.

Chapter 2 Background

2.1 PRIMA History

The Euro-Mediterranean Partnership, also known as the Barcelona Process, was launched in 1995 as a result of a Conference of Euro-Mediterranean Ministers of Foreign Affairs. This long-standing process, aimed at establishing an area of peace, stability and prosperity supporting dialogue among cultures of the region, was further strengthened in Paris in 2008 with the creation of the Union for the Mediterranean and in 2011 with the renewal of EU's Neighbourhood policy. In this context, cooperation in research and innovation was considered of particular importance for the Mediterranean area as well as for the EU as a whole: scientific cooperation for the development of a regional innovation policy is more than ever needed to tackle the most pressing challenges of the Mediterranean area, where there is evidence of rapid social, demographic, economic, environmental and political changes. The “Euro-Mediterranean conference on Research and Innovation” held in April 2012 in Barcelona stressed the need for a renewed partnership in Research and Innovation based on the principles of co-ownership, mutual interest and shared benefit. In this respect, the Commission gave a decisive impetus by highlighting the potential of using Article 185 TFEU for implementing this partnership between the EU and its Southern Neighbourhood. This idea immediately received support from a significant number of Euro-Mediterranean countries which agreed to reduce fragmentation between their national RDI funding programmes. The Commission, therefore, convened an initial meeting for the EU Member States bordering the Mediterranean Sea in July 2012, on the margins of the Informal Competitiveness Council held under the Cypriot Presidency, to encourage them to launch the preparatory work towards an integrated scientific programme for which they would be ready to commit national funds over the long-term. A few months later, the same EU Member States were joined by Mediterranean Partner Countries (MPCs), and the preparation of the PRIMA initiative started in 2013 in a true spirit of co-ownership and co-decision between all countries.

Table 1 Milestones of the establishment of the PRIMA initiative.

Date	Milestone
2-3 April 2012	The Euro-Mediterranean Conference on Research and Innovation (Barcelona, Spain) marks the proposal's inception for a Partnership for Research and Innovation in the Mediterranean Area (PRIMA).
23 December 2014	Following the adoption of the Competitiveness Council's conclusions of 5 December 2014, nine Member States of the European Union (EU) – Croatia, Cyprus, France, Greece, Italy, Malta, Portugal, Slovenia and Spain – submit a proposal for the participation of the EU in the Partnership for Research and Innovation in the Mediterranean Area, through an Article 185.
December 2015 - July 2016	The European Commission services perform an Impact Assessment of the PRIMA initiative to analyse the need for an EU action in this domain and the potential economic, social and environmental impacts of the alternative policy options.
May 2016 – 28 February 2018	The 4PRIMA Coordination and Support Action, funded by Horizon 2020, sets the ground for the initiative's launch by contributing to the alignment of R&I programmes on food systems and water use in the Euro-Mediterranean Area and through the definition of the PRIMA Strategic Research and Innovation Agenda (SRIA).
3-4 May 2017	The Valletta Declaration, endorsed during the Ministerial Conference on Strengthening Euro-Mediterranean Cooperation through Research and Innovation (Valletta, Malta), welcomes PRIMA as the most ambitious joint programme to be undertaken in the frame of Euro-Mediterranean cooperation.
June 2017	On 13 June 2017, the European Parliament adopted the PRIMA Decision, and on 26 June 2017, the Council of the EU endorses the initiative. The Decision entered into force on 7 August 2017.
19 June 2017	The PRIMA Foundation is officially established, with its Secretariat based in Barcelona.
19 September 2017 -January 2018	An ex-ante assessment of the PRIMA Implementation Structure (IS) is carried out to provide reasonable assurance to the European Commission whether the entity fulfils the requirements to be entrusted with budget implementation tasks.
6 February 2018	The first round of PRIMA calls for proposals is launched. Delegation agreement signature. Transfer of funds. International agreements signed.

2.2 PRIMA in a nutshell

The Partnership for Research and Innovation in the Mediterranean Area (PRIMA) was established in 2017 by nineteen Participating States (PS) and the European Union (EU) through the [Decision of the European Parliament and of the Council of 4 July 2017 Decision/\(EU\) 2017/1324](#)⁵.

This initiative is characterised by a robust strategic dimension based on the principles of co-decision and co-financing and a distinctive geographical focus on the Mediterranean Region.

The PRIMA programme consists of the following Participating States (PS): 11 EU Member States (Croatia, Cyprus, France, Germany, Greece, Italy, Luxembourg, Malta, Portugal, Slovenia, Spain); 3 Associated Countries to Horizon 2020 (Israel, Tunisia and Turkey) and 5 Third Countries: Algeria, Egypt, Jordan, Lebanon and Morocco. Bilateral international agreements with the EU were signed with Algeria, Egypt, Jordan, Lebanon, and Morocco to participate in PRIMA.⁶

Third Countries became Participating States upon entry into force or, at least, upon provisional application of their respective international agreements for scientific and technological cooperation with the Union setting out the terms and conditions of their participation in PRIMA. When the required international agreements started producing legal effects⁷, these countries became the [Participating States](#), enabling them to receive EU funds through PRIMA calls.

The Partnership is funded with a financial commitment of EUR 274 million from the Participating States, as *in-kind* or financial contributions and a EUR 220 million contribution from the EU through its research and innovation programme at the time, Horizon 2020 (H2020).

The PRIMA programme is being implemented according to a long-term [Strategic Research and Innovation Agenda \(SRIA\)](#), which provides the vision and strategic direction for the Implementation of the Programme and is the basis for setting out the PRIMA Annual Work Plans (AWPs).

The Ministers of Research and Innovation endorsed PRIMA SRIA during the Ministerial Conference on Strengthening Euro-Mediterranean Cooperation through Research and Innovation in Malta on 4 of May 2017 and adopted by the PRIMA Foundation Board of Trustees ⁸(BoT) on 16 November 2017.

The Programme is implemented by the PRIMA Foundation⁹, established in Barcelona in 2017 as a Dedicated Implementation Structure (DIS), responsible for the direct management of the Union contribution under Article 185 of the Treaty on the Functioning of the European Union (TFEU)¹⁰, ensuring through its Secretariat and Governing Bodies, the efficient and transparent rollout of the PRIMA programme.

After the positive outcome of the *ex-ante* assessment¹¹ PRIMA Foundation was able to enter into a formal delegation agreement with the Commission signed on 12 February 2018. An amended version of the Delegation Agreement was signed on 23 December 2020.

5 DECISION (EU) 2017/1324 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2017 on the participation of the Union in the Partnership for Research and Innovation in the Mediterranean Area (PRIMA) jointly undertaken by several Member States: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D1324&from=EN>

6 Algeria became a PRIMA Participating State (PS) in 26 October 2017, Jordan became PRIMA PS on 16 January 2018 Lebanon became PRIMA Participating State on 27 February 2018 Egypt became PRIMA Participating State on 15 March 2018. Finally, Morocco became PRIMA Participating State on 10 April 2018

7 After the signature of the relevant implementing arrangements as set in Art 2 of the International Agreements.

8 The PRIMA Board of Trustees is the highest representative and governing body of the PRIMA Foundation according to PRIMA Statutes.

9 The PRIMA Dedicated Implementation Structure is a private body under Spanish law set up in Barcelona on 19 June 2017 charged by the PRIMA Governing Body to undertake all managerial, administrative, supporting and, monitoring activities necessary to the implementation of the PRIMA Programme.

10 Article 26(2), point (b), of the Regulation (EU) No 1291/2013 of the European Parliament and of the of 11 December 2013 establishing Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020) and repealing Decision No 1982/2006/EC (OJ L 347, 20.12.2013, p. 104).

11 An ex-ante assessment was conducted from September to November 2017 to assess whether PRIMA Foundation has set up and ensured the functioning of an effective and efficient internal control system

The PRIMA Foundation Secretariat, also referred to in this document as the 'PRIMA Secretariat', launches annual calls for proposals to mobilise the Euro-Mediterranean scientific communities, stakeholders and public and private entities to identify research and innovation solutions for more sustainable water and food management.

Those solutions will be developed considering the interlinkages and interdependencies of the water, food and energy sectors and ecosystems (nexus approach) in a context of climate change, breaking sectorial silos to increase efficiencies, reduce trade-offs and build synergies while improving governance across sectors.

Achieving this General objective will make water provision and agri-food systems more efficient, cost-effective, and sustainable in the Mediterranean area. This general objective can only be achieved if, in a structured way, a durable framework for R&I in water provision and agri-food systems is put in place. Table 2 briefly describes the programme mission, objectives, and conditions under which PRIMA operates.

Figure 1 PRIMA key data (2018-2021)



Table 2. PRIMA mission, objectives and conditions

Name	Partnership for research and innovation in the Mediterranean Area (PRIMA)
PRIMA objectives	<p>General Goal</p> <p>To foster research and innovation capacities and develop knowledge and common innovative solutions for improving the efficiency, safety, security and sustainability of agro-food systems and integrated water provision and management in the Mediterranean area.</p>
Financial contributions	<p>EU financial contributions for the whole programme 220 million EUR</p> <p>PS financial contributions for the whole programme 274 million EUR</p>
Legal basis	<p>Established by nineteen Participating States (PS) and the European Union (EU) under the Decision of the European Parliament and of the Council of the 4th of July 2017 Decision/(EU) 2017/1324/12.</p>
Board of Trustees	<p>Members with voting rights:</p> <p>PRIMA Trustees</p> <ol style="list-style-type: none"> 1. CY, Directorate-General for European Programmes, Coordination and Development 2. DE, Federal Ministry of Education and Research 3. DZ, General Directorate for Scientific Research and Technological Development 4. EL, General Secretariat for Research and Technology of the Ministry of Education, Research and Religious Affairs 5. EG, Ministry of Scientific Research 6. ES, Secretaria de Estado de Investigación 7. FR, Ministry of Higher Education, Research and Innovation 8. HR, Ministry of Science and Education 9. IL, Israel innovation Authority 10. IT, Ministero dell'Istruzione dell'Università e della Ricerca 11. JO, Higher Council for Science and Technology 12. LB, National Council of Scientific Research 13. LU, Luxembourg National Research Fund (FNR) 14. MA, Ministry of National Education, Vocational Training, Higher Education and Scientific Research of the Kingdom of Morocco 15. MT, Foundation for Science and Technology 16. PT, Fundação para a Ciência e a Tecnologia 17. SI, Ministry of Education, Science and Sport 18. TU, Ministry of Higher Education and Scientific Research 19. TR, Scientific and Technological Research Council <p>Observers</p> <p>EC, Secretariat of the Union for the Mediterranean</p>
Other governance bodies ¹³	<p>The Steering Committee</p> <p>The Scientific Advisory Committee</p>
Implementation body	PRIMA Secretariat
Strategic Research and Innovation Agenda	The Strategic Research and Innovation Agenda was formally approved by the BoT in November 2017.
Projects managed by PS*	<p>565 Projects S1+S2+S3 of which 168 + 397 Projects S1+S2 Projects S3</p> <p>354 Mio€ Budget EU+PS of which 129.1 Mio€ Budget PS S3 110.6 Mio€ Budget EU S1 224.9 Mio€ Budget S1+S2 114.3 Mio€ Budget PS S2</p> <p>Funds allocated</p>

¹² DECISION (EU) 2017/1324 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2017 on the participation of the Union in the Partnership for Research and Innovation in the Mediterranean Area (PRIMA) jointly undertaken by several Member States: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D1324&from=EN>

¹³ The functions of the PRIMA governing bodies are set in the PRIMA Statutes and reported in PRIMA Decision

Chapter 3 Implementation of the annual work plans and the resulting activities

3.1 Definition of priorities in the Annual Work Plans

The PRIMA Foundation implements the PRIMA programme based on annual work plans in compliance with the objectives and provisions set out in the PRIMA Decision and based on the priorities described in the [Strategic Research and Innovation Agenda \(SRIA\)](#).

The PRIMA programme, while strengthening Euro-Mediterranean cooperation, promotes joint efforts to solve the challenges on water and food sustainability in the region, contributing to the implementation of the [Paris Agreement](#) and the [United Nations \(UN\) 2030 Agenda Sustainable Development](#) and the actions proposed by the European Commission in the roadmap of the [European Green Deal](#).

Because the ambition to make the EU the first climate-neutral continent by 2050 cannot be achieved by Europe on its own, the transformation of the EU economy will also depend on its partners' efforts, including in its most immediate neighbourhood such as the Mediterranean, major hotspot of climate change. PRIMA offers a unique opportunity to accelerate the transition towards a green economy in the region, mainstreaming green and sustainable development principles and generating innovation-based and inclusive growth.

To maximise its impact, PRIMA has identified strategically important areas of research and innovation (12 priorities) within three thematic areas: management of water, farming system agri-food value chain and their interconnections through a nexus theme aiming to meet the PRIMA objectives.

PRIMA's strategic view to successfully achieve sustainability of the water food resources is to adopt a [water–energy–food–ecosystems \(WEFE\) Nexus](#)¹⁴, which provides the knowledge and decision-sharing framework to identify and view trade-offs as being strategically beneficial for all sectors involved, moving away from silos thinking where actions on one sector might affect (negatively) the others.

The successful implementation of the WEFE Nexus in Mediterranean countries is a crucial solution to pave the green economy and achieve the Sustainable Development Goals and European Green Deal.

Apart from the Annual Work Plan 2018, in which all the thematic priorities identified in the SRIA were addressed, more specific priorities to be included in the following work plans, along with an indicative budget, were decided each year by the PRIMA Scientific Advisory Committee (SAC)¹⁵ whose inputs and guidance provided the basis for the work plan drafting process.

The definition of the specific priorities to be addressed by PRIMA AWP starts with a *gap analysis* of PRIMA projects selected in previous calls and identifying synergies or possible overlaps with relevant EU programmes and partnerships.

Draft scopes are included in the AWP and are confirmed when the PRIMA BoT and the European Commission agree on the current year's work plan (including Funding Decisions for each AWP).

¹⁴ The water–energy–food–ecosystems (WEFE) Nexus is an approach that moves away from the traditional focus on separate entities but rather integrates management and governance across the multiple sectors of food, energy, water, and ecosystems as being complex and inextricably entwined.

¹⁵ The Scientific Committee (SAC) is the advisory body of PRIMA, established in accordance with the PRIMA Statute. The SAC supports PRIMA in providing scientific advice on the areas of work undertaken by PRIMA, such as advice on the scientific priorities to be addressed in the annual work plans, as well as commenting on the programme achievements. The SAC is currently composed of eighteen members including two Chairs, according to the principle of equal geographic representation. The SAC exercise its functions for three years according to PRIMA Statute. The first SAC mandate was from 2018 to 2021. A new committee composed by 7 members has been selected by the PRIMA Governing Board on 16th November 2021.

Table 3 Links to the EC funding decision on the financing and approval of AWP (2018-2021)

Annual Work Plan	Links to the EC Funding Decision
Annual Work Plan 2018	C(2018) 371 1.2018
Amended Annual Work Plan 2018	C(2018) 3375776 – 26.06.2018
Annual Work Plan 2019	C(2018) 8734 13.12.2018
Amended Annual Work Plan 2019	C(2019) 6287
Annual Work Plan 2020	C(2020) 728 10.2.2020
Annual Work Plan 2021	C(2021) 1390 4.3.2021

3.2 PRIMA Architecture

The PRIMA Programme is structured along with a three-section funding scheme. In principle, PRIMA actions and activities are implemented following [Horizon 2020 RfP](#). Nonetheless, specific rules concerning participation and funding rates apply for the activities implemented with national funds.

Each of the sections refers to the following:

Section 1: Actions and activities organised, managed and funded by the PRIMA Foundation according to H2020 Rules.

Section 2: Activities selected following transnational open and competitive calls for proposals organised by the PRIMA Foundation and funded by the national funding bodies of Participating States (PS) according to their [National Regulations](#).

Section 3: Activities organised, managed and funded by the PS encompassing activities under the national programmes of the PS, including transnational projects referred to as "Participating States' Initiated Activities" (PSIAs), and activities organised and funded by PS supporting PRIMA programme implementation referred to as "Other Activities" in this document.

PRIMA's architecture is the main factor in the Partnership's success. Addressing three different programming levels with funding from either H2020 or national sources, the Partnership effectively targets key R&I issues in the Region, influences R&I strategies among its members and streamlines national processes and procedures, which even needed to be modified to fit PRIMA's requirements.

3.3 PRIMA Calls: Rules for Participation in Section 1 and Section 2 Calls¹⁶

To achieve the programme's objectives, PRIMA provided financial support mainly in grants to participants either funded with EU funds (Section 1) or with PS funds through PRIMA National Funding Agencies - NFAs- (Section 2). Those actions/activities have been selected following open and competitive calls for proposals under the responsibility of PRIMA Foundation.

To account for the specificities resulting from the geographical scope of PRIMA, specific derogations to H2020 rules for participation (RfP) for PRIMA calls were set in the Decision (EU) 2017/1324 (PRIMA Decision) due to the unique objectives and specific operational needs of PRIMA.

Derogations to H2020 rules of participation¹⁷ applying to both Section 1 and Section 2 calls are the following:

- Derogation to H2020 Rules for participation¹⁸ to adjust the minimum eligibility conditions for participation in PRIMA indirect actions to be at least three independent legal entities. Those legal entities shall be established in three different countries considered to be the Participating States, of which: (i) at least one is based in an EU Member State or third-country associated with Horizon 2020 (ii); at least one is established in a third country bordering the Mediterranean Sea.

¹⁶ Full description of the Eligibility conditions for participation in PRIMA calls can be found in section 5.1.1 and 5.1.2 and 5.1.3 for Section 1 calls and 5.2.2 and 5.2.3 for Section 2 calls of each Annual Work Plan.

¹⁷ Derogations from point (b) of Article 9(1) of the PRIMA Decision and from Article 9(3) of Regulation (EU) No 1290/2013

¹⁸ Derogation from Article 9(3) of Regulation (EU) No 1290/2013

- Derogation to H2020 rules of participation¹⁹ according which the following countries are eligible to receive funding through PRIMA grants:

a) The following Member States (MS) of the European Union (EU): Croatia, Cyprus, France, Germany, Greece, Italy, Luxembourg, Malta, Portugal, Spain, Slovenia. It includes the Overseas Countries and Territories (OCT) linked to these Member States:

b) The following Third Countries associated to Horizon 2020 (AC): Israel, Tunisia, and Turkey.

c) The following Third Countries not associated with Horizon 2020 (TC), having concluded international agreements for scientific and technological cooperation setting out the terms and conditions of their participation in PRIMA: Algeria, Egypt, Jordan, Lebanon and Morocco. The Associated (AC) and Third Countries (TC) mentioned above are the Mediterranean Partner Countries (MPC).

For Section 1 calls to be funded by PRIMA, legal entities from other countries from the ones enlisted above should demonstrate that their participation in the action should be considered essential.

For Section 2 calls, funding must be ensured by the relevant funding agencies to the legal entities established in the PRIMA Participating States through a commitment letter (see the section below). Participants from countries not listed above have to fund their participation.

3.4 Budget, Union contribution (Section 1) and national funding (Section 2)

The total planned financial contribution from the EU for PRIMA calls (Section 1) for the first four years (2018-2021) amounts to **112 300 000 EUR**.

The PS planned financial contributions for PRIMA calls (Section 2) in the four first years of implementation (2018-2021) amount to **141 967 715 EUR**.

At the beginning of each year, every National Funding Agency of the PRIMA PS indicates, through a commitment letter signed by an authorised representative, the planned financial contributions for the annual work plan of the reference year.

The financial commitment letter ensures the respect of the overall commitment over the PRIMA initiative, mitigating the underspending risk.

In response to the COVID-19 pandemic, which led to some PS governments adopting austerity measures, the commitment of some PS was decreased in 2020 and 2021. i.e., CY, DE, EL, IL. Although the planned contributions of some Funding Agencies decreased, the total financial contributions of PS in 2020 and 2021 were higher than the ones in the first two years of Implementation of the Programme showing their full engagement in the Programme despite the difficult times.

3.5 Call announcements

The PRIMA Foundation launched its first calls for proposals on 6 February 2018, immediately after adopting its Annual Work Plan by the European Commission and the PRIMA Board of Trustees.

Since 2018, the PRIMA Secretariat has launched calls for proposals addressing different topics, generally in January or early February. All organisations targeted by H2020²⁰ are beneficiaries of the PRIMA calls for proposals.

The call announcements were made through the PRIMA website and disseminated widely through PRIMA's networks and the national funding agencies of the PS.

PRIMA's online submission and evaluation platform, provided by the French '[Agence Nationale de la Recherche](#)', is the [Electronic Submission System \(ESS\)](#), whose structure is somewhat similar to the EU tools

¹⁹ Derogation from Article 10(1) and (2) of Regulation (EU) No 1290/2013

²⁰ Private for profit companies (PRC), Research organisations (excluding education) (REC) (REC) Secondary and higher education establishments (HES) (HES) Public bodies (excluding research and education) (PUB), Other entities (OTH)

used for Horizon 2020²¹.

The French National Research Agency (ANR) allows PRIMA to use its national submission system for all the PRIMA calls and agreements among the parties, free of charge, apart from the ANR personnel costs (paid by PRIMA through an invoice) related to the adjustments needed to customise the system.

3.5.1 Calls Section 1, with EU contribution

The body implementing the calls is the PRIMA Secretariat.

From 2018-2021, PRIMA launched 15 calls for proposals with EU funds and a single call for prizes under Horizon 2020, the European Union's Framework Programme for Research & Innovation.

The type of actions in Section 1 calls for proposals launched so far are Research and Innovation Actions (RIAs) and Innovation Actions (IAs). A single Coordination and Support Action (CSA) was launched so far in 2018.

While RIAs and IAs calls were implemented through a two-stage submission process whereby only consortia whose pre-proposals were deemed outstanding were invited to submit a full proposal²², the CSA call was implemented through a single-stage submission process according to H2020 rules.

As for Horizon 2020, the proposals template consisted of two main parts: the administrative form, (part I) with the administrative data and list of partners, and the technical annexe, (part II) with the description of planned research and innovation project, the outline of work packages, and budget.

The following detailed PRIMA documentation supports the calls:

- Electronic-submission-system-Handbook.pdf
- Guidelines for Applicants, Section 1
- h2020_mga_prima_multi_en
- Template part I and part II
- Relevant call text

In addition, for the first time in the AWP2021, PRIMA introduced Prizes (The Water-Energy-Farming-Ecosystems WEFE Nexus Award) to recognise research teams and practitioners that have devised and demonstrated the successful implementation on the ground of combined management practices of water, energy, food and ecosystem resources in the Mediterranean, at the local, sub-regional and or regional level.

The following detailed specific documentation supports the call for the Prizes:

[PRIMA WEFE NEXUS Award Rules of Contest - RoC](#)

PRIMA WEFE NEXUS Award – [template 1](#) & [template 2](#) –

3.5.2 Call Section 2 – national contributions

As for Section 1, the body implementing the calls is the PRIMA Secretariat.

The following detailed PRIMA documentation supports Section 2 calls for proposals:

- Electronic-submission-system-Handbook.pdf
- Guidelines for Applicants 2021, Section 2
- National Regulations
- Relevant call text

²¹ The use of EC Funding and Tenders Portal, has been considered in 2019 as a pilot exercise that could be duplicated to other EU partnerships allowing for more homogenised approaches, with data production more compliant with EC's data requirement standards. After several iterations with EC, this did not appear to be possible for technical reasons.

²² For Stage 1 pre-proposals, applicants willing to participate in projects with their funds were asked to upload duly signed letters attesting that such funds would be available (separate annex). For Stage 2 full proposals, applicants were also asked to upload the detailed budget breakdown (separate annex).

3.6 Submissions received, admissibility, eligibility, Section 1 and Section 2 (Stage 1, Stage 2)

For Section 1 calls, in 2018-2021, there were 1441 submissions in total. 484 proposals were submitted in 2018 calls, 309 in 2019 calls, 335 in 2020 calls, and 313 in 2021 calls. The average number of submissions in section 1 calls is around 360 proposals each year.

For Section 2 calls, submission numbers were relatively lower, around 218 proposals per year. Out of 875 proposals submitted in the first four years of implementation: 396 were received in 2018 calls, 178 in 2019 calls, 161 in 2020 calls and 140 in 2021 calls.

All submitted proposals are subject to an admissibility check to identify incomplete submissions and an eligibility check to establish if the proposals meet the eligibility conditions set out in the annual work plans; the PRIMA Secretariat performs these checks. The reasons for non-eligible/non-admissible projects are recorded and communicated to applicants.

In the case of Section 2 proposals, the eligibility check is also performed by the PRIMA National Funding Agencies since the proposals have to comply with additional eligibility criteria laid down by the National Regulations.

After completing the admissibility and eligibility checks, the PRIMA Secretariat assigns eligible, admissible proposals to evaluators.

The numbers of eligible proposals assigned to evaluators after the eligibility check were reduced by 7% for Section 1 proposals (from 1441 to 1347 proposals) and 8% for Section 2 proposals (from 875 to 806 proposals). These values indicate that the eligibility and admissibility checks are comparable in the two Sections where the additional check from the Funding Agencies does not affect the total number of discarded proposals. The inadmissibility and ineligibility of proposals in both sections are usually a result of applicants' mistakes in the submission process.

The relatively lower number of proposals received in Section 2 can be attributed to the difficulties encountered by applicants and/or beneficiaries when dealing with the different administrative procedures and schedules of the funding agencies concerned (at both application and grant negotiation/signature stage), an issue whose complexity has been further exacerbated by the impact of the COVID-19 pandemic on all national administrations, and which may discourage researchers from applying.

Measures undertaken by National Funding Agencies during the years to improve Section 2 implementation are described [in the section below](#). For example, the double submission of proposals, at the national and international level, required by some National Funding Agencies at the application stage, as well as the lack of synchronisation of Funding Agencies schedules (signature of national contracts and payments to beneficiaries) after projects' selection, which often results in delays in the start and implementation of the actions.

PRIMA is actively working with the NFAs to find appropriate solutions. With this aim, PRIMA, in collaboration with the NFAs, have implemented specific activities (Mutual Learning Exercise workshops) to discuss and exchange best practices and identify solutions adapted to the specificities and needs of the Funding Agencies to increase the interoperability of national procedures.

3.7 Evaluation of proposals

The Section 1 and Section 2 evaluation process is fully described at the following [link](#).

The experts who participated in the evaluation process were identified through the PRIMA Database of Experts[1]. This database is part of the PRIMA website and allows any time experts who are willing to evaluate project proposals [to register](#) and upload their CV. For 2018 calls, PRIMA staff were given access to the EC database of experts; however, PRIMA established its database for the following calls (from 2019 calls onward).

Each year, PRIMA Project Officers select independent expert evaluators based on a series of specific criteria that are enlisted below:

- Professional experience: current and past appointments, professional memberships, experience in peer review, experience in national and international Research and Innovation projects, teaching experience
- Training and education: degree/s obtained and field of such degree/s (preference was given to experts

- with, at least, a PhD and with degrees in the thematic areas addressed by PRIMA)
- Years of experience in Research & Innovation after the PhD: at least five, but preference was given to experts with more than ten years of experience
- Countries worked in: experts may come from any country in the world, but preference was given to experts who worked in the Mediterranean area and, more specifically, in the PRIMA Participating States
- Scientific expertise according to the twelve priorities identified by the PRIMA Strategic Research and Innovation Agenda
- Publications: publications in peer-reviewed journals, books and book chapters, works submitted to conferences
- Technical skills and competences
- Language skills: excellent knowledge of the English language

CVs were analysed in detail to ensure that the evaluators had appropriate experience and expertise to evaluate the proposals received under each thematic area. If the expertise required was missing among the experts registered in the database, specific calls for experts were launched on the PRIMA website. Expert profiles were then matched with specific calls for proposals and topics.

In assembling the pool of experts, the PRIMA Secretariat also tried to achieve gender, public/private and geographical balance; however, this was not always possible for a series of reasons (e.g. unavailability of several experts, difficulties in obtaining visas for non-EU residents).

Project Officers attempted for each call to have an adequate balance regarding experts' gender and their geographic distribution. The figures in Section 5.2 of this document show that the number of female evaluators increased significantly in 2020 and 2021 calls compared to the previous years. In Section 1 panels, the female percentage in panels varied between 39% to 49%, well above the Commission's target of 40% of the under-represented sex in panels.

All experts identified by the Project Officers were asked to sign a contract defining the rights, obligations, terms and conditions, remuneration, and assignment details. Experts also had to sign a Code of Conduct and declare any conflict of interest.

Before starting the evaluation process, the experts are briefed on:

- the evaluation processes and procedures (including selection and award criteria)
- the content of the topics under consideration
- the terms of their contract (e.g., confidentiality, impartiality, conflicts of interest, completing tasks and approving reports)

The following detailed PRIMA documentation is sent to experts:

- The guidelines for evaluators
- A handbook for using the ANR ESS platform
- The projects booklet (info on project participants) to declare any conflicts of interest
- Online evaluation form
- Annexes submitted by the coordinator (letter of support, own attestation funding)

At the end of the final scientific evaluation committee meeting, i.e. the last step of the evaluation process, the PRIMA Secretariat shares with all the experts the ranking list (with each project's acronym, score, mark and rank) and a declaration letter (to be signed by each expert) to confirm that they agree with the evaluation process and the final ranking list.

3.8 Funding Decision and communication to applicants

- **Funding decision by BoT (Section 1)**
The BoT is the body within PRIMA charged with the overall responsibility for the Programme. As established by Art. 6.2 (q) of the PRIMA Statutes, funding decisions are made by the PRIMA Board of Trustees, based on the ranking lists produced by the Scientific Evaluation Committees. Immediately following the consensus meetings, the BoT formally approves the independent evaluators' recommendations for funding projects selected under Section 1 calls without any change
- **Funding Decision by National Funding Agencies (Section 2)**

Immediately following the panel review meetings, the NFA meet for the Funding Decision. Although the evaluators provide the ranked lists, budget restrictions are such that a funding line has to be drawn considering the funds available for each country. PRIMA BoT then endorses formally the decision made by the National Funding Agencies.

– **Communication of evaluation results**

Once the Funding Decision is made for each Section 1 and Section 2 call, the Evaluation Summary Reports are sent to project coordinators. The final lists of projects selected for funding are also published on the PRIMA website. Generally, the announcement of both Section 1 and Section 2 calls evaluation results is made at the end of the year according to the call calendar indicated in the reference year's AWP. Applicants who believe that their proposal's evaluation has not been carried out properly may file a complaint according to a redress procedure available on the PRIMA website.

3.9 Grant Agreement preparation

Grant Agreement preparation for the projects selected occurs in the first few months of the following year. Grant agreements for Section 1 projects between PRIMA and the project's beneficiaries are prepared by PRIMA Secretariat, based on the [PRIMA Model Grant Agreement](#), which is very similar to the H2020 Model Grant Agreement.

For Section 2, each beneficiary will be funded directly by its own national funding body. Therefore, a grant agreement is concluded between each beneficiary and its national funding body.

The rules applying for this agreement are the national rules set in the national regulations. The grant agreement will cover the entire duration of the project and must be synchronised (e.g. the starting date of the activities and the end of the project) between the different funding bodies involved in the project's funding.

The differences in terms of process and timing among the two processes are described in the sections below:

3.9.1 Section 1 Grant Agreement Process

All Section 1 proposals selected for funding underwent a Grant Agreement process aiming to prepare and sign a legal commitment with PRIMA in the form of a contract based on the PRIMA Model Grant Agreement. This legal commitment establishes the legal basis for implementing the action/project and is the reference document in litigations.

Moreover, all the beneficiaries of a project consortium must sign an agreement to set out their rights and obligations regarding implementing the action granted. The majority of the consortia use the DESCA model. The procedure to sign the PRIMA Grant Agreements for Section 1 projects can be summarised below.

After receiving communication of the results and invitation to the Grant Agreement preparation, selected consortia provide relevant data to draft the contract and sign the [Declarations of Honour](#) and reassurance that they have signed their internal consortium agreements, which does not contain any provision contrary to the PRIMA Model Grant Agreement. Each beneficiary signs an [Accession form to the Grant Agreement](#). The Grant Agreements are signed, generally within 3-6 months from the announcement of results and invitation to the Grant Agreement preparation. (Time to Sign 94-177 days).

The signature of the Grant Agreements took 177 days for 2018 projects, allowing more time for the signature of the implementing arrangements for Morocco and Egypt's participation in PRIMA²³. While

²³ Third Countries became Participating States, upon entry into force or, at least, upon provisional application of their respective international agreements for scientific and technological cooperation with the Union setting out the terms and conditions of the arrangements of the agreement for scientific and technological cooperation with EU, setting out the terms and conditions of participation in PRIMA. When the required international agreements started producing legal effects, these 'to be Participating States' became Participating States. According to Article 2 of the International Agreements for scientific and technological cooperation among EU the abovementioned Third Countries, a pre-condition for disbursing of EU funding to the respective third country's entities participating in PRIMA calls under Section 1, H2020 funded, is the signature of their implementing arrangements. On 26th October 2017, Algeria became a PRIMA Participating State (PS). Jordan became PRIMA PS on 16th January 2018 Lebanon became PRIMA Participating State on 27th February 2018 Egypt became PRIMA Participating State on 15th March 2018 Morocco became PRIMA Participating State on 10th April 2018.

Algeria, Jordan, and Lebanon's implementing arrangements (set in Art. 2 of their International Agreements), were signed at the end of 2018, Egypt and Morocco signed them later in 2019, delaying *de facto* some Grant Agreements' preparation.

3.9.1 Section 2 Grant Agreement Process

The beneficiaries of Section 2 call need to sign a grant agreement directly with their National Funding Agencies to receive funds. Due to the lack of synchronisation among the agencies, it can occur that in the same project, some partners have their national contracts signed, while others do not. The time needed to have all national contracts signed delays the start of the projects, putting their successful implementation at risk.

3.10 Measures adopted by National Funding Agencies to address key issues in Section 2 calls implementation

The PRIMA Secretariat periodically organises Mutual Learning Exercise Workshops to ensure smooth coordination and procedural alignment across the National Funding Agencies, a difficult yet important task considering the considerable differences that characterize the R&I funding frameworks in each country.

Following these workshops, measures were undertaken to address the main issues and challenges faced during the management and implementation whole call process.

These measures will benefit the PRIMA programme and positively impact several other European Partnerships that share the same Funding Agencies as members.

The measures adopted since the inception of the initiative can be summarised as follows:

1. Measures to align processes.

- a) Good practices were identified to minimise the exclusion of applicants for eligibility reasons to 1) retain applicants who are involved in good proposals and can play a relevant role in the consortium; 2) avoid under-spending issues, in particular for NFAs which receive a small number of applications and should try to minimise the number of ineligible ones.

For example: in 2018, ANR France declared ineligible all the applications where a public partner was not involved, an essential eligibility condition according to National Regulations. To avoid this, from 2019 onward, ANR France did not declare such applications ineligible but accepted them "under the condition" that, if missing, a public partner would be added at the second stage. This led to a sensible reduction in the number of ineligible applications. The creation of newsletters and FAQs was also identified as a simple yet effective tool. Such good practices were recommended to other agencies that could face similar issues and the adoption of more straightforward; more applicant-friendly procedures were also encouraged.

- b) Synchronisation of the grant agreement's signature between the NFAs and beneficiaries.

The most critical issue identified as the cause affecting Section 2 is the lack of synchronisation among NFA's funding schedules, which has affected the payments to project beneficiaries.

NFAs, since 2019 calls adopted as contingency plans, the shared rule that all projects would start a maximum of six months after the final list of selected projects for funding has been approved.

In doing so, national contracts would be signed simultaneously, and all the research teams participating in a project started on the same date. It was expected that the shorter time to sign would positively affect the efficiency of Section 2; however, due to COVID-19 restrictions, many National Funding Agencies could not comply with the decision mentioned above.

To ensure better synchronisation of processes, NFAs reinforced their coordination and communication with the support of PRIMA Secretariat staff.

One important aspect identified was that some agencies need to receive the project's Consortium Agreement signed by all beneficiaries to conclude a national contract with the beneficiary from their country: this provokes a "domino" effect sometimes, whereby if one partner has not signed

the project's Consortium Agreement (a document internal to the consortium), another partner cannot submit this document to the relevant funding agency and formalise the national contract. Agencies were encouraged to review internal procedures to make them speedier, as earlier contract signatures enable beneficiaries to implement more efficiently the projects.

- c) Finally, an alignment mechanism concerning the extension of projects was established, whereby during Section 2 projects' midterm review meetings, the extension issue is discussed with the agencies and only when all of them agree with the extension request beneficiaries are prompted to formalise the request at the national level. This commonly agreed procedure represents for sure a significant innovation, especially for NFAs with less experience in transnational R&I cooperation. This procedural alignment among agencies provides a coordinated framework to avoid some project partners obtaining an extension and others not, which would create significant administrative and implementation issues in the project timeline (projects required "common" start and end dates for all the agencies and beneficiaries concerned).

2. Measures to simplify, Funding Agencies' administrative procedures

At the programme's inception, some PRIMA Funding Agencies had heavy internal administrative procedures that reduced the programme's attractiveness to some applicants and were hindering the smooth implementation of Section 2 projects. In particular, slow administrative procedures severely affected beneficiaries who were paid with considerable delays.

As of 2020, the national regulations of some countries were changed to alleviate the burden of heavy administrative procedures and were substituted by simplified (fast-track) procedures.

Some changes would affect the efficiency of signature and payments, while others would simplify the submission process, thus increasing the programme's attractiveness towards potential applicants.

In particular, the abovementioned changes were carried out by the following PS:

IT- [MUR](#), the Italian Funding Agency, Ministero dell'Università e della Ricerca

ES- [AEI](#), the Spanish Funding Agency, Agencia Estatal de Investigación

EG- [SDTF](#), the Egyptian Funding Agency, Science, Technology & Innovation Funding Authority

JO- [HCST](#), the Jordan Funding Agency, The Higher Council for Science and Technology

The changes in the national regulations or procedures to shorten the duration of the grant agreement signature and payments are the following:

1. The Italian Government has issued on 20 May 2020 a Decree-Law that will allow Italian partners more effective and expedited participation in international projects. The signature of contracts from the Ministry of the University of Research will allow skipping some checks implying the appointment of national experts after the signature of the grant agreements, thus saving much time.
2. AEI Spanish funding agency implements a fast-track grant mechanism, which allows signing contracts very soon after PRIMA has produced its ranking list. The international evaluation conducted by PRIMA is accepted as a reliable evaluation, and thus projects selected by PRIMA are automatically funded with no further evaluation. It saves around 6 months from the previous procedure.
3. Egyptian public bodies involved in international cooperation projects need to validate a specific department in charge of national security affairs. The Egyptian participants cannot join the consortium and sign grant agreements if they do not get the approval for participating in an international project by the internal Security Authorities (the so-called 'non-technical' approvals for EG public entities). The Egyptian ministry of education adopted a contingency plan to avoid delays in the signature of grant agreements. After announcing the results of the evaluations (Section 1&2), the Ministry will send formal letters* to the EG public participants invited to the second stage to start immediately applying for the national approvals. This would give additional six months for EG organisations to get approvals before the start of the projects

As many Section 2 beneficiaries have partners in Spain and Italy, the speed-up of the national processes implies that most projects will be able to start sooner, and synchronisation with other NFAs funding schedules will be more straightforward.

The changes in national regulations to avoid double submission of applications

4. As of 2022 calls, HCST Jordan Funding Agency eliminated the double submission (at national and international level) to speed up eligibility checks and facilitate the Jordanian applicants in Section 2 calls submission of their proposals. During two subsequent Section 2 calls for proposals (Call 2019 and Call 2020), 70% of applicants were eliminated at the first stage eligibility check from the funding agencies due to the problematic understanding from applicants of the two agencies' rules linked to the double submission.

It is noteworthy that the change in the national regulations in the countries as mentioned above, triggered by the PRIMA programme, will have a significant effect on PRIMA calls and affect the other future EU partnerships under Horizon Europe, with similar funding mechanisms, particularly the co-funded EU partnerships. (using a programme co-fund action)

Chapter 4 Projects funded calls 2018-2021, Section 1 and Section 2

4.1 Overview of projects

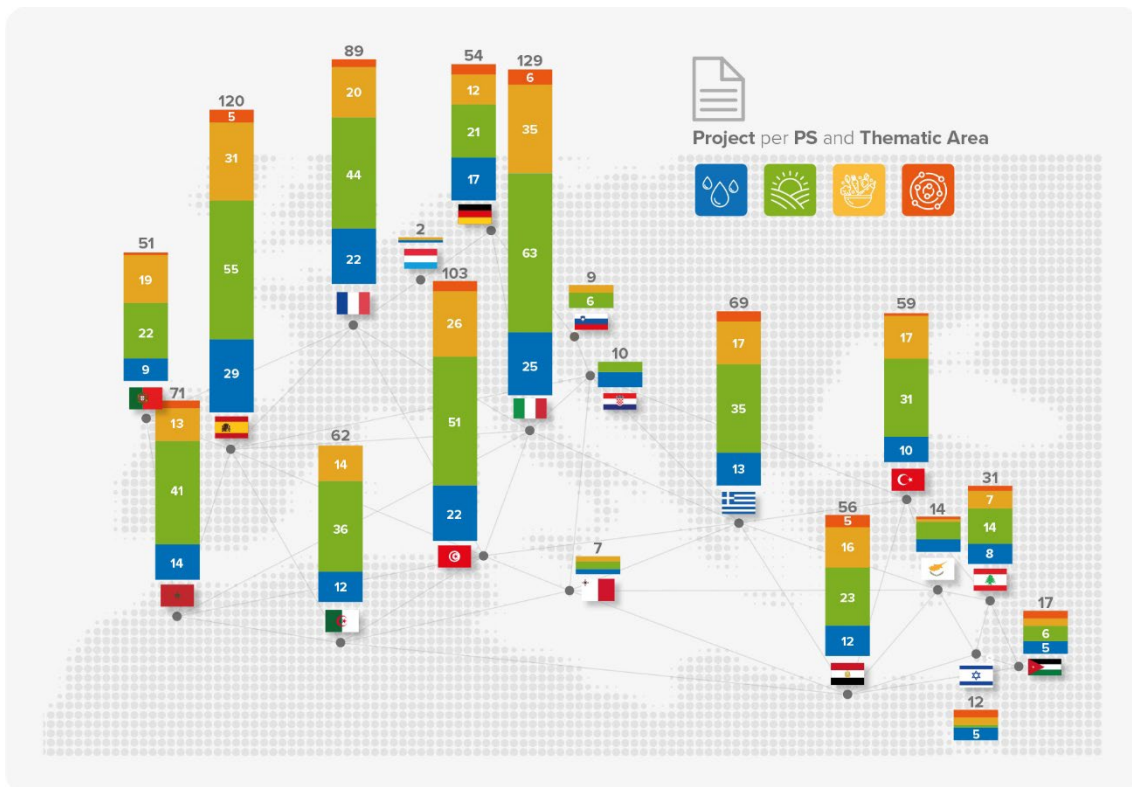
During the first four years of Implementation, PRIMA has shown to be an effective instrument for R&I collaboration between the EU and Mediterranean countries.

Currently, **129 projects** with an overall budget of 164 million EUR, selected out of 2018-2020 Section 1 and Section 2 calls, **are being implemented** and are contributing to the sustainability of water management, farming systems, agri-food value chain and Nexus WEFE in the Mediterranean area while promoting international cooperation and science diplomacy.

An additional **39 proposals** for an additional budget of EUR 61 million have been selected in response to 2021 calls and will commence their project activities after signing their Grant Agreements with PRIMA Foundation (Section 1 projects) and with the relevant National Funding Agencies (Section 2 projects).

After the first four years of implementation (2018-2021), the **PRIMA project portfolio will include 168 projects** with around EUR 225 million allocated, involving **1571 teams** mainly from the PRIMA Participating States located on both shores of the Mediterranean basin. Most projects are implemented by entities located in both EU Countries (France, Italy, Germany, Greece, Portugal and Spain) and Non-EU Countries (Algeria, Egypt, Morocco, Tunisia, and Turkey), as reported in the figure below.

Figure 2 Project distribution by country and thematic area (blue represents projects selected under water thematic area, green, under farming systems, yellow, under agri-food value chain and red under WEFE Nexus).



Out of the 168 projects selected for funding, 53 projects are selected in response to Section 1 calls (with EU funds), while **115 projects** are selected from **Section 2 calls** (funded by the Participant States).

From 2018 to 2021, approximately 42 projects have been selected from Section 1 and Section 2 calls each year.

From a thematic standpoint, the 168 projects selected for funding from 2018 to 2021 cover all SRIA priorities under PRIMA thematic areas (water management, farming systems, agri-food value chain and their interconnections within the nexus theme).

As shown in the figure below, out of the 168 projects selected for funding, 37 projects (23% of the project portfolio), with a budget of 53 million EUR, were selected under the water management thematic area, 81 projects (44% of the project portfolio) with a budget of EUR 99 million under the farming systems thematic area, 43 projects (24,6% of the project portfolio) with a budget of EUR 55 million under the agri-food value chain thematic area and 7 projects (8% of the project portfolio), with a budget of EUR 18 million under the nexus theme considering the interconnection among water, energy, food and ecosystems (WEFE).

These projects contribute to achieving the operational objectives set out in PRIMA SRIA.

Figure 3 Project's percentage and budget per thematic area (blue represents projects selected under water thematic area, green, under farming systems, yellow, under agri-food value chain and red under WEFE Nexus)

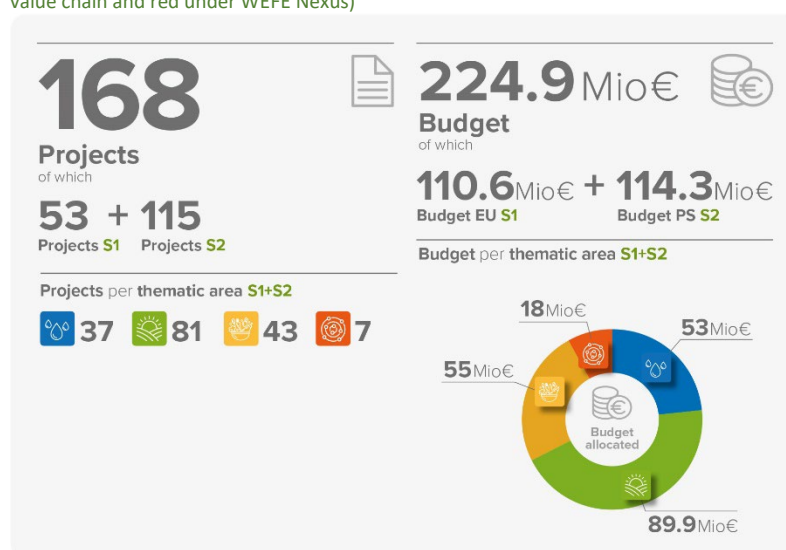
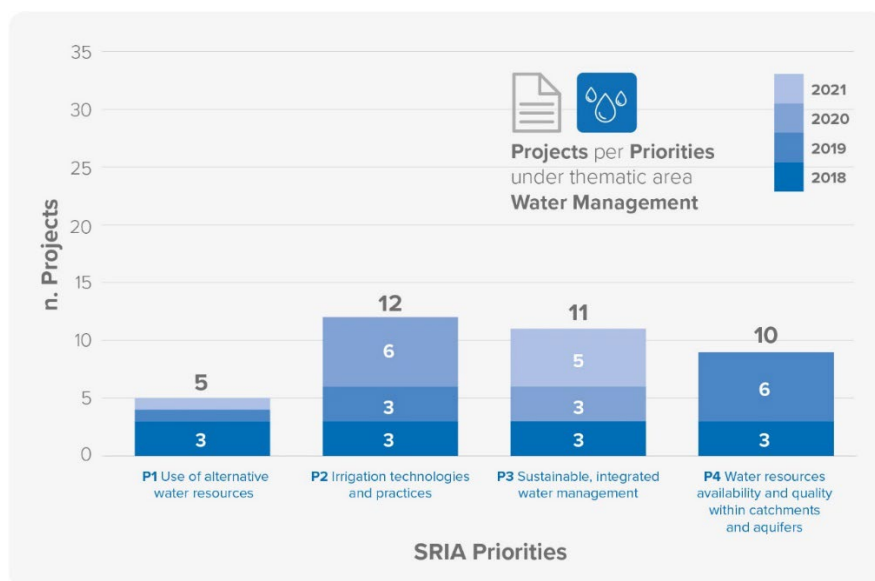


Figure 4 Scientific operational objectives (source: PRIMA SRIA)



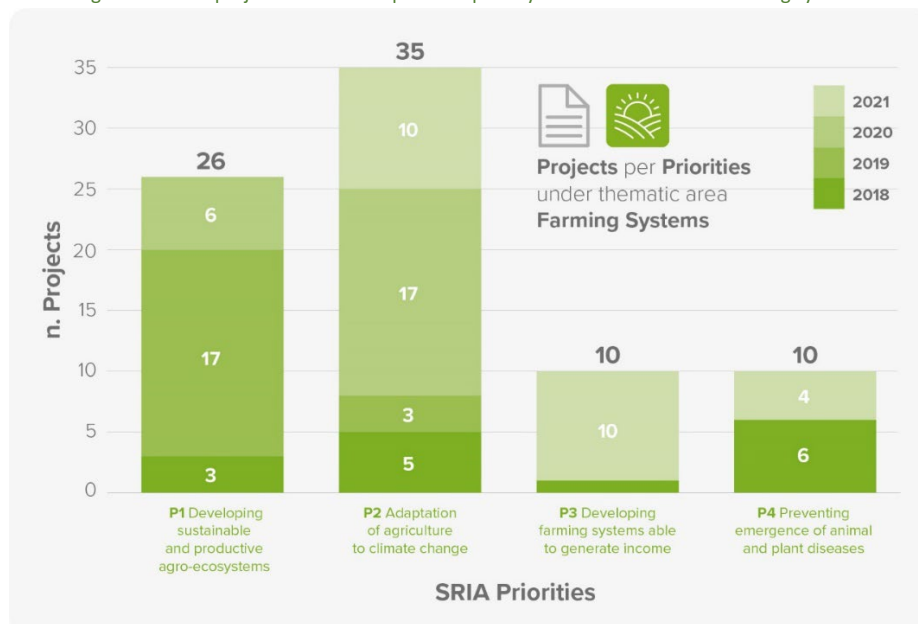
Water projects selected in the four first years of implementation, aligned to PRIMA scientific, operational objectives 1/WATER SAVING SOLUTIONS, 2/LAND AND WATER SUSTAINABILITY and 3/WATER AND GOVERNANCE SYSTEMS, aim to increase water systems' sustainability and efficiency through the adoption of both technical and water governance solutions, are defining new possibilities for increasing water availability through wastewater reuse and desalination across the Mediterranean, reinforcing water circularity by exploiting non-conventional water resources, and making the most of the possibilities offered by the digitalisation of the water sector.

Figure 5 PRIMA projects breakdown per each priority under thematic area water management



Farming systems projects own the most significant thematic area budget share, 43.9%, defined as the proportion of projects for each thematic area over the total. This is also justified by the higher number of projects selected under the farming systems thematic area out of Section 1 (34%) and Section 2 (55%). The majority of farming projects, aligned to Operational objective [4/SMART AND SUSTAINABLE FARMING](#) and [5/PESTS AND PATHOGENS IN FARMING](#), are dealing with farming systems adaptation to climate change at the level of the systems or the level of incremental adaptation (resistance/tolerance of a variety to biotic or abiotic stress), for coping with the impacts of climate change, providing an essential contribution to addressing food and nutrition security while ensuring the resilience of production systems.

Figure 6 PRIMA projects breakdown per each priority under thematic area farming systems



Food projects, aligned with Operational Objective [8/NEW AGRIFOOD BUSINESS MODELS](#), mainly focus on adopting innovation in the agri-food value chain to increase efficiency and reduce food waste ([7/REDUCE LOSSES AND WASTE](#)). Projects selected in response to 2020 and 2021 calls aim to facilitate the transition towards healthy and sustainable dietary behaviour in the Mediterranean, delivering co-benefits for climate

(mitigation and adaptation) and people through safer, more nutritious and healthier diets. ([6/NUTRITION and HEALTH](#)).

Figure 7 PRIMA projects breakdown per each priority under thematic area agri-food value chain



Finally, from 2019 PRIMA has proposed a [NEXUS THEME](#) to address the interlinkages among water, energy, food, and natural ecosystems. Under this approach, interlinkages, synergies, and trade-offs are analysed to identify solutions, foster water-food-energy security and efficiency, and reduce impacts and risks on water-dependent ecosystems. Under NEXUS, there is a strong focus on pursuing interdisciplinary research and scientific approaches to addressing the complex but inter-related problems faced by the Mediterranean basin and Participant States in PRIMA.

Nexus solutions are the missing link to relieve long-standing issues exacerbated by climate change, demographic changes and inefficient resource management - and for which the conventional sectoral approach did not work. Seven projects (8% of the PRIMA projects) selected from calls under this theme demonstrate the benefit of a nexus approach in the Mediterranean by implementing co-designed management solutions.

Contrary to the conventional silo thinking, this approach will eventually make a substantial difference in Mediterranean countries and will contribute to the transition to green economy and the achievements of SDGs.

This systemic approach is also at the core of our European policies, e.g., in the European Green Deal that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy, no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use.

Applied systematically, the nexus approach will enable the transition to a green economy and fulfil the Sustainable Development Goals. For this reason, PRIMA is fostering the nexus thinking in all its present and future calls to enable the shift towards environmentally sustainable Mediterranean economies.

Innovation Actions (IAs) are the most promising in the quick delivery of the innovative, integrated and easily transferable solutions urgently needed to address the unsustainable management of water provision and food systems in the Mediterranean area.

To boost the innovation potential in the Region, PRIMA has used the EU financial contribution in a highly focused manner, mainly to fund Innovation Actions with higher Technology Readiness Levels (TRLs). The number of Innovation Actions with a TRL from 5 to 7 increased from 3 in 2018 calls to 8 IAs in 2019, 13 in 2020 and 8 in 2021 with a budget per project spanning from EUR 2 million to 4 million.

The increasing innovation actions aimed to upscale, validate and adopt the solutions developed within PRIMA projects towards achieving some operational objectives included in the strategic joint R&I agenda involves R&I activities at higher Technology Readiness Levels. These activities are also the most demanding in financial terms and the most demanding in complementary knowledge requirements and public-private stakeholder involvement needed for quick valorisation and dissemination of results.

For this reason, the EU financial contribution (Section 1 projects) would most effectively and efficiently serve this purpose, allowing projects with higher budgets and higher TRLs. On the other hand, national financial contributions focus on R&I activities at lower Technology Readiness Levels (Section 2 projects).

4.1.1 Projects funded with EU funds calls 2018-2021, Section 1

53 projects with a total budget of EUR 110 584 758 allocated to 604 beneficiaries have been selected out of fifteen Section 1 calls.

42 out of the 53 projects selected out of Section 1 calls launched from 2018 to 2021 are running, while 11 have just started the Grant Agreement Process to kick off their activities in 2022. Further data on projects are available in [Chapter 6](#) of this document.

Figure 8 Projects selected out of S1 calls (2018-2021) participating and coordinating entities



Figure 9 Type of Action, Section 1 (calls 2018-2021)



Projects funded in Section 1 calls are RIAs, IAs or CSAs whose rules of participation are the standard Horizon 2020 rules for participation.

The majority (32 out of 53) are Innovation Actions, 20 projects are Research Innovation Action with TRLs ranging from 3 to 5.

PRIMA looks for more applicative solutions than basic research with lower TRLs (1-2).

A single Coordination Support Action was launched in the first four years of implementation of the Programme to map, capitalise and maximise the impact of best practices and methodology of previous

International European and national projects implemented in the Region, i.e. ERANETMED, ARIMNET1 and ARIMNET2, 5TOI-4EWAS

Figure 11 Overview Section 1

Overview 2018/2021 Section 1 at a glance

53

1441
Proposals
submitted



Funded Projects

of which

per **nationality of coordinating Entities**

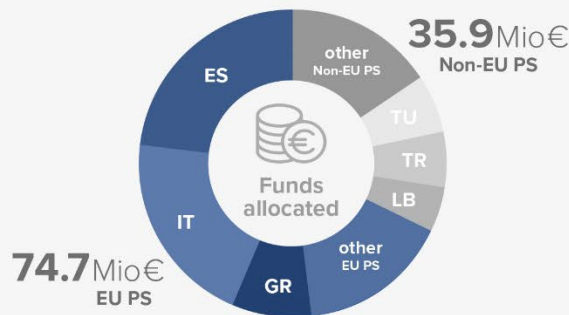


110.6 Mio€

EU Budget



of which



18 / 19



Participating States PRIMA

of which



Projects per thematic area



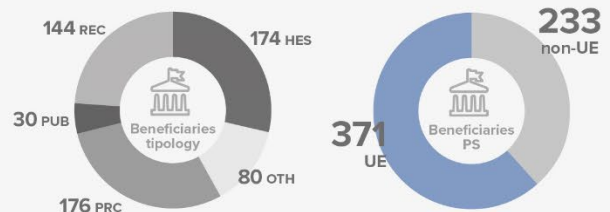
Projects per actions



604

Beneficiaries

HES Higher education establishments
REC Research organisations
PUB Public body
PRC Private for-profit organisations
OTH other



2018

9
Funded Projects



CSAs 1 RIAs 6 IAs 3

103 Beneficiaries

18 Mio€

2019

18
Funded Projects



CSAs 1 RIAs 9 IAs 8

169 Beneficiaries

27.5 Mio€

2020

15
Funded Projects



CSAs 1 RIAs 2 IAs 13

183 Beneficiaries

33.1 Mio€

2021

11
Funded Projects



CSAs 1 RIAs 3 IAs 8

149 Beneficiaries

32 Mio€

4.1.2 Projects funded calls 2018-2021, Section 2

115 projects with a total budget of EUR 114 286 523 million allocated to 967 beneficiaries have been selected out of the four Section 2 Multi-Topic calls launched from 2018 to 2021.

All topics proposed in the relative AWP were supported by all National Funding Agencies, which, after receipt and approval of the AWP, submitted to the PRIMA Secretariat a planned financial contribution concerning all Section 2 calls. In general, organisations from non-PS countries can be partners of the consortium on the condition that they provide evidence of the availability of their funds to cover their project activities.

In section 2 projects, 5 entities from non-EU countries (namely USA, Argentina, Australia, Switzerland) participate in consortia using their own funds.

Figure 12 Projects selected out of S2 calls (2018-2021) participating and coordinating projects



All projects funded in Section 2 calls are Research and Innovation Activities that are somewhat similar to the standard H2020 RIAs. However, the projects selected in Section 2 are funded directly by the national funding bodies; they will be subject to the respective national regulations concerning participation and funding rates. Not all funding agencies can fund all types of research (or TRL)
The beneficiaries of Section 2 calls need to sign a grant agreement directly with their National funding agencies to receive funds.

87 out of 115 projects are running, although some contracts between National Funding Agencies and beneficiaries have not been signed mainly due to the COVID-19 containment measures causing administrative delays. As a consequence, several projects funded in 2018 are requesting an extension. In general, the budget of Section 2 projects is relatively lower compared to Section 1.

Figure 13 Overview Section 2

Overview 2018/2021 Section 2 at a glance

115

875
Proposals
submitted

Funded Projects

of which

per nationality of coordinating Entities



19 / 19

Participating States PRIMA

of which



Projects per thematic area



Projects per action

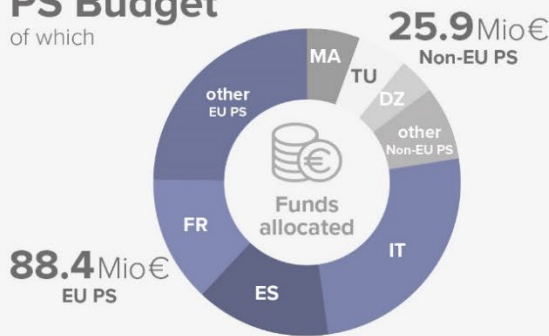
115 RIAs
Research and Innovation Action



114.3 Mio€

PS Budget

of which



967

Beneficiaries



2018

26
Funded Projects



RIAs 26

214 Beneficiaries

27,4 Mio€

2019

30
Funded Projects



RIAs 30

248 Beneficiaries

27.2 Mio€

2020

31
Funded Projects



RIAs 31

266 Beneficiaries

30.8 Mio€

2021

28
Funded Projects



RIAs 28

239 Beneficiaries

28.9 Mio€

Figure 14 Overview S1 and S2 calls

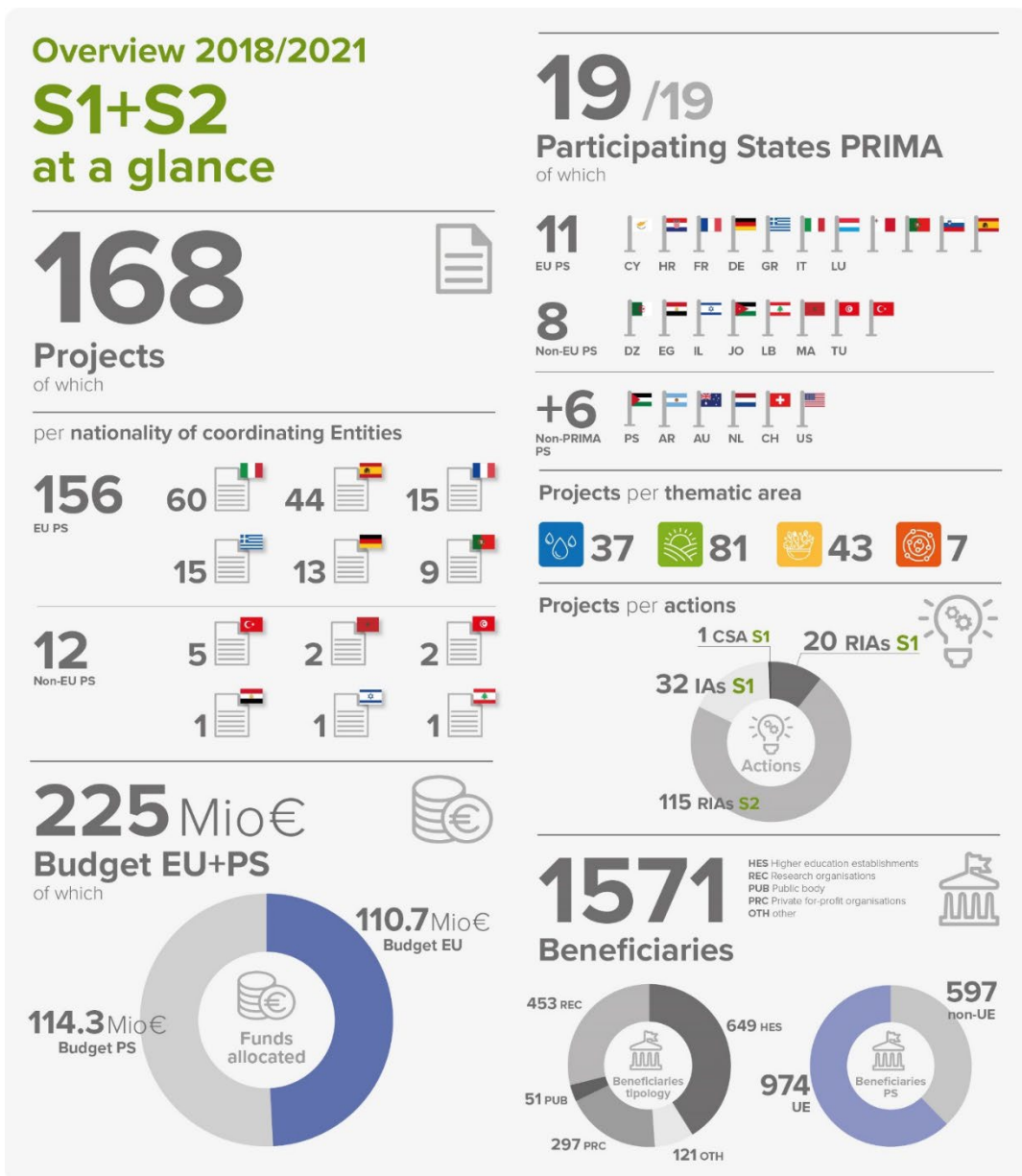
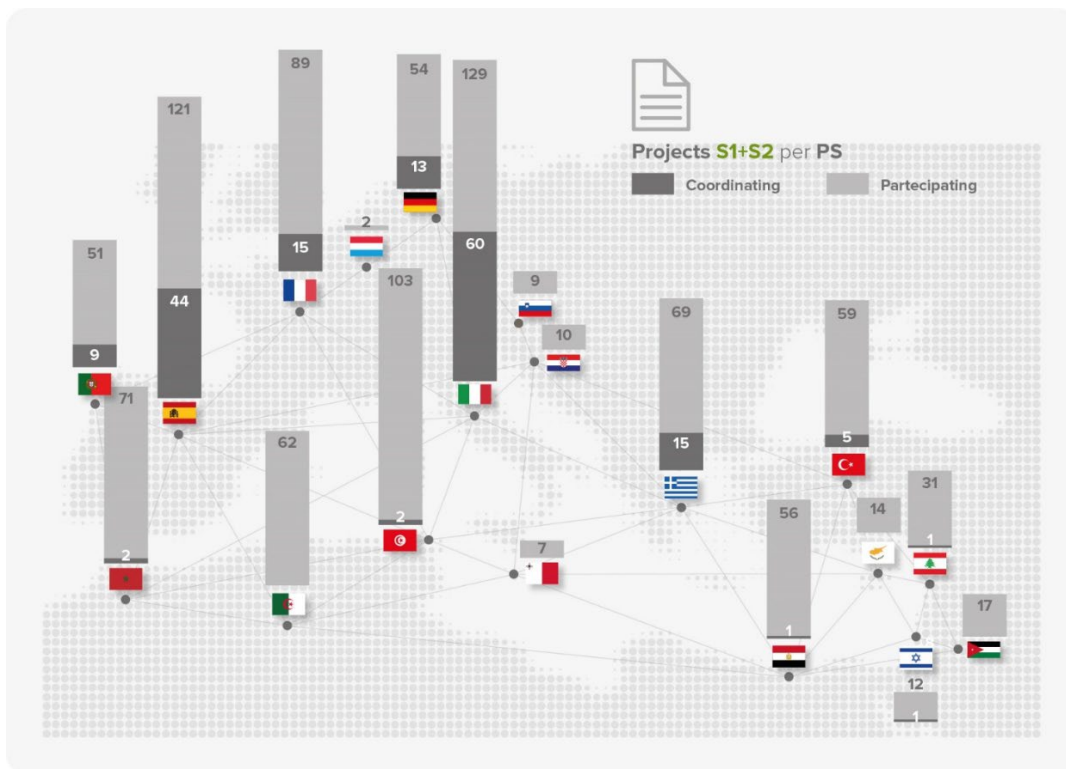


Figure 15 Number of S1 and S2 projects per PS



4.2 Prizes

For the first time, in the AWP2021, PRIMA introduced two Prizes into its activities, to be funded with EU funds (Section 1): the PRIMA WEF Nexus Award.

This award of **EUR 10 000** for each winner recognises teams of researchers and practitioners who successfully implement integrated and sustainable management practices of water, energy, food, and ecosystem resources in the Mediterranean, locally or at the regional level.

A wealth of initiatives has been competing for this award. Winners needed to show proof that the socio-economic benefits of their solutions went beyond single sectors and would impact future policies. They had to actively promote the results' uptake and demonstrate the replication and upscaling potential of the proposed nexus solutions.

The 2021 PRIMA Prize winners were announced at the WEF Nexus Conference on the 29th of September 2021, co-organised by PRIMA, European Commission (Joint Research Centre and DG Research and Innovation), the Union for the Mediterranean (UfM), and the Cyprus Institute. The Prizes were won by the research team of ONE-NEXUS proposal guided by Prof. Rabi Mohtar and the [HYDROUSA](#) team guided by Prof. Samis Malamis.

The solution proposed by [ONE-NEXUS](#) is a WEF Nexus Tool aiming to access trade-offs in water and energy in agriculture and interlinkages with social, political, and economic aspects. Multiple iterations of the Water-Energy-Food Nexus (WEF Nexus) Tool were adapted and scaled to address regional challenges, as demonstrated in Morocco, Turkey, and Lebanon studies.

4.3 Participant States Initiated Activities-PSIAs, Section 3

One of the lesser-known aspects of the PRIMA programme is the Participant States led initiatives that form the counterpart to the calls for proposals managed by the PRIMA Foundation Secretariat. With a planned contribution of almost **145 900 000 EUR**, the so-called **PSIA's** (Participating States' Initiated Activities) are projects and programmes directly funded by PRIMA Participating States that form an integral part of the PRIMA taking part of its Section 3 funding scheme.

In addition to PSIAs, Section 3 also consists of **"Other Activities"** implemented by PS supporting the programme, spanning from capacity building, brokerage events, dissemination activities, reports, mutual learning workshops and knowledge hubs (such as the PRIMA Observatory on Innovation). Such activities complement the programme that is mainly implemented through grants.

Once acknowledged in the PRIMA annual work plans and ex-post monitoring by external evaluators that the activities are aligned with PRIMA objectives, they count as national financial contributions to the programme (*in-kind* contributions to PRIMA from the Participating States).

PRIMA Participating States' Initiated Activities (PSIAs) are national, bilateral, multilateral programmes (spanning from research and innovation actions to mobility actions) that [demonstrate the effort of the PS in the alignment of national programmes](#), providing an essential mechanism for coordinating activities across European and Third Countries bordering the Mediterranean Sea, avoiding the duplication of efforts and helping to identify neglected priorities and evidence gaps. (See chapter 4 on the expected outputs of Section 3 Activities).

As a result, the topics of the PSIAs correspond closely to the priorities of the PRIMA Strategic Research Agenda for each thematic area and its overall programme objectives. Unfortunately, mainly given to national COVID-19 containment measures, several among the PS programmes included in the AWP were not implemented.

From 2018 to 2021, **13 PSIAs** out of 53 initially planned were launched, and **397 running projects** were selected with a cumulative budget of **EUR 127 854 213** of allocated funds. Out of the 397 PSIAs projects selected for funding, 387 were implemented by legal entities established in EU-PS and 10 from non-EU-PS. Generally, those projects have 24-36 months duration, and several projects selected out of 2018 and 2019 calls are completed to date.

139 projects have already been monitored by the PRIMA Secretariat and panels of external evaluators according to the established procedures to check whether they are fully aligned with PRIMA objectives.²⁴

The amount disbursed so far by PS to PSIAs projects from 2018 to 2019 for the monitored projects totals **EUR 73 424 888**, corresponding to 57% of the allocated financial contribution.

Most projects selected from PRIMA PSIAs are R&D activities targeting private companies to foster competitiveness by developing new/ improved products, processes, and services focused on fulfilling economic, environmental, and social challenges. The outcomes of these projects will lead to the improvement of farming and agri-food activities, the development of eco-friendly activities and production processes, and more sustainable use of water; other PSIAs support capacity building, mobility and employability of researchers.

PSIAs are complementary to the activities being funded through PRIMA calls for proposals, either by addressing research gaps not fully addressed by PRIMA projects or targeting categories such as private companies and, in particular, SMEs that are less easily funded through Section 2 calls, for instance, given specific national regulations that may prevent private sector R&I actors from receiving funding (given this is quite a new concept in some Participant States (especially non-EU MS).

Section 3 projects complement Section 1 and Section 2 through activities targeted to the businesses or through mobility schemes. They include projects focused on capacity building, applied research, and strengthening the innovation ecosystem in the Mediterranean Area. Moreover, they are a valuable contribution to achieving the overall objectives of the PRIMA programme. (See [chapter 4 on expected outputs of Section 3 Activities](#)).

²⁴ PRIMA Foundation each year at the reporting period, monitors the activities of each PSIAs and the payments disbursed to the beneficiaries. For each of the PSIAs, under monitoring, PRIMA Secretariat checked:

- whether the labelling requirements have been fulfilled by the PSs
- whether the content of the resulting projects is fully in line with PRIMA objectives.

Figure 16 Overview Section 3

Overview 2018/2021

Section 3 at a glance

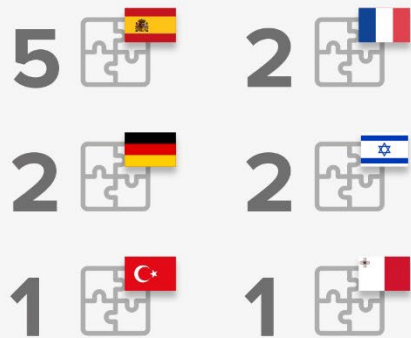
Focus PSIA's


13 PSIA's 

Participating States' Initiated Activities


of which

per **nationality of coordinating Entities**



397 Projects 

selected by PSIA's


 Many projects are in "Agri-Food Value Chain" thematic area and are implemented by SMEs.



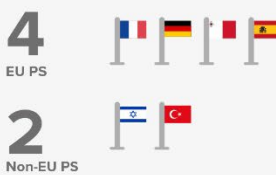
2018	2019	2020	2021
2 PSIA's 	3 PSIA's  	3 PSIA's 	5 PSIA's  
 26 Projects	 81 Projects	 79 Projects	 211 Projects
 7.3 Mio€	 33.7 Mio€	 25.1 Mio€	 61.7 Mio€

PSIA's + OA's

Participating States' Initiated Activities Other Activities

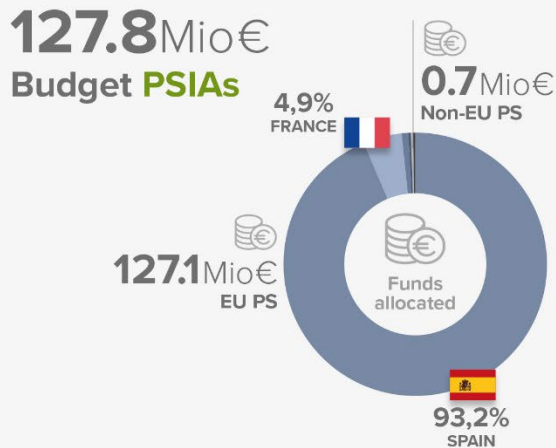
6 / 19 

Coordinating States
of which



129.1 Mio€ 

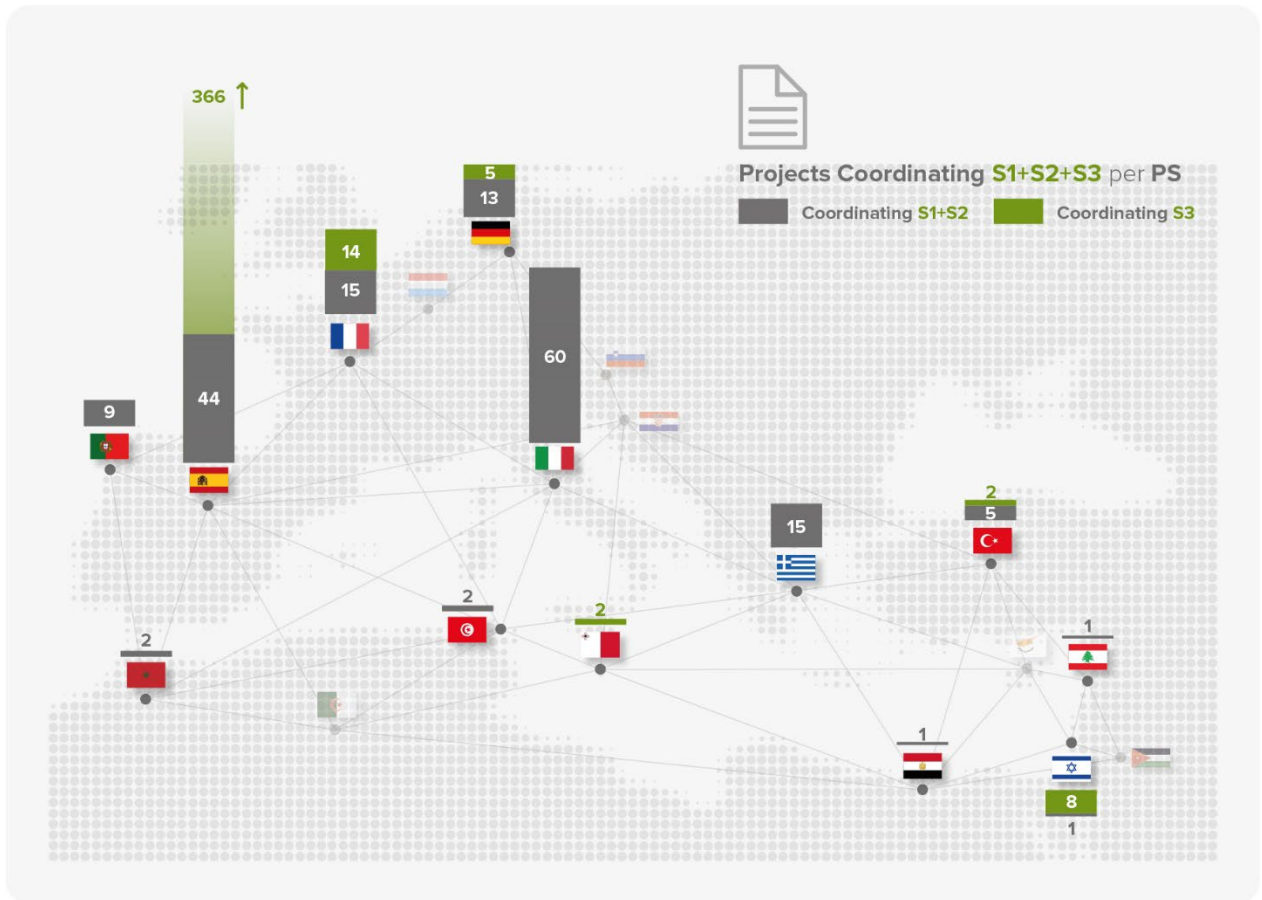
PS Budget **S3** (PSIA's+OA's)
of which



Note that here are reported only the PSIA's projects monitored. according to the established procedures to check whether they are fully aligned with PRIMA objectives.²⁵

²⁵ PRIMA Foundation each year at the reporting period, monitors the activities of each PSIA's and the payments disbursed to the

Figure 17 Number of projects S1, S2 and S3 per PS coordinating entities



beneficiaries. For each of the PSAs, under monitoring, PRIMA Secretariat checked:

- whether the labelling requirements have been fulfilled by the PSs
- whether the content of the resulting projects is fully in line with PRIMA objectives.

Chapter 5 Financial Management

The PRIMA programme is financed through EU and PS financial contributions. The EU contribution is subject to the fulfilment of the financial commitments from PS. Participating States might contribute financially, or in-kind to activities implemented without the EU financial contribution, thereby achieving a high degree of financial integration.

Following the Transfer of Funds Agreements, PRIMA Foundation received EU funds for the PRIMA programme for **EUR 80 402 000**. PRIMA used these funds to pay Section 1 projects beneficiaries according to the Grant Agreements and to cover the PRIMA Secretariat's evaluation, monitoring (operational costs) and administrative costs.

The breakdown of funds received by the EU funding according to its Transfer of Funds Agreements (2018, 2019, 2020 and 2021) is as follows:

- EUR 5 432 000 for the administrative budget
- EUR 74 970 000 for the Operational budget

The total planned financial contribution from the EU for PRIMA calls (Section 1) for the first four years (2018-2021) amounts to **EUR 112 300 000**.

5.1 Administrative budget with EU funds

From 2018 to 2021, PRIMA received EUR 5 432 000 for the administrative budget.

The budget broke down is as follows:

- EUR 1 200 000 in 2018
- EUR 1 500 000 in 2019
- EUR 1 397 000 in 2020
- EUR 1 335 000 in 2021

Table 4 Administrative budget chapters with EU funds 2018-2021

Administrative budget 2018-2021	EU financial contribution (from ToF)
INCOME	5 432 000
EXPENSES	4 579 522
1. Personnel	3 827 102
2. Meetings and missions	309 681
3. Consumables and supplies	130 980
4. Service contracts	280 837
5. Taxes	31 344

5.2 Allocation of EU Contribution to PRIMA grants (Section 1)

The EU funds were allocated to Section 1 projects beneficiaries following the requirements of the PRIMA decision, the Delegation Agreement, the Annual work plans and the Model Grant Agreement, and according to their estimated costs in the budget. The total EU funds allocated for contracted projects in 2018, 2019, 2020 and 2021 total to **110 584 758** EUR.

5.3 Payments to PRIMA project's beneficiaries (Section 1)

At present, PRIMA has disbursed the first pre-financing payment to the beneficiaries of 53 projects and the interim payment to those projects (11 projects to date) linked to the positive outcome of the midterm review. Before payments are made against financial statements, PRIMA obtains reasonable assurance that the costs claimed by the beneficiaries are correct and represent eligible costs under the processes outlined in the model grant agreements.

Table 5 EU financial contributions 2018-2021 (planned, allocated and disbursed to beneficiaries)

Calls	Planned EU financial contributions in AWP (in EUR)	Allocated funds to projects (in EUR)	Payments to projects*(in EUR)
2018	18 300 000	17 983 646	16 119 807
2019	28 000 000	27 462 283	17 272 367
2020	33 000 000	33 186 107	19 911 665
2021	33 000 000	31 952 722	-
Total	112 300 000	110 584 758	53 303 839

* pre-financing and interim payments

In addition to the payments to beneficiaries of Section 1, EU funds were used to pay expert fees (EUR 807 778) and meeting costs (411 525 EUR) for a total operational budget of **EUR 54 523 142**, and administrative expenses **EUR 4 579 522**, for a total sum of **EUR 59 103 086 EUR**.

5.4 Payment of administrative costs with PS funds

Financial contributions to the administrative costs of the PRIMA Foundation to cover the administrative costs for the functioning of PRIMA Foundation at the start of the implementation of the Programme.

To ensure the functioning of the PRIMA Implementation Structure at the start of the Programme's implementation, each PS has contributed to its administrative costs from the date of its Foundation (19th June 2017 to the end of February 2018).

The amount needed to cover the costs of the PRIMA Foundation during the launch of the PRIMA Programme was achieved through membership fees from PS and voluntary donations from PS.

To become a member of PRIMA, each PRIMA PS had to pay a membership fee totalling EUR 15 000 to the PRIMA Foundation. PRIMA PS paid the PRIMA Foundation membership fees for EUR 255 000.

Moreover, some PS (France, Germany) contributed an additional financial contribution of EUR 120 000 to prevent cash flow problems.

In total, EUR 375 000 in-cash contributions from PS were dedicated to the administrative costs of the PRIMA implementation structure in its starting phase.

Moreover, to ensure the functioning of the PRIMA Implementation Structure, seconded staff from PS entities (DZ, FR, IT, JO, MT, TR, SP) worked in the PRIMA Foundation from the date of its Foundation. The staff costs equal to EUR 212.000 can be considered an in-kind contribution to the PRIMA programme.

In addition, the Spanish Government paid the costs for renting the office for the PRIMA Foundation, amounting to approximately EUR 100 000 each year, for a total of EUR 420 000 from 7 August 2017 to December 2021 to be considered an in-kind contribution to the Programme.

In total, PRIMA PS contributed to the administrative costs of PRIMA Foundation, an in-kind financial contribution equal to **EUR 1 007 000** (EUR 375 000 financial contribution as membership fees, EUR 420 000 to rent the office and EUR 212 000 to pay seconded staff).

5.5 PS financial contributions to the programme

The types of PS financial contributions to the PRIMA programme can be summarised as follow:

- **A)** Financial contributions (Section 2 Activities) to the activities following transnational calls organised by PRIMA Foundation;
- **B)** In-kind contributions (Section 2 Activities) dedicated to the implementation of proposals resulting from transnational calls organised by the PRIMA-IS and funded by the PS
- **C)** In-kind contributions (Section 3 Activities) organised, managed and funded by the PS

Table 6. NFAs financial contributions to PRIMA S2 calls from 2018 to 2021 (in EUR)

PS	NFA	NFAs planned financial contributions per annual work plan				NFAs allocated financial contributions				Payments to beneficiaries per annual work plan			
		AWP 2018	AWP 2019	AWP 2020	AWP 2021	AWP 2018	AWP 2019	AWP 2020	AWP 2021	AWP 2018	AWP 2019	AWP 2020	AWP 2021
DZ	DGRSDT	2 000 000	2 000 000	3 000 000	2 000 000	1 437 180	976 250	1 317 240	969 452	564 031	306 799	199 649	0
HR	MZO	285 715	300 000	300 000	300 000	0	220 000	140 000	299 500	0	228 000	84 000	0
CY	RPF	400 000	400 000	600 000	200 000	159 920	339 881	174 432	174 500	111 944	135 953	69 773	0
EG	ASRT	1 500 000	1 500 000	1 500 000	1 500 000	190 000	529 000	865 526	618 807	47 500	0	0	0
EG	STDF	1 500 000	1 500 000	2 100 000	2 150 000	525 833	650 000	247 000	200 000	193 939	0	0	0
FR	ANR	4 000 000	4 000 000	6 000 000	6 000 000	3 814 473	2 812 421	5 716 583	3 118 342	3 784 479	1 587 694	1 440 275	0
DE	BMBF	3 215 000	3 300 000	3 300 000	2 500 000	2 896 402	3 357 227	4 091 122	2 534 065	1 984 760	1 275 563	333 223	0
EL	GSRT	2 000 000	2 500 000	1 500 000	1 000 000	2 450 160	1 649 920	2 008 392	1 928 264	929 480	605 968	773 572	0
IL	ISERD	1 000 000	750 000	500 000	500 000	171 785	175 000	0	220 000	75 335	17 457	0	0
IT	MUR	7 000 000	7 000 000	7 000 000	7 000 000	7 708 521	7 404 491	7 312 202	7 000 000	3 510 461	409 429	0	0
JO	HCST	1 500 000	1 500 000	257 000	250 000	125 000	0	125 000	78 235	125 000	0	0	0
JO	SRISF	0	0	0	0	125 000	0	125 000	0	97 500	0	0	0
LB	CNRS-L	500 000	500 000	500 000	100 000	26 471	66 471	50 582	31 765	16 148	40 078	16 508	0
LU	FNR	300 000	300 000	300 000	500 000	0	150 000	0	185 531	0	0	0	0
MT	MCST	500 000	500 000	500 000	300 000	262 500	0	499 990	0	138 474	0	133 110	0
MO	MESRSFC	2 000 000	2 000 000	3 400 000	3 400 000	574 600	1 207 929	1 507 591	3 339 208	368 840	716 167	893 606	0
PT	FCT	735 000	1 250 000	1 125 000	1 125 000	749 996	1 292 150	1 046 599	1 197 370	437 977	472 212	0	0
PT	FRCT	0	0	100 000	100 000	0	0	0	0	0	0	0	0
SI	ARRS	100 000	150 000	170 000	170 000	0	240 000	160 000	80 000	0	132 733	36 440	0
ES	AEI	1 985 000	2 000 000	2 500 000	2 500 000	2 164 700	2 722 000	3 078 452	3 595 838	2 157 220	2 561 420	2 385 332	0
ES	CDTI	1 000 000	1 000 000	1 000 000	1 250 000	813 684	427 024	355 391	979 836	513 806	173 874	124 387	0
TU	MESRS	1 000 000	1 500 000	1 500 000	1 500 000	1 380 000	1 523 000	1 480 000	1 479 000	1 833 333	853 333	493 333	0
TR	TUBITAK	1 000 000	1 000 000	1 000 000	1 000 000	1 267 983	1 015 602	471 065	1 220 054	1 578 362	1 132 367	128 482	0
	TOTAL	33 520 715	34 950 000	38 152 000	35 345 000	26 844 208	26 758 366	30 772 167	29 249 766	18 468 589	10 649 048	7 111 690	0

Announcements of the selected projects in response to 2021 calls have been made on 23 December 2021 therefore, no contracts could be signed so far

5.6 Allocation of PS financial contributions to grants (Section 2 Activities)

The PRIMA financial contributions allocated from PS to Section 2 calls from 2018 to 2021 are **EUR 113 624 507**, to which have to be added funds received from other institutions – Spanish National Research Council (CSIC) and University of Elche- for an amount of EUR 662 016 totalling **EUR 114 286 523** received by the projects of Section 2.

Funds allocated by **PRIMA NFAs** for 2018, 2019, and 2020 projects are very close (80%) to the amounts committed in the relative Annual Work Plans total to **EUR 141 967 715** showing an outstanding performance in the funding of Section 2 calls.

5.7 Payments to PRIMA project's beneficiaries (Section 2 Activities)

The amounts disbursed by National Funding Agencies to beneficiaries of Section 2 PRIMA projects (87 running projects in total) funded in the response of 2018, 2019 and 2020 calls to **EUR 36 229 327**.²⁶ This amount corresponds to the payments done by NFAs until the end of January 2022:

Table 7 PRIMA PS financial contributions (committed, allocated and paid).

Calls	PS planned financial contributions (in EUR)	PS allocated funds to projects (in EUR)	Payments by PS to project beneficiaries (in EUR)
2018	33 520 715	26 844 208	18 468 589
2019	34 950 000	26 758 366	10 649 048
2020	38 152 000	30 772 167	7 111 690
2021	35 345 000	29 249 766	0
TOTAL	141 967 715	113 624 507	36 229 327

When it comes to the disbursed amounts by NFAs to PRIMA Section 2 projects beneficiaries, **32 %** of the total amount allocated to Section 2 calls for 2018, 2019, 2020 and 2021 has been effectively disbursed by NFAs to project beneficiaries by the end of December 2021.

²⁶ Amounts certified by each NFAs

Table 8 Total allocated contribution and payments to S2 projects by NFA

PS	NFA	Committed contributions 2018-2021	Allocated contribution 2018-2021 (in EUR)	Payments 2018-2021 (in EUR)	Percentage Allocated/Committee	Percentage Disbursed/Allocated 2018-2021
DZ	DGRSDT	9 000 000	4 700 122	1 070 479	52%	23%
HR	MZO	1 185 715	659 500	312 000	56%	47%
CY	RPF	1 600 000	848 733	317 669	53%	37%
EG	ASRT* not certified	6 000 000	2 203 333	47 500	37%	2%
EG	STDF	7 250 000	1 622 833	193 939	22%	12%
FR	ANR	20 000 000	15 461 819	6 812 448	77%	44%
DE	BMBF	12 315 000	12 878 816	3 593 546	105%	28%
EL	GSRT	7 000 000	8 036 736	2 309 020	115%	29%
IL	ISERD	2 750 000	566 785	92 792	21%	16%
IT	MUR	28 000 000	29 425 213	3 919 890	105%	13%
JO	HCST	3 507 000	328 235	125 000	9%	38%
JO	SRIFE	0	250 000	97 500	n/a	39%
LB	CNRS-L	1 600 000	175 289	72 734	11%	41%
LU* not certified	FNR	1 400 000	335 531	0	24%	n/a
MT	MCST	1 800 000	762 490	271 584	42%	36%
MO	MESRSFC	10 800 000	6 629 328	1 978 613	61%	30%
PT	FCT	4 235 000	4 286 114	910 190	101%	30%
PT	FRCT	200 000	0	0	n/a	n/a
SI	ARRS	590 000	480 000	169 173	81%	35%
ES	AEI	8 985 000	11 560 990	7 103 972	129%	61%
ES	CDTI	4 250 000	2 575 934	812 067	61%	31%
TU	MESRS	5 500 000	5 862 000	3 180 000	107%	54%
TR	TUBITAK	4 000 000	3 974 704	2 839 210	99%	71%
	TOTAL	141 967 715	113 624 507	36 229 327	80%	32%

The table shows the allocated contributions, disbursed amounts and percentage of payments from each NFA for projects selected out of 2018-2021.

All NFAs have certified payments made to their beneficiaries, showing the different percentages of payments concerning the allocated amounts. These range from 2% for EG to 71% for Turkey. It is noteworthy that non-EU PS (with 30% in average payments) are shown to be as efficient in payments to their beneficiaries compared to EU PS (37% on average).

The reasons for non-equal disbursement to beneficiaries are multi-fold and depend mainly on internal situations faced by NFAs. For some NFAs, the payments made correspond to the payment arrangements according to their national or internal rules. For instance, according to these rules, pre-financing may vary from 30% to 80%.

In other cases, timely execution of payments might have been affected by administrative delays, particularly due to COVID-19 containment measures taken by some States (for example, the case of Italy).

In addition to financial contributions, in-kind contributions were also provided by PS in support of PRIMA (Section 2) calls.

The *in-kind* contributions for implementing proposals resulting from transnational calls organised by PRIMA refer to those contributions disbursed by National Funding Agencies for managing the national level of the PRIMA calls. Those activities span from dissemination costs, travel costs of representatives of National Funding Agencies for joining PRIMA meetings, personnel costs of the NCPs involved.

As indicated in the Annual Work Plans, these costs cannot exceed 6% of the individual financial contribution by each Participating State in Section 2.

At the end of January 2022, the total disbursed in-kind contributions from NFAs for Section 2 calls activities implemented for AWP 2018, 2019, 2020 and 2021 totals **3 559 273 EUR**.

5.8 National contributions to the Participant States Initiated Activities_PSIAs (Section 3)

The PRIMA programme also counts PS financial contributions to national programmes as in-kind contributions (PSIAs). The amounts committed and allocated to the projects selected out of these programmes entirely managed and funded by PS from 2018 to 2021 are summarised in the table below.

Table 9 Financial contributions of PRIMA PSIAs from 2018 to 2021 (planned, allocated and disbursed funds reported, in EUR)

	CODE PSIAs	NFAs/Country	PS Planned financial contributions PSIAs	PS Allocated financial contributions to PSIAs projects	PS Disbursed amounts to PSIAs projects beneficiaries
1	DE.2018.	BMBF/ DE	2 000 000	319 068	101 582
2	ES-2018.4	CDTI/ES	24 860 000	6 968 854	5 582 846
3	ES-2019-1	CDTI/ES	43 500 000	30 570 827	18 361 941
4	FR-2019-1	ANR/FR	1 500 000	3 000 000	1 538 407
5	IL-2019-1	IIA/IL	1 000 000	110 000	154 500
6	ES.2020.1	CDTI/ES	22 400 000	21 212 140	12 802 547
7	DE.2020.1	BMBF/DE	2 080 000	599 444	0
8	FR.2020.1	ANR/FR	2 000 000	3 300 000	1 001 591
9	ES.2021.1	CDTI/ES	30 000 000	47 254 864	19 754 037
10	ES.2021.2	AEI/ES	16 000 000	13 727 437	13 727 437
11	IL.2021.3	ISERD/IL	250 000	400 000	400 000
12	MT.2021.1	MCST/ML	160 000	200 000	0
13	TK.2021.1	TUBITAK/ML	150 000	191 579	0
	13 PSIAs		145 900 000	127 854 213	73.424.888

5.9 Payments on national contributions to PSIAs beneficiaries (Section 3)

Concerning Section 3 Activities, the amount disbursed by NFAs (until the 31st Dec 2021) for PSIAs, organised, monitored and funded by PS, amounts to **73 424 888 EUR**.

5.10 Other activities (Section 3)

Each year the PRIMA PS decides to organise and fund additional activities, also considered in-kind contributions to the programme. The amounts committed, allocated and paid to these activities entirely managed and funded by PS from 2018 to 2021 are summarised in the table below:

Table 10 Financial contributions of "Other Activities" from 2018 to 2021 (planned, allocated and disbursed funds Reported, in EUR)

AWPs	Code	NFA/ Country involved	Title of the Activity	PS planned financial contributions	PS disbursed amounts
2018	3.2.1	ANR&INRA /FR	Capitalization on results achieved by research and innovation aspects Countries	150 000	51 810
	3.2.2	Siena Univ/IT	Networking, engagement and communication to stakeholders	150 000	207 194
	3.2.3	GRST/GR	Workshop PRIMA synergies with EU & International initiatives	100 000	33 233
	3.2.4	IT / PT	The potential impact of PRIMA on Mediterranean Societies Including Migrations: Enhancing the Role of Science Diplomacy	125 000	172 454
	3.2.5	MUR/IT	Enhancing youth entrepreneurship	75 000	131 812
	3.2.6	MUR/IT	Assessment of PRIMA impacts in SDGS perspective	80 000	138 220
2019	3.2.1	MUR/IT	PRIMA Stakeholder Committee	50 000	246 708
	3.2.2	MUR/IT	Training and education: Massive Open Online Course	50 000	31 201
	3.2.3	MUR/IT	Innovator broker in the Mediterranean Area	80 000	74 248
	3.2.4	MUR/IT	PRIMA Observatory on Innovation (POI)	70 000	61 855
	3.2.5	MSCT /ML	PRIMA Targeted Brokerage Events	25 000	1 066
2020	3.2.1	MSCT /ML	Engagement of service providers to assist coordinators in writing PRIMA proposals	15 000	7 906
	3.2.4	MSCT /ML	PRIMA National Day 2020	5 000	8 125
	3.2.5	MSCT /ML	Working with Morocco as co-leaders on an initiative to help establish a PRIMA network base amongst the 5+5 countries	15 000	on going
	3.2.6	MSCT /ML	PRIMA Targeted Brokerage Events for 2020	20 020	1 595
	3.2.7	BMBF/DE	Organise a PRIMA Training Workshop for Mediterranean Partner Countries "How to write competitive proposals."	40 000	55 216
2021	3.2.2	MSCT /ML	Engagement of service providers to assist coordinators in writing PRIMA proposals	25 000	3 000
	3.2.3	MSCT /ML	PRIMA Day 2021	10 000	1000
	3.2.4	MSCT /ML	PRIMA Targeted Brokerage Events for 2021	5 000	n/a
	3.2.5	All NFAs	Mutual Learning Exercise (MLE) workshops on National Framework - Conditions for PRIMA S2 Calls	22 800	0
TOTAL	20 OA			1 090 020	1 226 645

Table 11. Summary table of Section 3 funds from 2018-2021 (planned, allocated and disbursed funds reported) in EUR

AWPs	Committed funds		Allocated funds		Disbursed payments	
	PSIA	Other activities	PSIA	Other activities	PSIA	Other activities
2018	26 860 000	680 000	7 287 922	734 723	5 684 428	734 723
2019	46 000 000	275 000	33 680 827	415 079	20 054 848	415 079
2020	26 480 000	95 020	25 111 584	72 842	13 804 138	72 842
2021	46 560 000	40 000	61 773 880	4 000	33 881 474	4 000
Sub-Total 4 years	145 900 000	1 090 020	127 854 213	1 226 645	73 424 888	1 226 645
TOTAL Section 3	146 990 020		129 080 858		74 651 532	

Only the PSIAs monitored by PRIMA and external expert panels are reported. according to the established procedures to check whether they are fully aligned with PRIMA objectives

The table below summarises the different types of PRIMA financial contributions disbursed over the four years of the Programme by the Participant States and the European Union, taking into account funds paid to call's beneficiaries and administrative and operational costs to support the programme.

In 2018, in addition to the calls, the countries' contributions included another in-kind cost of EUR 632 000 corresponding to seconded staff's salaries (EUR 212 000) and office rent (EUR 420 000).

The membership fees financial contribution of EUR 375 000 is also an additional cost that has been added to the 2018 PS in-cash contribution.

Table 12 Summary table of PRIMA financial contributions

Disbursed amounts per AWP	Financial contributions EU	Financial contributions PS	In-kind contributions S2 + additional costs	In-kind contributions S3
2018	17 201 751	18 843 589	1 389 681	6 419 151
2019	18 938 112	10 649 048	874 986	20 469 927
2020	21 347 935	7 111 690	1 049 089	13 876 980
2021	1 615 288	0	877 517	33 885 474
Sub-Total in cash or In-kind	59 103 086	36 604 327	4 191 273	74 651 532
Total EU/PS financial contributions	59 103 086	115 447 133		

5.11 Monitoring of the Leverage effect (2018-2021)

The leverage effect aims to measure the ability of PRIMA to attract additional financing from PRIMA PS and to multiply Horizon 2020 budget resources (Section 1), including through additional activities (Section 2 and Section 3). According to the PRIMA Decision, "The Union financial contribution, including EFTA appropriations, shall equal the Participating States' contributions to PRIMA. The Union financial contribution shall not exceed EUR 220 000 000."

As set in Article 5(1) of the PRIMA Decision for the period from 7 August 2017 until the end of the initiative in 2028, the Participating States shall make or arrange for their national funding bodies to make contributions, whether financial or in-kind, of at least EUR 220 000 000 during the period from 7 August 2017 until 31 December 2028.

So, by 2028 a minimum of EUR 1 of in-kind and/or financial contributions by PRIMA and its funding bodies shall be leveraged for each euro of EU funding.

PRIMA's national contributions can be summarised as follows:

- Financial contributions to Section 2
- In-kind contributions dedicated to the implementation of proposals resulting from Section 2 transnational calls
- In-kind contributions through Participant States Initiated Activities (PSIAs) and Other Activities under Section 3 of the PRIMA Programme

EU funding includes:

- Financial contributions to Section 1 beneficiaries
- Experts' fees and meeting costs of the evaluation of the calls
- Administrative costs of the implementation structure

5.11.1 Leverage calculation from EU and PS disbursed payments to beneficiaries.

The leverage calculation is the ratio between the costs incurred by PRIMA PS and the total amount of EU funding, that is not only the payments to PRIMA beneficiaries (Section 1 calls) but also the cost of operational and administrative amounts at the cut-off date of the data reported in the Annual Activity Reports.

PS contributions as well take into account the direct financial contributions to beneficiaries from PS (Section 2 calls), but also the costs incurred by all funding bodies in the implementation of indirect actions (*in-kind* contributions of Section 2 calls), and the costs of other activities (*in-kind* contributions for Section 3 activities).

Equation 1 Leverage of funds

$$\text{Leverage} = \frac{\sum FC PS (\text{Sec.2 fin.contr} + \text{Sec.2 inkind} + \text{Sec.3 In kind})}{\sum EU contribution}^{27}$$

Each element of this calculation has its reporting and certification process with significant differences over time, and it is only at the end of the programme that the result reaches the appropriate level of reliability. The calculation of the leverage effect was monitored yearly at the reporting time.

As we can see from the table and graph below, the Leverage ratio has remained broadly stable during the initial few years of programme implementation, with a decrease in 2020 due to delayed payments to Section 2 beneficiaries.

The value of 2021 leverage could not be determined yet, as the payments to Section 1 beneficiaries (with EU funds) could not be made because the Grant Agreement signature process is still ongoing.

The total leverage value for 2018-2020, calculated based on the disbursed amounts, was **1,40**.

Table 13 Components of the leverage effect calculation over the first years of the initiative (calculated on disbursed amounts)

	leverage effect/costs		
	PS	EU	Leverage
2018	26 652 420	17 201 751	1,55
2019	31 993 962	18 938 112	1,69
2020	22 037 760	21 347 935	1,03
2021	34 774 098	1 615 288	n/a*
Total 2018-2020	80 684 142	57 487 798	1,40

* The value of 2021 leverage could not be determined yet, as the payments to Section 1 beneficiaries (with EU funds) could not be made since the Grant Agreement signature process is still ongoing.

²⁷ EU funding paid to PRIMA beneficiaries and operational and administrative costs incurred at the cut-off date of the data reported in the Annual Activity Reports

Chapter 6 Data on the programme implementation

6.1 Submissions, eligibility, admissibility, funded projects

Table 14. Submissions, eligibility, admissibility, funded projects (year 2018, 2019, 2020, 2021).

	2018		2019		2020		2021	
	Section 1	Section 2	Section 1	Section2	Section 1	Section2	Section1	Section2
Submissions	484	396	309	178	335	161	313	140
Number of Eligible proposals	456	362	278	154	315	153	298	137
Not admissible and eligible proposals	28	34	31	24	18	8	13	3
Funded projects	9	26	18	30	15	31	11	28
Total number of partners	103	215	169	248	183	268	150	235
Average partners /project	11	8	9	8	12	8	13	8
Average total value /project	2.14 M€	1,05 M€	1,62 M€	0,9 M€	2,36 M€	1 M€	3,13 M€	1.03 M€
Average funding request /project	2 M €	1,05 M€	1,5 M €	0,9 M€	2,2 M€	1 M€	2,9 M€	1.03 M€

Participation in calls has decreased in both Sections, but more consistently in Section 2 calls (32% for S1 calls, 62% for S2 calls). The number of beneficiaries increased in both sections in 2018-2021.

6.2 Detailed statistics on evaluators in PRIMA evaluation panels

Table 15. Numbers of evaluators per Section, stage and year

	2018		2019		2020		2021	
	Section 1	Section2	Section1	Section2	Section1	Section2	Section1	Section2
	Stage 1 Stage 2	Stage 1 Stage 2	Stage 1 Stage 2	Stage 1 Stage 2	Stage 1 Stage 2	Stage 1 Stage 2	Stage 1 Stage 2	Stage 1 Stage 2
Number of evaluators evaluators/panel	30/28	26/37	59/4	33/33	73/41	31/32	65/28	30/34
Number of Female evaluators/panels	12/12	11/13	16/1	9/9	36/20	10/11	29/11	13/11
% Female/Total	30%/43%	30%/35%	27%/28%	27%/27%	49%/49%	32%/35%	45%/39%	43%/32%
Number of Male evaluators/panels	28/16	25/24	43/3	24/24	37/21	21/20	36/17	17/23
Number of Non-EU evaluators/panel	7/7	12/13	20/1	12/13	23/9	10/10	21/9	9/11
Number of EU evaluators/panel	23/21	24/25	39/2	21/20	50/32	21/31	44/19	21/23

According to their expertise, evaluators of PRIMA project proposals were identified from the PRIMA database, trying to ensure an adequate gender and geographic balance. The average female participation in panels increased over the years, from 27-30% on average in 2018 and 2019 calls to more than 40% in 2020 and 2021 calls, aligning with the EU Commission's target of 40% of the under-represented sex in panels in H2020 Framework Programme.

Similarly, according to the PRIMA equal footing principle, the number of evaluators from non-EU countries increased considerably, reaching three times the value in 2018 calls, especially in Section 1 calls, whereas this value was relatively low in all Section 2 calls.

6.3. Call dates, timescales

Table 16. Dates and timescales for each call's process (announcement, evaluations, grant agreements signature for S1 and S2 per year (2018,2019, 2020, 2021)

	2018		2019		2020		2021	
	Section 1	Section 2	Section 1	Section2	Section 1	Section2	Section 1	Section2
Call opening	6 Feb	27 Mar.	17 Dec	17 Dec	12 Feb	12 Feb	5 Mar	5 Mar
Selection Decision	24-25 Jan 19	21 Nov	15-17 Oct	26 Nov	24 Nov	18 Dec	16 Nov	3 Dec
Results announcement	25 Jan 1	22 Dec	27 Nov	27 Nov	27 Nov 20	26 Jan	22 Nov	pending
Grant Agreements signatures (first/last date)	28 May /28 Nov 2019		17 Feb/ 12 Mar 2020		25 Mar/ 10 May 2021			
Days between call closure and results announcement (TTI)	133		134		66			
Days between results announcement and Grant Agreement signature (TTS)	177		94		149			
Days between Grant Agreements signature and payments (TTP)	2.5		10.2		10,8			
Time to Grant (TTG) S1	311**		228		215			
Percentage of Grants signed* only for S2-total projects		91,2% (136 /149)		74,3% (113/15 2)		66% (103/156)		
Min time to sign the contract		42 days		30 days		53 days		
Max time to sign the contract		>1063 days		>683 days		>337 days		

* data collected by the 31st of December 2021

6.4 Redress and Grant Agreements

Table 17 Redress, and amendments to the Grant Agreements

	2018		2019		2020		2021	
	Section 1	Section 2	Section 1	Section2	Section 1	Section2	Section 1	Section 2
Number of redress requests	1	NA	None	NA	5	NA	3	NA
Number of amendments to the GAs	NA	NA	1	NA	8	NA	13	NA

6.5 Value of eligible proposals for Section 1 and Section 2, by country, in 2018, 2019, 2020 and 2021.

Figure 18 Value of eligible proposals for Section 1 and Section 2, by country, in 2018, 2019, 2020 and 2021 (SECTION 1)

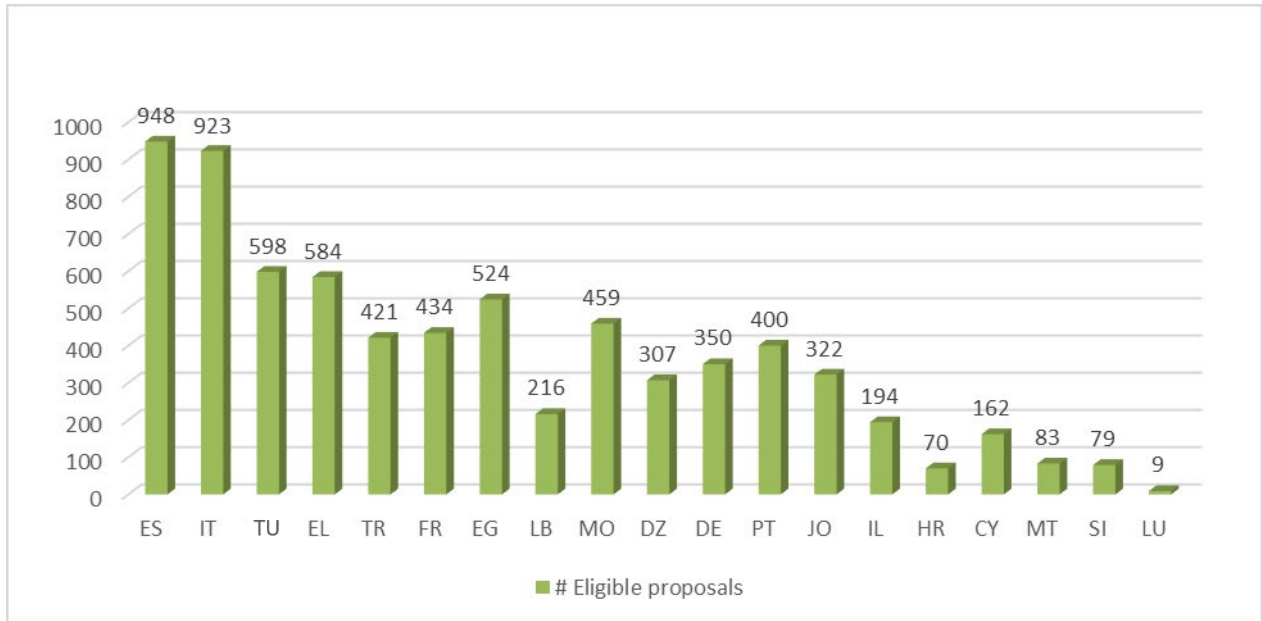


Figure 19 Value of eligible proposals for Section 1 and Section 2, by country, in 2018, 2019, 2020 and 2021 (SECTION 2)

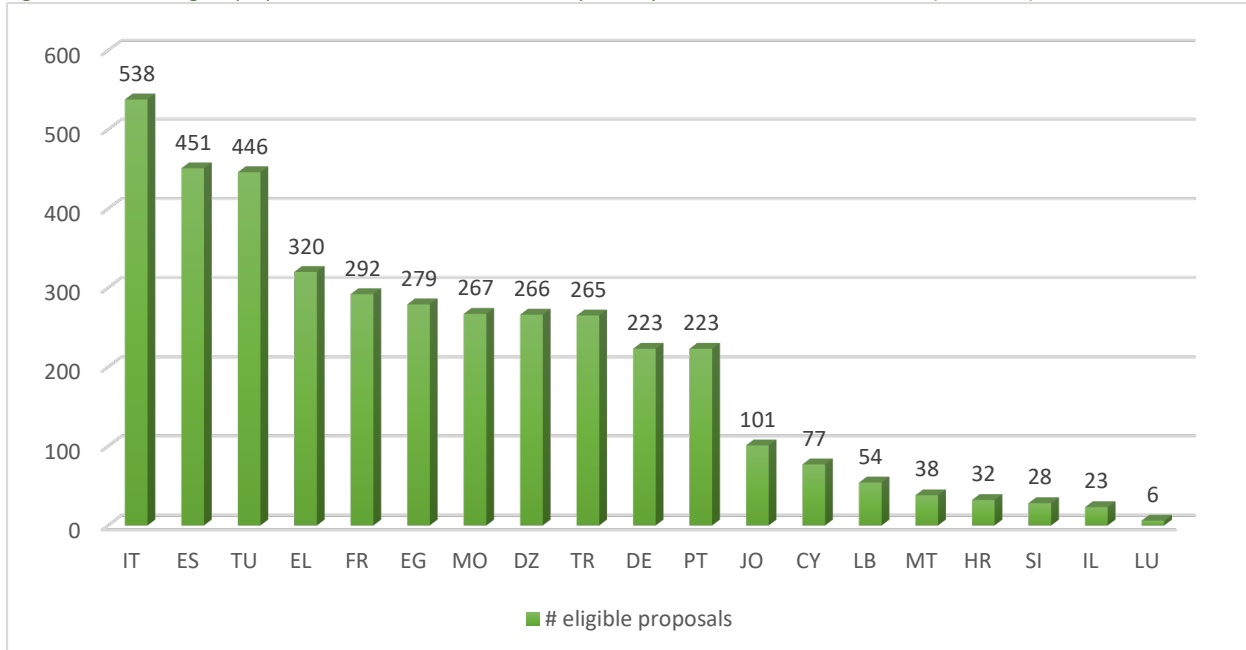


Figure 16 demonstrate that the number of eligible proposals made to Section 1 is significantly higher than Section 2. Section 1 calls are relatively more attractive for applicants due to several reasons.

While Section 1 calls require only a single joint submission to be made to the PRIMA's submission portal, for several NFAs (i.e., MUR/IT, AEI/ES and HCST/JO, GSRT/EL, TUBITAK/TR), Section 2 calls require two applications to be made; one joint application to PRIMA and one national application to FA for each partner which can constitute a disincentive for the applicants. Furthermore, national rules are not very well harmonized, which creates an additional effort for partners and coordinators who have to plan the proposal accordingly. The NFAs do not have a uniform grant amount allocated per partner in Section 2, and this means that some partners cannot receive the same amount as the others, which is another issue making proposal planning harder.

6.6 Value of coordinating entities in funded projects for Section 1 and Section 2, by country, in 2018, 2019, 2020 and 2021.

Figure 20 Value of eligible proposals for Section 1 and Section 2, by country, in 2018, 2019, 2020 and 2021 (SECTION 1)

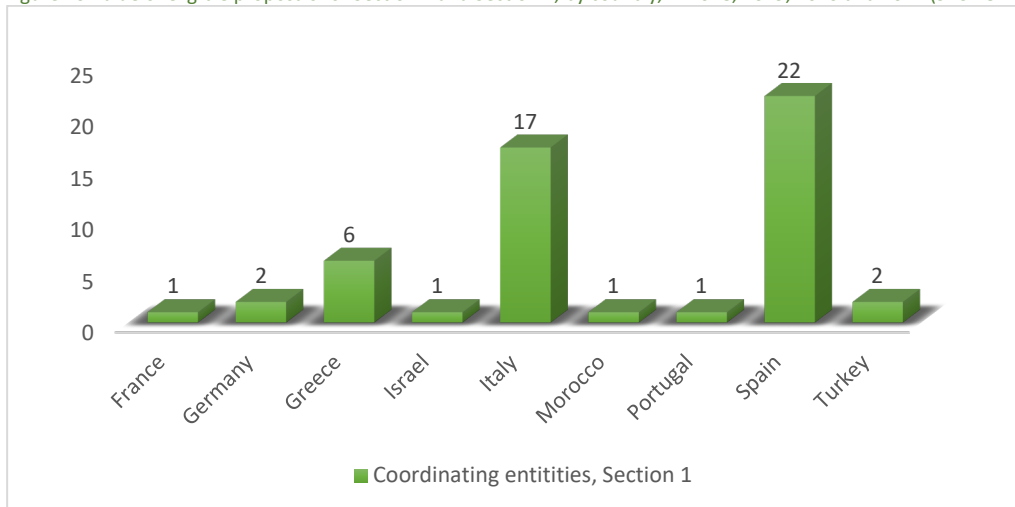
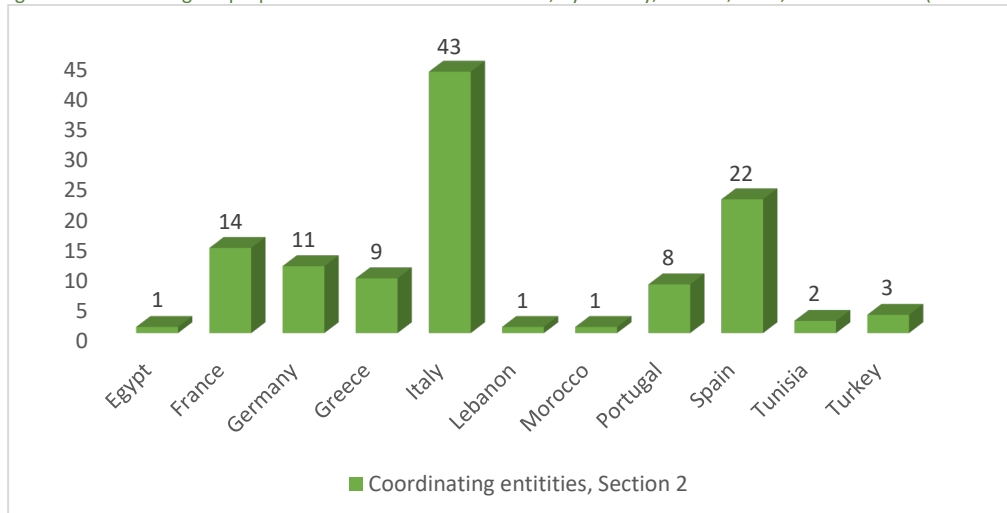


Figure 21 Value of eligible proposals for Section 1 and Section 2, by country, in 2018, 2019, 2020 and 2021 (SECTION 2)



As from the graph above, coordinating entities are mainly established in EU PS with better performance of legal entities established in H2020 Countries probably due to their greater experience with H2020 calls. In terms of coordination, the most represented countries are IT and ES in both Sections, followed by DE and EL. Non-EU PS, due to their relatively low capacities to lead projects' consortia, may be less inclined to participate as project coordinators. Despite the EU PS coordinating a relatively much higher number of projects, non-EU PS are still interested in overcoming the setbacks of inexperience. Interestingly, coordinating non-EU PS entities increased in both Section 1 and 2 calls.

While at the beginning of the programme, coordinating entities of S1 projects were only established in EU or H2020 projects, as from 2021 calls, third countries (Morocco) also succeeded in the project proposals funded. In addition to Morocco, Lebanon and Egypt also had legal entities responsible for coordinating Section 2 proposals.

This is possibly attributable to PRIMA PS Section 3 Activities (training workshops) aiming to strengthen participation and coordination of less represented PRIMA PS and in particular non-EU PS, namely Algeria, Egypt, Jordan, Malta, Morocco, Tunisia and Turkey, to foster proposal drafting skills of potential applicants.

6.7 Participations in funded proposals by country out of 2018, 2019, 2020 and 2021 calls (Section 1 and Section 2)

Figure 22 Participations in funded proposals by country out of 2018, 2019, 2020 and 2021 calls (Section 1)

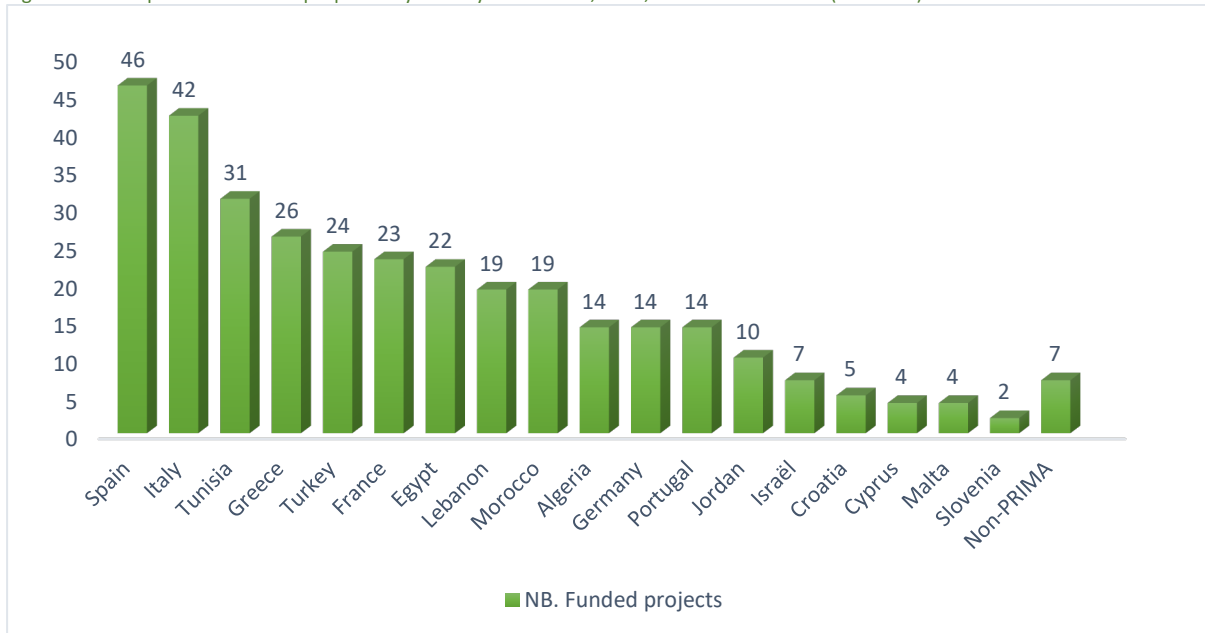
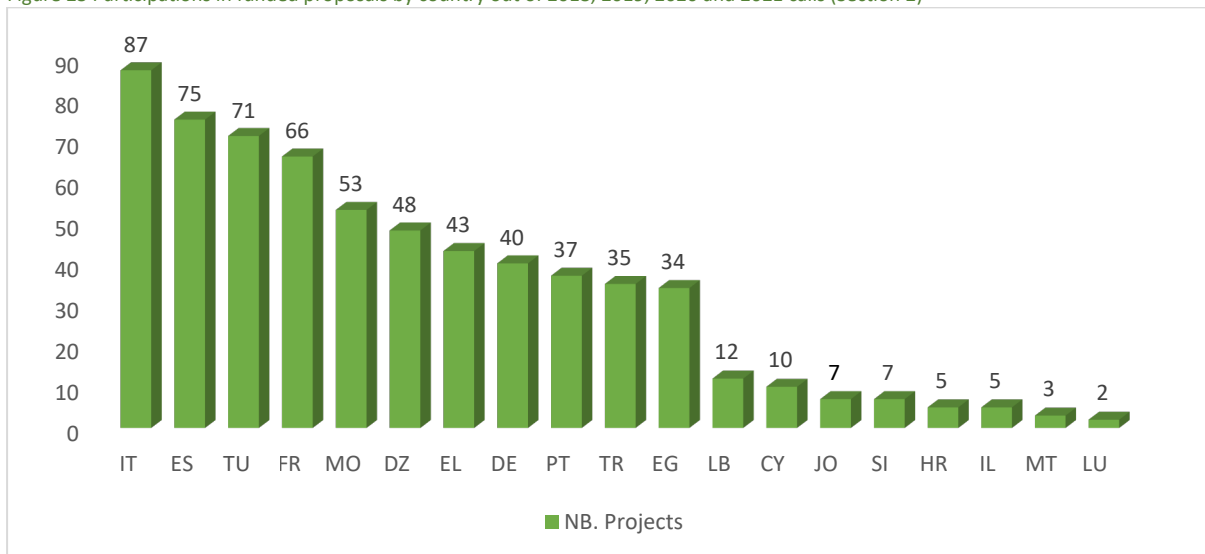


Figure 23 Participations in funded proposals by country out of 2018, 2019, 2020 and 2021 calls (Section 2)



Figures 20 and 21 show the legal entities' participation for each PS in PRIMA Section 1 and Section 2 projects selected for funding out of 2018-2021 calls.

The two figures above show that the 10 PS with the most funded projects is approximately the same for both Sections, namely Italy, Spain, Tunisia, France, Morocco, Algeria, Greece, Germany, Portugal, Turkey, Egypt.

Participation of H2020 Associated Countries and Third Countries in PRIMA projects

PRIMA Non-EU countries' overall participation represents 38% of the total beneficiary legal entities for S1 and S2 calls.

Although non-EU PS are relatively less experienced in participating in EU Framework Programmes (except associate members Turkey and Tunisia), they have been relatively successful within the PRIMA programme, particularly legal entities established in Morocco, Egypt and Algeria. Among H2020 Associated Countries, 52 beneficiaries are established in Tunisia, representing 9.9% participation, while 44 beneficiaries are established in Turkey, representing 5.6% of total beneficiaries in PRIMA projects. Israel's participation in PRIMA calls is relatively lower, with 1% of total beneficiaries.

In the EU Framework programme H2020, associated countries and non-associated third countries were relatively lower, representing 7% and 4% participation, respectively.

Among third countries, Morocco, Algeria, and Egypt's beneficiary legal entities ranged between approximately 14-17% overall participation in Section 1 and 2 projects.

Considering the participation from non-EU countries in the two previous EU R&I framework programmes (FP7 and H2020), most European Neighbourhood Policy countries tend to show lower performances than the EU average measured by the quantity, quality and success of their applications.

On the contrary, as pointed out in the *Monitoring Flash on Horizon 2020*¹¹, extracted from the interim evaluation report of H2020, the P2P partnerships and PRIMA are an excellent opportunity to increase North-South and South-South cooperation. South-South Cooperation (SSC) has become the expression of collaboration and Partnership among countries from the South, interested in sharing, learning, and exploring their complementary strengths.

A similar trend in the PRIMA programme is reflected in the budget received by Non-EU PS.

Table 18 Participations in funded proposals by country out of 2018, 2019, 2020 and 2021 calls (Section 1 and Section 2)

Calls	S1		S2	
	EU (K.EUR)	Non-EU (K.EUR)	EU (K.EUR)	Non-EU (K.EUR)
2018	178	166	163	70
2019	191	121	136	66
2020	203	151	145	66
2021	231	190	148	85

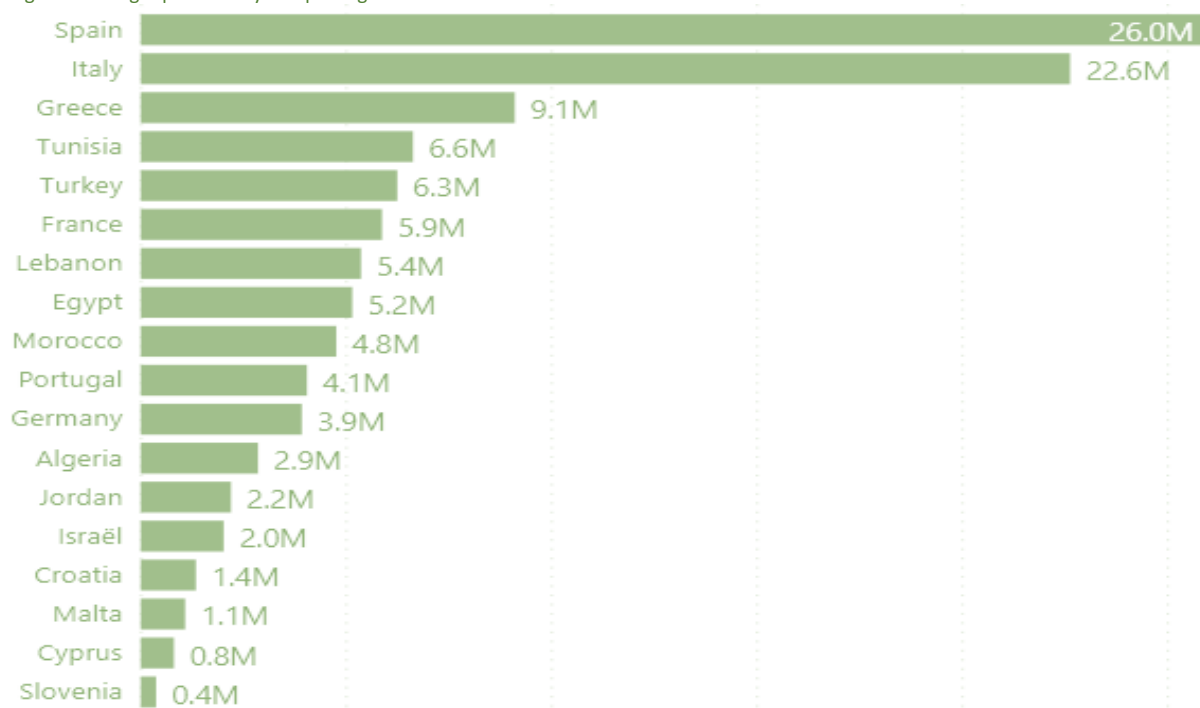
As from the table above, the budget per beneficiary is higher for S1 projects and has increased each year up to 30% from the initial value in 2018, with the highest value on 2021.

For Section 2 projects the budget per beneficiary is generally lower than those for Section 1, particularly the budget to non-EU beneficiaries. Although the average budget per beneficiary increased over the four years of implementation, it is still relatively lower than the beneficiary's budget per Section 1 project.

In order to attract applications, some Funding Agencies established in non-EU PS have changed their national rules. For instance, the Egyptian Funding Agency, Academy of Scientific Research and Technology, raised the budget for Egyptian legal entities as follows: EUR 250 000 (instead of EUR 175 000); for participating entities with a coordinator role and EUR 200 000 (instead of 150 000) for participating legal entities with a partner role in the action.

This relatively low amount is generally due to national regulations fixing the budget ceilings for participants and coordinators.

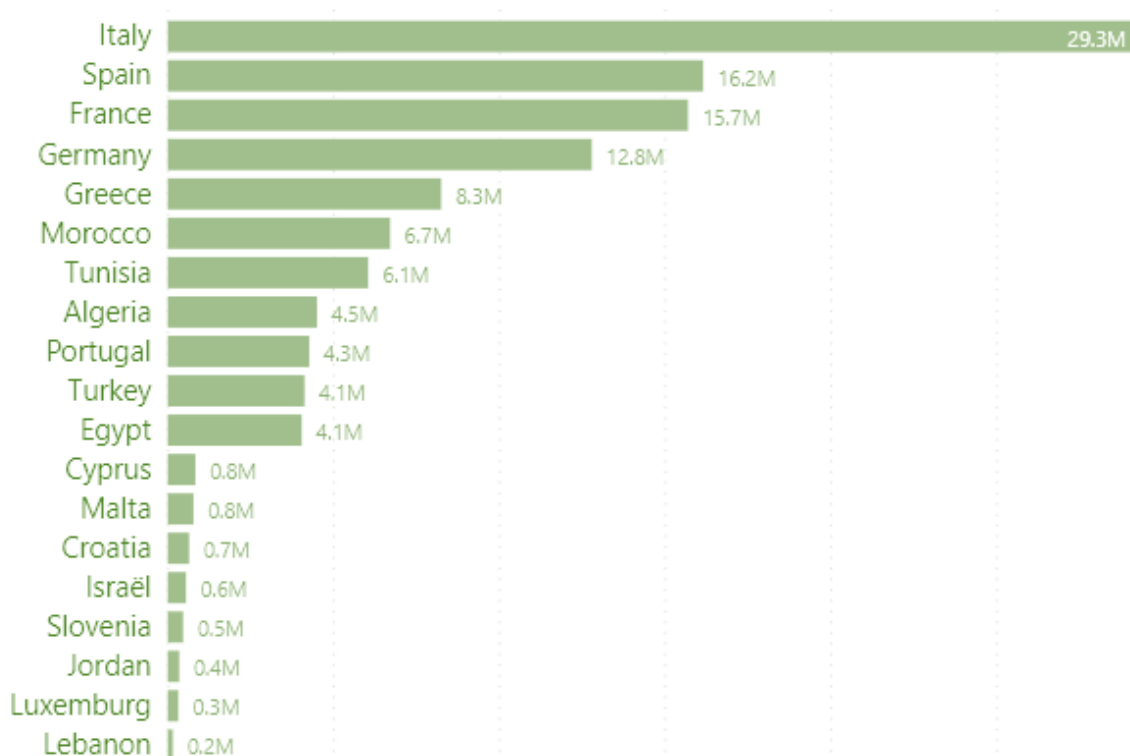
Figure 24 Budget per country and per region Section 1



In the first four years of programme implementation, non-EU PRIMA PS received around 32%, corresponding to EUR 35,9 million of the European Union financial contribution budget, exceeding the initial indication foreseen in the PRIMA Decision of 25%.

Non-EU PRIMA countries received around 23% of funds in Section 2 calls (national funds) corresponding to 26,2 million of national funds

Figure 25 Budget per country and region Section 2



6.8 Value of funded projects for Section 1 and Section 2, by type of action (RIA, IA, CSA) in 2018, 2019, 2020 and 2021.

Table 19 Value of funded projects for Section 1 and Section 2, by type of action (RIA, IA, CSA) in 2018, 2019, 2020 and 2021.

	# Research and Innovation Actions				# Innovation Actions				# Coordination Supported Actions			
	2018	2019	2020	2021	2018	2019	2020	2021	2018	2019	2020	2021
SECTION 1	6	9	2	3	3	8	13	8				
SECTION 1 Total Actions/Type	20				32				1			
	Research and innovation activities ²⁸											
SECTION 2	115											

As we can see from the Table above, Innovation Actions (IAs) have increased progressively over the years in Section 1 calls. This demonstrates PRIMA's efforts to increase the innovation potential and to deliver innovative solutions rapidly to the market to support water management, farming, and agri-food across the Mediterranean.

There is only one CSA under Nexus. Over the last few years, PRIMA has used the EU financial contribution to mainly fund projects with higher TRLs.

6.9 Value of funded projects by thematic area for Section 1 and Section 2 for 2018, 2019, 2020 and 2021.

Table 20 Value of funded projects by thematic area for Section 1 and Section 2 for 2018, 2019, 2020 and 2021.

	THEMATIC AREAS																
	WATER MANAGEMENT				FARMING SYSTEMS				AGRI-FOOD VALUE CHAIN				NEXUS THEME				
	018	019	020	021	018	019	020	021	018	019	020	021	018	019	020	021	
# projects S 1	3	4	4	3	3	7	5	3	3	4	4	3	0	3	2	2	
TOTAL	14				18				14				7				53
# projects S 2	9	6	5	3	12	13	18	20	5	11	8	5					
TOTAL	23				63				29								115

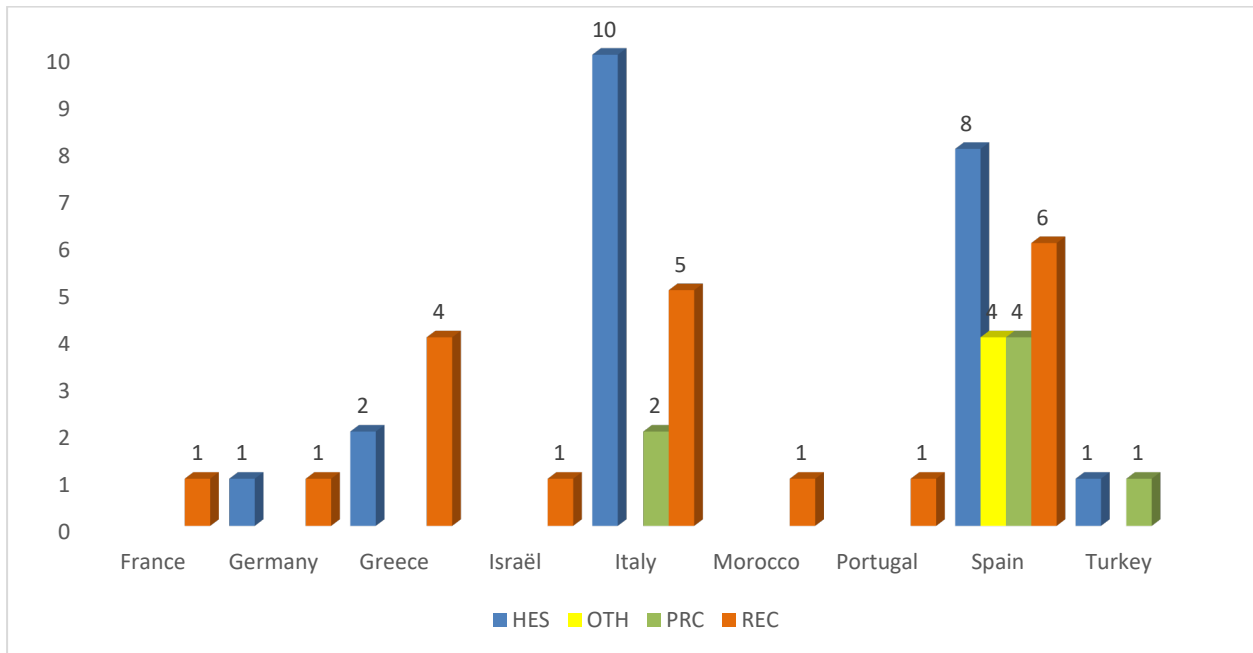
For each thematic area under Section 1, a certain amount of funds has been allocated and indicated at the beginning of calls. In contrast, for Section 2, no specific funds are allocated to any thematic area. For Section 2 proposals, there is only a singular ranking list for all thematic areas.

Despite this, the number of funded projects in the thematic area of farming systems is higher than in the combined number of projects funded under the other two themes. This demonstrates that researchers in the Mediterranean Area have a higher interest and are more active in the thematic area of farming systems.

²⁸ Research and Innovation Activities according to national regulations, analogous to H2020 RfP

6.10 Nationality and type of organisation of the coordinating entity (SECTION 1)

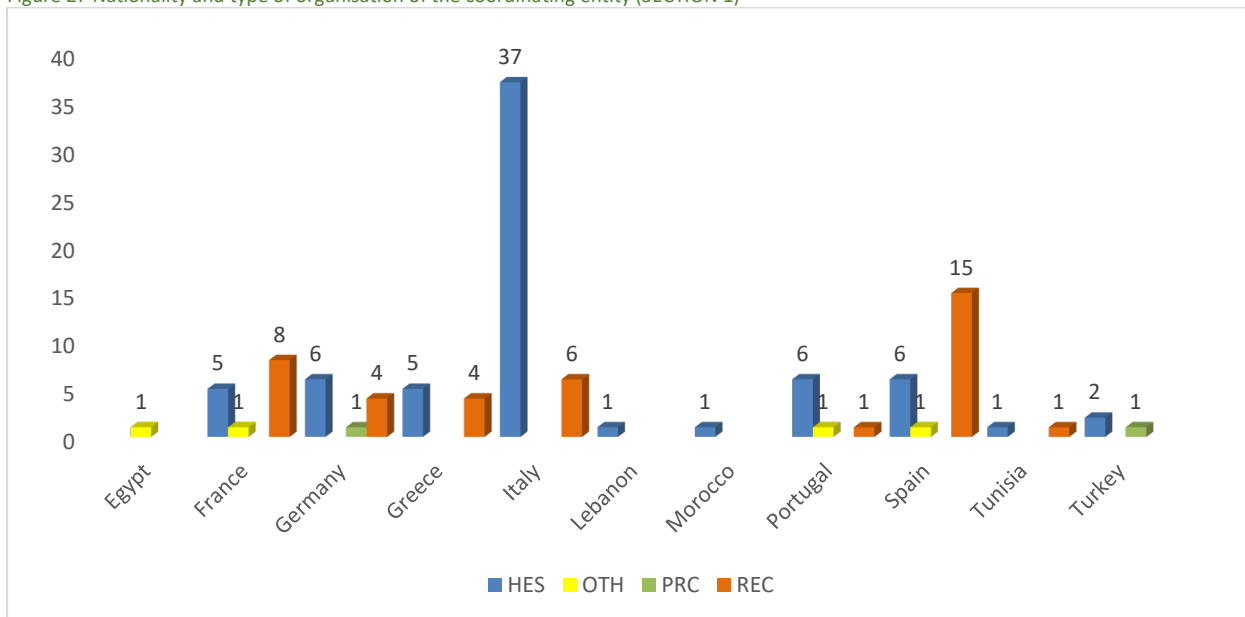
Figure 26 Nationality and type of organisation of the coordinating entity (SECTION 1)



HES: Higher education establishments REC: Research organisations PUB: Public body PRC: Private for-profit organisations OTH: other

6.11 Nationality and type of organisation of the coordinating entity (SECTION 2)

Figure 27 Nationality and type of organisation of the coordinating entity (SECTION 1)

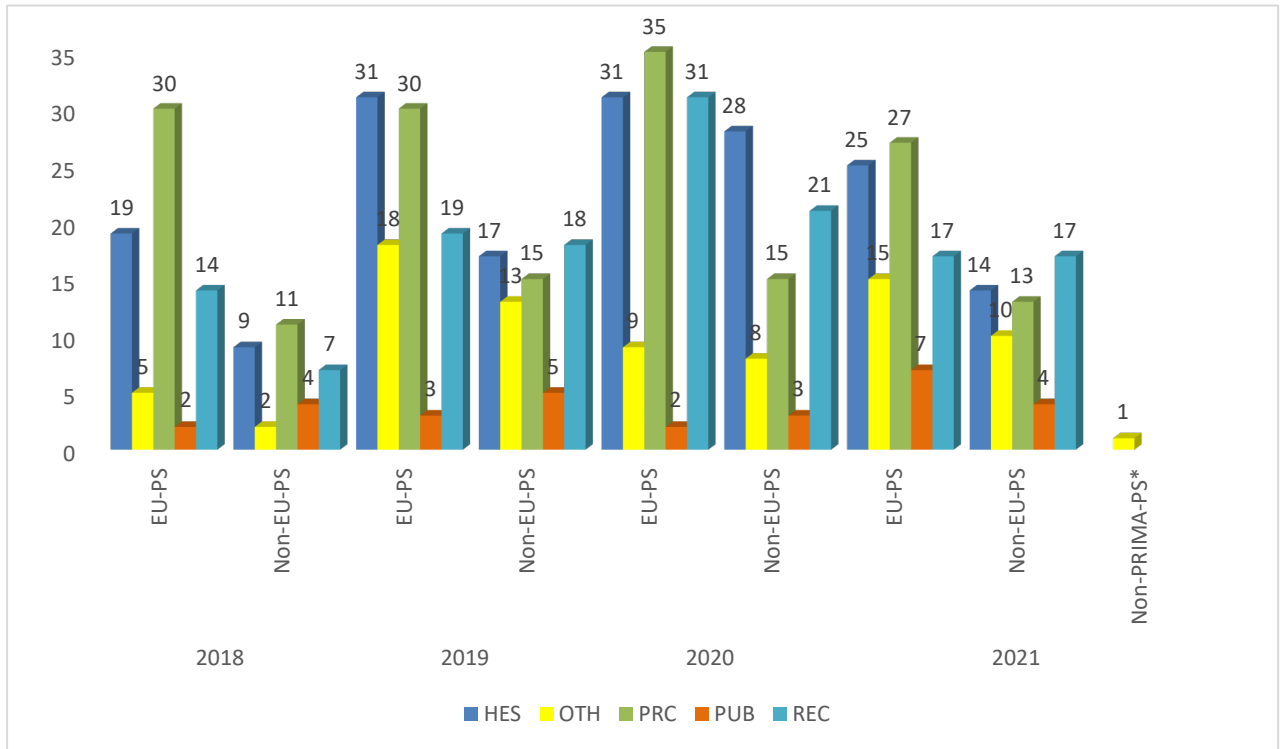


HES: Higher education establishments REC: Research organisations PUB: Public body PRC: Private for-profit organisations OTH: other

Although Section 1 rules for participation allow funding to be allocated to private sector participants, the number of lead coordinators from the private sector is still relatively low compared to other types of entities. On the other hand, it is not possible to provide funding for 100% of eligible costs for private sector entities in IAs, which may be one factor affecting their participation as coordinators. Another factor may be their inexperience. HEPs and RECs, on the other hand, are much more familiar with the EU Framework Programmes and research projects in general, which may encourage them to take part as coordinators.

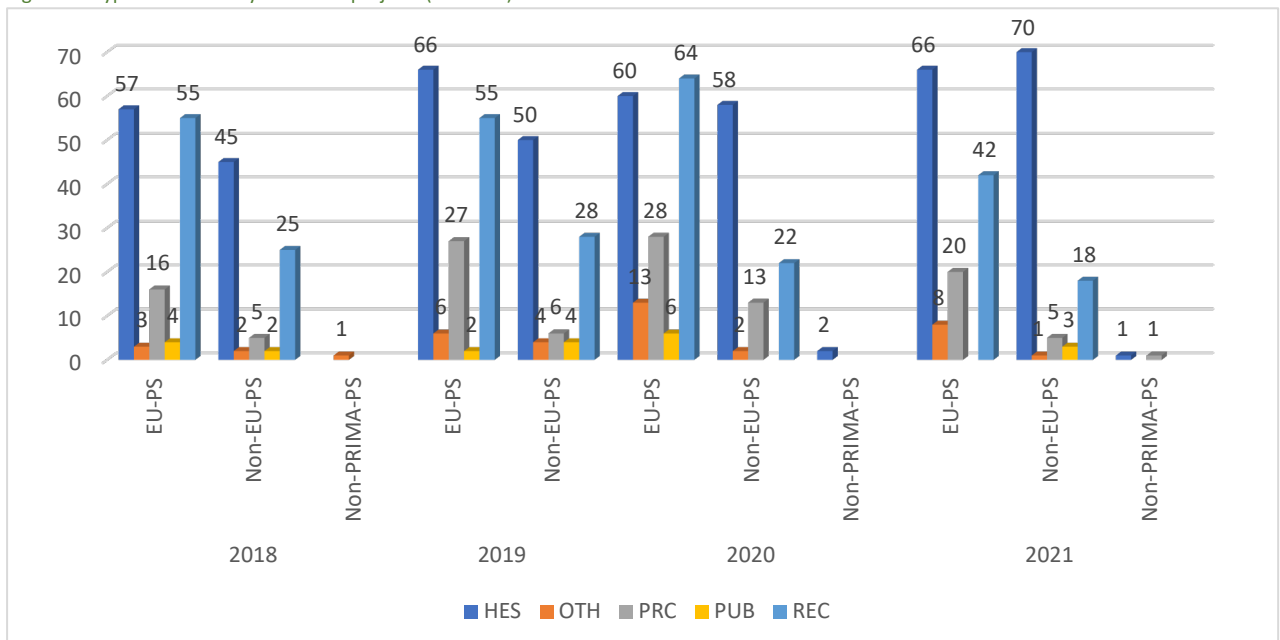
6.12 Type of beneficiary in funded projects

Figure 28 Type of beneficiary in funded projects (Section1)



HES: Higher education establishments **REC:** Research organisations **PUB:** Public body **PRC:** Private for-profit organisations **OTH:** other
 *Palestine: participate without funds

Figure 29 Type of beneficiary in funded projects (Section2)



HES: Higher education establishments **REC:** Research organisations **PUB:** Public body **PRC:** Private for-profit organisations **OTH:** other

Figures 18 and 19 demonstrate a noticeable increase from Section 1 to Section 2 in the number of “Other” entities taking part in projects as partners. This is likely because some FAs’ national regulations inhibit them from providing funding to NGOs, associations, foundations etc.

The noticeable increase of these partners in Section 1 demonstrates that these entities are interested in participating in projects, provided that they can receive funding.

The disparity between PRC partners in Section 1 and Section 2 is relatively significant. This indicates that the private sector is more than willing to participate in projects. However, some factors, such as some FAs not funding PRC or providing lower budgets than that available in Section 1 calls, make Section 2 less attractive for PRC.

Furthermore, in addition to RIAs, Section 1 also includes many IA calls closer to the market and may be more aligned with the needs of PRC.

6.13 Details on projects

Table 21 Details on projects selected out of S1 calls (the year 2018, 2019, 2020, 2021)

PROJECT ACRONYM	PROJECT TITLE	COORDINATING ENTITY	COORD PS	TYPE ACTION	AWP	BUDGET (in euro €)	DURATION	STARTING DATE
4CE-MED	Camelina: a Cash Cover Crop Enhancing water and soil conservation in MEDiterranean dry-farming systems	Unibo - alma mater studiorum bologna	IT	RIA	2019	1 486 299	36	01/05/2020
ACQUAOUNT	Adapting to Climate change by QUantifying optimal Allocation of resOURces and socio-econOMIC inTerlinkages	Fondazione centro euro-mediterraneo sui cambiamenti climatici	IT	IA	2020	2 474 006	48	01/07/2021
AWESOME	AWESOME - mAnaging Water Ecosystems and food across sectors and Scales in the sOuth Mediterranean	Politecnico di milano	IT	RIA	2019	1 795 726	36	01/05/2020
AZMUD	Improvement of Mediterranean greenhouses performance using innovative plastic materials natural additives and novelty irrigation technologies	Aimplas	ES	IA	2019	1 593 025	36	01/04/2020
BONEX	Boosting Nexus Framework Implementation in the Mediterranean	Bioazul sl	ES	IA	2021	3 992 043	36	In Progress
CAMA	Research-based participatory approaches for adopting Conservation Agriculture in the Mediterranean Area	Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria crea	IT	RIA	2019	1 500 000	36	01/04/2020
CAMELMILK	Boost the production processing and consumption of camel milk in the Mediterranean basin	Institut de recerca i tecnologia agroalimentàries	ES	IA	2018	2 000 000	36	01/06/2019
CONSERVTERRA	Overcoming the physical and mental barriers for upscaling Conservation Agriculture in the Mediterranean	Fibl de	DE	RIA	2019	1 499 924	48	01/07/2020
DAINME-SME	Dairy Innovation for Mediterranean SME	Institut de recerca i tecnologia agroalimentaria	ES	IA	2018	1 956 857	36	01/12/2019
DELICIOUS	UnDErstanding consumer food choices & promotion of healthy and sustainable Mediterranean diets and Lifestyles in Children through behavIOUral change actionS	Edelvives	ES	IA	2021	2 606 875	36	GAP in progress

PROJECT ACRONYM	PROJECT TITLE	COORDINATING ENTITY	COORD PS	TYPE ACTION	AWP	BUDGET (in euro €)	DURATION	STARTING DATE
DSWAP	Decision support-based approach for sustainable water reuse application in agricultural production	Agricultural research organization	IL	RIA	2018	1 999 857	36	01/07/2019
EGROUDWATER	Citizen science and ICT-based enhanced information systems for groundwater assessment modelling and sustainable participatory management	Universitat politècnica de valència upv	ES	RIA	2019	1 600 000	48	01/03/2020
FARMS4CLIMATE	Smart governance and operational models for agroecological carbon farming	Fundación instituto internacional de investigación en inteligencia artificial y ciencias de la computación	ES	IA	2021	2 749 437	36	GAP in progress
FIT4REUSE	SaFe and sustainable soluTions FOR the integRatEd USE of non-conventional water resources in the Mediterranean agricultural sector	Alma mater studiorum - university of bologna	IT	RIA	2018	2 020 000	36	01/07/2019
FLAT BREAD MINE	Flat Bread of Mediterranean area; INnovation & Emerging process & technology	French national research institute for agriculture food and environment (french national institute for agricultural research) - inrae (inra)	FR	IA	2020	2 072 042	48	01/10/2021
FUNTOMP	Functionalized Tomato Products	Middle east technical university	TR	IA	2020	1 905 211	48	01/05/2021
GOTHAM	Governance tool for sustainable water resources allocation in the Mediterranean through Stakeholder's collaboration. Towards a paradigm shift in groundwater management by end-users	Fundación centro andaluz de investigaciones del agua fundacion privada cetaqua	ES	RIA	2019	1 600 000	36	01/04/2020
HORTIMED	Towards circular horticulture: closing the loop on Mediterranean greenhouses	Inkoa sistemas s.l. inkoa	ES	IA	2019	1 556 500	48	01/03/2020
IGUESS-MED	Innovative Greenhouse Support System in the Mediterranean Region: efficient fertigation and pest management through IoT based climate control	Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria crea	IT	IA	2019	1 597 700	48	1/04/2020
INTHEMED	Innovative and Sustainable Groundwater Management in the Mediterranean	Universitat politècnica de valència upv	ES	RIA	2019	1 589 000	36	01/03/2020

PROJECT ACRONYM	PROJECT TITLE	COORDINATING ENTITY	COORD PS	TYPE ACTION	AWP	BUDGET (in euro €)	DURATION	STARTING DATE
LENSES	Learning and action alliances for Nexus environments in an uncertain future	C consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria crea	IT	IA	2020	2 998 000	36	01/05/2021
LOCALNUTLEG	Developing innovative plant-based added-value food products through the promotion of LOCAL Mediterranean NUT and LEGUME crops	Institute for food and agricultural research and technology - irta	ES	IA	2020	2 000 000	36	01/05/2021
MAGO	Mediterranean wAter management solutions for a sustainable aGriculture supplied by an Online collaborative platform	Cetaqua centro tecnológico del agua fundación privada	ES	IA	2020	2 495 500	36	01/05/2021
MARA-MEDITERRA	Safeguarding the livelihood of rural communities and the environment in the Mediterranean through Nature-based Solutions	Hellenic agricultural organization – demeter / soil and water resources institute	EL	RIA	2021	2 549 850	36	GAP in progress
MEDFOOD	Trace & Trust Hubs for MED food	Centre for research and technology hellas certh	EL	IA	2019	1 519 000	36	01/04/2020
MEDIBEES	Monitoring the Mediterranean Honey Bee subspecies and their resilience to climate change for the improvement of sustainable agro-ecosystems	Centro de investigación apícola y agroambiental de marchamalo (ciapa)	ES	RIA	2020	1 750 000	48	01/05/2021
MEDIFIT	An interlinked digital platform for Food Integrity and Traceability	Aristotle university of thessaloniki auth	EL	IA	2019	1 494 200	36	01/06/2020
MEDITOMATO	of relevant MEDiterranean supply chains	Ingenieria y control electrónico s.l.	ES	IA	2018	1 999 381	36	01/06/2019
MEDWHEALTH	Development of new wheat-derived foods of the Mediterranean diet with improved nutritional and health value	Tuscia university - unitus	IT	IA	2020	1 877 500	36	01/10/2021
MOUNTAINHER	Empowering women associations as drivers for agro-ecological transformation to generate income for Mountain farming communities	Institut national de la recherche agronomique	MO	IA	2021	2 750 000	36	GAP in progress
NEWFEED	Turn food industry by-products into secondary feedstuffs via circular-economy schemes	Fundación azti - azti fundazioa	ES	IA	2020	2 057 528	48	01/07/2021
NEXUS-NESS	NEXUS Nature Ecosystem Society Solution: Fair and Sustainable Resource Allocation Demonstrator of the Multiple WEFU Nexus Economic Social and Environmental Benefits for Mediterranean Regions	University for foreigners of perugia	IT	IA	2020	2 850 000	36	01/06/2021

PROJECT ACRONYM	PROJECT TITLE	COORDINATING ENTITY	COORD PS	TYPE ACTION	AWP	BUDGET (in euro €)	DURATION	STARTING DATE
PASTINNOVA	Innovative models for sustainable future of Mediterranean pastoral systems	Hellenic agricultural organization elgo-dimitra/ agricultural economics research institute	EL	IA	2021	2 750 000	36	GAP in progress
PHEMAC	Participatory Hub for Effective Mapping Acceleration and Capitalization of EU-MPC NEXUS best practices	Universitat autonoma de barcelona uab	ES	CSA	2019	1 100 000	36	01/01/2020
PLANT-B	A sustainable mixed cropping-beekeeping system in the Mediterranean basin	Benaki phytopathological institute	EL	RIA	2018	2 082 676	36	01/10/2019
PROMEDLIFE	PROMotion of MEDiterranean LIFEstyle and healthy diet	Fondazione edmund mach	IT	IA	2021	2 363 973	36	GAP in progress
REACT4MED	Inclusive Outscaling of Agro-ecosystem REStoration ACTIONS for the MEDiterranean	Hellenic mediterranean university	EL	RIA	2021	2 750 000	36	GAP in progress
RESERVOIR	Sustainable groundwater RESources managEment by integrating eaRth observation deriVed monitoring and fIow modellng Results (RESERVOIR)	University of pavia unipv;	IT	RIA	2019	1 240 000	48	01/03/2020
SALAM-MED	Sustainable Approaches to LAnd and water Management in MEDiterranean Drylands	Desertification research center (nrd) university of sassari	IT	RIA	2021	2 750 000	36	GAP in progress
SCALA-MEDI	Improving sustainability and quality of Sheep and Chicken production by leveraging the Adaptation potential of Local breeds in the MEDiterranean area.	Università cattolica del sacro cuore	IT	RIA	2020	1 750 000	48	01/09/2021
SIGMA-NEXUS	Sustainable Innovation and Governance in the Mediterranean Area for the WEF Nexus	Technical university of munich tum	DE	RIA	2019	1 544 750	48	01/03/2020
SUPROMED	Sustainable Production In Water Limited Environments Of Mediterranean Agro-Ecosystem	Universidad de castilla-la mancha	ES	RIA	2018	2 030 000	36	01/10/2019
SURE_NEXUS	Ensure Fair Nexus Transition For Climate Change Adaptation And Sustainable Development	Universitat politecnica de catalunya	ES	IA	2021	3 891 541	36	In Progress
SUREFISH	Fostering Mediterranean fish ensuring traceability and authenticity	Enco srl enco	IT	IA	2019	1 597 025	36	01/03/2020

PROJECT ACRONYM	PROJECT TITLE	COORDINATING ENTITY	COORD PS	TYPE ACTION	AWP	BUDGET (in euro €)	DURATION	STARTING DATE
SURFOLY	Sustainable Ruminants Feed with Olive pomace and polyphenols enriched charred olive stone	University of perugia	IT	IA	2020	2 209 000	48	01/07/2021
SUSMEDHOUSE	Efficient Eco-Friendly Sustainable Mediterranean Greenhouse Integrated with Artificial Intelligence Hi-Tech Automation and Control System	Artecs anadolu arge teknoloji muhendislik ve danismanlik ozel uretim egitim organizasyon sanayi ic ve dis ticaret anonim sirketi ar&tecs	TR	IA	2019	1 549 990	36	01/03/2020
SUSTAINOLIVE	SUSTAINOLIVE	University of jaén	ES	RIA	2018	2 032 690	48	01/06/2019
SUSTAVIANFEED	Alternative animal feeds in Mediterranean poultry breeds to obtain sustainable products	Sociedad agraria de transformacion 2439 (alia)	ES	IA	2020	2 299 388	48	01/04/2021
SWITCHTOHEALTHY	Switching Mediterranean consumers to Mediterranean sustainable healthy dietary patterns	Enco srl	IT	IA	2021	2 799 000	36	GAP in progress
TALANOA-WATER	Talanoa Water Dialogue for Transformational Adaptation to Water Scarcity Under Climate Change	Universidad de salamanca	ES	IA	2020	2 500 000	48	01/06/2021
TRACE-RICE	Tracing rice and valorizing side streams along mediterranean blockchain	Instituto nacional de investigação agrária e veterinária i.p. iniav	Pt	IA	2019	1 599 556	48	01/09/2020
TRUST	Management of industrial Treated wastewater ReUse as mitigation measures to Water Scarcity in climate change context in two Mediterranean regions	University of calabria - department of computer engineering modeling electronic and system engineering dimes	IT	IA	2020	1 985 000	36	01/06/2021
WATERMED 4.0	Efficient use and management of conventional and non-conventional water resources through smart technologies applied to improve the quality and safety of Mediterranean agriculture in semi-arid areas	University of murcia. Information and communication technologies department	ES	RIA	2018	1 862 043	36	01/06/2019
Total amount 110 622 092								



Table 22 Details on projects selected out of S2 calls (year 2018, 2019, 2020, 2021)

PROJECT ACRONYM	PROJECT TITLE	COORDINATING ENTITY	COORD. COUNTRY	AWP	BUDGET (IN EURO €)	DURATION	STARTING DATE
4BIOLIVE	Production of Biostimulants Biofertilizers Biopolymer and Bioenergy from OLIVE-oil chain residues and by-products	University Of Perugia	IT	2020	641 000	36	01/06/2021
ADAMEDOR	Adapting Mediterranean Orchards – science-based design of resilient fruit tree portfolios for the Mediterranean region	Organismos Anaptiksis Kritis Anonimi Etairia Oak	DE	2019	738 000	36	01/06/2020
ADAPT-HERD	Management strategies to improve herd resilience and efficiency by harnessing the adaptive capacities of small ruminants	Modelisation Systemique Appliquee Aux Ruminants	FR	2018	660 000	48	01/09/2019
ADVAGROMED	ADVanced AGROecological approaches based on the integration of insect farming with local field practices in MEDiterranean countries	University Of Turin	IT	2021	1 066 341	36	In Progress
AGRECOMED	New agroecological approach for soil fertility and biodiversity restoration to improve economic and social resilience of Mediterranean farming systems	University Of Basilicata	IT	2021	920 165	36	In Progress
AGREEMAR	Adaptive agreements on benefits sharing for managed aquifer recharge in the Mediterranean region	Technische Universität Dresden	DE	2021	1 000 908	36	In Progress
AGREEMED	Innovative Aquifers Governance for Resilient Water Management and Sustainable Ecosystems in Stressed Mediterranean Agricultural Areas	Mohammed Vi Polytechnic University	MA	2021	1 300 140	36	In Progress
AGRICOMPET	Governing the agri-food supply chain: how to improve smallholders competitiveness	University Of Oviedo	ES	2020	938 096	36	2021-09-01
AGRI-FISH	Circular economy application: from the field to the net. Sustainable and innovative feeds from agricultural wastes for a resilient and high-quality aquaculture	University Of Camerino	IT	2021	577 800	36	In Progress
AG-WAMED	Advancing non-conventional water management for innovative climate-resilient water governance in the Mediterranean Area	Università Degli Studi Di Firenze	IT	2021	1 049 850	36	In Progress
ALTOS	Managing water resources within Mediterranean agrosystems by accounting for spatial structures and connectivities	Laboratoire D'etude Des Interactions Sol - Agrosysteme - Hydrosysteme	FR	2018	1 005 000	36	2020-02-01
ARTISANEFood	Innovative Bio-interventions and Risk Modelling Approaches for Ensuring Microbial Safety and Quality of Mediterranean Artisanal Fermented Foods	Polytechnic Institute Of Bragança	PT	2018	1 355 000	36	2019-06-01
ASTER	Agroecology-inspired Strategies and Tools to Enhance Resilience and ecosystem services in tomato crop	Consiglio Nazionale Delle Ricerche	IT	2021	1 582 799		In Progress
BENEFIT-MED	Boosting technologies of orphan legumes towards resilient farming systems in the Greater Mediterranean Region: from bench to open field	University Of Pavia	IT	2021	833 763	36	In Progress
BIODIVERSIFY	Boost ecosystem services through high Biodiversity-based Mediterranean Farming sYstems	The French Agricultural Research Center For International Development - Cirad	FR	2019	1 273 600	36	01/10/2020

PROJECT ACRONYM	PROJECT TITLE	COORDINATING ENTITY	COORD. COUNTRY	AWP	BUDGET (IN EURO €)	DURATION	STARTING DATE
BIOFRESHCLOUD	Enhancing Mediterranean Fresh Produce Shelf-life using Sustainable Preservative Technologies and communicating knowledge on dynamic shelf-life using Food Cloud Services and Predictive Modelling	Universidad De Cordoba - Uco	ES	2019	704 000	36	2020-06-01
BIOMENEXT	Modelling integrated biodiversity-based next-generation Mediterranean farming systems	University Of Perugia - Department Of Agricultural Food And Environmental Sciences (Unipg)	IT	2021	1 085 571	36	In Progress
BIOPESTICIDES	Development of Bio-Pesticides and -Herbicides for Sustainable Agricultural Crop Production	Pernaturam Gmbh	DE	2020	1 699 351	48	01/06/2021
BIOPROMEDFOOD	Bio-protective cultures and bioactive extracts as sustainable combined strategies to improve the shelf-life of perishable Mediterranean food	Cukurova University	TR	2019	831 000	36	02/03/2020
BIORANGEPACK	Smart and innovative packaging post-harvest rot management and shipping of organic citrus fruit	University Of Catania	IT	2019	1 158 000	36	03/11/2020
BLUE-MED	A novel integrated and sustainable approach to monitor and control Bluetongue spread in the Mediterranean Basin	Istituto Zooprofilattico Sperimentale Dell'abruzzo E Del Molise	IT	2018	687 000	36	04/11/2019
BRASEXPLORE	Wide exploration of genetic diversity in Brassica species for sustainable crop production	French National Research Institute For Agriculture Food And Environment The Institute For Genetics Environment And Plant Protection - Inrae	FR	2019	776 977	36	01/09/2020
CAMEL-SHIELD	Camel breeding systems: actors in the sustainable economic development of the northern Sahara territories through innovative strategies for natural resource management and marketing	The French Agricultural Research Center For International Development - Cirad	FR	2019	710 000	48	01/09/2020
CEREALMED	Enhancing diversity in Mediterranean cereal farming systems	University Of Bari Aldo Moro	IT	2019	1 198 000	36	20/05/2020
CHANGE-UP	Innovative agroecological APPROaches to achieving resilience to climate CHANGE in Mediterranean countries	University Of Parma	IT	2020	1 061 944	36	2021-06-01
CICLICA	Smart agriCulture optimization to CLimate Change Adaptation	Spanish National Research Council	ES	2021	1 016 686	36	In Progress
CONSIRS	A novel Condensation Supported Greenhouse Irrigation System	Technische Universität Berlin	DE	2018	712 000		01/02/2020
DATI	Digital Agriculture Technologies for Irrigation efficiency	Istituto Per La Bioeconomia Del Consiglio Nazionale Delle Ricerche	IT	2020	1 020 180	36	01/06/2021
DIVICIA	Use and management of Vicia species for sustainability and resilience in biodiversity-based farming systems	Ecole Superieure D'agricultures - Esa Angers	FR	2019	1 000 000	36	01/09/2020
DREAM	Diversified orchards for RESilient and sustAinable Mediterranean farming systems	Alma Mater Studiorum - University Of Bologna	IT	2021	1 332 706	48	In Progress
DROMAMED	Capitalization of Mediterranean maize germplasm for improving stress tolerance	Agencia Estatal Consejo Superior De Investigaciones Cientificas	ES	2020	1 455 721	36	01/06/2021

PROJECT ACRONYM	PROJECT TITLE	COORDINATING ENTITY	COORD. COUNTRY	AWP	BUDGET (IN EURO €)	DURATION	STARTING DATE
EADANMBRT	Evaluation and development of anaerobic membrane bioreactor (AnMBR) technology to promote unrestricted wastewater reuse and mitigate compromised surface water quality in the Mediterranean region	Lebanese American University	LB	2019	415 000	36	01/09/2020
ECHINO-SAFE-MED	New sustainable tools and innovative actions to control cystic ECHINOcoccus in sheep farms in the MEDiterranean area: improvement of diagnosis and SAFETY in response to climatic changes	University Of Naples Federico II	IT	2020	779 056	36	10/05/2021
ECOBOOST	Boosting functional biodiversity to maximize ecosystem services for Mediterranean crop production	University Of Palermo	IT	2021	1 479 069	36	In Progress
EXPLOWHEAT	Exploring durum wheat genotypes to minimize drought stress impact on grain yield and nutritional quality	Tuscia University	IT	2019	674 000	36	02/12/2020
FEDKITO	FrEsh FooD sustainable packaging in the circular ecOnomy	University Of Pisa	IT	2019	905 000	36	15/09/2020
FIGGEN	Valorising the diversity of the fig tree an ancient fruit crop for sustainable Mediterranean agriculture	University Of Pisa	IT	2019	537 786	36	01/04/2020
FISH-PHOTOCAT	Photocatalytic water remediation for sustainable fish farming	University Of Milan	IT	2019	707 573	36	01/12/2020
FREECLIMB	Fruit Crops resilience to climate change in the Mediterranean Basin	Università Degli Studi Di Milano (La Statale)	IT	2018	1 653 417	36	28/03/2019
FRUALGAE	Sustainable technologies and methodologies to improve quality and extend product shelf life in the Mediterranean agro-food supply chain	Agricultural University Of Athens	EL	2019	1 220 000	36	01/06/2020
GEMED	Prevention and control of new and invasive geminiviruses infecting vegetables in the Mediterranean	The French Agricultural Research Center For International Development - Cirad	FR	2018	808 000	36	01/10/2019
GENDIBAR	Utilization of local genetic diversity for studying barley adaptation to harsh environments and for pre-breeding	Consiglio Per La Ricerca In Agricoltura E L'analisi Dell'economia Agraria Crea	IT	2018	1 251 000	36	
GOURMED	Governance of food supply chain to equilibrate price and profits of high quality and safe Mediterranean foods	Centre For Research & Technology Hellas / Hellenic Institute Of Transport	EL	2020	952 610	36	01/06/2021
GREENDRIEDFRUITS	Application of extreme temperatures in dried figs dates and currants disinfestation: sustainability in practice	University Of Milan	IT	2021	709 434	36	In Progress
GREENPALM	Development of sustainable date palm-based agro systems by preserving their biodiversity	The Spanish National Research Council - Csic	ES	2019	703 600	36	01/06/2020
HALOFARMS	Development and Optimization of Halophyte-based Farming systems in salt-affected Mediterranean Soils	Centre De Biotechnologie De Borj Cedria - Cbbc	TN	2019	847 872	36	01/10/2020
HALOSHEEP	Agroecological sheep/goat production system based on the valorisation of halophytes of saline area in the méditerranéen basin	Institut Supérieur Agronomique De Chott Mariem	TN	2021	644 135	36	In Progress
HANDYWATER	Handy tools for sustainable irrigation management in Mediterranean crops	Instituto Valenciano De Investigaciones Agrarias	ES	2020	897 227	36	01/06/2021
HUBIS	Open innovation Hub for Irrigation Systems in Mediterranean agriculture	Monsmellier Supagro	FR	2019	1 170 706	36	01/10/2020

PROJECT ACRONYM	PROJECT TITLE	COORDINATING ENTITY	COORD. COUNTRY	AWP	BUDGET (IN EURO €)	DURATION	STARTING DATE
IDEWA	Irrigation and Drainage monitoring by remote sensing for Ecosystems and Water resources management	French National Research Institute For Agriculture Food And Environment Center For Space Studies Of The Biosphere - Ird-Umr Cesbio	FR	2019	645 241	36	01/10/2020
IMPRESA	IMProving RESilience to Abiotic stresses in durum wheat: enhancing knowledge by genetic physiological and "omics" approaches and increasing Mediterranean germplasm biodiversity by crop wild relatives-based introgression	Università Degli Studi Della Tuscia	IT	2018	695 000	36	02/09/2019
IMPULSE	Innovation in the By-ProdUct Supply chain of citrus in Mediterranean area	University Of Duisburg-Essen Centre For Logistics & Traffic	DE	2020	1 304 299	36	01/06/2021
INOVFARMER.MED	Improving Mediterranean supply chain through innovative agro-food business to strengthen small-scale farmers competitiveness using prickly pear and fig as case study	Instituto Politécnico De Viseu	PT	2021	674 100		In Progress
INTEL-IRRIS	Intelligent Irrigation System for Low-cost Autonomous Water Control in Small-scale Agriculture	University Of Pau And The Adour Region - Uppa	FR	2020	1 038 680	36	01/06/2021
INTOMED	Innovative tools to combat crop pests in the Mediterranean	University To Thessaly Department Of Biochemistry And Biotechnology	EL	2018	612000	36	15/11/2019
INWAT	Quality and management of intermittent rivers and associated groundwaters in the Mediterranean basins	Consejo Superior De Investigaciones Cientificas	ES	2018	1 148 000	36	01/07/2019
IRRIWELL	A novel plant-based approach to estimate irrigation water needs of orchards for an optimal water management	The Spanish National Research Council - Csic	ES	2020	1 038 941	36	01/06/2021
ISFERALDA	Improving Soil FERtility in Arid and semi-arid regions using Local organic DAte palm residues	University Of Reims Champagne-Ardenne - Urca	FR	2020	580 182	36	01/06/2021
KARMA	Karst Aquifer Resources availability and quality in the Mediterranean Area	Karlsruhe Institute Of Technology	DE	2018	1 148 000	36	01/09/2019
LAB4SUPPLY	Multi-agent Agri-food living labs for new supply chain Mediterranean systems; towards more sustainable and competitive farming addressing consumers' preferences and market changes.	Fundació Centre De Recerca En Economia I Desenvolupament Agroalimentari Upc-Irta (Creda)	ES	2020	1 120 070	36	01/07/2021
LAGMED	Improvement of preventive actions to emerging LAGoviruses in the MEDiterranean basin: development and optimisation of methodologies for pathogen detection and control	Cibio/Inbio-Up Rede De Investigação Em Biodiversidade E Biologia Evolutiva	PT	2018	798 000	36	01/09/2019
LEGU-MED	Legumes in biodiversity-based farming systems in Mediterranean basin	University Of Florence	IT	2019	1 240 190	36	01/11/2020
MA4SURE	Mediterranean Agroecosystems for Sustainability and Resilience under Climate Change	Instituto De Estudios Metropolitanos Y Regionales De Barcelona - Iermb	ES	2020	837 294	36	03/05/2021
MED4PEST	Novel Ecologically-Based RODent management DEveloSMent in Mediterranean countries	Metameta Anatolia	TR	2021	527 460		In Progress
MED4YOUTH	Mediterranean Enriched Diet for tackling Youth Obesity	Fundacio Eurecat	ES	2018	995 000	36	01/12/2019

PROJECT ACRONYM	PROJECT TITLE	COORDINATING ENTITY	COORD. COUNTRY	AWP	BUDGET (IN EURO €)	DURATION	STARTING DATE
MED-BERRY	Developing new strategies to protect strawberry crop in Mediterranean countries	Alma Mater Studiorum University Of Bologna	IT	2018	1 199 000	36	01/09/2019
MEDISMART	Mediterranean Citrus: innovative soft processing solutions for S.M.A.R.T (Sustainable Mediterranean Agronomically evolved nutritionally enriched Traditional) products	Nr National Research Center - Nrc C	EG	2019	1 112 512	36	01/10/2020
MED-LINKS	Data-Enabled Business Models and Market Linkages Enhancing Value Creation and Distribution in Mediterranean Fruit and Vegetable Supply Chains	Alma Mater Studiorum - Università Di Bologna	IT	2020	1 082 267	36	01/06/2021
MEDPOME-STONE	Valorizing some pome and stone fruit germplasm variability to ensure resilience to climate change in the Mediterranean area	Erciyes University	TR	2021	620 150	36	In Progress
MEDSAL	Salinization of critical groundwater reserves in coastal Mediterranean areas: Identification Risk Assessment and Sustainable Management with the use of integrated modelling and smart ICT tools	Hellenic Agricultural Organization "Demeter" Soil And Water Resources Institute	EL	2018	1 290 000	36	01/09/2019
MEDWATERICE	Towards sustainable water use in Mediterranean rice-based agro-ecosystems	Università Degli Studi Di Milano	IT	2018	1 348 000	36	01/04/2019
MED-WET	Improving MEDiterranean irrigation and Water supply for smallholder farmers by providing Efficient low-cost and nature-based Technologies and practices	Hochschule Wismar	DE	2020	1 030 219	36	xxxxx
MIDIVINE	Innovative Approaches Promoting Functional Microbial Diversity for a Sustainable Grapevine Health and Productivity in Vineyard Systems of Mediterranean Areas	Universite De Reims Champagne Ardenne - Ribp	FR	2020	807 874	36	01/06/2021
MILKQUA	Milk Quality along the Dairy Chain for a Safe and Sustainable MILK	Institut De L'elevage	FR	2018	873000	36	19/04/2019
NANO4FRESH	Anomaterials for an environmentally friendly and sustainable handling of perishable products	University Of Lisbon Instituto Superior Técnico - UI - Ist	PT	2019	666 332	36	01/12/2020
OIL4MED	Open platform and fairness Olive-Oil supply chain for MEDiterranean small farmers	Andalusian Institute For Research And Training In Agriculture Fishery Food And Ecological Production	ES	2020	589 800	36	01/10/2021
OPTIMUS PRIME	OPTIMal USage of natural product and biological PRIMing agents to improve rEsilience of agrosystems to climate change	Universitat Jaume	ES	2020	815 433	36	01/06/2021
ORABBIT	Omega RABbit: un aliment pour la santé	Università Di Milano	IT	2020	888 826	36	27/10/2021
PRECIMED	Precision Irrigation Management to Improve Water and Nutrient Use Efficiency in the Mediterranean Region	Agencia Estatal Consejo Superior De Investigaciones Cientificas	ES	2018	740 000	36	01/10/2019
PROSIT	Plant microbiomes in sustainable viticulture	University Of Padova - Department Of Biology	IT	2020	1 050 608		03/05/2021
PROSMALLAGRIMED	Promoting soil fertility yield and income in smallholder agriculture of semiarid and arid Mediterranean regions by management of beneficial soil microbiota conservation agriculture and intercropping.	Università Del Piemonte Orientale "Amedeo Avogadro"	IT	2020	1 066 375	36	xxxxx

PROJECT ACRONYM	PROJECT TITLE	COORDINATING ENTITY	COORD. COUNTRY	AWP	BUDGET (IN EURO €)	DURATION	STARTING DATE
PULPING	Development of Pumpkin Pulp Formulation using a Sustainable Integrated Strategy	Instituto Politécnico De Bragança	PT	2019	912 689	36	01/09/2020
QUINO4MED	Quinoa as a climate-smart crop diversification option for higher-income generation from marginal lands in the Mediterranean	University Of Hohenheim	DE	2021	1 747 173	36	In Progress
RECROP	Bioinnocula et agrosystèmes: approche biotechnologique intégrée pour améliorer les rendements des cultures et la résilience des agrosystèmes méditerranéens	Universidade Católica Portuguesa	PT	2020	1 200 448	36	01/06/2021
REME-DIATION	Resilient Mediterranean with a holistic approach to sustainable agriculture: Addressing challenges of water soil energy and biodiversity	Hamburg University Of Technology	DE	2021	606 804	36	In Progress
RESCHEDULE	RESilient to Climate CHange Extremes MeDiterranean AgricUltural Systems: LEveraging the Power of Soil Health and Associated Microbiota	Technical University Of Crete	EL	2020	1 277 728	36	01/06/2021
RESIDUE	Risk reduction of chemical residues in soils and crops – impact due to wastewater used for irrigation	Fraunhofer Institute For Molecular Biology And Applied Ecology - Fraunhofer-Ime	DE	2019	1 111 488	36	01/08/2020
RESILINK	Increasing Resilience of Smallholders with Multi-Platforms Linking Localized Resource Sharing	Laboratoire D'informatique De L'universite De Pau Et Des Pays De L'adour	FR	2021	766 966	48	In Progress
REVINE	Regenerative agricultural approaches to improve ecosystem services in Mediterranean vineyards	Crea - Consiglio Per La Ricerca In Agricoltura E L'analisi Dell'economia Agraria Centro Di Ricerca Viticoltura Ed Enologia	IT	2020	827 835	36	24/05/2021
SAFE	Sustainable water reuse practices improving safety in agriculture food and environment	Università Degli Studi Della Basilicata	IT	2021	1 340 320	36	In Progress
SAFEAGROBEE	Préserver la résilience des agroécosystèmes face au changement climatique grâce à une pollinisation efficace et une apiculture durable	Department Of Apiculture Hao-Demeter	EL	2020	1 182 946	36	01/04/2021
SAFFROMFOOD	Valorisation of saffron and its floral by-products as sustainable innovative sources for the development of high added-value food products.	Universidad Miguel Hernandez	ES	2018	1279000	36	01/03/2021
SEA FENNEL4MED	Innovative sustainable organic sea fennel (Crithmum maritimum L.)-based cropping systems to boost agrobiodiversity profitability circularity and resilience to climate changes in Mediterranean small farms	Università Politecnica Delle Marche	IT	2021	964 600	36	In Progress
SIMTAP	Self-sufficient Integrated Multi-Trophic AquaPonic systems for improving food production sustainability and brackish water use and recycling	University Of Pisa	IT	2018	946 484	36	01/06/2019
SIRAM	Sustainable innovations for Regenerative Agriculture in the Mediterranean area	Università Cattolica Del Sacro Cuore	IT	2021	1 566 293	36	In Progress
SMACUMED	Smart irrigation cube for sustainable agriculture in the Mediterranean region	Karlsruhe University Of Applied Sciences - Kuas	DE	2019	991 800	36	16/06/2020
SMALLDERS	Smart Models for Agrifood Local vaLue chain based on Digital technologies for Enabling covid-19 Resilience and Sustainability	University Of Calabria (Modeling & Simulation Center - Laboratory Of Enterprise Solutions)	IT	2021	1 061 328	36	In Progress

PROJECT ACRONYM	PROJECT TITLE	COORDINATING ENTITY	COORD. COUNTRY	AWP	BUDGET (IN EURO €)	DURATION	STARTING DATE
SMARTIES	Real time smart irrigation management at multiple stakeholders' levels	Politecnico Di Milano - Polimi	IT	2019	1066000	36	10/03/2020
STOPMEDWASTE	Innovative Sustainable technologies TO extend the shelf-life of Perishable MEDiterranean fresh fruit vegetables and aromatic plants and to reduce WASTE	Università Politecnica Delle Marche - Updm	IT	2019	1 009 017	36	01/05/2020
SUPERTROUT	Improving SUSTainability and PERformance of aquaculture farming system: breeding for lactococcosis resistance in rainbow TROUT.	Experimental Zooprophyllactic Institute Of Piedmont Liguria And Valle D'aosta - Izsplv	IT	2019	664 000	36	01/12/2020
SUSFORAGE	Sown forage mixtures for sustainable agroecosystems in the Mediterranean area	Centre De Ciència I Tecnologia Forestal De Catalunya	ES	2020	815 221	36	01/06/2021
SUSTAIN-COAST	Overview of participating countries and the four case studies considered in Sustain-COAST	Technical University Of Crete	EL	2018	1086000	36	01/06/2019
SUSTEMICROP	DeveloSMEnt of eco-sustainable systemic technologies and strategies in key Mediterranean crops systems contributing to small farming socio-economic resilience.	University Of Leon	ES	2021	1 374 049	36	In Progress
SWATCH	Strategies for increasing the WATER use efficiency of semi-arid Mediterranean watersheds and agrosilvopastoral systems under climate CHange	Dipartimento Di Ingegneria Civile Ambientale Ed Architettura Università Di Cagliari	IT	2018	1006000	36	01/01/2020
TECHONEY	DeveloSMEnt of a blockchain-based ecosystem that allows an improved positioning of small producers of honey on local and international markets	Centro De Investigacion Y Tecnologia Agroalimentaria De Aragon	ES	2021	1 248 531	36	In Progress
TRANSITION	Innovative resilient farming systems in Mediterranean environments	Fundació Universitària Balmes	ES	2020	1 149 456	36	01/06/2021
UTOPIQ	Use of Tomato lines tolerant to Proximity shade to Increase yield and Quality in intercropping agrosystems	Agencia Estatal Consejo Superior De Investigaciones Cientificas	ES	2020	791 180	36	01/06/2021
VALICET	Valorise foods and Improve Competitiveness through Emerging Technologies applied to food by-products within the circular economy framework	University Of Santiago De Compostela	ES	2020	787 000	36	01/06/2021
VALMEDALM	VALORIZATION of MEDiterranean ALMond orchards through the use of intercropping integrated strategies	Laboratório Colaborativo Montanhas De Investigação Associação	PT	2021	1 215 104	36	In Progress
VALUEFARM	VALORIZATION of Mediterranean small-scale FARMS by cropping wild UnExploited species	University Of Thessaly - Uth	EL	2019	1 242 435	36	01/09/2020
VEG-ADAPT	Adapting Mediterranean vegetable crops to climate changeinduced multiple stress	Università Degli Studi Di Torino	IT	2018	1 991 000	36	01/10/2019
VEGGIE-MED-CHEESES	Valorisation of thistle-curdled CHEESES in MEDiterranean marginal areas	Università Politecnica Delle Marche	IT	2018	880 750	36	01/05/2019
VINEPROTECT	Ecological survey for biological management and protection of Mediterranean vineyards facing climate changes	Faculty Of Science University Of Porto	PT	2021	760 722	36	In Progress
WILDFOOD	Eating the wild: Improving the value-chain of Mediterranean Wild Food Products (WFP)	Forest Science And Technology Centre Of Catalonia	ES	2019	814 220	36	10/04/2020

PROJECT ACRONYM	PROJECT TITLE	COORDINATING ENTITY	COORD. COUNTRY	AWP	BUDGET (IN EURO €)	DURATION	STARTING DATE
ZEROPARASITIC	Innovative sustainable solutions for broomrapes: prevention and integrated pest management approaches to overcome parasitism in Mediterranean cropping systems	Benaki Phytopathological Institute	EL	2018	1 272 000	36	01/09/2020
TOTAL AMOUNT 114 286 523							



Outputs of actions and activities funded under Sections 1 and 2.

The outputs of Section 1 and Section 2 projects that are still underway (e.g., 129 Section 1 and Section 2 projects selected in 2018-2020 calls) under the four thematic areas (water management, farming systems, agri-food value chain and WEFE Nexus) are included in [Annex 2](#).

From 2018 to 2021, **104** publications in highly impacted publications produced by PRIMA projects have been uploaded in the PRIMA Monitoring and Evaluation Platform (MEL) so far and can be downloaded from the following link shorturl.at/ImCH4.

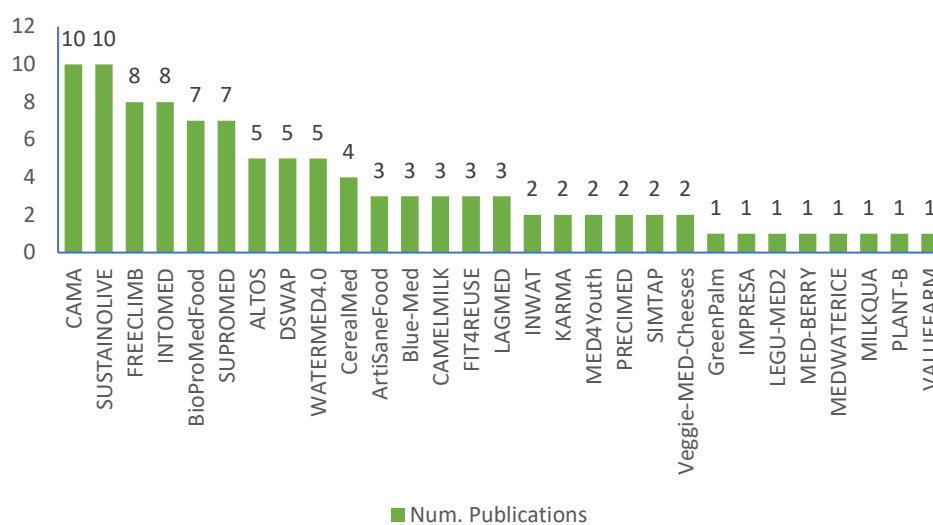
The publications are considered to be one of the main outputs from the funded projects, The highest number of publications were produced between 2020 and 2021, and can be attributed mainly to 2018 and 2019 projects as they are the ones mostly advanced in term of their implementation.

Table 23 Number of publications per year

Year	Number of Publications
2019	2
2020	47
2021	53
2022	1

The Figure below, shows the PRIMA projects with the highest output of publications between 2018 and 2021.

Figure 30 Number of Publications per project



As shown in the table below, the highest number of publications has been produced by projects under the Farming Systems thematic area (62 publications) produced by 17 projects (an average of 3.6 publications per project).

Table 24 Number of publications per thematic area

Thematic area	NB. Publications	NB. Projects	Average/Project
Water management	25	8	3
Farming Systems	61	15	4
Agro-Food Value Chain	18	7	2.5

PRIMA undertakes monitoring to ensure that all peer-reviewed publications resulting from project funding are open access (OA), i.e., freely available online with no restrictions on their use, and that acknowledgement of EU funds is appropriately made for projects selected out of Section 1 calls as set out in [Art. 38 of the Grant Agreement](#).

Similarly, for Section 2 projects, acknowledgement of EU funds and of national funding agencies funds is also required

88% of the publications are open access. In the case of subscription journals, individuals or institutions have to pay subscription charges to access the journal's content.

The articles are published in journals with impact factors ranging from 0.25 to 12.5, with an average impact factor of 5.36.

The highest impact factor journals, [Trends in Food sciences and technology](#) and [Comprehensive Reviews in Food Science and Food Safety](#), have 12.24 and 12.5, respectively.

Table 25 Average Impact factor

Thematic area	Average Impact Factor
Water	6.2
Farming	4.19
Agro-Food	5.7

The journals with the highest **IMPACT FACTOR** where PRIMA projects consortia published their articles are the following:

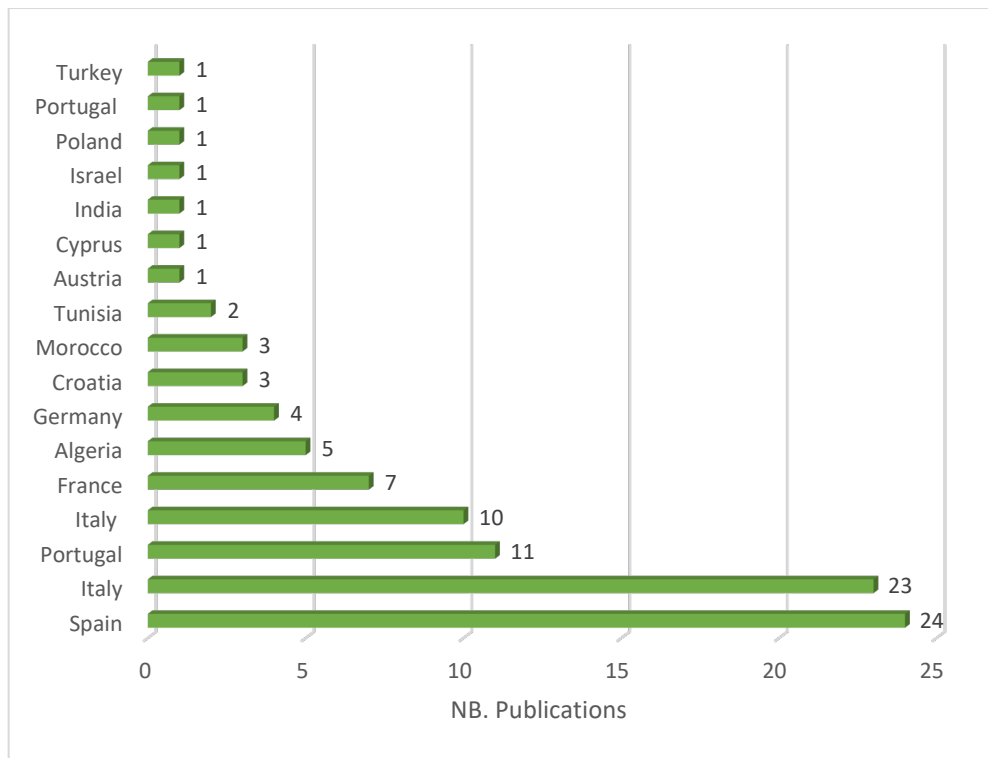
Table 26 IF of Journals where the articles produced by PRIMA projects was published

Project	Journal	IF
BIOPROMEDFOOD	Trends in Food sciences and technology	12.5
	Comprehensive Reviews in Food Science and Food Safety	12.24
INTOMED	Trends Plant Sciences	11.39
DSWAP	Water Res	11.24
KARMA	Water Research	11.24
INWAT	J Hazard Mater	10.5
DSWAP	Environment International	9.6
DSWAP	Environ. Sci. Technol.	9
WATERMED4.0	Reviews in Environmental Science and Bio/Technology	8.04
WATERMED4.0	Reviews in Environmental Science and Bio/Technology	8.04

The total **citations** of the 104 publications are 530, with an average of around 5 citations per publication. The highest citation value is 48.

Reflecting the number of beneficiaries established in ES and IT, most articles have an IT or ES first name author.

Figure 31 Number of Publications per Country (The first appeared in the list of authors)

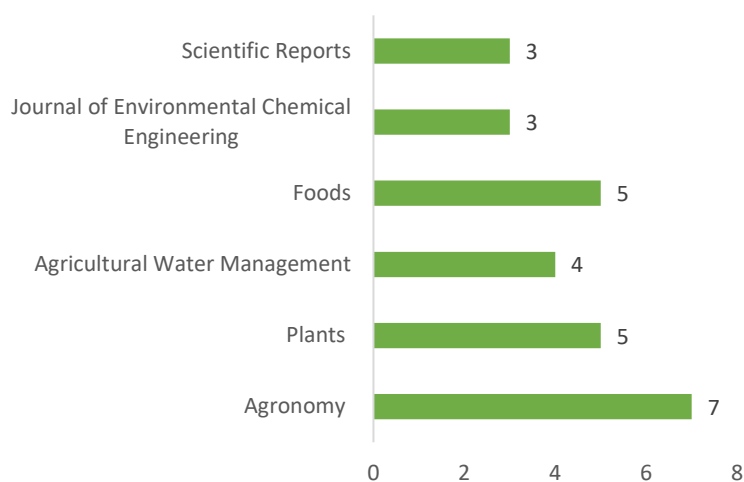


The analysis of co-publications demonstrates the following clustering

- Italy – Spain -France
- Portugal – Spain
- France-Morocco-Tunisia
- Cyprus-Turkey

PRIMA project publications appeared most frequently in Agronomy (7 publications), followed by Plants (5 publications) and Foods (5 publications)

Figure 32 Most frequent publications



Outputs of all activities funded under Section 3

Section 3 includes activities (projects) selected out of PSiAs and Other activities.

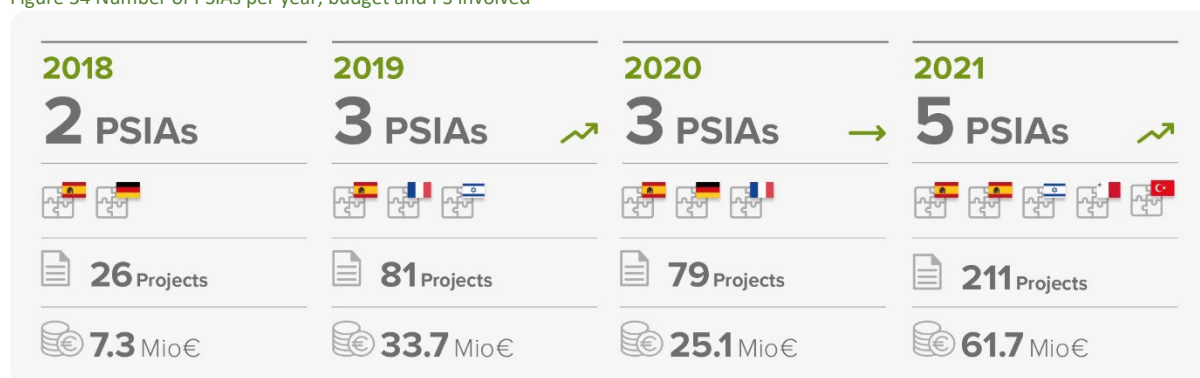
PSiAs

Participating States Initiated Activities (PSIA): PSiAs are national or transnational research and capacity development activities independently funded or implemented by a single Participating State or by several Participating States (independently or jointly). PSiAs span a series of activities, from research and innovation to mobility schemes. The PSiAs are based on national priorities but should be strategically aligned with the PRIMA programme. These activities are counted as in-kind contributions and are included in the PRIMA annual work plans with the agreement of the EU.

13 PSiAs in total were reported from 2018 to 2021, with an increasing number of PSiAs (and related budget) over time: 2 PSiAs in 2018, with a budget of 7.3 million EUR, 3 PSiAs in 2019, for a total budget of EUR 33.7 million, 3 PSiAs in 2020, with a budget of EUR 25.1 million and 5 PSiAs in 2021, with a budget of EUR 61.7 million. PSiAs reported from 2018 to 2020 were monitored through an external international panel of evaluators to check whether the projects selected from these programmes aligned with PRIMA objectives.

Moreover, the evaluators also checked that communication on these activities was done appropriately, respecting the co-labelling requirements.²⁹

Figure 34 Number of PSiAs per year, budget and PS involved



These activities, involving 6 PS (ES, DE, FR, IL, TR, MT), are implemented mainly by EU PS (in particular, ES contributing to 93% of the total budget of these activities). However, an increasing number of non-EU PS are contributing through collaborative programmes such as the Tunisian – German Call for Bilateral S&T Cooperation German-Egyptian Research Fund (GERF) 201; the German-Israeli water technology cooperation programme, Italy - Israel 18th Call for Proposals and PRIMA Tubitak/MCST joint call.

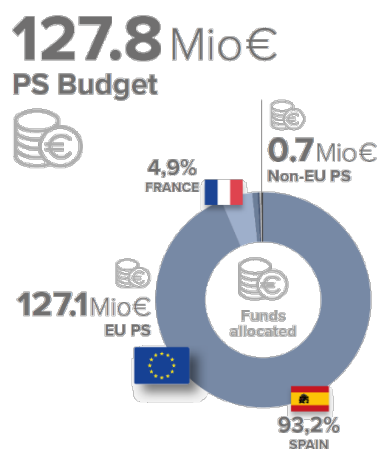


Figure 35 PSiAs budget (EU PS and non-EU PS budget)

²⁹ All participants to activities funded by the PRIMA or by Participating States of the PRIMA programme are required to label or co-label any communication or publication related to their activities with acknowledgements

From 2018 to 2021, a total of 17 projects for a total of EUR 0.7 million were selected out of the above-mentioned bilateral projects between EU PS and non-EU-PS.

397 projects were selected of the **13 PSIA**s for a total budget of EUR 127.8 million allocated budget and EUR 73 million disbursed to the project's beneficiaries so far.

Table 27 PSIAs reported in 2018-2021, title, outputs (projects selected) and web links

CODE PSIA	NFAs/Country	Title of the Activity	Links to PRIMA Section 3 Activities	# Projects selected
ES-2018.4	CDTI/ES	National R&D continuous open CDTI Call	https://www.cdti.es/index.asp?MP=101&MS=871&MN=2	23
DE.2018.1	BMBF/ DE	German-Egyptian Research Fund (GERF) 2018	https://www.bmbf.de/foerderungen/bekanntmachung-1839.html	3
ES-2019-1	CDTI/ES	National R&D continuous open CDTI Call	https://www.cdti.es/index.asp?MP=101&MS=871&MN=2	72
FR-2019-1	ANR/FR	ANR the annual national call for proposals	https://anr.fr/fr/detail/call/appel-a-projets-generique-3/	8
IL-2019-1	IIA/IL	Italy - Israel 18th Call for Proposals	https://www.innovationisrael.org.il/ISERD/topic/prima-partnership-ri-mediterranean-area	1
ES.2020.1	CDTI/ES	National R&D continuous open CDTI Call	https://www.cdti.es/index.asp?MP=101&MS=871&MN=2	71
DE.2020.1	BMBF/DE	Tunisian – German Call for Bilateral S&T Cooperation Involving Science and Industry (2+2 projects) 2020 [TUNGER2plus22020]	https://www.internationales-buero.de/de/prima_participating_states_initiated_activities.php	2
FR.2020.1	ANR/FR	ANR the annual national call for proposals	Appel à projets générique 2020 - 2020 ANR	6
ES.2021.1	CDTI/ES	National R&D continuous open CDTI Call	https://www.cdti.es/index.asp?MP=101&MS=871&MN=2	92
ES.2021.2	AEI/ES	1.State Program for R+D+I Oriented to the Social Challenges. 2.State Program for Generating Knowledge and Scientific and Technological Strengthening of the R+D+I System	https://www.aei.gob.es/convocatorias/buscador-convocatorias?status=1 https://www.aei.gob.es/en/announcements/announcements-finder/proyectos-idi-2020-modalidades-retos-investigacion-generacion-5 https://www.aei.gob.es/convocatorias/buscador-convocatorias/acciones-dinamizacion-europa-investigacion-2020	108
IL.2021.3	ISERD/IL	The German-Israeli water technology cooperation program call for joint proposals for 2020 collaboration of MOST and BMBF	https://www.gov.il/he/departments/publications/Call_for_bids/most_rfp202100712	7
MT.2021.1	MCST/ML	PRIMA Participating States calls for Proposals supporting PRIMA	http://mcst.gov.mt/mcst-news/mcst-tubitak2021/	2
TR.2021.1	TUBITAK/TR	PRIMA Participating States Calls for Proposals supporting PRIMA	https://uidb-pbs.tubitak.gov.tr/	2
13 PSIA	7 NFA/6 countries		397 projects	

Other Activities

In addition to PSIAs, Section 3 includes 20 activities (also called “Other Activities”), many of which support PRIMA to achieve the national regulations and procedure’s alignment, strengthening capacities and critical mass. These activities entirely, implemented mainly by National Funding Agencies under PRIMA Secretariat coordination, include various activities enabling PRIMA to achieve its specific objectives.

Overview 2018/2021

Section 3 at a glance

PSIAs + OAs

Participating States'
Initiated Activities

Other Activities

Focus OAs

20 OAs



Other Activities

129.1 Mio€



PS Budget **S3** (PSIAs+OAs)

of which

1.3 Mio€ Budget OAs

Specific objectives	AWP	States NFAs	Activities
<p>ALIGNMENT OF NATIONAL R&I PROGRAMMES</p>	2020		1 Working with Morocco as co-leaders on an initiative to help establish a PRIMA network base amongst the 5+5 countries
	2021	all NFAs (22)	1 Mutual Learning Exercise (MLE) workshops on National Framework Conditions for PRIMA S2 Calls
<p>CRITICAL MASS OF ACTORS AND RESOURCES</p>	2018		1 Networking, engagement and communication to stakeholders
			1 Workshop PRIMA synergies with EU & International initiatives
	2019		1 PRIMA Stakeholder Committee
			1 PRIMA Observatory on Innovation (POI)
	2019/21		3 PRIMA Targeted Brokerage Events 2020
<p>STRENGTHENING R&I CAPACITIES</p>	2018		1 Potential impact of PRIMA on Mediterranean Societies Including Migrations: Enhancing the role of Science Diplomacy
	2018/19		2 Innovator broker in the Mediterranean Area
	2019		1 Training and education: Massive Open Online Course
	2020		1 PRIMA Training Workshop for Mediterranean Partner Countries "How to write competitive proposals"
	2019/20		2 Engagement of service providers to assist coordinators in writing PRIMA proposals
	2018		1 Assessment of PRIMA impacts in SDGs perspective
	2018		1 Capitalization on results achieved by research and innovation aspects Countries
2020/21		2 PRIMA Day	

Table 28 “Other activities” implemented in 2018-2021, title, countries involved and outputs

AWP	Code	NFA/Country	Title of the Activity	Outputs
2018	3.2.1	ANR&INRA /FR	Capitalization on results achieved by research and innovation aspects Countries	Bibliometric analysis of Sc production PRIMA to Analysis of 2018 PRIMA Calls' results
	3.2.2	Siena Univ/IT	Networking, engagement and communication to stakeholders	- Memorandum of Understanding FAO/PRIMA - FAO workshop: current and future scenarios in the water and agri- food sector: a Mediterranean Perspective - PRIMA AGRIFOODMED Delphi report
	3.2.3	GRST/EL	Workshop PRIMA synergies with EU & International initiatives	- Workshop PRIMA Synergies with EU, Regional and International Organisations Athens, Greece
	3.2.4	IT / PT	The potential impact of PRIMA on Mediterranean Societies Including Migrations: Enhancing the Role of Science Diplomacy	- Seminar organised by It – Meeting “Adaptation of Agriculture to CC” organised by PT
	3.2.5	Siena Univ/IT	Enhancing youth entrepreneurship	
	3.2.6	Siena Univ/IT	Assessment of PRIMA impacts in SDGs perspective	Linking the water-energy-food nexus and sustainable development indicators for the Mediterranean region Report
2019	3.2.1	Siena Univ/IT	PRIMA Stakeholder Committee	- exchange of best practices in farming innovation by 40 researchers & enterprises. Involvement of 2000 persons
	3.2.2	Siena Univ/IT	Training and education: Massive Open Online Course	- MOOC Sustainable Food System, a Med perspective
	3.2.3	Siena Univ/IT	Innovator broker in the Mediterranean Area	Training courses - Ponza -PRIMA
	3.2.4	Siena Univ/IT	PRIMA Observatory on Innovation (POI)	- Digital platform collecting and sharing best practices in Agri-Food R&I & education in the Med area.
	3.2.5	MSCT / MT	PRIMA Targeted Brokerage Events	-Workshop to raise links with TR
2020	3.2.1	MSCT / MT	Engagement of service providers to assist coordinators in writing PRIMA proposals	- Support of 2 PRIMA proposals to S2 Call 2019
	3.2.4	MSCT / MT	PRIMA National Day 2020	- PRIMA DAY 2020 – Internationalise your R&I ideas – MCST (gov.mt)
	3.2.5	MSCT / MT	Working with Morocco as co-leaders on an initiative to help establish a PRIMA network base amongst the 5+5 dialogue countries	Raising awareness activities to increase PRIMA participation amongst PS
	3.2.6	MSCT / MT	PRIMA Targeted Brokerage Events for 2020	Maltese representatives' attendance at 2 PRIMA Days in TR and DE
	3.2.7	BMBF/DE	Organise a PRIMA Training Workshop for Mediterranean Partner Countries “How to write competitive proposals.”	- Training seminars in 5 PRIMA partner countries
2021	3.2.2	MSCT /MT	Engagement of service providers to assist coordinators in writing PRIMA proposals	
	3.2.3	MSCT / MT	PRIMA Day 2021	-PRIMA Infoday 2021 PRIMA MCST-TÜBİTAK 2021 infoday Joint Call for R&I Proposals
	3.2.4	MSCT / MT	PRIMA Targeted Brokerage Events for 2021	- Matchmaking tool to increase collaborative links between Malta entities and other PS entities for consortia building
	3.2.5	All NFAs	Mutual Learning Exercise	Workshop on MLE

Chapter 7 Monitoring and evaluation of PRIMA

Monitoring of PRIMA

The monitoring function has been a central component of the activities of PRIMA since the outset. PRIMA monitoring activities are carried out to capture progress at a programme and project level.

PRIMA has been using the Monitoring and Learning Platform (MEL) for its monitoring activities since 2019.³⁰ The MEL allows for the real-time collection of online monitoring data both in relation to the programme and project levels. Data and information can either be uploaded by project beneficiaries themselves and/ or by the PRIMA Secretariat and PS. The data is then aggregated via the platform and is made available to users interested in monitoring data with searchable filters.

A full dashboard, including all data from PRIMA calls and showing PRIMA Countries' performances for both Section 1 and Section 2 calls in the first four years of programme implementation, can be found in the **PRIMA Intelligent Analytical Tool** at the following link: shorturl.at/gilsE

The tool also contains general information on the 129 running projects (selected from 2018-2020) in detailed abstracts. PRIMA is also updating data from projects selected out of 2021 calls as soon as they start. Further information (budget, coordination, countries involved) and relevant outputs of the projects (publications and list of demonstration sites) could be found on the **PRIMA Monitoring, Evaluation and Learning Tool (MEL)** at the following link: shorturl.at/lmCH4

All PRIMA projects are subject to monitoring requirements. Although PRIMA monitoring arrangements were in place at the start of the programme, some aspects, such as the indicator system, have evolved and are still under development to harmonise it with the proposed Horizon Europe indicator system (particularly the one developed for European Partnerships³¹).

Project's midterm reviews (2018 and 2019 projects)

The PRIMA projects selected in 2018 and 2019 which reached the midterm stage, either the 18th or 24th month of implementation, had to submit midterm technical and financial reports (the format is the same used for Horizon 2020): this is done by the project coordinators on behalf of the consortium.

Technical review

The technical reports are reviewed by an independent expert evaluator nominated by PRIMA, who writes an evaluation report whose format is the same used for Horizon 2020. The experts also provide their general feedback on whether the expenses and use of resources are in line with the work carried out by the consortium partners.

Financial checks

In the case of Section 1 projects, the eligibility check of costs incurred is carried out by the PRIMA Secretariat, which is the entity responsible for the midterm payment. According to the rules set by the PRIMA MGA – Model Grant Agreement, all beneficiaries shall submit their financial statements, which are checked and validated by the PRIMA financial department, and an explanation of the use of resources. Payments are made only once both the midterm technical and financial reports are approved.

In the case of Section 2 projects, the eligibility check of costs incurred is carried out by the National Funding Agencies, which are also responsible for making payments according to their national regulations. If national regulations foresee that, section 2 project beneficiaries may also need to report individually to their agencies.

In both cases, Section 1 and 2, all project beneficiaries shall provide a breakdown of costs incurred at the midterm stage so that this can be compared to the overall planned budget to evaluate if significant deviations in the use of resources have happened.

Procedure and use of MEL platform

The submission of deliverables, relevant information on the project implementation and reports via the

³⁰ <https://prima-med.org/mel/>

³¹ A robust and harmonised framework for reporting and monitoring European Partnerships in Horizon Europe-First interim report

MEL – Monitoring Evaluation & Learning platform (other partners have viewing rights mostly and can edit budget breakdown tables).

The approval of the midterm reports is done by the PRIMA project officer in charge, also via the MEL, and for the financial reports of Section 1 projects, by the PRIMA Financial Officer. Reports are approved only when they are deemed complete and correct: if not, PRIMA can ask for additional clarifications or integrations before approving the reports and reject the incomplete and/or incorrect ones.

So far, 53 PRIMA projects have passed the midterm review.

Extension requests assessed at the midterm stage

It is important to say that almost all of the projects selected in 2018 asked for no-cost extensions ranging between 6 and 12 months, an aspect which was also assessed during the midterm review. This is due to the delays provoked by the pandemic.

H2020 indicators for monitoring efficiency and cross-cutting issues

PRIMA collects data yearly on [H2020 indicators](#) for monitoring cross-cutting Issues and efficiency indicators with specific reference to the Time To Inform³² (TTI), Time To Grant (TTG)³³ and Time To Sign (TTS³⁴) and Time To Pay (TTP)³⁵

Overall, PRIMA has operated efficiently, and its performance against the four KPIs (TTI, TTG, TTS and TTP) is better than the set targets apart from some exceptional cases not directly attributable to PRIMA-IS.

PRIMA considers the indicators of efficiency TTI, TTG TTS and TTP, the H2020's targets applying only to Section 1. Concerning Section 2, TTI depends on PRIMA IS; however TTG, TTS, and TTP are under the responsibility of the National funding agencies, and PRIMA has no control over them.

The table below contains data collected so far on PRIMA KPIs during the first four years of implementation of the Programme. Data on the H2020 indicators from cross-cutting issues also indicate good performance over the four years of implementation.

Table 29 Efficiency KPIs_2018-2021

Efficiency KPIs	2018	2019	2020	2021
Days between call closure and results announcement (TTI)	133	134	66	
Days between results announcement and Grant Agreement signature (TTS)	177	94	149	n.a
Days between Grant Agreements signature and payments (TTP)	2.5	10.2	10,8	n.a
Time to Grant (TTG) S1	311	228	215	n.a

PRIMA indicators

PRIMA is collecting data on a set of specific KPIs established at the inception of the programme that measures the programme's performance towards the achievement of the operational objectives.

Data on these KPIs are collected on the PRIMA Monitoring, Evaluation and Learning Platform during the projects' reporting phases, that is to say, at their midterm and final review stage.

So far, 54 projects for both Section 1 and Section 2 have passed their midterm evaluation. Data collected from these projects are reported in the table below.

32 Time to inform (TTI) all applicants of the outcome of the evaluation of their application from the final date for submission of completed proposals. Target for H2020 is Target is: 5 months (153 days).

33 Time to grant (TTG) measured (average) from Call deadline to signature of grants. Target for H2020 is Target is: 8 months (245 days).

34 Time to Sign (TTS) grant agreements from the date of informing successful applicants (information letters). Target for H2020 is: 3 months (90 days).

35 Time to pay (TTP) refer to the time needed to pay i.e. -pre-financing. Target for H2020 is: 1 month (30 days).

Table 30 Monitoring data collected on PRIMA KPIs and H2020 indicators_2018-2021

KPI PRIMA	2018	2019	2020	2021
ALIGNMENT PROGRAMMES, PROCEDURES /DIRECTIONALITY				
Implementation of the SRIA	Qualitative data	Qualitative data	Qualitative data	Qualitative data
# Alignment of national /regional / sectorial policies (strategic level) Number of changes in PS R&I programmes and procedures that more closely reflect PRIMA			3 (IT, ES, EG)	1
Number of PSiAs (Participating States' Initiated Activities) aligned with PRIMA	2	3	3	5
Changes in funding in specific research areas (relevant to PRIMA) at the PS/national level	Qualitative data (interviews)	Qualitative data (interviews)	Qualitative data (interviews)	Qualitative data (interviews)
CRITICAL MASS ACTORS, RESOURCES /ADDITIONALITY				
(€) Overall investment allocated to PRIMA (public, in-kind and cash) In cash allocated/year for EU and PS In-kind allocated/year for PS	53 543 303	88 996 638	90 046 792	123 903 682
(ratio) Budget leverage factor in mobilising additional resources	1,55	1,69	1,03	n.a
# Number of additional activities triggered by the partnership as in-kind (Section 3)	6 OA+2 PSiAs	5OA+3 PSiAs	5OA+3 PSiAs	4 OA+5 PSiAs
Changes in collaboration patterns	Qualitative data	Qualitative data	Qualitative data	Qualitative data
# Number of Stakeholders and End Users	1482 (cumulative data)			
# Number of Engaged Researchers	14.121 (cumulative data)			
# Number of teams from the public sector from the PS participating in PRIMA	211	275	279	250
# Number of teams from the private sector from the PS participating in PRIMA	65	116	111	81
# Number of teams from SMEs participating in PRIMA	57	62	75	55
% Percentage of EU financial contribution going to SMEs	27,84%	18%	12,73%	17,2%
#Number of joint public-private publications			2 out of 42	1 out of 52
INCREASED CAPACITIES INNOVATION				
# Number of Events and Activities within projects				676
# Number of capacity building events within projects				840
# Number of trainings to increase capacities of less R&I performing systems	-	-	7	7
Cross-cutting KPIs				
#Number of prototypes and testing activities	-	-	7	1
#Number of Developed or Improved Solutions	-	-	27	16
#Number of Methods	-	-	5	5
#Number of Databases	-	-	3	-
#Number of Developed or Improved Products	-	-	23	15
#Number of Living Labs	-	-	0	3
#Number of Demonstration Sites	-	-	82	41
#Number of Regional Platforms, Knowledge Hubs, Datasets			4	4
#Number of New Jobs Created				297
#Number of New Start-ups				3
KPI PRIMA				
Thematic KPIs				
#Number of Non-Conventional Water Resources (NCWR) Applications	-	-	2	-
#Number of Innovative Irrigation Solutions applied in project sites	-	-	2	2
#Number of Agroecological Principles	-	-	2	1
#Number of Local Breeds improved and/or conserved	-	-	1	-
#Agri-food Waste-reduction & by products valorisation solutions	-	-	-	10
#Number of WEFÉ Solutions	-	-	1	-
INTERNATIONAL POSITIONING & VISIBILITY				
#Number and type of international collaborations of partnerships at strategic level	EU partnerships: 5 (EIT, JPIs, Eranets) International: organisations: 2 (FAO, ICARDA, Oneplanet) European interest organisations: 1 (CIHEAM) Intergovernmental organisations: 1 (UfM) Regional organisations (ENI CBC MED, SWITCHMED, InterregMED, IEMED) Infrastructures: (Metrofood, LifeWatch)			EU partnerships: 5 EU Missions: 3 International: organisations: 2 European interest organisations: 1 Intergovernmental organisations: 1 Regional organisations 1
DISSEMINATION				
# Number of Technical or Operational Guidelines			4	1
# Number of Dissemination Actions in projects				
KPI H2020				
Contribution to the realisation of the ERA				
#Number and percentage of open access articles published in peer-reviewed journals			37	50

Widening participation				
# Number of participations by EU-27 Member State	3899	2072	2445	2094
# Number of beneficiaries EU-27 Member State	207	257	279	231
% Non-EU PS participations	37%	38%	39%	39 %
% Non-EU PS beneficiaries	34.7%	38.4%	37.9M	40.5%
(€ millions) Total amount of financial contribution by EU-27 Member States	21.95M€ (Section2 contribution)	20.67M€ (Section 2 contribution)	24.42M€ (Section2 contribution)	20.31M€ (Section2 Contribution)
SMEs' participation				
% Percentage of EU financial contribution going to SMEs	27,84%	18%	12,73%	17,2%
Gender				
% Percentage of women participants in PRIMA projects	40%	46%	28%	57%
% Percentage of women project coordinators in PRIMA Projects	31%	35%	26%	38%
% Percentage of women on boards advisory groups, expert groups, evaluation panels, individual experts, etc	- SAC 39% - BoT 50 % - evaluation panels . S1 stage1: 30% . S1 stage 2 43% . S2 stage 1: 30% . S2 stage 2: 35%	- SAC 39% - BoT 50 % - evaluation panels S1 stage1 27% . S1 stage 2 28% . S2 stage 1 27% . S2 stage 2 27%	- SAC 39% - BoT 50 % - evaluation panels . S1 stage1 50% . S1 stage 2 50% . S2 stage 1 32% . S2 stage 2 35%	- SAC 39% - BoT 50 % - evaluation panels . S1 stage1 45% . S1 stage 2 39% . S2 stage 1 43% . S2 stage 2 32%
International cooperation				
% Percentage of third-country participants in PRIMA calls	16.6%	21.3%	21.7%	25.4%
% Percentage MPCs in PRIMA calls (PS Associated to H2O20+third countries)	35%	38.4%	37.7%	40.3%
% Percentage of EU financial contribution attributed to third country participants	11%	15%	15.5%	20.7%
% Percentage of EU financial contribution attributed to MPCs (PS Associated to H2O20+third countries)	29%	30%	34%	35%
Sustainable development and climate change, including information on climate change-related expenditure				
% Percentage of EU financial contribution that is climate-related in PRIMA Projects	32.2%	35.4%	42,6 %	34.4%
% Percentage of EU financial contribution that is biodiversity-related in PRIMA Projects	15.2%	13.2%	28%	17.55%
Bridging from discovery to market application				
% Percentage of projects and EU financial contribution allocated to innovation actions in Horizon 2020	13%	21.8%	46.3%	39.2%
Private sector participation				
% Percentage of PRIMA beneficiaries from the private for-profit sector (EU funds)	19.2%	18.5%	19.7%	16.9%
% Percentage of EU financial contribution going to private for-profit entities	30.4%	21.6%	15%	19.3%
Funding for public-private and public-public partnerships				
(€) EU financial contribution for P2Ps			€ 35 million	
(million€) P2P leverage: the total amount of funds leveraged through Art. 185 initiatives:	€ 26	€ 32	€ 22	€ 81
Communication and dissemination				
# Number Publications in peer-reviewed high impact journals in the area of the various societal challenges	0	2	46	52

Evaluation of PRIMA (Self-assessment)

Regarding evaluation activities, the PRIMA Foundation commissioned the project *Study to assess the performance and impact of the PRIMA programme* in August 2021. The objectives of this study were to evaluate PRIMA's performance in achieving its objectives defined.

The study was tasked with reviewing progress at the programme level (e.g., efficiency/effectiveness of management and administration, key achievements / the (expected) impacts and added value) and at the project level (outputs and outcomes to date).

The study to assess PRIMA performance³⁶ concluded that the efficiency and effectiveness of the PRIMA Monitoring and Learning Platform (MEL) are highly commendable and represent good practice in

³⁶ CSES (2022) Study to assess the performance and impact of the PRIMA programme

supporting the monitoring function for the management and implementation of transnational R&I programmes.

The data provided is comprehensive and makes excellent use of a monitoring platform's data collection and automation potential. The MEL is also considered effective in terms of the range of data variables that can be customised and visualised.

This is an essential aspect since data can be customised depending on the needs of particular users, i.e., whether this is the PRIMA Secretariat, funders from the PS, lead coordinators from among project beneficiaries or external donors interested in potential synergies between their programme and PRIMA.

Chapter 8 Progress made towards scientific, management and financial integration

8.1 Scientific integration

PRIMA has assured an excellent level of scientific integration by defining a common long-term strategic research and innovation scientific agenda (SRIA), which outlines the key research and capacity gaps for increasing sustainability in the water management and agri-food value chain the Mediterranean Area.

The PRIMA's agenda, building on joint foresight and mapping and nationally identified priorities and H2020 priorities, was elaborated through a participatory approach involving the PRIMA Secretariat and all PRIMA PS. Input from relevant national actors, particularly research funding agencies, ensured alignment with the national programmes while building a solid sense of trust, inclusiveness and ownership.

In addition to the contribution of national key actors, the PRIMA SRIA has benefited from a stakeholder consultation which was open for a month to ensure that the needs/demand of end-users were also taken into account. According to this consultation, PRIMA SRIA was considered highly relevant by the Participating States and highly relevant in addressing the research needs of the Mediterranean region.

The programme has successfully begun to bring together relevant research actors in public and private R&I sectors and, in so doing, has promoted closer scientific integration between participant countries. A particular value-added in this area was that PRIMA is the only major transnational funding programme dedicated to R&I and fostering scientific excellence in the Mediterranean region.

The Mediterranean includes different PS with very different scientific systems and baseline situations in terms of the level of scientific excellence of their R&I actors. PRIMA has, therefore, helped foster scientific integration across countries that, in the absence of PRIMA, would be unlikely to have cooperated as closely in the absence of a clear funding incentive and strategic framework to facilitate cooperation. A further aspect of scientific integration is that PRIMA has promoted cooperation among relevant research actors in the Mediterranean (predominantly north-south, but also north-north and south-south).

The SRIA provides an overarching framework that prepares the ground for developing the AWP on the SRIA priorities identified each year by the Scientific Advisory Committee (SAC). The SAC also indicates how those priorities are being addressed through calls for proposals that PRIMA centrally manages with EU-funded actions (supported with the EU contribution to the PRIMA programme, also called Section 1) and with Participating States activities (supported with PS in cash contributions also called Section 2). The AWP is then approved by the PS representatives in the Board of Trustees, who agree on the scientific priorities identified, ensuring financial commitments for the relevant calls for proposal, and finally, the EC through its funding decision.

The scientific priorities and related activities identified each year by the SAC are decided upon a gap analysis on the SRIA research areas addressed by projects, potential overlapping and synergies with EU programmes and EU partnerships, including the Horizon Europe Partnerships and Missions but also according to changing policies or occurring acute crisis.

This approach ensures to the PRIMA programme a certain degree of **flexibility** adjusting activities and resources to changing policy needs (i.e. the EU Green Deal), occurring acute events such as pandemics (COVID-19), economic and financial crisis (i.e. in Lebanon) and political conflicts (Ukraine war).

For instance, has taken several measures to address the Covid-19 crisis, starting from the adoption of similar measures as EC for the management of the Calls and the projects which have shown the degree of flexibility of the Programme.

Noteworthy, PRIMA has included a specific topic in Annual Work Plan 2021, "Increasing resilience of small-scale farms to global challenges and COVID-like crisis by using adapted technologies, smart agri-food supply chain and crisis management tools." to foster the resilience to the Covid-19 crisis or other similar ones.

Furthermore, PRIMA has welcomed and approved the redirection of already funded PRIMA projects to address the Covid-19 crisis. Twelve PRIMA projects funded in response to 2018 and 2019 Calls have

redirected their activities in response to the Covid-19 crisis.

Food security and agricultural livelihoods, access to safe water and sanitation, and the reconstruction of the relationship between humans and ecosystems are crucial elements of social and health protection programmes. For this reason, the outcomes of those PRIMA projects can play an essential role in increasing the resilience of the Mediterranean societies to these pandemics or possible similar future outbreaks contributing to its well-being.

As developed by PRIMA, stakeholders hold the SAC in high regard and trust the evaluation and grant process. PRIMA has done a self-assessment to study its performance and impact.

SRIA priorities are also addressed by activities fully managed and supported by PRIMA PS, so-called Participating States' Initiated Activities (PSIAs). PSIAs are the primary mechanism for PRIMA Participating States to make in-kind contributions to the PRIMA programme and comprise activities in the scope of PRIMA that are funded and implemented independently from PRIMA by one or more Participating States.

PSIAs count towards the matching of funds by the European Commission (up to a maximum ceiling of € 220 million), provided they are included in the PRIMA AWP and co-labelled as part of the PRIMA programme supported by the European Union. Most PSIA activities are relatively broad and cross-cutting and cover several SRIA categories and priorities.

8.2 Management integration

PRIMA has achieved management integration by establishing a Dedicated Implementation Structure, located in Barcelona (PRIMA Foundation), responsible for managing the delegation agreement on behalf of the participating countries and receiving the EU contribution. The purpose of the Dedicated Implementation Structure is mainly to implement the transnational calls, manage the distribution of EU funding to beneficiaries via grant management, monitor the projects selected from calls and coordinate operational reporting to the Commission.

The PRIMA management structure can be considered a hybrid management model as it combines the centralised implementation for the EU funds according to Horizon 2020 standards with national activities in the programme being implemented with national rules.

In addition, the PRIMA programme includes national activities fully implemented at the national level according to national regulations.

PRIMA programme addresses three different implementation levels (Sections) that have allowed the partnership to channel funding into key R&I issues in the region and align PS' R&I programming and their national processes and procedures.

The most challenging aspect of the programme's management relies on activities that national funding agencies fund. Enabling this diverse community with different national rules and cultures to operate together within the programme requires careful consideration. Several funding agencies involved in PRIMA already worked together in previous EU funded programmes such as ERANETs. PRIMA built on those existing collaborations and experience to set up shared best practices and procedures used to implement the programme. These procedures are also discussed and shared among National Funding Agencies during Mutual Learning Exercise Workshops organised by the PRIMA Secretariat to ensure smooth coordination and procedural alignment.

PRIMA has proven ability to manage the three sections ensuring its smooth implementation and monitoring of its activities (grants), including those managed by PS (so-called PSIAs) and was able to address funding challenges that already emerged in other EU partnerships, and in particular in ERANETs where the funding mechanism is somewhat similar to the one adopted in Section 2.

8.3 Financial integration

The PRIMA Participating States have committed to the whole programme duration (10 years) around €274 million, matched by a contribution of up to €220 million from the Union through its research framework programme Horizon 2020. Participating States can support the initiative by contributions in

cash and/or in kind.

The management of funds is done with a hybrid modality: the financial contributions by the Union are managed centrally by the DIS (Dedicated Implementation Structure) under Horizon 2020 rules (Section 1 calls), while those from the Participating States are managed directly by the national funding bodies (Section 2 calls) through a so-called *virtual common pot*, where funding agencies make available financial resources only to finance their national researcher in consortium of applicants. This funding mechanism was established at the Programme's inception, where all the options to centralise the management of funds have been deeply studied. As several national regulations in some countries do not allow cross-border transactions, it has been decided to adopt a hybrid modality where Funding Agencies pay their beneficiaries directly.

National funding commitments from the Participating States have been provided at the start of the PRIMA programme for its entire duration. PS also provides yearly financial commitments to Section 2 calls to ensure that planned financial contributions are respected.

Some of the Participating States have committed more funds than others. Experience from the first PRIMA calls shows that in several circumstances, national funding agencies make late payments or reduce the beneficiaries' budget after grant negotiations.

Projects are selected following a centralised evaluation undertaken by independent experts applying H2020 rules and strictly based on a list ranked by score without considering other factors, such as national quotas. A separate budget for each PRIMA call for research proposals (without co-funding) ensures financial integration.

In some cases, the national funds foreseen are insufficient to support the demand from their successful national beneficiaries. So far, this has been overcome by flexibility from the Participating States concerned that have provided additional funding.

The most challenging aspect related to funding was concerned Section 2.

In particular, challenges in ensuring that promised co-funding materialised in all PS has meant that the implementation of Section 2 has been somewhat hampered by funding constraints, with not as many projects being able to be funded as a consequence and delays in funding in some instances being paid to ongoing S2 projects.

Notwithstanding that these problems were not attributable to the PRIMA implementation structure, PRIMA Secretariat sensibly contributed to its improvement through several activities (bilateral meetings, workshops) involving funding agencies where possible solutions were discussed and put in place.

In collaboration with the Funding Agencies, PRIMA adopted solutions to improve synchronisation among NFAs' funding schedules. In particular, all NFAs agreed that all projects should start within 6 months from communicating the results to applicants to have all national contracts signed and all the research teams starting on the same date.

To speed up the process of signature of grant agreements signature, thus payments of beneficiaries, several countries (e.g., Italy, Spain, Egypt, Jordan), changed their national legislations to facilitate the implementation of PRIMA projects.

It is worth noting that the measures being adopted for the PRIMA programme could have a powerful effect on improving the implementation of many other European partnerships facing similar problems.

In addition to the financial contributions to the calls, PS contributes to the programme with in-kind contributions either in PSiAs or Other Activities. PSiAs demonstrate the PRIMA efforts in the alignment of national programmes, and also PSiAs are important because they are in-kind contributions from PS, and therefore count towards the matching of funds by the European Commission (up to a maximum ceiling of € 220 million).

As set out in PRIMA Decision (Decision (EU) 2017/1324), the PS contribution should equal the EU financial contribution to the programme. The assessment of the [leverage of funds by PRIMA](#) shows that the PRIMA leverage effect is always above 1, demonstrating the substantial leverage of the Partnership resulting from the Union intervention.

[Section 5.11](#) demonstrates the PRIMA financial contribution to the programme in the first four years of implementation and shows a considerable improvement over time.

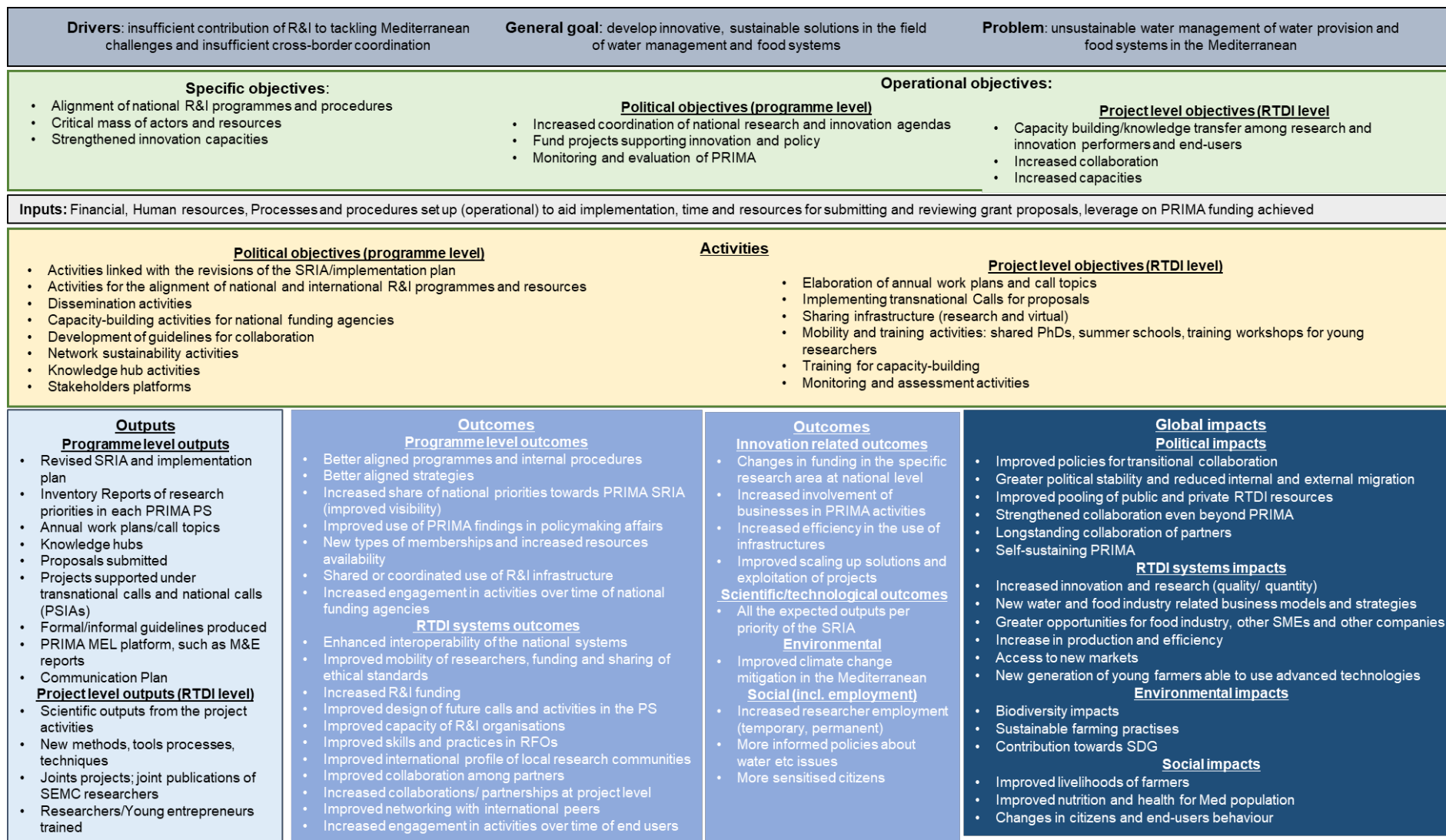
Chapter 9 Progress made towards the achievement of the specific objectives

Chapter 9 presents progress made towards the achievement of the PRIMA specific objectives. These have been identified as the following:

1. **Alignment of national R&I programmes and procedures:** The orientation of all national R&I programmes towards implementing the Strategic Research and Innovation Agenda (SRIA).
2. **The critical mass of actors and resources:** The structural involvement of all relevant R&I actors (the public and private sectors) in implementing the strategic R&I agenda by pooling knowledge and financial resources to achieve the necessary critical mass.
3. **Strengthening innovation capabilities:** Strengthening all involved actors' R&I funding and implementation capabilities.

The updated (2022) intervention logic of the PRIMA programme is shown below to illustrate the text set out in Chapters 9 and 10.

Table 31 PRIMA intervention logic diagram



A dedicated sub-chapter describes these three specific objectives (9.1, 9.2 and 9.3, respectively).

However, although each specific objective constitutes a measure of progress in its own right, the interdependency between the specific objectives should also be acknowledged. In particular, it should be stressed that the first two specific objectives of PRIMA (alignment of PRIMA with national/regional programmes and procedures and gathering a critical mass of actors and resources) also support the achievement of the third objective (strengthening innovation capabilities). This is because an alignment of common R&I activities and the pooling of resources should allow for more efficient and effective involvement of R&I actors providing them with opportunities to develop improved innovation capabilities. Consequently, many activities to improve alignment and build critical mass – and the indicators measuring progress on these points – are also relevant for the third objective.

9.1 Alignment of national R&I programmes and procedures

The first specific objective refers to the alignment of national R&I programmatic themes (i.e., research areas supported by PRIMA) and of national procedures and processes for calls for proposals and grant procedures (i.e., administrative and regulatory processes governing R&I).

In line with the PRIMA intervention logic (see Political Objectives at the programme level), the main activities carried out by PRIMA to achieve this objective include activities linked to the elaboration of the SRIA and its implementation through Annual Work Plans (AWPs), activities to improve the alignment of national and international R&I regulations, processes and resources, and the development of guidelines for collaboration.³⁷

Progress towards the specific objective of aligning national R&I programmes and procedures are assessed through the following specific indicators (KPIs (S), key performance indicators):

- **KPI1 (S)**³⁸ Implementation of the SRIA (output indicator);
- **KPI2 (S)** Number of changes in PS R&I programmes and procedures that more closely reflect PRIMA (results indicator);
- **KPI3 (S)** Number of PSAs (Participating States' Initiated Activities) aligned with PRIMA (results indicator);
- **KPI4 (S)** Changes in funding in specific research areas (relevant to PRIMA) at the PS/national level (outcomes indicator).

Progress regarding the first indicator, **KPI1 (S)**, is described in more detail in Chapter 8 of this report ([scientific integration and management integration](#)).

Further to this, section [Overview of Projects](#) in Chapter 5 demonstrates PRIMA's efforts in implementing the SRIA. All priorities of the PRIMA SRIA have been addressed with the following breakdown of projects for each priority area. The highest number of projects has been funded under Priority "Adaptation to climate change" and "Sustainable Agroecosystems", showing how PRIMA is striving to accelerate actions aiming to increase climate change adaptation and mitigation and natural resources sustainability in front of the climate change looming pressure in line with the European Green Deal.

Table 32 Number of projects per priority under each thematic area

THEMATIC AREA	Water Management				Farming Systems				Food Value Chain			
SRIA PRIORITIES	Alternative water resources	Irrigation Technologies	IWRM	Water availability/catchments/aquifers	Sustainable agroecosystems	Adaptation Climate change	Farming systems to regenerate	Preventing Animal and plant diseases	Innovation agrifood	Food safety	Dietary shifts	Valorisation of Traditional products
n. PROJECT	5	12	11	10	25	35	10	10	19	13	4	7

³⁷ Details of these are documented in PRIMA Activity Reports and reflected in the Board of Trustees meeting minutes.

³⁸ KPI (S) stands for Key Performance Indicators to measure performance in achieving the Specific Objectives.

As challenges were noted regarding the alignment of funding procedures for Section 2 projects, with some differences in administrative requirements and funding rules between different Participant States, **KPI2 (S)** measures the progress in overcoming some of the problems associated with Section 2.

Concretely, the number of changes is described in depth in the [Chapter on “Measures adopted by NFAs to improve the implementation of Section 2 projects](#). These changes, to date, can be counted as two, carried out by EU PS (Italy, Spain), and two carried out by non-EU PS (Jordan and Egypt).

KPI3 (S) shows that there are currently 13 PSiAs (397 projects in total) across the PRIMA PS, corresponding to a budget of 127.8 million EUR. The number of PSiAs aligned with PRIMA per year is indicated in the PRIMA Annual Activity Reports (AARs) for 2018, 2019 and 2020, respectively.

This is an essential indicator as Section 3 projects show the alignment and coordination efforts with national R&I programmes and policies.

It can be noted that the number of PSiAs have been increasing every year since the start of the PRIMA programme, as have the budgets invested and the number of activities carried out, as illustrated below:

Table 33 Number of PSiAs launched and projects implemented in 2018-2021

Year	Number of PSiAs and projects	Allocated budget (EUR)	Disbursed amounts (EUR)
2018	2 PSiA/26 projects	7 287 922	5 684 428
2019	3 PSiA/81 projects	33 680 827	20 054 848
2020	3 PSiA/79 projects	25 111 584	13 804 138
2021	5 PSiA/211 projects	61 773 880	33 881 474
TOTAL		127 854 213	73 424 888

EU PS and, in particular, ES, implements the majority of PSiAs, however efforts are also made from non-EU PS to contribute to the programme through bilateral cooperation programmes such as the [German-Egyptian Research Fund](#); the [German-Israeli water technology cooperation](#), the [Tunisian – German Call for Bilateral S&T Cooperation](#) and the [Italy - Israel programme](#).

Further details on PSiAs can also be found in [Chapter 4](#) of this report.

Concerning the outcomes indicator **KPI4 (S)**, changes in funding in specific research areas (relevant to PRIMA) at the PS/national level, the study to assess the progress of PRIMA³⁹ found evidence indicating strong political and financial support to the research areas funded by PRIMA.

³⁹ CSES (2022) Study to assess the performance and impact of the PRIMA programme

9.2 The critical mass of actors and resources

The second specific objective is to pool human and financial resources to produce more efficient and effective R&I outcomes in the thematic fields being supported under the PRIMA programme.

Progress towards this objective is reflected in the implementation of capacity-building activities for national funding agencies, network sustainability activities, knowledge hub activities and the implementation of stakeholder platforms (see earlier intervention logic diagram presented above).⁴⁰

Progress towards the objective of the creation of critical mass can be assessed through the following indicators:

- **KPI (S) 5** Overall investment allocated to PRIMA (public, in-kind and cash) (input indicator)
- **KPI (S) 6** Budget leverage factor in mobilising additional resources
- **KPI (S) 7** Number of additional activities triggered by the partnership as in-kind (Section 3)
- **KPI (S) 8** Number of teams (and percentage) from the public sector from the PS participating in PRIMA (results indicator)
- **KPI (S) 9** Number of teams (and percentage) from the private sector from the PS participating in PRIMA (results indicator) and Number of teams from SMEs
- **KPI (S) 10** Changes in collaboration patterns
- **KPI (S) 11** Number of end-users
- **KPI (S) 12** Number of engaged researchers

The overall investment allocated to PRIMA (including both EU and PS contributions) has increased over the years, from approximately 53 million in 2018 to approximately 89 million in 2019 and 2020. In 2021, the overall investment at least doubled (123 million) compared to 2018 due to the increased (doubled contributions) from PS through PSIA. Progress towards implementation measured by indicators **KPI (S) 5** and **KPI (S) 6** can be found in Chapter 5 on [Financial management](#).

Regarding Section 3, we can observe an increase during the four years of implementation (2018-2021) in the allocated amounts concerning PSIA. The slight decrease of PSIA's budget in 2020 is due to COVID-19 containment measures that PS adopted. Noteworthy in 2021, there has been a considerable increase in the allocated amounts to PSIA (62 million)

Table 34 KPI (S) 5 Section 3 funding and payments (PSIA and Other Activities) over the years (2018-2021)

Years	Allocated funds		Disbursed payments	
	PSIA	Other activities	PSIA	Other activities
2018	7 287 922	734 723	5 684 428	734 723
2019	↑ 33 680 827	415 079	↑ 20 054 848	415 079
2020	↓ 25 111 584	72 842	↓ 13 804 138	72 842
2021	↑ 61 773 880	4 000	↑ 33 881 474	4 000
subtotal 2018-2021	127 854 213	1 226 645	73 424 888	1 226
TOTAL SECTION 3	129 080 858		74 651 532	

Concerning **KPI 6 (S)**, [Chapter 5](#) of this report describes the performance of PRIMA regarding the leverage effect, calculated from disbursed allocated amounts.

Considering that the value of the leverage effects concerning 2021 based on the disbursed amount could not be calculated yet⁴¹, the best leverage value can be attributed to 2019 with a value of **1.69**.

⁴⁰ Details of these are documented in PRIMA Activity Reports and reflected in the Board of Trustees meeting minutes.

⁴¹ The process for the signature of the grant agreements with projects' beneficiaries is still ongoing, thus payments were not done so far.

Table 35 Leverage effect in 2018-2021 (calculated from disbursed financial contributions)

	PS disbursed (in-cash+in-kind)	EU disbursed	Leverage
2018	26 652 420	17 201 751	1,55
2019	32 636 369	18 938 112	1,72
2020	22 826 285	21 347 935	1,07
2021	34 774 098	1 615 288	n/a
total 18-20	82 115 074	57 487 798	1,43

Concerning **KPI (S) 7**, 33 PS activities under Section 3 (**13 PSiAs** and **20 Other Activities**) have been reported and appropriately monitored by PRIMA. The number of PS activities have increased over the years and involve both EU and non-EU PS. Noteworthy is the increase of activities from non-EU PS over the years. Increasing number of activities by the Participant States indicate the countries' efforts and resources towards the PRIMA programme.

Regarding **KPI (S) 8** and **KPI (S) 9**, the following tables indicate an overall encouraging trend regarding the number of research teams participating in PRIMA, particularly for public sector teams. The highest participation from public teams occurred in 2019 and 2020.

Specifically, regarding private sector participation, this has increased since the start of PRIMA, with the most successful year, in terms of the quantity of participation occurring in 2019 for both Sections. Noteworthy, most private sector teams in both S1 and S2 projects come from SMEs.

Table 36 Number of teams from the public and private sector, including SME in 2018-2021 projects

	Year	Section 1	Section 2	TOTAL
Number of teams from the public sector from the PS participating in PRIMA (results indicator)	2018	46	165	211
	2019	83	192	275
	2020	99	180	279
	2021	68	182	250
	TOTAL	296	719	1051
Number of teams from the private sector from the PS participating in PRIMA (results indicator)	2018	41 (37 SMEs)	24 (20 SMEs)	65 (57 SMEs)
	2019	74 (35 SMEs)	42 (27 SMEs)	116 (62 SMEs)
	2020	56 (39 SMEs)	55 (36 SMES)	111 (75 SMEs)
	2021	50 (32 SMEs)	31 (23 SMEs)	81 (55 SMEs)
	TOTAL	180 (143)	128 (86 SMEs)	308 (249 SMEs)

Regarding the outcomes indicator **KPI (S)10**, data shows that as of the end of 2021, EU-based legal entities have been involved in 554 projects with 974 beneficiaries, while non-EU members have participated in 411 projects with 597 beneficiaries. The data shows non-EU entities participated in 42.5% of all projects and accounted for 38.1% of all beneficiaries. Given the importance of strengthening participation from southern Mediterranean countries outside the EU as a means of raising critical research mass to facilitate access to participate in transnational research funding programmes in future, especially the RTD Framework Programmes beyond PRIMA (e.g., other H2020 and Horizon Europe funding opportunities), this can be considered a success.

Broader cooperation patterns can also be assessed by measuring project-level outputs that require extensive collaboration between different project partners and end-users.

PRIMA collects data on a number of relevant indicators, including:

- **KPI (S) 11** Number of end-users – indicates the involvement of end-users in PRIMA R&I projects so to maximise the relevance of PRIMA project outcomes for the broader communities which the research aims to serve;
- **KPI (S) 12** Number of engaged researchers – indicates how the Mediterranean research community is involved in PRIMA projects.

KPIs	
Total Number of End Users	Total Number of Engaged Researchers
14121	1482

Cumulative data from the MEL (collected from 129 projects)

Figure 36 KPIs Operational objectives_cross-cutting



9.3 Strengthening innovation capabilities

As described above, progress towards strengthened innovation capabilities has already been achieved and could be measured through the objectives to align and pool R&I efforts.

The activities mentioned above relating to the SRIA, the activities to improve the alignment of national and international R&I programmes and resources, and the development of guidelines for collaboration are fundamental policy-level activities to support an innovation system strategy.

Secondly, implementation of capacity-building activities for national funding agencies, network sustainability activities, knowledge hub activities, and stakeholders' platforms support R&I performers and policymakers in establishing more effective innovation cooperation.

In particular, the following aspects should be noted:

- 1) Participation in PRIMA has improved scientific and innovation performance capabilities and capabilities to participate in and coordinate projects (a key strength to facilitate participation in other EU-funded RTDI programmes, especially Horizon Europe).

For countries with limited or emerging R&I capabilities in the PRIMA research areas, participation in PRIMA has provided an opportunity to tap into more experienced R&I networks. Collaboration with more experienced R&I performers has helped to 'fast forward' the capabilities of less experienced PRIMA project participants.

Progress in participation and coordination of PRIMA proposals is shown in data available in [Chapter 6](#). The improvement in the performance of non-EU PS in terms of participation in PRIMA calls and coordination of the project's proposal could be attributed to the [training workshops](#) organised each year specifically for non-EU PS in the frame of Section 3 Other activities.

- 2) End-users (often from low innovation sectors) have been exposed to new technologies and innovation through their project participation. For example, several companies in the fisheries sector in different North African countries are taking part in the SUREFISH project, which involves using blockchain technologies to strengthen traceability in the supply chain (a good example of innovative technologies in a traditional sector).

In addition, training workshops organised within projects target end-users such as farmers, producers and SMEs.

- 3) Knowledge exchange at the PS policy level has improved procedures and processes to provide a more conducive environment for R&I at the national level, particularly to enable private sector participation.

In some PRIMA PS, private sector involvement in publicly-funded R&I is relatively rare. Therefore, involvement in the PRIMA programme has also fostered cultural changes in approaches to implementing R&I projects towards closer involvement of public and private sector actors, whereas research projects previously only involved R&I performers. SME involvement in both Section 1 and Section 2 projects is promising.

However, in some Southern countries taking part in PRIMA, it is more difficult to get SMEs involved in PRIMA. Existing national funding rules have constituted a barrier since some countries do not allow for the participation of private sector, for-profit entities in publicly funded research programmes. In this sense, PRIMA has a positive impact on fostering cultural change in some Participating States, especially those outside the EU-27, where SMEs have had less previous involvement in transnational or national R&I funding programmes.

Cultural and administrative barriers could be further alleviated by the more active participation of innovation agencies in PRIMA that explicitly support private sector organisations, including SMEs. Currently, PRIMA membership is focused on Ministries and national funding agencies that primarily support (public sector) research organisations. Notable exceptions are PRIMA Funding Agencies from France and Spain, including innovation agencies where SMEs are a clear remit/target group.

Chapter 10 Progress made towards the achievement of the operational objectives

Chapter 10 presents progress made towards the achievement of PRIMA's operational objectives. The operational objectives are defined as follows:

- Increased coordination of national research and innovation agendas and procedures;
- Increased collaborations;
- Increased capacities;
- Funded projects supporting innovation and policy; and
- Monitoring and evaluation of PRIMA.

10.1 Increased coordination of national research and innovation agendas

Increased coordination of national R&I agendas is a fundamental aim of the PRIMA programme. This objective has been driven by policy-level collaborative activities and the co-funding of projects under PRIMA. Some of these activities are also described in Chapter 9, covering the specific objective 'alignment of national R&I programmes and procedures', and indicators relevant to this specific objective are also relevant to the operational objective of achieving increased coordination of (research) agendas.

The study commissioned to assess PRIMA's implementation and performance to date was positive overall in its conclusions regarding the progress in improving the coordination of R&I agendas among PRIMA countries. It found that the overall relevance of the Annual Work Plans and calls for Proposals was high to PS, which partly reflected the close involvement and consultation of PS in drafting PRIMA's SRIA. The Participating States consulted as part of the study reported that PRIMA calls receive high-interest levels from R&I performing institutions, as reflected in the high number of applications received. There was also a recognition that the topics selected were appropriate and of high interest to the countries' national R&I agendas.

The study was also positive in assessing PRIMA's appropriateness in supporting national policies and programmes. PS recognised that PRIMA addresses shared socio-economic problems faced by the Mediterranean countries and which needed to be addressed through R&I activities. In addition to its scientific relevance, it was also recognised by PS and other regional stakeholders that PRIMA plays a meaningful and relevant role in addressing the policy needs of participating Mediterranean countries. Although stakeholders recognised the importance of EU-wide action, they also emphasised the shared challenges they considered specific to the Mediterranean Area.

Steps taken by Participating States (and PRIMA) to improve R&I coordination can also be found in Chapter 7 of this report, in particular those relating to [scientific integration](#) (8.1).

10.2 Increased collaboration

The operational objective 'Increased collaboration' is related to indicators showing improved levels of collaboration both in terms of the types of organisation (Higher Education Establishment Research organisations, Public body, Private for-profit organisations, Others,) as well as in terms of the geographical scope, e.g., research teams from PS involved in – and coordinating – PRIMA projects.

Regarding an overview of the type of participants taking part in PRIMA, an overview of the number of participating entities – per type of organisation, per section and by year – can be found below.

Figure 37 Figure 33 Type of beneficiaries in Section 1 and 2 projects 2018-2021

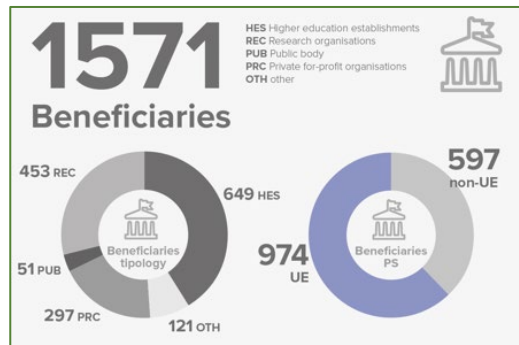


Figure 38 Type of beneficiaries in Section 1 projects 2018-2021

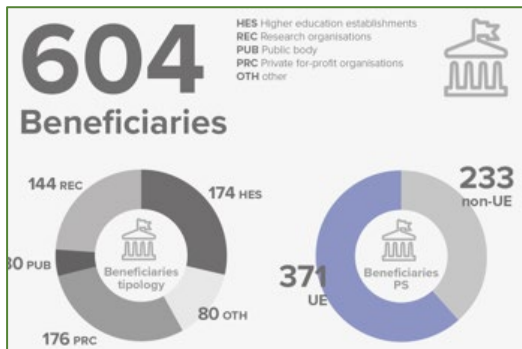
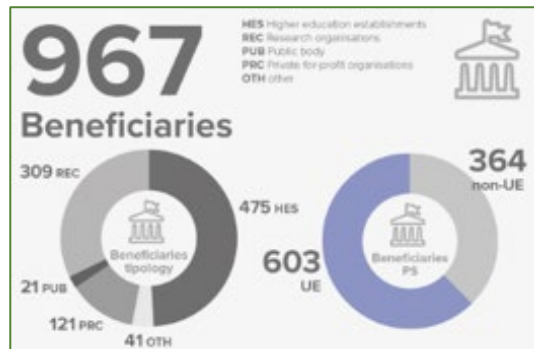


Figure 39 Type of beneficiaries in Section 2 projects 2018-2021



Most of the participating entities in PRIMA projects are Higher Education establishments (HES) and Research Organisations (REC).⁴² Given the prominent role of universities, institutes, laboratories in R&I programmes, this is unsurprising since they play an important role at the regional level as leading R&I performing organisations (RPOs) and also as coordinators for larger collaborative projects.

Furthermore, given the thematic area of the projects, which cover water management, farming and agri-food, it is to be expected that public sector entities will be actively involved as these areas are of strong research, economic and employment importance to communities in the Mediterranean.

Research foundations include research centres, centres of excellence and academies, play a similar role to public bodies (PUB), and account for nearly 10% of the entities participating in PRIMA projects.

SMEs, associations (trade associations), enterprises (larger companies not included under the SME category), and diverse private entities (consortia, business schools, universities and companies) under “Private For-Profit Organisations” (PRC) account for nearly a quarter (18%) of all entities participating entities in PRIMA, with SMEs representing the largest share of just under 16%.

This is comparable to other EU R&I programmes, mainly when R&I funding involving private entities is still an emerging concept under development in several PRIMA PS.

As of 2021, EU PS has been involved in 168 projects with 974 beneficiaries, while non-EU PS have participated with 597 beneficiaries. Data shows that 42.5% of project participants and 38.1% of beneficiaries were outside the EU.

Given the importance of strengthening participation from southern Mediterranean countries outside the EU as a means of raising critical research mass to facilitate access to participate in transnational research funding programmes in future, especially the RTD Framework Programmes but also beyond, this could be considered as a success that has also contributed to the Horizon 2020 objective of widening participation.

⁴² This category includes universities, institutes, laboratories, research councils and national ministries, and accounts for 63.8% of all participating entities.

Among the South Mediterranean countries, Tunisian entities account for around a quarter (25.1%) of the projects, and there are 155 beneficiaries, significantly more than any other country in this group. Nearly half of all the projects are in the farming sector (48.2%), and around a quarter (25.6%) are in the agri-food sector, which is unsurprising, considering that agriculture accounts for around 10% of the national economy. Turkish and Egyptian entities are involved in relatively fewer projects than their comparative populations but still account for nearly 30% (27.4%) of projects.

The PRIMA programme had made good progress towards achieving the necessary critical mass of actors and resources and strengthening R&I capacities on both sides of the Mediterranean Sea. However, it is too early to assess the sustainability of networks and partnerships at the interim evaluation stage. This could be examined instead at the ex-post evaluation stage.

10.3 Increased capacities

- **Total capacity-building activities within projects** – indicates the extent to which PRIMA projects have produced different capacity building activities to maximize the impact of the projects by involving final beneficiaries.
- **Total Number of Events and Activities within projects** – indicates the extent to which PRIMA projects have produced different outputs that can support capacity building by disseminating knowledge gained through the projects.
- **Total numbers of training to increase capacities of less R&I performing systems** indicate the extent to which PRIMA supports capacity development to increase participation in R&I EU calls.

The table below shows the absolute numbers of the above-described indicators for 2018-2021.

Table 37 KPIs (operational objectives)_cross-cutting KPIs

Theme	Total Number projects funded	Total Number of Events and Activities	Capacity-building activities within projects
AGRI-FOOD	43	171	
FARMING	81	157	
Nexus	7	156	
WATER	37	192	
Total	168	676	

Source: PRIMA KPI Dashboard 2018-2021

10.4 Fund projects supporting innovation and policy

This chapter will present data on some key outputs and outcomes of PRIMA projects to date on a number of KPIs:

Crosscutting KPIs	Thematic KPIs
<ul style="list-style-type: none"> - Number of all new Products - Number of Solutions - Number of Methods - Number of Guidelines - Number of Living Labs - Number of Demo Sites - Number of Platforms/ Hubs - Number of Jobs created - Number of Start-ups or SMEs - Number of peer-reviewed Publications 	<ul style="list-style-type: none"> - Number of NCWR Applications - Number of innovative irrigation solutions applied - Number of Agroecological Practices applied - Number of Breeds improved/conserved - Number of the New Varieties/ Hybrids - Number of solutions for agri-food waste reduction - Number of Adopted WEFE solutions

Data collected to date indicates good progress on a number of KPIs of particular importance to the programme, such as the “Total number of peer-reviewed publications” and “the number of created Startups”. In addition, given the importance of strengthening Technology Readiness Levels (TRLs) through Innovation Action projects, the number of demonstration sites is also an important indicator as these provide a testbed to try out innovative new technologies and new approaches.

Figure 40 Operational KPIs 2018-2021_cross-cutting

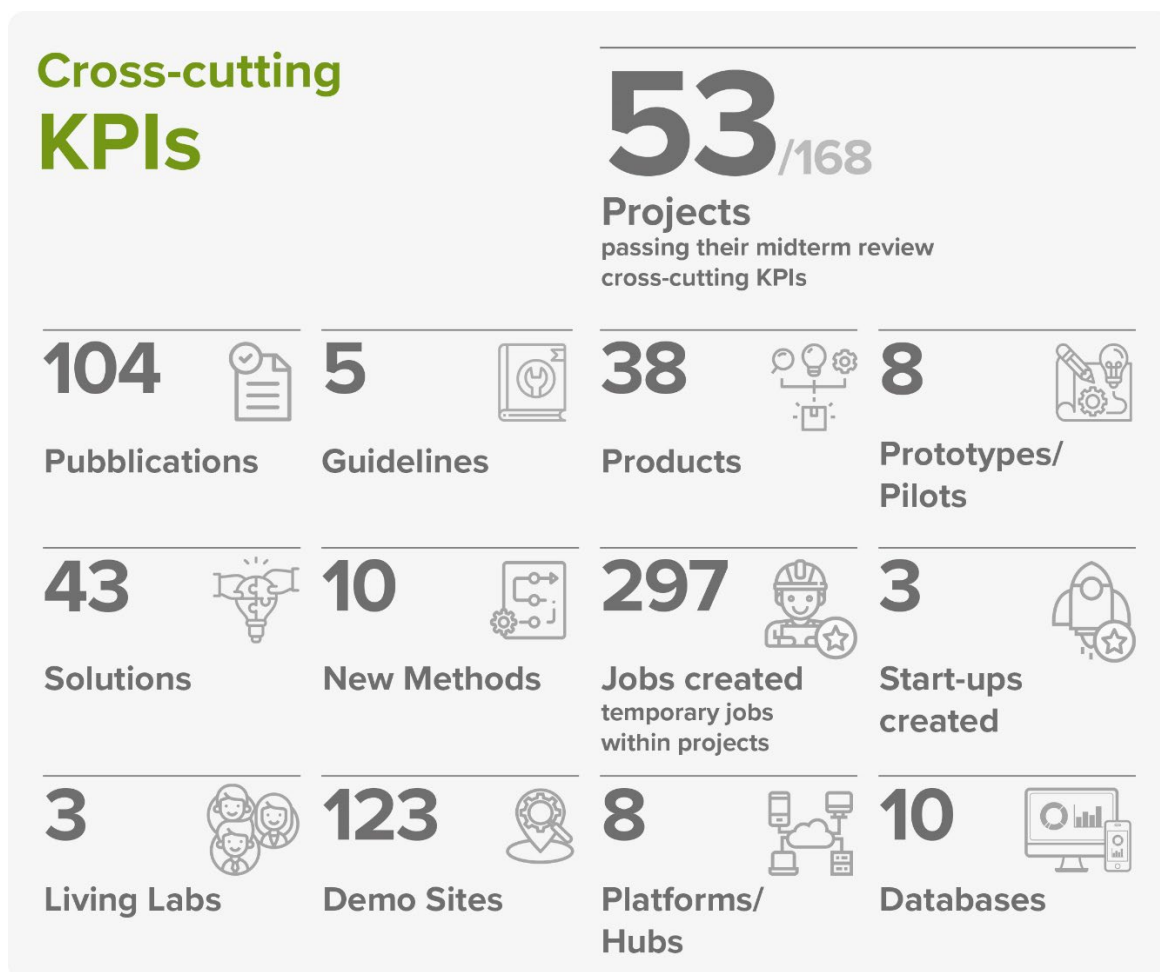


Table 38 KPIs (operational objectives). Data collected from 53 projects passing their midterm review_cross-cutting KPIs

Cross-cutting KPIs	Total number of publications	Number Guidelines	Number products	Number of prototypes/pilots	Number of solutions	Number of new Methods
Total	104	5	38	8	43	10
	Number of Jobs created <i>(temporary jobs within projects)</i>	Number of Start-ups Created	Number of Living Labs	Number of Demo Sites	Number of Platforms/Hubs	Number of Databases
Total	297	3	3	123	8	10

Figure 41 Operational KPIs 2018-2021



Table 39 KPIs (operational objectives). Data collected from 53 projects passing their midterm review_thematic KPIs

Thematic area	Water management		Farming systems		Agri-food value chain	WEFE Nexus
Thematic KPIs 	# NCWR Applications	# innovative irrigation solutions	#agro-ecological practices applied	#breeds improved/conserved	#solutions for agri-food waste reduction	#Applied WEF E solutions
Total	2	4	3	1	10	1

It is helpful that data on achievements have been collected across the KPIs selected to allow for comparisons between different themes. It can be seen from the aggregate level data that some KPIs are relevant across all thematic areas, whereas other KPIs are mainly relevant to a single theme, or mainly to one theme, but with some relevance to others. For instance:

- The number of Demonstration Sites is a relevant indicator across all themes. Among the 123 reported by projects, there were a much higher number of Demonstration Sites in farming systems (47) and agri-food (42) than under other themes. For example, 7 Demonstration Sites under the HANDYWATER project aim to improve water use efficiency in Mediterranean agriculture using innovative irrigation technologies. TRANSITION, meanwhile, has 50 planned Demonstration farms to improve the resilience and productivity of agricultural systems.
- An impressive Number of Platforms/ Hubs has been created to date (8) across the 53 projects passing their midterm review. This suggests that the PRIMA programme has positively created knowledge-sharing mechanisms and established structures to help bring relevant R&I performers, end-users, and other stakeholders together to promote collaborative networking. LAB4SUPPLY, for instance, has 5 platforms and 60 users/members. The LAB4SUPPLY agri-food Stakeholders Platforms (ASP) aim to foster knowledge sharing, networking and synergies for all stakeholders. The objective is to empower agri-food smallholders towards more sustainable and competitive farming, addressing consumers' preferences and market changes.
- Regarding job creation, it is interesting that even at the interim evaluation stage, with many projects still underway, across the 129 running PRIMA projects, there were 297 jobs created in terms of temporary jobs within projects (contracts, PhD, post). Farming projects appeared to have created the most jobs (125), followed by agri-foods (106) and NEXUS (44). Water management projects created 22 jobs.
- Whilst there are very few Startups or SMEs Created (3 of which 2 in agri-food), this is not surprising for an R&D&I programme during the relatively early stages of implementation of many projects. Any new firms would only be likely to materialise towards the end of projects or more likely after completed projects, as it takes time to commercialise research results. The following Start-ups are being created from PRIMA projects:
 1. PROJECT HALOFARM: in Tunisia, a nursery for halophytes from Mediterranean countries
 2. PROJECT SUSTAINOLIVE in Spain, a start-up, commercialises the developed technological solutions to the olive oil industry In Andalusia. To date, 5 persons are involved in this start-up.
 3. PROJECT PULPING: a start-up being created to produce high-quality pumpkin pulp formulations and to accumulate large amounts of pumpkin by-products to extract functional compounds.

Data collected to date indicates good progress on a number of KPIs of particular importance to the programme, such as the "Total number of peer-reviewed publications" and "the number of created Startups". In addition, given the importance of strengthening Technology Readiness Levels (TRLs) through Innovation Action projects, the number of demonstration sites is also an important indicator as these provide a testbed to try out innovative new technologies and new approaches.

Overall, the quality and relevance of the projects funded indicate that the research outputs generated and results achieved will strongly contribute to the desired effects of PRIMA. The high number of innovative products, services and solutions developed to date, and the number of demonstration sites in operation is notable results worth highlighting.

Chapter 1 1 International visibility and positioning

PRIMA has also promoted strong synergies with other actors and institutions relevant to the region and the thematic fields in which PRIMA operates and was able to become a key player in the region. The most notable collaborations are with the Union for the Mediterranean (UfM) through PRIMA's participation in several UfM Regional platforms and UfM task forces, namely in the Environment and Climate, R&I, water, and water task forces, respectively.

In particular, PRIMA is fully supporting the dialogue outcomes of the Union for the Mediterranean (UfM) Environment Taskforce to implement UfM post-2020 Environment Agenda, so-called "Towards 2030: Agenda for a Greener Med Contributing to Achieving the Environmental SDGs in the Mediterranean" (2030GreenerMed Agenda) aiming to operationalise the [UfM Ministerial Declaration Environment and Climate](#) adopted in Cairo on the 4th October 2021.

More importantly, PRIMA is formally recognized as one of the most important implementation structures for the deployment in the region of the newly-established Mediterranean priorities, defined in the [UfM Research and Innovation Platform](#). PRIMA fully supports the UfM R&I agendas developed by the UfM R&I regional platform and is collaborating in the definition of its Implementation Plan, to be adopted during the next UfM Research and Innovation ministerial meeting taking place in June 2022.

PRIMA has collaborated with key regional international and EU actors in relevant conferences such as the [2021 WEFE Nexus Sciences Advances Conference](#) and in the debate around Food Systems Summit by organizing [two independent dialogues and a stocktaking post-summit event in collaboration with FAO, UfM, CIHEAM and One-Planet](#).

The WEFE Nexus Sciences Advances Conference was co-organised with EC DG Research and Innovation, Joint Research Center, the UfM Secretariat and the Cyprus Institute on the 27th-29th September 2021 to gather scientists, practitioners, decision-makers and other stakeholders to discuss how to translate the WEFE Nexus concept from theory into practice.

The main outcome of the Conference was to establish a [WEFE Nexus Community of practice](#) being recognised by EC High-level representatives and ministers of Mediterranean Countries as an effective instrument for sharing knowledge, data, best practices and propose new governance models to operationalise the adoption of Water, Food, Energy and Ecosystems (WEFE) nexus approach in the Region.

PRIMA, in collaboration with UfM Secretariat, EC DG Research and Innovation, Joint Research Centre will steer the development and implementation of the Mediterranean WEFE Nexus Community of Practice and has recently launched a [call for a Coordinated Support Action \(CSA\)](#) to create the operational unit (the Execution team) involved in the development and daily management of the Community.

Furthermore, PRIMA collaborates with UfM, FAO CIHEAM and One Planet network's Sustainable Food Systems Programme in a Multi-stakeholder Sustainable Food Systems Platform in the Mediterranean to foster a common understanding of the complex environment Food Systems (SFS) in the global context. Synergies will be sought among the two communities (Community of Practice and the Sustainable Food Systems Platform)

PRIMA has been able to initiate, formalize and continue a constructive interaction with the Food and Agriculture Organization of the United Nations (FAO), which has several projects, programmes, and offices focused on the Mediterranean area and Mediterranean specificities. PRIMA signed an [MoU](#) with the FAO in 2019, formalising collaborations between the two organizations in e-learning, digital education, and capacity development concern the agri-food systems in the Mediterranean area.

In particular, complementarities have been established to promote traditional Mediterranean products and value-chains, the Mediterranean diet as a healthy and sustainable diet, precision agriculture and sustainable management of natural resources (land and water). The recent appointment of an FAO expert within the PRIMA Scientific Committee for 2021-2023 exemplifies the strengthening of such ties between PRIMA and the FAO.

PRIMA collaborates with ENI Cross-Border Cooperation (ENI-CBCMED), pushing both organisations' shared interest in supporting regional integration and development. This common objective will be achieved by creating thematic clusters based on a joint analysis of PRIMA and ENI-CBC MED projects. ENI CBC MED has launched a [capitalisation call](#) targeting PRIMA projects.

Thematic clusters will be instrumental to fostering knowledge exchange, strengthening synergies and complementarities among projects, benchmarking results cross-contamination, and enhancing links with a broader community of stakeholders.

Moreover, PRIMA is already collaborating with Horizon Europe Missions, particularly with EU Mission “A Soil Deal for Europe” and exploring synergies with other recently adopted EU Missions, notably the EU Mission Restore our Ocean and Waters and the EU Mission Adaptation to Climate Change. PRIMA, in its AWP2022, is proposing a topic drafted in close collaboration with the EU Mission “A Deal for Europe.”

Moreover, PRIMA intends to closely collaborate with those European Partnerships in Horizon Europe with a similar thematic focus, expected to start their activities in 2022, such as the European Partnership on Water Security for the Planet and the EU Partnership Rescuing Biodiversity to Safeguard Life on Earth.

PRIMA will also explore collaborations with EU Partnerships planned to start in 2023, such as Safe and sustainable food systems for people, planet & climate; Agroecology living labs and research infrastructures; Agriculture of data; Animal health and welfare. Those collaborations will ensure PRIMA complement its strategic priorities and avoid overlapping.

PRIMA is complementary to the Food and Nutrition Security and Sustainable Agriculture (FNSSA) priority of the EU-African Union research and innovation cooperation. The FNSSA priority allows PRIMA partners for further pan-African and cross-European collaboration.

Annexe 1 Project success Factsheets

S1, S2 success stories

Thematic Area
Water Management



TRL final
5

Action
RIA - Research & Innovation Action



Budget
2.020.000 €



Duration
36 months 2019/2022



State and Coordinator Entity
ITALY
University of Bologna (UNIBO)



Scientific Coordinator:
TOSCANO, Attilio
attilio.toscano@unibo.it

Participating States/ 7



Research Units/ 9



2018/ Section 1
FIT4REUSE



Safe and sustainable solutions for the integrated use of non-conventional water resources in the Mediterranean agricultural sector

Problem Statement

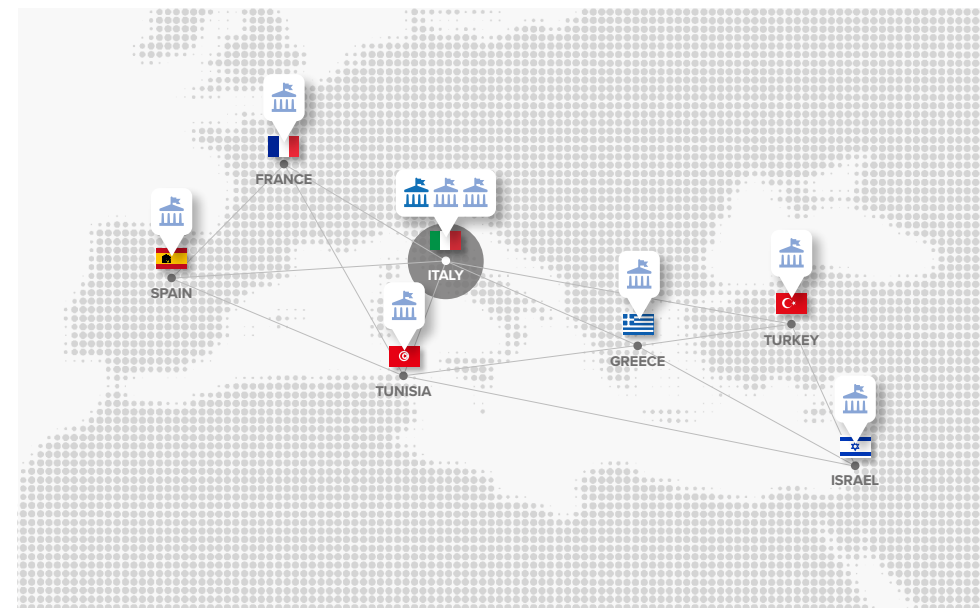
The Mediterranean region is characterised by limited and irregular availability of water resources in both time and space. Climate change and drought events, in a context where water consumption in some places already exceeds the depletion of renewable water resources, will make the region even more vulnerable in the near future. Agriculture is still by far the greatest user of water in the Mediterranean basin accounting for more than 80% of the total consumption. Therefore, it is important to introduce non-conventional water resources that can fill the gap between water demand and water availability, providing regular water supply throughout the year. Exploitation of these water resources in a safe and sustainable manner, within a context of circular economy and environmental sustainability, could bring significant benefits for the whole Mediterranean region. However, high treatment costs, possible negative effects on human health and the environment, and low public acceptance can hinder and restrict the safe usage of both treated wastewater and desalted water.

General Objective

FIT4REUSE is an innovative European project, aiming to provide safe, sustainable and accepted ways of water supply for the Mediterranean basin by exploiting non-conventional water resources, namely treated wastewater and desalted water. FIT4REUSE will focus on innovative treatment technologies and on the use of non-conventional water resources in agriculture and for aquifer recharge, addressing both direct and indirect application of these non-conventional water resources in irrigation and aquifer recharge, providing suitable guidelines for practitioners and policy recommendations.

Added Value/Specificity in the Mediterranean region

The project will study low-cost, innovative and sustainable technologies for municipal wastewater treatment, desalination and brine treatment and disposal, optimising and combining them together in order to achieve water quality standards for irrigational purposes and aquifer recharge. The project will tailor its solutions to the local conditions of the Mediterranean area and therefore will provide technologies that will enable wider use of treated wastewater and desalinated water in the region. Moreover, the project will assess different impacts of the solutions proposed and study legal aspects of both EU and non-EU



Other in Consortium/ 8

- Marche Polytechnic University (UNIVPM) - IT**
- National Institute for Environmental Protection and Research (ISPRA) - IT**
- BIOAZUL SL - ES**
- ECOFILAE - FR**
- National Technical University of Athens (NTUA) - EL**
- National Water Company MEKOROT - IL**
- Higher Institute for Applied Biological Sciences of Tunis (ISSBAT) - TN**
- İTÜNOVA Teknoloji A.Ş. - TR**

countries delivering policy proposals and technologies applicable in different countries. Inclusion of partners from different areas of the Mediterranean region will enable high-quality collaborative research and produce substantial results on a regional scale that fit local scenarios.

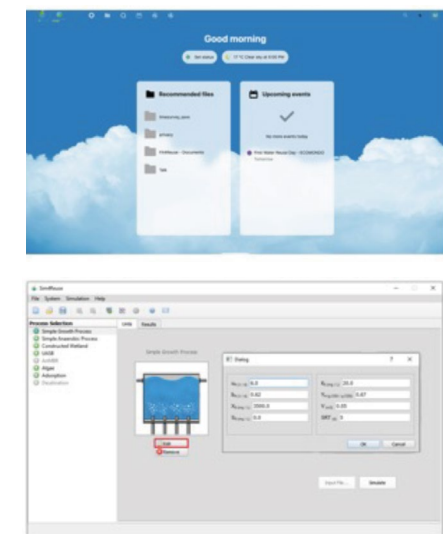
Case studies

Treatment facilities for domestic wastewater treatment based on both nature-based and intensive solutions in Italy, Greece and Tunisia.
Treatment facilities for water desalination and brine treatment in Italy, Israel and Tunisia.
Experimental irrigation sites in Italy, France and Tunisia.

Outputs

- Pilot plants for domestic wastewater treatment, water desalination and brine treatment have been installed and they are operational.
- Irrigation test sites are under implementation in order to find the optimum conditions for reuse of effluents and to test their properties on irrigational infrastructure, soil and crops.
- The first draft of the guidelines for the Water reuse safety plan development was prepared and the work continues in order to provide an instrument for risk assessment and safe reuse of reclaimed water.
- Simulation platform SIM4REUSE was developed and is being tested to model the project technologies and extrapolate results to different conditions.
- A common methodological framework for sustainability analysis was already developed and the data needed being collected.
- The successful data collection and efficient communication between project partners and stakeholders has been facilitated by developing and using customised Multi stakeholder and multi-level platform and establishing the Water reuse forums.
- Legislative framework in different project countries was analysed to propose effective ways for non-conventional water resources use and change in the public attitude.
- Dissemination and communication activities, such as organisation of Water Reuse Days, were performed to share the project findings and engage all the interested parties.

Some outputs of the project FIT4REUSE (From left to right, top to down: Constructed wetlands for domestic wastewater treatment in Italy, nZVI unit for domestic wastewater treatment in Greece, Desalination experimental facility in Tunisia, Experimental irrigation site in France, Multi stakeholder and multi-level platform and Simulation platform SIM4REUSE).



Thematic Area
Water Management



Topic

Topic 1.1.1 - Water resources availability and quality within catchments and aquifers

Action

RIA - Research & Innovation Action



Budget

1.748.672 €



Duration

36 months 2019/2022



State and Coordinator Entity

ITALY
Karlsruhe Institute of Technology (KIT)



Scientific Coordinator:
GOLDSCHIEDER, Nico
nico.goldscheider@kit.edu

Participating States/ 7



Research Units/ 8



2018/ Section 2

KARMA



<http://karma-project.org/>

Karst Aquifer Resources availability and quality in the Mediterranean Area

Problem Statement

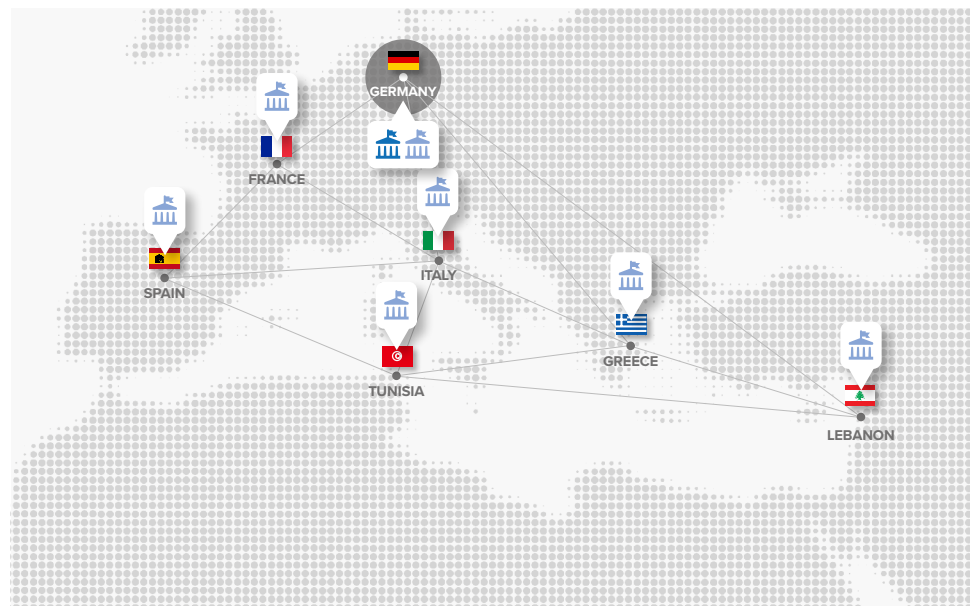
Karst aquifers constitute important freshwater resources, but are challenging to manage and to protect, because of their unique hydraulic structure and behaviour, representing continuous challenges for research and development. Karst aquifers contribute to fresh-water supply of most Mediterranean countries and many cities are supplied by karst water, e.g., Rome, Vienna, Montpellier and Beirut. Karstified carbonate rocks are widespread in Mediterranean countries and constitute 21.6 % of the European land surface. These land surfaces correspond to the main recharge zones of karst aquifers, which are often hydraulically connected over large areas and highly vulnerable to contamination because of their hydraulic properties, such as rapid and turbulent flow in a network of conduits, resulting in highly variable spring discharge and water quality. Therefore, karst systems require specific investigation methods and management tools across all scales which are further developed in this project.

General Objective

The overall goal of the KARMA project is to make significant progress in the hydrogeological understanding and sustainable management of Mediterranean karst groundwater resources in terms of water availability and quality. In addition to applying established methods in karst hydrogeology, KARMA contributes to the development of new experimental and modeling methods. These include: various monitoring, sampling and analytical methods with emphasis on continuous or high temporal resolution monitoring at the spring scale; various experimental and numerical methods for quantifying groundwater recharge at the catchment and aquifer scale; application of data acquisition and analysis methods, cartographic methods and GIS techniques at the scale of the entire Mediterranean basin.

Added Value/Specificity in the Mediterranean region

The project contributes to several of the expected impacts defined in the PRIMA Work Programme. The stakeholder involvement and research challenges in the test sites are oriented towards more efficient water management across all scales. Human withdrawals will be optimized respecting groundwater renewal rates and environmental needs. Most of the studied springs are sources of rivers and streams which partly infiltrate into the aquifer, leading to contamination, but also represents a source of aquifer recharge and helps to mitigate floods.



Other in Consortium/ 8

Federal Institute for Geosciences and Natural Resources (BGR) - DE

University of Malaga (UMA) - ES

University of Montpellier (UM) - FR

University of Rome (URO) - IT

American University of Beirut (AUB) - LB

Ecole National d'Ingénieurs de Tunis (ENIT) - TU

Wise management of karst aquifers, avoiding overexploitation during droughts, can help to sustain environmental flows for ecological (preservation of aquatic life) and recreational purposes.

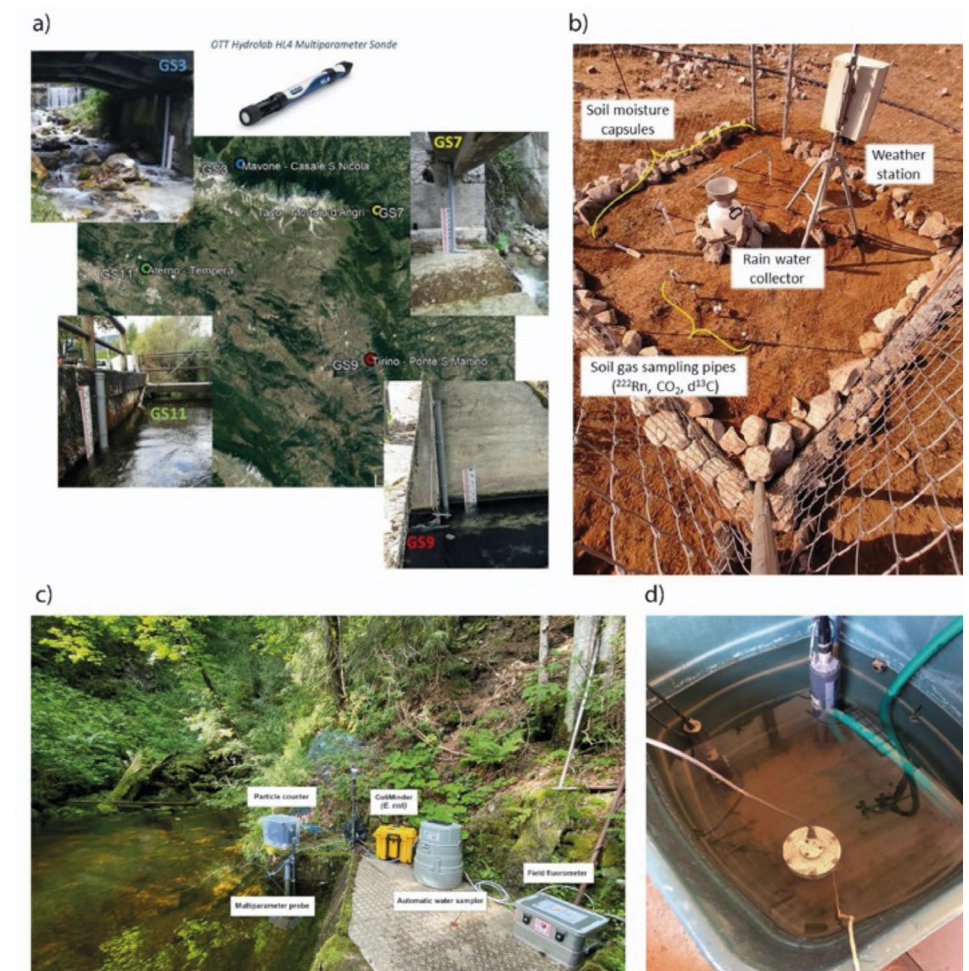
Case studies

Experimental test sites in Spain, France, Germany, Italy, Lebanon and Tunisia.

Outputs

- Pilot plants for early warning systems (EWS) for karst spring water contamination.
- New modeling routines specifically adapted for karst aquifers, including lumped parameter models, artificial neural networks and spatially-distributed models.
- Groundwater vulnerability maps to optimize land-use with respect to groundwater protection.
- High-resolution monitoring of highly variable karst water quality to identify contamination problems and to improve management practices.
- Knowledge on Groundwater-Dependent Ecosystems (GDEs) functionality for ensuring balance between environmental needs and human consumption.
- Impact of extreme events, with particular reference to the floodwater storage potential of karst aquifers.
- Consistent and detailed Mediterranean Karst Aquifer Map and database (MEDKAM) with more detailed information related to aquifer type, recharge, vulnerability to contamination and groundwater-dependent ecosystems (GDE).

a) Different monitoring sites in the Gran Sasso area in Italy, b) weather station, rain water collector, four soil moisture capsules and four soil gas sampling pipes located at different depths at Malaga test site, Spain (Photos: Jaime Fernández Ortega), c) particle counter, ColiMinder (enzymatic activity analyser of E. coli) and field fluorometer at Sägebach spring, Austria (Photo: Simon Frank), c) continuous monitoring at Lez karst catchment in France.



Thematic Area

Farming Systems



TRL

5

Action

RIA - Research & Innovation Action



Budget

1.449.673 €

Required funds (from NFBs):
953.445 €



Duration

36 months (June 2019 - May 2022)

48 months (June 2019 - May 2023)



State and Coordinator Entity

ITALY

University of Pisa (UNIFI),
Dept. Agriculture, Food and
Environment



UNIVERSITÀ DI PISA

Scientific Coordinator:
PARDOSSI, Alberto
alberto.pardossi@unipi.it

Participating States/ 5



Research Units/ 8



2018/ Section 2

SIMTAP

<https://www.simtap.eu/>



Self-Sufficient Integrated Multi-Trophic Aquaponic Systems For Improving Food Production Sustainability And Brackish Water Use And Recycling

Problem Statement

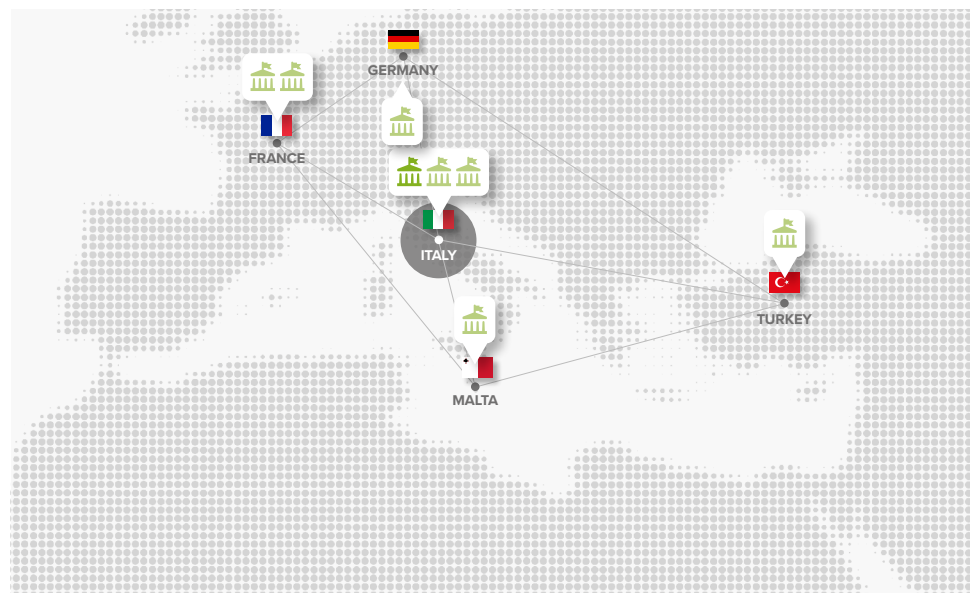
The increase in fish farming has various direct and indirect environmental impacts due to the production of feed ingredients, the disposal of farm effluents rich in organic matters, nitrogen, phosphorus, etc.), disease transmission, dispersal of non-native species and destruction of habitats. Moreover, fish farming strongly depends on fisheries as it is the main consumer of fishmeal (68%) and fish oil (about 89%). The aquaculture industry, which is forecasted to grow dramatically over the next decades, needs alternative sources as fish feed, for instance insects, zooplankton and deposit/filter feeders. Integrated Multitrophic Aquaculture (IMTA) is one of the most promising pathways to sustainable aquaculture systems. IMTA integrates complementary species of the trophic chain living in different compartments of the ecosystem. Inorganic and organic wastes from fed aquaculture species (e.g. finfish) are respectively assimilated by autotrophic species (e.g. phytoplankton, micro/macroalgae and higher plants) and heterotrophic species (e.g. oysters, mussels, crustacean, echinoderms and polychaetes) that are co-cultured with the fed aquaculture species.

General Objective

The main goal of SIMTAP is to define, design, set up and test an innovative food production system that drastically reduce the required fish feed inputs (e.g., fishmeal, fish oil, soybean, etc.), the consumption of resources (water, energy), and the production of waste and pollution, decreasing the Life Cycle impact on the environment of this segment of the food industry. Moreover, SIMTAP can be coupled with the re-use of the effluents from greenhouse cropping systems, in a cascade effect acting both as a bioremediation of wastewater (run-off) from greenhouse cultivations, and as a recycling of the nutrients still contained in the same wastewater for algae culture.

Added Value/Specificity in the Mediterranean region

The general objective of the project is to develop a profitable and environmentally-friendly marine aquaponic system able to improve the production of food (vegetables and sea-food) in rural areas of Mediterranean countries. This system is a labour-intensive (low level of automation and mechanisation) and environment-friendly (bioremediation of wastewater; use of low-quality/brackish water sources; self-production of fish feed; reduced use of conventional fish feed ingredients (i.e. fish oil, fishmeal etc.))



Other in Consortium/ 7

University of Bologna (UNIBO), Dept. Agro-Food Sciences and Technologies - IT

University of Milan (UNI-MI), Dept. of Environmental Sciences and Policies - IT

Sol Agro et hydrosystème Spatialisation (INRAE UMR SAS), Rennes - FR

Lycée de la Mer et du Littoral, Bourcefranc le Chapus - FR

Mediterranean Fisheries Research Production and Training Institute, Antalya - TR

Ministry for Agriculture, Fisheries and Animal Rights, Aquaculture Directorate, Marsa - MT

Korolev GmbH, Bonn - DE

Some views of the SIMTAP systems and experiments: From left to right, and from top to down: two ponds used in Bourcefranc (France) for experiments with fish, shrimps and bivalves; fish of commercial size (>300 g) sampled in December 2021 in the prototype installed in Pisa (Italy); photobioreactors with microalgae grown in TAP medium or greenhouse wastewater in Pisa; experiment on *Salicornia europaea* in Antalya (Turkey); kuruma shrimp sampled from the system installed in Bourcefranc (France)

Case studies

Marine aquaponic systems for the production of sea fish Gilthead sea bream (*Sparus aurata*), European sea bass (*Dicentrarchus labrax*), halophytes (*Beta vulgaris* var. *cicla*, *B. vulgaris* spp. *maritima* and *Salicornia europaea*), seaweeds (*Ulva rigida*) and algae (*Chlorella* spp.).

Outputs

Four SIMTAP prototypes have been installed in Italy, France, Turkey and, more recently, in Malta. An Integrated Smart Monitoring and Control System (ISMaCS) has been specifically designed, developed and tested for the SIMTAP systems, with the aim of: monitoring environmental data (weather, water, air) and energy consumptions; creating databases with time series of collected data; allowing real-time remote control; increasing operation precision.

Experiments with fish were conducted in France, Turkey and Italy. The experiments in France were concluded in 2021; other experiments with fish will be conducted in Italy, Turkey and Malta. In experiments conducted so far in France, Italy and Turkey with sea bream and sea bass at juvenile or fattening stage, it was found that fish can be fed with vegetables, mussels discarded from the market, and polychaetes can partially or completely replace the usual formulated fish feed containing fishmeal and fish oil. In France, the growth of kuruma shrimps, oysters and clams in the SIMTAP was also very good.

In Italy, Gilthead sea bream juveniles (approx. 5 g/fish) were introduced in March 2021 in the SIMTAP prototype. Three feeding experiments were conducted on this batch of fish aiming to evaluate the effect of complete commercial feed substitution. Fish were raised up to commercial size (approx. 350 g/fish) at the end of December 2021, roughly 9 months from their introduction in the system. Swiss chard and glasswort are the most suitable crops for the SIMTAP tested in Italy (salinity 25 g/L), respectively, in the autumn-winter season and in spring-summer. Glasswort, which is considered a gourmet vegetable, is a very interesting crop as 4-6 kg/m² of fresh shoots can be harvested in 2-3 months. To assess the economic, environmental and social sustainability of SIMTAP systems, a list of operational indicators (including those from LCA, LCC, SLCA and Emery Accounting) adapted to aquaculture, with their thresholds values, three decision trees, a template for the data collection and indicators calculation, and a user's guide for the different tools have been prepared. The data collection has started recently. More in details, regarding the collection of data related to the SIMTAP systems, one/two on-site meeting will be organised while, about the data for commercial aquaculture farms, some of the main EU producers were contacted and the data collection form was shared.



Thematic Area

Farming Systems



TRL

5

Action

RIA - Research & Innovation Action



Budget

2.030.000 €



Duration

36 months 2019/2022



State and Coordinator Entity

SPAIN

Universidad de
Castilla-La Mancha (UCLM)



Scientific Coordinator:
Dominguez Padilla, Alfonso
alfonso.dominguez@uclm.es

Participating States/ 5



Research Units/ 10



2018/ Section 1

SUPROMED



<https://supromed.eu/>

Sustainable production in water limited environments of Mediterranean agro-ecosystem

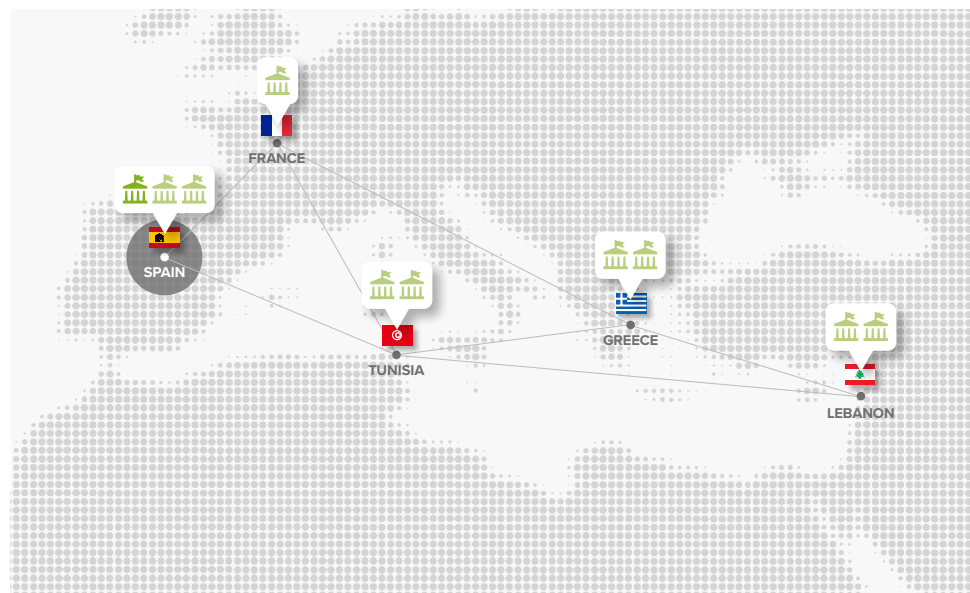
Problem Statement

The Mediterranean region is one of the most vulnerable zones due to water scarcity caused by the periodical occurrence of drought periods and the irregular distribution of rainfall during the year. Agriculture remains the most water-demanding sector, with an average demand of 64% in the Mediterranean where the region's economy has been growing by relying increasingly on specialised and irrigated agriculture. The agricultural and food sectors together generate 6% of Europe's Gross Domestic Product (GDP). Furthermore, in most Mediterranean countries, agriculture employs 20-30% of the population. Thus, the lack of water resources is one of the main handicaps for agriculture in this area. Moreover, the progressive increase of energy prices - about 3% per year since 2008 - as well as the low price of harvests in the international market are conditioning the profitability of Mediterranean farms. Consequently, there is a progressive abandonment of rural areas in which the economy is based on the agricultural sector. This situation may get worse due to global warming, which may decrease the food security and the agricultural income of certain areas, and may also cause an excessive use of resources such as groundwater and energy. Facing this situation requires a combination of methodologies and technologies including: to improve the efficiency in the use of natural resources; to improve the design and management of the production means; to develop and transfer technology and knowledge to the producers; to analyse scenarios for advising farmers and technicians about the most suitable strategies for facing extreme situations; and to provide tools and reports to decision makers for the development of policies that may improve the resilience of the agricultural systems to these threats.

General Objective

SUPROMED will provide a holistic crop-livestock water management system resilient to climate change. For reaching this objective, the following partial objectives are proposed:

- Development of an end-user Information Technology platform providing a holistic crop-livestock water management system resilient to climate change in the Mediterranean agro-ecosystem;
- Integration of several models and tools in the end-user's platform;
- Application and promotion of regulated deficit irrigation techniques on vines, fruit trees and annual crops;
- Validation of the end-user IT platform in three demo sites (Lebanon, Spain and Tunisia);
- Design of a set of good agricultural practices and management techniques to farmers, moreover of an ambitious Training program;



Other in Consortium/ 9

Instituto Técnico Agronómico
Provincial (ITAP) - ES

Grupo HISPATEC Informática
empresarial S.A. (HISPATEC) - ES

Euro-Mediterranean information
system on know-how in water
sector (SEMIDE) - FR

University of Thessaly (UTH) - GR
3DSA - GR

Lebanese University (ULFA) - LB
DIFAF - LB

Institute National de Recherche
en Génie Rural Eaux et Forêts
(INRGREF) - TU

National Institute of Field Crops
(INGC) - TU

- Integration of SUPROMED results into water and agricultural policies for large scale deployment.

Added Value/Specificity in the Mediterranean region

- To advise farmers and technicians on the optimal design and management of farming systems infrastructures for improving their resilience to climate change, by embracing the real-time management of water, fertilisers and energy, and the use of energy audits and benchmarking techniques to optimise the management of production means;
- To maximise farm's profitability by guaranteeing more efficient use of available water and irrigable area, including a better linkage between livestock and crop production, the fertilisation management, pests identification, and the use of low quality irrigation water;
- To demonstrate the convenience of using the end-user IT platform instead of traditional methods considering real in-situ data and Earth Observation imagery, agroclimatic classification and zoning together with drought forecast tools linked to climatic change;
- To decrease the impact of agriculture on the environment;
- To advise policy managers in the definition of national agricultural and water strategic objectives.

Case studies

The different models and tools together with the end-user platform will be validated in three different demonstration sites across the Mediterranean area. The expected result in the three areas is to increase the profitability of farms through a better use of water, energy, and fertilisers to decrease the pressure on the environment, adapt this sector to global warming, and decrease the abandonment of rural areas. These results will be used to encourage other farmers in the Mediterranean area. The main problems in the demo-site areas are:

- **Eastern Mancha (Spain):** high cost of energy for irrigation pumping systems; risk of groundwater overexploitation; low profitability of irrigation; and low profitability of livestock.
- **Bekaa valley (Lebanon):** low technification of irrigation; low technical advisory; low productivity of irrigation water; and low productivity of livestock.
- **Sidi Bouzid (Tunisia):** high cost of energy for irrigation pumping systems; risk of groundwater overexploitation; low technical advisory; and low productivity of livestock.

Outputs

- Adaptation of models and tools to the requirements of farmers and technicians;
- Calibrated parameters of SUPROMED models in the different demo sites;
- Information Technology platform for end users;
- Comparison of traditional management with the management proposed by SUPROMED tools;
- Manual of good agricultural practices and management techniques;
- Productivity zones (high, medium, low) for sustainable farming according to water limitations;
- Impact assessment of SUPROMED in the demosites areas, current and medium term;
- Socio-economic and environmental assessment;
- Policy recommendations for Mediterranean agro-food sector;
- Farmer's Training Program;
- Project dissemination.



Thematic Area

Agri-food Value Chain



TRL

6

Action

IA - Innovation Action



Budget

1.500.000 €



Duration

36 months (2020.03 – 2023.03)



State and Coordinator Entity

ITALY

ENCO Consulting Srl



Scientific Coordinator:
DE LA FELD, Marco

Participating States/ 5



Research Units/ 13



2019/ Section 1

SUREFISH



<https://surefish.eu/>

Fostering Mediterranean fish ensuring traceability and authenticity

Problem Statement

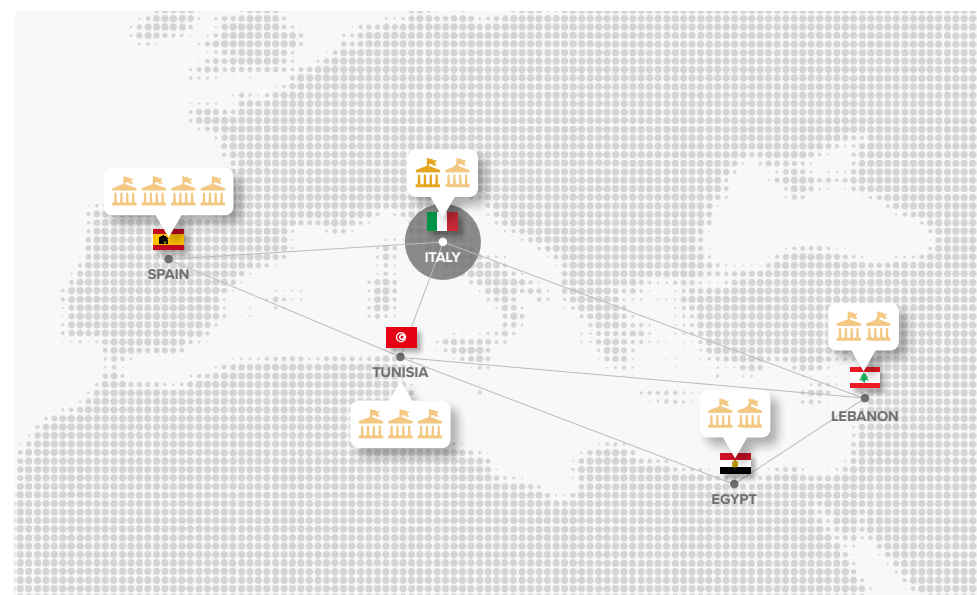
One of the key components of Mediterranean diet is Fish, which contributes to a healthy and balanced diet since it is rich in protein, vitamins and minerals. Fish is one of the most consumed and traded food items in the Mediterranean Sea. Fish chain is particularly vulnerable to fraud, primarily to species substitution and mislabelling. The application of traceability to fish supply chains is a challenge due to: the great number of different actors involved; inputs and outputs may be traded in different countries. This can lead to incorrect labelling of the fish itself, and to a low confidence on Mediterranean fish products.

General Objective

The main objective of SUREFISH is to valorise traditional Mediterranean fish by fostering the supply-chain innovation and consumer confidence on Mediterranean fish products through deploying innovative solutions to achieve unequivocal traceability and confirming their authenticity, thus preventing frauds. Our approach relies on a on a global solution for the Mediterranean fishery supply chain (fishing, on board processing, in land processing, retailers/importer), made up by two technological solutions for safety and traceability and a third solution for authenticity by 12 harmonised analytical protocols. The SUREFISH innovative solution is based on Radio Frequency Indicator (RFID), Blockchain, Time Temperature Indicator (TTI) and tamper-proof technologies validated and demonstrated along the supply chain of four fish species, validated through 4 pilot use cases.

Added Value/Specificity in the Mediterranean region

Trans-national authenticity and traceability system for fish and seafood, providing detailed and reliable information on fish species, geographical origin and production protocols. Consumers will be provided with a smartphone APP to trace fish, linked to the Blockchain platform. SUREFISH system will reduce the frauds caused by the replacement of species by others with less quality up to 35% and the counterfeits with fishery and aquaculture products from non-Mediterranean fishery areas up to 25%. Fish consumers get access to the full traceability information of the product they are buying and eating, contributing to increase consumers' confidence up to 20%. A database of European and other Mediterranean countries' laboratories will connect analytical portfolio, key-contacts and expertise.



Other in Consortium/ 12

University of Naples Federico II (UNINA) - IT

Instituto Tecnológico del Embalaje, Transporte y Logística (ITENE) - ES

National Centre for Technology and Food Safety (CNTA) - ES

Ingeniería y Control Electrónico, S.A. (INGE) - ES

National Association of Fish and Seafood Canning Manufacturers, National Technical Centre for the Preservation of Fish Products (ANFACO-CECOPECA) - ES

Slow Food Tebourba Association - TU

National Institute of Sea Sciences and Technologies (INSTM) - TU

Didon Marée Sarl - TU

Sofia For Fresh and Frozen Fish Trading (S.A.R.L) - LB

American University of Beirut - LB

Central Laboratory for Aquaculture Research (CLAR) - EG

FISH BASKET - EG

Case studies

Four pilot use cases are foreseen in:

Spain: bluefin tuna

This pilot will allow to test in a real environment the use of a validated protocol. Furthermore, due to the high economic value of the specie, the implementation of a precise and detailed protocol is very important, since the existing ones do not provide the necessary level of detail to avoid discrepancies between the different analytical laboratories.

Tunisia: Fresh and marinated anchovies + Sardina pilchardus

Caught in the North part of Tunisia from different geographical zone will be processed in marinated anchovies. Samples will be traced from the sea to consumers by using the blockchain technology. Samples will be also analysed in order to certify the origin and authenticity. Certified authenticity label will be used for the front-of-pack labelling

Egypt: fresh tilapia filets

Monitoring of Tilapia during transportation from the farm to processing plant by using TTI technologies. After processing, the filets will be packed by using commercial smart packaging technologies to monitor the cold supply chain and tamper-evident packaging solutions to ensure its inviolability

Lebanon: Red mullets

The imported mullets, before packaging operation will be analysed to confirm authenticity and freshness. Commercial smart packaging technologies will be applied to monitor the cold supply chain of red mullets and tamper-evident packaging solutions will be selected to ensure its inviolability.

Outputs

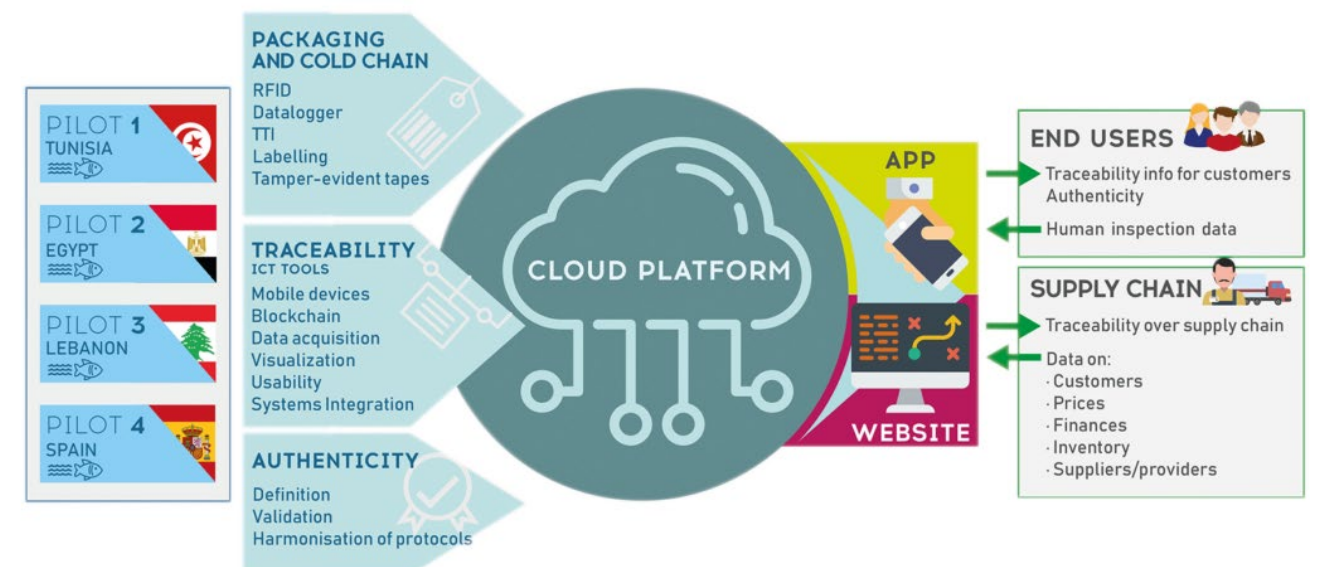
The first output generated is the selection of the most promising analytical methods based on suitability, simplicity, robustness, cost-effectiveness, time-effectiveness, assuring that this selection covers all relevant fish fraud causes affecting Mediterranean fish involved in the pilot cases.

The second output generated is the definition of each step of the fish supply chain from the sea or the farm fish to the final clients. Each step has been analysed obtaining information related the timing, transport used, samples done, temperature measurements and the traceability followed during all the process.

The third output is the definition of extrinsic and intrinsic attributes affecting consumer preferences based on three different but complementary experimental approaches: i) Focus group interview; ii) an economic analysis; iii) Sensory evaluation. Overall, higher fish intake for participants from seaside areas was correlated with product availability, better supply chain, dietary habits, and traditions. The behaviour of people living in internal areas was more sensitive to sensory and physical attributes, price, certification, lack of trust and freshness.

The fourth output is the creation of the organizational structure of the SUREFISH International network of laboratories (SINL) that allows to manage the compliance and monitoring of the activities and actions of the Network.

The fifth outcome is the analysis of suitable blockchain frameworks based on pilots' definition, in particular, the relevant parameters to be stored in Blockchain have been defined for each pilot and work has been done on the development of the API and the application for partners.



Thematic Area

Agri-food Value Chain



TRL

2-5

Action

RIA - Research & Innovation Action



Budget

1.795.312,50 €



Duration

42 months (2020.05 – 2023.10)



State and Coordinator Entity

ITALY

Politecnico di Milano (POLIMI),
Dep. of Electronics, Information,
Bioengineering (DEIB) *Project leader*,
Department of Civil and Environmental Engineering (DICA),
Department of Energy



**POLITECNICO
MILANO 1863**

Scientific Coordinator:
CASTELLETTI, Andrea

Participating States/ 5



Research Units/ 7



2019/ Section 1

AWESOME



<https://awesome-prima.eu/>

Managing water, ecosystems and food across sectors and scales in the South Mediterranean

Problem Statement

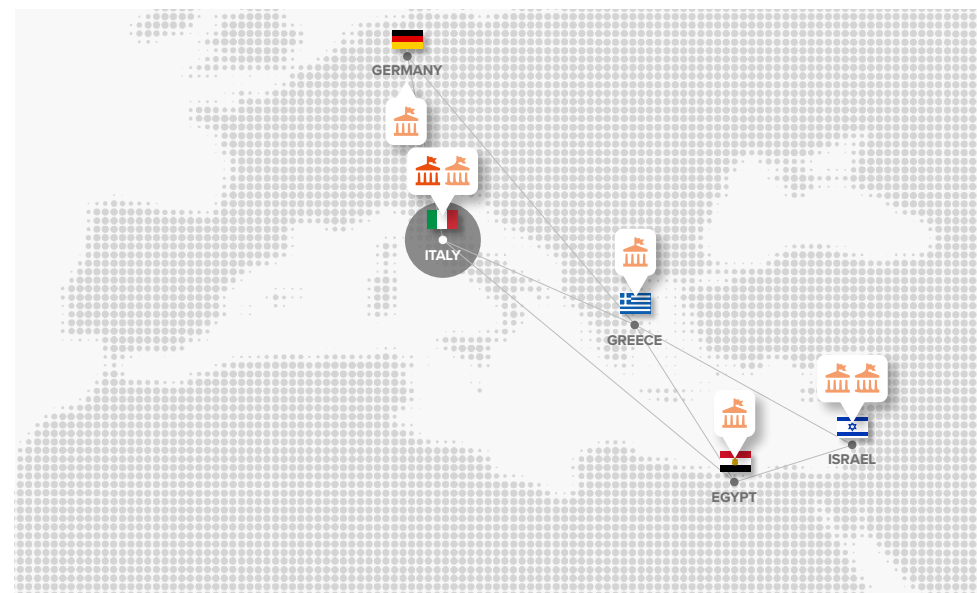
Rapid population growth and rising economic prosperity are imperatively challenging the South Mediterranean and the African North-East to a point where they may compromise the sustainable use of natural resources. In those regions, the demand for water, energy and food are expected to increase relevantly and the preservation of ecosystems is at risk. Transboundary rivers like the Nile River Basin represent a fundamental source of water, energy, food, and ecosystems (WEFE), which often brings conflicts and individualistic policies among the sharing countries. The adoption of integrated and participatory approaches that explicitly account for the WEFE Nexus are necessary to explore multi-sectoral synergies and tradeoffs and to generate shared economic, environmental, and societal benefits.

General Objective

The main objective of AWESOME is to develop a decision-analytic framework based on a multi-level, integrated WEFE model to address the WEFE Nexus and explore the interdependencies and feedbacks across a hierarchy of spatial scales, from the macroeconomic development (macro) to regional planning (meso) and down to the single farm (local). AWESOME is thus considering multiple future evolutions of climate, society, and economics, and how these will shape portfolios robustness, resilience, and sustainability.

Added Value/Specificity in the Mediterranean region

At the local scale, a lab-scale and pilot-scale facility of innovative water-efficient techniques (e.g., hydroponics, aquaponics) are being built and tested in Egypt, providing indications on effectiveness and sustainability of these new technology to back up existing systems in drying future. At the meso scale, the decision-analytic framework under development is tackling the Nile River Basin, from the Grand Renaissance Dam (GERD) in Ethiopia up to the Nile Delta, based on hydrological models while combining systems analysis methods with advanced optimization algorithms. The AWESOME plan is to simulate existing water availability, water distribution system and new agricultural technologies along the Nile and with Egypt in focus, upscaling the local scale assessments while downscaling the climate, energy, crop, and ecosystems projections at the macro scale, which covers the broader area of the South Mediterranean and African Northeast. This approach allows the design of a set of efficient solutions and associated performance with respect to the WEFE multidimensional assessment space, where the core stakeholders and policy



Other in Consortium/ 6

Fondazione Eni Enrico Mattei (FEEM), Milan - IT

Athens University of Economics and Business (AUEB) - GR

Yezreel Valley College (YVC), Nazaret - IL

University of Haifa (UH), Haifa, IL

Zon Gardens, Cairo - EG

RWTH Aachen University (RWTH), Aachen - DE

makers identified will be able to explore multisectoral tradeoffs and negotiate potential compromise alternatives. The research within AWESOME has the potential to reinforce local food production by shortening the supply chain by bridging the gap between food sources and food demand, and reducing water wastes in a water-scarce area.

Case studies

The CS (lab and pilot) are being implemented near Cairo, in Egypt, country characterized by an arid climate and high water deficit and have the aim to demonstrate the potential of innovative technological solutions, such as hydroponics and aquaponics, in producing more crop (and fish) with less water.

Outputs

- The lab-scale facility of hydroponics has already been built and different subsystems have been implemented (deep water culture, nutrient film, media bed). A large range of experiments have been conducted, both in summer and in winter, and the team is currently busy with data analysis and evaluation. The best performing subsystem will be adopted for the pilot-scale systems. The design and construction of the pilot-scale aqua- and hydroponic systems started and will be ready for operation in May 2022. A nice informative video on the lab scale construction and harvest can be found on the AWESOME website <https://awesome-prima.eu/lab-scale-facility-video-update/>. Experiments are also running on marine aquaculture, exploring fish types, brines, and potential location for implementation.
- Downscaled demographic projections in the South Mediterranean area and African Northeast, with focus on Egypt have been produced. The outcomes confirm the high population growth especially in countries where the food self-sufficiency is at risk.
- Downscaled climate scenarios at high resolution have been completed for the entire Nile River Basin (hydrological basin) and for Egypt. The climate analysis is showing an increase in the air temperature and a higher variability in precipitations, with a slight decreasing trend in the already dry areas.
- Dynamic and spatially distributed agriculture water needs in present and future climate and demographic scenarios have been produced for Egypt, Sudan, Ethiopia, and for the entire Nile River Basin.
- Future energy scenarios have been developed for Egypt, Sudan, and Ethiopia, including the analysis of evolution of the power demand based on the AWESOME demographic projections and Socio-Economic Pathways (SSPs), as well as on different economic and policy scenarios, until 2100.
- The macro-economic Regional Dynamic Integrated model of Climate and the Economy (RICE-99) aiming at evaluating the impact of climate change damages on the main economic variables and CO₂ emission under different climate and demographic scenarios and the Computable General Equilibrium (CGE) Model are currently under calibration and validation.
- The meso level model is set up (from the GERD in Ethiopia to the Delta in Egypt) and experiments are running (optimisation of Nile operation and optimized planning of water management measures). The main stakeholders (SHs) to tackle have been identified and contacted. They have been informed about the project and invited to a couple of workshops (one online and one in presence in Egypt).

Some snapshots of the lab-scale facility near Cairo, Egypt. Different subsystems (e.g., NFT, DWC) have been tested and are currently under data analysis and evaluation (photo property: Zon Gardens)



Thematic Area

Agri-food Value Chain



TRL

5

Action

RIA - Research & Innovation Action



Budget

1.544.750 €



Duration

48 months (2020.03 -2024.02)



State and Coordinator Entity

GERMANY

Technical University of Munich



Scientific Coordinator:
VRACHIOLI, Maria

Participating States/ 3



Research Units/ 4



2019/ Section 1

SIGMA Nexus



<http://www.sigma-nexus.eu/>

Sustainable Innovation and Governance in the Mediterranean Area for the WEF Nexus

Problem Statement

Scarce natural resources threaten security in the climate-vulnerable Mediterranean region. Rising demand for water and food, changes in consumption patterns and economic growth require interventions that promote sustainable management of natural resources. As climate change introduces additional constraints, the competition for scarce resources intensifies and is reinforced by the dynamic relationships between water, ecosystems and agriculture.

Actions in one system can affect the other systems and bring significant economic, environmental, and social consequences. Additional challenges in cross-sectoral integration emerge through the appearance of silos, by diminishing the potential for synergies that promote resilient and productive agro-ecosystems.

The Water-Energy-Food-Ecosystems (WEFE) Nexus concept recognizes these complex (spatial, temporal, institutional, jurisdictional) interdependencies between water, ecosystems and food security. It presents an integrated approach to resource management and enables the Mediterranean region to respond effectively to climate change.

General Objective

SIGMA-Nexus reviews and analyses the socio-economic and technical context of the Nexus along with a range of past and existing initiatives to present the nature of the synergies and trade-offs under different hydrological, agricultural, ecological and environmental contexts in the Mediterranean region.

This will provide a basis for SIGMA-Nexus' targeted effort to develop frameworks that advocate the efficient, integrated use and management of land and water, and break disciplinary silos.

Added Value/Specificity in the Mediterranean region

SIGMA-Nexus implements training programs and holds workshops that facilitate knowledge-transfer and support decision-making, cross-sectoral governance, scalability and stakeholder participation in the Mediterranean region.

In addition, SIGMA Nexus develops novel Nexus approaches (comprehensive ecological-agricultural-economic simulation model enhanced with hydrological information) and tools (WEcoF digital innovation platform that promotes the co-design of Nexus initiatives and acts as a capacity-building tool).

Other in Consortium/ 3

Organization for the Development
of Crete S.A. (OAKSA) - GR

University of Crete (UOC) - GR

Cairo University - EG

Case studies

Three pilot use cases are foreseen in:

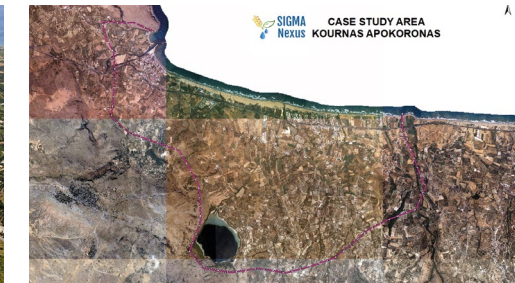
- Egypt: Minia and Nubariya
- Greece: Crete

Outputs

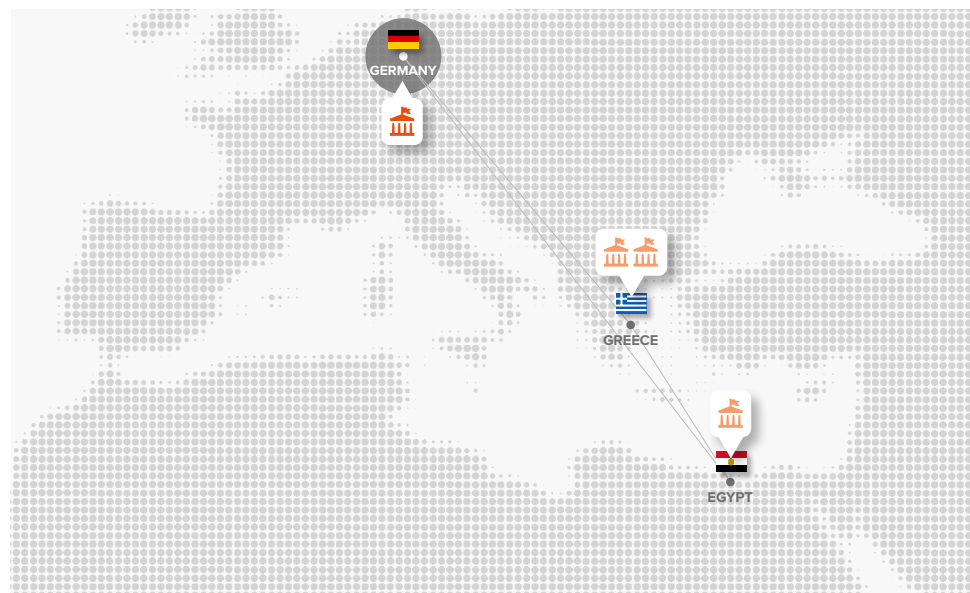
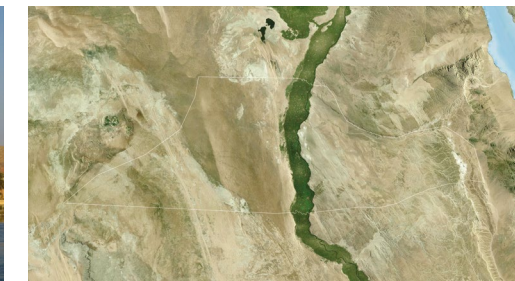
The outputs of SIGMA-Nexus are two:

- A set of innovative analytical frameworks for the identification of economic activities and social considerations within the Nexus based on current and previous policy frameworks in the Mediterranean region, with a special focus on the case study sites.
- The WEcoF innovation portal, will promote innovations through the use of the Nexus approach and it will become the source of Nexus knowledge and innovations based on value chain strategies and capacity building.

Case study : Lake Kournas, island of Crete, Greece



Case study : Minya is located 245 km south of Cairo on the western bank of the Nile River, Egypt



Annexe 2, S1 and S2 projects publications

Project Acronym	Title of the scientific paper	Author	DOI
SUSTAINOLIVE	Principles for designing Agroecology-based Local (territorial) Agri-food Systems: a critical revision	Manuel González de Molina - UPAO	https://www.tandfonline.com/doi/full/10.1080/21683565.2021.1913690
FIT4REUSE	Long-term operation of a pilot-scale anaerobic membrane bioreactor (AnMBR) treating high salinity low loaded municipal wastewater in real environment	Francesco Fatone - UNIVPM	https://www.sciencedirect.com/science/article/pii/S1383586619335427 https://zenodo.org/record/4564062#.YEC1Y9yVOUk
FIT4REUSE	Potential of constructed wetland treatment systems for agricultural wastewater reuse under the EU framework	Attilio Toscano - UNIBO	https://www.sciencedirect.com/science/article/pii/S0301479720311440 https://zenodo.org/record/4551203#.YEC0INyVOUk
FIT4REUSE	Selective removal of contaminants of emerging concern (CECs) from urban water cycle via Molecularly Imprinted Polymers (MIPs): Potential of upscaling and enabling reclaimed water reuse	Francesco Fatone - UNIVPM	https://www.sciencedirect.com/science/article/pii/S2213343721000294 https://zenodo.org/record/4507473#.YEC1fNyVOUk
BIOPROMEDFOOD	Biological activity of plant-based carvacrol and thymol and their impact on human health and food quality	Nikheel Bhojraj Rathod - CU Turkey Fatih Ozogul - CU Turkey Yesim Ozogul - CU Turkey	https://www.sciencedirect.com/science/article/abs/pii/S0924224421005100?via%3Dihub https://dx.doi.org/https://doi.org/10.1016/j.tifs.2021.08.023
DSWAP	Compounds of emerging concern as new plant stressors linked to water reuse and biosolid application in agriculture	Josep Bayona - CSIC	https://www.sciencedirect.com/science/article/pii/S2213343721001755 https://dx.doi.org/10.1016/j.jece.2021.105198
ARTISANEFOOD	Meta-Regression models describing the effects of essential oils and added lactic acid bacteria on pathogen inactivation in cheese	Ursula Gonzales-Barron - IPBR	https://www.sciencedirect.com/science/article/pii/S2352352220300372?via%3Dihub
SUSTAINOLIVE	Identifying adaptation strategies to climate change for Mediterranean olive orchards using impact response surfaces	Ignacio Lorite - IFAPA	https://www.sciencedirect.com/science/article/abs/pii/S0308521X20307988?via%3Dihub
SUSTAINOLIVE	Impact of climate change on economic components of Mediterranean olive orchards	Ignacio Lorite - IFAPA	https://www.sciencedirect.com/science/article/abs/pii/S0378377421000251?via%3Dihub
SUSTAINOLIVE	Climate change and industrialization as the main drivers of Spanish agriculture water stress	Manuel González de Molina - UPAO	https://www.sciencedirect.com/science/article/abs/pii/S0048969720369308?via%3Dihub
ALTOS	Two submitted publications (methodological innovation - Task 1.2)	Anne Biarnes - IRD- UMR LISAH Bailly Jean-Stéphane - IRD- UMR LISAH Insaf Mekki - INRGREF Intissar Ferchichi - INRGREF	https://www.sciencedirect.com/science/article/abs/pii/S0308521X21002341?dgcid=coauthor
WATERMED4.0	A mini review on molecularly imprinted polymer based halloysite nanotubes composites: innovative materials for analytical and environmental applications	Meriem Fizir - DBKM Amina Richa - DBKM	https://www.researchgate.net/publication/341526587_A_mini_review_on_molecularly_imprinted_polymer_based_halloysite_nanotubes_composites_innovative_materials_for_analytical_and_environmental_applications

Project Acronym	Title of the scientific paper	Author	DOI
			https://ieeexplore.ieee.org/document/9296439
WATERMED4.0	Recent advances and perspectives in the treatment of hydroponic wastewater: a review	Amina Richa - DBKM	https://www.researchgate.net/publication/344783794_Recent_advances_and_perspectives_in_the_treatment_of_hydroponic_wastewater_a_review
INTOMED	Impact of plant genotype and plant habitat in shaping bacterial pathobiome: a comparative study in olive tree.	Paula Cristina dos Santos Baptista - IPBR	https://www.nature.com/articles/s41598-020-60596-0#Ack1
CEREALMED	Meta-QTL analysis and identification of candidate genes for quality, abiotic and biotic stress in durum wheat	Jose Miguel Soriano - IRTA Ilaria Marcotuli - UniBa Agata Gadaleta - UniBa	https://www.nature.com/articles/s41598-021-91446-2
GREENPALM	Date Seeds: A Promising Source of Oil with Functional Properties	Abdessalem Mrabet - UG TUNIS Ana Jiménez-Araujo - CSIC Rafael Guillén-Bejarano - CSIC Rocio Rodriguez-Arcos - CSIC Marianne Sindic - ULIEGE	https://www.mdpi.com/2304-8158/9/6/787
ARTISANEFood	Effects of essential oils on Escherichia coli inactivation in cheese as described by meta-regression modelling	Ursula Gonzales-Barron - IPBR	https://www.mdpi.com/2304-8158/9/6/716
BIOPROMEDFOOD	Maximizing the Antioxidant Capacity of Padina pavonica by Choosing the Right Drying and Extraction Methods	Čagalj Čagalj - UNISPLIT Danijela Skroza - UNISPLIT Giulia Tabanelli - UNIBO Fatih Ozogul - CU Turkey Vida Šimat - UNISPLIT	https://www.mdpi.com/2227-9717/9/4/587 https://dx.doi.org/https://doi.org/10.3390/pr9040587
MED-BERRY	RNA Interference Strategies for Future Management of Plant Pathogenic Fungi: Prospects and Challenges	Daniel Endale Gebremichael - UNIBO	https://www.mdpi.com/2223-7747/10/4/650
SUSTAINOLIVE	Multitemporal Analysis of Gully Erosion in Olive Groves by Means of Digital Elevation Models Obtained with Aerial Photogrammetric and LiDAR Data	Roberto García Ruiz - UJA	https://www.mdpi.com/2220-9964/9/4/260
WATERMED4.0	Improving Energy Efficiency of Irrigation Wells by Using an IoT-Based Platform	Juan A Lopez Morales - UMU Antonio Skarmeta - UMU Juan Antonio Martinez Navarro - ODINS SL	https://www.mdpi.com/2079-9292/10/3/250
ALTOS	Present and Future High-Resolution Climate Forcings over Semiarid Catchments: Case of the Tensift (Morocco)	Ahmed Moucha - Cadi Ayyad University Lahoucine Hanich - UCA Lionel Jarlan - IRD	https://www.mdpi.com/2073-4433/12/3/370
SUSTAINOLIVE	A Comparative Analysis of Soil Loss Tolerance and Productivity of the Olive Groves in the Protected Designation of Origin (PDO) Areas Norte Alentejano (Portugal) and Estepa (Andalusia, Spain)	Teresa Pinto Correia - UEVORA	https://www.mdpi.com/2073-4395/11/4/665
BIOPROMEDFOOD	Recent Advances in Marine-Based Nutraceuticals and Their Health Benefits	Vida Šimat - UNISPLIT Čagalj Čagalj - UNISPLIT Fatih Ozogul - CU Turkey	https://www.mdpi.com/1660-3397/18/12/627/htm https://dx.doi.org/https://doi.org/10.3390/md18120627
MEDWATERICE	Modeling Approaches for Determining Dripline Depth and Irrigation Frequency of Subsurface Drip Irrigated Rice on Dierent Soil Textures	Gerard Arbat Pujolras - UdG	https://www.mdpi.com
INTOMED	Screening the olive tree phyllosphere: Search and find potential antagonists against Pseudomonas savastanoi pv. savastanoi	Paula Cristina dos Santos Baptista - IPBR	https://www.frontiersin.org/articles/10.3389/fmicb.2020.02051/full
INTOMED	Arabidopsis Plants Sense Non-self Peptides to Promote Resistance Against Plectosphaerella cucumerina	Victor Flors Herrero - UJI	https://www.frontiersin.org/articles/10.3389/fpls.2020.00529/full

Project Acronym	Title of the scientific paper	Author	DOI
LAGMED	Spillover event of recombinant Lagovirus europaeus/GI.2 into the Iberian hare (<i>Lepus granatensis</i>) in Spain	Roser Velarde - UAB - DoAMS - WEH - SEFaS Joana Patrícia da Silva Abrantes - CIBIO Ana Margarida Lopes - CIBIO Carlos Rouco - UCO	https://onlinelibrary.wiley.com/doi/10.1111/tbed.14264
SUSTAINOLIVE	Strategies for scaling up agroecological experiences in the European Union	Manuel González de Molina - UPAO	https://new.rcia.uc.cl/index.php/ijanr/article/view/2257
INTOMED	Epiphytic and endophytic bacteria on olive tree phyllosphere: exploring tissue and cultivar effect.	Paula Cristina dos Santos Baptista - IPBR	https://link.springer.com/article/10.1007/s00248-020-01488-8#Ack1
INTOMED	Endophytic Bacteria from the Sahara Desert Protect Tomato Plants Against <i>Botrytis cinerea</i> Under Different Experimental Conditions	Victor Flors Herrero - UJI	https://link.springer.com/article/10.1007/s00284-021-02483-z
SUSTAINOLIVE	Agroforestry for sustainable landscape management	Roberto García Ruiz - UJA	https://link.springer.com/article/10.1007%2Fs11625-020-00836-4
ALTOS	Projection of irrigation water demand based on the simulation of synthetic crop coefficients and climate change	Michel Lepage - IRD- UMR CESBIO Yunes Fakir - Cadi Ayyad University Said Khabba - UCA Zribi Mehrez - IRD- UMR CESBIO	https://hess.copernicus.org/articles/25/637/2021/
CAMA	Pea breeding for intercropping with cereals: variation for competitive ability and associated traits, and assessment of phenotypic and genomic selection strategies	Paolo Annicchiarico - CRA / CREA Luciano Pecetti - CRA / CREA	https://dx.doi.org/https://doi.org/10.3389/fpls.2021.731949
BIOPROMEDFOOD	Bioactive Phenolic Metabolites from Adriatic Brown Algae <i>Dictyota dichotoma</i> and <i>Padina pavonica</i> (Dictyotaceae)	Ivana Generalić Mekinić - UNISPLIT Vida Šimat - UNISPLIT Barbara Soldo - UNISPLIT Čagalj Čagalj - UNISPLIT Danijela Skroza - UNISPLIT	https://dx.doi.org/https://doi.org/10.3390/foods10061187
CAMA	Assessment of Soil Quality under Different Soil Management Strategies: Combined Use of Statistical Approaches to Select the Most Informative Soil Physico-Chemical Indicators	Anna Maria Stellacci - UniBa Mirko Castellini - CRA / CREA	https://dx.doi.org/https://doi.org/10.3390/ap11115099
WATERMED4.0	An analysis and Simulation Tool of Real-Time Communications in On-Chip Networks, In pres	Chawki Benchehida - UORAN	https://dx.doi.org/https://doi.org/10.1145/3412821.3412822
CAMELMILK	How many large camelids in the world? A synthetic analysis of the world camel demographic changes	Bernard Faye - FAYE	https://dx.doi.org/https://doi.org/10.1186/s13570-020-00176-z
BIOPROMEDFOOD	Recent developments of natural antimicrobials and antioxidants on fish and fishery food products	Nikheel Bhojraj Rathod - CU Turkey Fatih Ozogul - CU Turkey	https://dx.doi.org/https://doi.org/10.1111/1541-4337.12787
BIOPROMEDFOOD	Recent developments in valorisation of bioactive ingredients in discard/ seafood processing by-products	Fatih Ozogul - CU Turkey Čagalj Čagalj - UNISPLIT Vida Šimat - UNISPLIT Yesim Ozogul - CU Turkey Esmeray Kuley - CU Turkey	https://dx.doi.org/https://doi.org/10.1016/j.tifs.2021.08.007
INWAT	Retrospective mass spectrometric analysis of wastewater-fed mesocosms to assess the degradation of drugs and their human metabolites	Sandra Pérez Solsona - CSIC	https://dx.doi.org/https://doi.org/10.1016/j.jhazmat.2020.124984
INWAT	Using water footprint concepts for water security assessment of a basin under anthropogenic pressures	Francesco Gentile - UniBa	https://dx.doi.org/https://doi.org/10.1016/j.scitotenv.2020.141356
CAMA	Agroecological modeling of nitrogen and carbon transfers between decomposer micro-organisms, plant symbionts, soil and atmosphere in an intercropping system	Omar Khérif - ENSA Mourad Latati - ENSA	https://dx.doi.org/https://doi.org/10.1016/j.ecolmodel.2020.109390

Project Acronym	Title of the scientific paper	Author	DOI
CAMA	Improved Beerkan run methodology to assess water impact effects on infiltration and hydraulic properties of a loam soil under conventional- and no-tillage	Mirko Castellini - CRA / CREA Anna Maria Stellacci - UniBa	https://dx.doi.org/https://doi.org/10.1002/saj.2.20191
CEREALMED	Meta-QTL analysis and identification of candidate genes for quality, abiotic and biotic stress in durum wheat	Jose Miguel Soriano - IRTA Pasqualina Colasuonno - UniBa Ilaria Marcotuli - UniBa Agata Gadaleta - UniBa	https://dx.doi.org/https://doi.org/10.1038/s41598-021-91446-2
CAMA	Pea breeding for intercropping with cereals: variation for competitive ability and associated traits, and assessment of phenotypic and genomic selection strategies	Paolo Annicchiarico - CRA / CREA Luciano Pecetti - CRA / CREA	https://dx.doi.org/crea
SUPROMED	Trends and Challenges in Irrigation Scheduling in the Semi-Arid Area of Spain	Alfonso Domínguez - UCLM	https://dx.doi.org/10.3390/w12030785
BLUE-MED	Development and Validation of an ELISA for the Detection of Bluetongue Virus Serotype 4-Specific Antibodies	Emmanuel Bréard - ANSES S. Zientara - ANSES	https://dx.doi.org/10.3390/v13091741
PRECIMED	Assessment of the Combined Effect of Temperature and Salinity on the Outputs of Soil Dielectric Sensors in Coconut Fiber	Sebastian Bañon - UPCT—Technical University of Cartagena Jesus Ochoa - UPCT—Technical University of Cartagena Daniel Bañon - CSIC - CEBAS María Fernanda Ortuño - CSIC María Jesús Sanchez-Blanco - CSIC - CEBAS	https://dx.doi.org/10.3390/su12166577
CAMA	Determining Soil Hydraulic Properties Using Infiltrometer Techniques: An Assessment of Temporal Variability in a Long-Term Experiment under Minimum-and No-Tillage Soil Management	Mirko Castellini - CRA / CREA Alessandro Vittorio Vonella - CRA / CREA Domenico Ventrella - CRA / CREA Michele Rinaldi - CRA / CREA Giorgio Baiamonte - unipa	https://dx.doi.org/10.3390/su12125019
SUPROMED	Monitoring 10-m LST from the CombinationMODIS/Sentinel-2, Validation in a High ContrastSemi-Arid Agroecosystem	Ramón López Urrea - ITAP	https://dx.doi.org/10.3390/rs12091453
CEREALMED	Plants	Daniela Marone - CRA / CREA Anna Maria Mastrangelo - CRA-CER	https://dx.doi.org/10.3390/plants10071267
FREECLIMB	Biotechnological Approaches for Genetic Improvement of Lemon (Citrus limon (L.) Burm. f.) against Mal Secco Disease	Alessandra Gentile - UNICT Marco Caruso - CRA / CREA	https://dx.doi.org/10.3390/plants10051002
FREECLIMB	Phenotyping Brown Rot Susceptibility in Stone Fruit: A Literature Review with Emphasis on Peach	Marco Cirilli - UMIL	https://dx.doi.org/10.3390/horticulturae7050115
ARTISANEFOOD	From cheesemaking to consumption: exploring microbial behaviour in cheeses through predictive microbiology models	Antonio Valero - UCO	https://dx.doi.org/10.3390/foods10020355
FREECLIMB	Genetic Diversity and Population Structure in a Vitis spp. Core Collection Investigated by SNP Markers	Gabriella De Lorenzis - UMIL	https://dx.doi.org/10.3390/d12030103
FREECLIMB	Identification of Field Tolerance and Resistance to Mal Secco Disease in a Citrus Germplasm Collection in Sicily	Marco Caruso - CRA / CREA	https://dx.doi.org/10.3390/agronomy10111806
ALTOS	A Simple Light-Use-Efficiency Model to Estimate Wheat Yield in the Semi-Arid Areas	Said Khabba - UCA Salah Er-Raki - UCA Michel Lepage - IRD- UMR CESBIO	https://dx.doi.org/10.3390/agronomy10101524
PRECIMED	Implementing Sustainable Irrigation in Water-Scarce Regions under the Impact of Climate Change	Georgios Nikolaou - UTH Damianos Neocleous - ARI Cyprus Anastasis Christou - ARI Cyprus Evangelini Kitta - UTH Nikolaos Katsoulas - UTH	https://dx.doi.org/10.3390/agronomy10081120

Project Acronym	Title of the scientific paper	Author	DOI
SUPROMED	EVASOR, an Integrated Model to Manage Complex Irrigation Systems Energized by Photovoltaic Generators	Jose Tarjuelo - UCLM	https://dx.doi.org/10.3390/agronomy10030331
IMPRESA	Small “Nested” Introgressions from Wild <i>Thinopyrum</i> Species, Conferring Effective Resistance to Fusarium Diseases, Positively Impact Durum Wheat Yield Potential	Ljiljana Kuzmanovic - UNITUS	https://dx.doi.org/10.3390/plants10030579
CAMA	Pea Breeding for Intercropping With Cereals: Variation for Competitive Ability and Associated Traits, and Assessment of Phenotypic and Genomic Selection Strategies	Paolo Annicchiarico - CRA / CREA Luciano Pecetti - CRA / CREA	https://dx.doi.org/10.3389/fpls.2021.731949
FREECLIMB	Rpv29, Rpv30 and Rpv31: Three Novel Genomic Loci Associated With Resistance to <i>Plasmopara viticola</i> in <i>Vitis vinifera</i>	Gabriella De Lorenzis - UMIL	https://dx.doi.org/10.3389/fpls.2020.562432
Blue-Med	Evaluation of a commercial ELISA for detection of epizootic haemorrhagic disease antibodies in domestic and wild ruminant sera	Emmanuel Bréard - ANSES S. Zientara - ANSES	https://dx.doi.org/10.1111/tbed.13586
FREECLIMB	The Multisite PeachRefPop Collection: A True Cultural Heritage and International Scientific Tool for Fruit Trees	Marco Cirilli - UMIL	https://dx.doi.org/10.1104/pp.19.01412
FREECLIMB	The Di2/pet Variant in the PETALOSA Gene Underlies a Major Heat Requirement-Related QTL for Blooming Date in Peach [<i>Prunus persica</i> (L.) Batsch]	Marco Cirilli - UMIL	https://dx.doi.org/10.1093/pcp/pcaa166
DSWAP	Hidden Resistome: Enrichment Reveals the Presence of Clinically Relevant Antibiotic Resistance Determinants in Treated Wastewater-Irrigated Soils	Eddie Cytryn - ARO	https://dx.doi.org/10.1021/acs.est.1c00612
DSWAP	Antibiotic resistance gene load and irrigation intensity determine the impact of wastewater irrigation on antimicrobial resistance in the soil microbiome	Thomas Berendonk - TUD	https://dx.doi.org/10.1016/j.watres.2021.116818
INTOMED	Ménage à Trois: Unraveling the Mechanisms Regulating Plant–Microbe–Arthropod Interaction	Victor Flors Herrero - UJI	https://dx.doi.org/10.1016/j.tplants.2020.07.008
FREECLIMB	Characterization of fruit quality traits for organic acids content and profile in a large peach germplasm collection	Marco Cirilli - UMIL	https://dx.doi.org/10.1016/j.scienta.2020.109865
ALTOS	Monitoring of wheat crops using the backscattering coefficient and the interferometric coherence derived from Sentinel-1 in semi-arid areas	Lionel Jarlan - IRD	https://dx.doi.org/10.1016/j.rse.2020.112050
INTOMED	Root-to-shoot signalling in mycorrhizal tomato plants upon <i>Botrytis cinerea</i> infection.	Victor Flors Herrero - UJI	https://dx.doi.org/10.1016/j.plantsci.2020.110595
DSWAP	Compounds of emerging concern as new plant stressors linked to water reuse and biosolid application in agriculture	Josep Bayona - CSIC	https://dx.doi.org/10.1016/j.jece.2021.105198
DSWAP	Treated wastewater irrigation promotes the spread of antibiotic resistance into subsoil pore-water	Thomas Berendonk - TUD	https://dx.doi.org/10.1016/j.envint.2020.106190
SIMTAP	Multidisciplinary integrated characterization of a native <i>Chlorella</i> -like microalgal strain isolated from a municipal landfill leachate	Adriana Ciurli - UNIFI	https://dx.doi.org/10.1016/j.algal.2021.102202
SUPROMED	Evapotranspiration and crop coefficients from lysimeter measurements for sprinkler-irrigated canola	Ramón López Urrea - ITAP	https://dx.doi.org/10.1016/j.agwat.2020.106260

Project Acronym	Title of the scientific paper	Author	DOI
SUPROMED	Prediction of crop coefficients from fraction of ground cover and height. Background and validation using ground and remote sensing data	Ramón López Urrea - ITAP	https://dx.doi.org/10.1016/j.agwat.2020.106197
SUPROMED	Standard single and basal crop coefficients for field crops. Updates and advances to the FAO56 crop water requirements method	Ramón López Urrea - ITAP	https://dx.doi.org/10.1016/j.agwat.2020.106466
SUPROMED	Effect of using pruning waste as an organic mulching on a drip-irrigated vineyard evapotranspiration under a semi-arid climate	Ramón López Urrea - ITAP	https://dx.doi.org/10.1016/j.agrformet.2020.108064
ADAMEDOR	PhenoFlex - an integrated model to predict spring phenology in temperate fruit trees	Eike Lüdeling - Uni-Bonn	https://dx.doi.org/10.1016/j.agrformet.2021.108491
INTOMED	Microbial symbionts of herbivorous species across the insect tree	Enric Frago - CIRAD	https://dx.doi.org/10.1016/bs.aiip.2020.04.002
BIOPROMEDFOOD	Antibiofilm Potential of Lavandula Preparations against Campylobacter jejuni	Sonja Smole Možina - UNILJ	https://dx.doi.org/https://doi.org/10.1128/AEM.01099-21
CEREALMED	Importance of Landraces in Cereal Breeding for Stress Tolerance	Daniela Marone - CRA / CREA Anna Maria Mastrangelo - CRA-CER	https://doi.org/10.3390/plants10071267
WATERMED4.0	A new congestion-aware routing algorithm in network-on-chip: 2D and 3D comparison	Gaffour Khadidja - UORAN Abou El Hassen Benyamina - UORAN	https://dl.acm.org/doi/10.1145/3412821.3412822 https://dx.doi.org/10.1080/1206212X.2019.1679529
SUSTAINOLIVE	Building alliances between producers and consumers by politicising consumption	Manuel González de Molina - UPAO	https://d-nb.info/1221162373/34
SUSTAINOLIVE	Molecular and genetic bases of heat stress responses in crop plants and breeding for increased resilience and productivity	Elena Maestri - UNIPR	https://academic.oup.com/jxb/article/71/13/3780/5714243
CAMELMILK	Effect of Transglutaminase Enzyme on some Properties of Yogurt Produced from Camel Milk	Selda Bulca - Adnan Menderes University, Faculty of Agriculture Fahriye Ümut - Adnan Menderes University, Faculty of Agriculture Atakan Koç - ADU	
CAMA	Sampled Soil Volume Effect on Soil Physical Quality Determination: A Case Study on Conventional Tillage and No-Tillage of the Soil under Winter Wheat	Mirko Castellini - CRA / CREA Luisa Giglio - CRA / CREA Francesca Modugno - CRA / CREA	
CAMA	The Mechanical Impact of Water Affected the Soil Physical Quality of a Loam Soil under Minimum Tillage and No-Tillage: An Assessment Using Beerkan Multi-Height Runs and BEST-Procedure	Mirko Castellini - CRA / CREA Anna Maria Stellacci - UniBa Danilo Sisto - UniBa Massimo Iovino - unipa	
CAMA	Rapid and accurate measurement methods for determining soil hydraulic properties: A review	Mirko Castellini - CRA / CREA Simone Di Prima - UNISS David Moret-Fernandez - CSIC - IAS Laurent Lassabatere - University of Lyon	
FREECLIMB	The Multisite PeachRefPop Collection: A True Cultural Heritage and International Scientific Tool for Fruit Trees	Marco Cirilli - UMIL	
VEGGIE-MED-CHEESES	Clotting Properties of Onopordum tauricum (Willd.) Aqueous Extract in Milk of Different Species	Massimo Mozzon - UPDM	
VEGGIE-MED-CHEESES	Effect of planting density in two thistle species used for vegetable rennet production in marginal Mediterranean areas	Stefano Zenobi - UPDM	

Project Acronym	Title of the scientific paper	Author	DOI
SIMTAP	Selection of marine fish for integrated multi-trophic aquaponic production in the Mediterranean area using DEXi multi-criteria analysis	Lorenzo Rossi - UNIPI Alberto Pardossi - UNIPI Carlo Bibbiani - UNIPI	
PLANT-B	Varroa destructor: how does it harm Apis mellifera honey bees and what can be done about it?	Amelie Noel - INRAE (INRA) Yves Le Conte - INRAE (INRA) Fanny Mondet - INRAE (INRA)	
MED4YOUTH	Study protocol of a multicentre randomized controlled trial to tackle obesity through a Mediterranean Diet vs a traditional low-fat diet in adolescents: the MED4Youth study	Noemi Boqué - Eurecat	
MED4YOUTH	The Consumption of Sourdough Breads Improves Postprandial Glucose Response and Produces Sourdough-Specific Effects on Biochemical and Inflammatory Parameters and Mineral Absorption	Katherine Gil-Cardoso - Eurecat	
LAGMED	A Review on the Methods Used for the Detection and Diagnosis of Rabbit Hemorrhagic Disease Virus (RHDV)	Joana Patrícia da Silva Abrantes - CIBIO Ana Margarida Lopes - CIBIO	
LAGMED	Recombination at the emergence of the pathogenic rabbit haemorrhagic disease virus Lagovirus europaeus/GI.2	Joana Patrícia da Silva Abrantes - CIBIO	
VALUEFARM	The Beneficial Health Effects of Vegetables and Wild Edible Greens: The Case of the Mediterranean Diet and Its Sustainability	Spyridon A Petropoulos - UTH	
KARMA	Groundwater vulnerability to pollution in karst aquifers, considering key challenges and considerations: application to the Ubrique springs in southern Spain	Andreo Bartolomé - UMALAGA	
KARMA	Experimental and modeling evidence of kilometer-scale anomalous tracer transport in an alpine karst aquifer	Nico Goldscheider Goldscheider - KIT Germany	
BLUE-MED	Spatial distribution and habitat selection of culicoides imicola: The potential vector of bluetongue virus in Tunisia	Thameur Ben Ben Hassine - Ministry of Agriculture of Tunisia, General Directorate of Veterinary Services, CRDA Nabeul, Tunisia Salah Hammami - ENMV	
LEGU-MED2	LEGU-MED: Developing biodiversity-based agriculture with 2 legume cropping systems in the Mediterranean basin	Federico Martinelli - UniFi	https://www.mdpi.com/2073-4395/12/1/132





Input to the PRIMA Interim Evaluation

PRIMA Foundation

Carrer del Gran Capità, 2-4
Nexus 1 Building, 3rd floor
Barcelona

<https://prima-med.org>



The PRIMA programme is supported
by Horizon 2020, the European Union's
Horizon 2020 research and innovation.

