PRIMA

Joint Programme

PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA

An integrated programme
on food systems and water resources
for the development of inclusive,
sustainable and healthy
Euro-Mediterranean societies

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1 EXECUTIVE SUMMARY

The foundations of PRIMA

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** is 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.

Furthermore, 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 a first meeting for EU Member States bordering the Mediterranean Sea in July 2012, on the margins of the Informal Competitiveness Council held under the Cypriot Presidency, so as to encourage them to launch the preparatory work towards an integrated scientific programme for which they would be ready to commit national funds on 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. The balanced leadership of the preparatory works was reflected in a co-chairmanship from Italy and Jordan.

What will be the focus of the PRIMA programme?

The two most pressing key socio-economic issues of the Mediterranean area that have been retained by the participating countries are **food systems and water resources**, in a multi-dimensional and integrated approach. It is indeed certainly no coincidence that the "Arab Spring" was initially triggered as riots for bread, a social symbol as well as a staple food; besides, water is by far the most important but vulnerable resource in the Mediterranean, as former FP7 projects have recalled, and a severe constraint for food production. This focus on providing solutions for citizens' prior concerns for ensuring food and water security in an ecologically sustainable way has the potential to guarantee long-term impact on human well-being, stable societies, job creation, good health and welfare in the Mediterranean area while addressing environmental pressures.

Such transformations in this region could naturally in turn lead to job creation, business opportunities and growth for the EU as a whole. Indeed, the EU absorbs 50% of agricultural and agro-food exports from South-Eastern Mediterranean Countries while in turn accounts for 38% of their agricultural and agro-food imports. There are obvious opportunities and complementary products for all Euro-Mediterranean countries.

In the Mediterranean region, which is one of the most arid agricultural regions on Earth, the interrelationship of sustainable food and water resources is particularly pronounced: more than 70% of water resources are used for agriculture. Given the scarcity of this vulnerable resource, a proper and prospective water management is one of the most crucial issues for the sustainable future of the Mediterranean basin. The degradation of ecosystems, climate change and the reduction in available farming land and water resources show serious repercussions on food production potential. Water scarcity, deteriorated water quality and overexploitation of resources often results in deficiency in food production, increased pollution threats to both terrestrial and coastal environment, potentially affecting health.

So the PRIMA Participating States agreed to focus on the development of innovative solutions and the promotion of their adoption for improving the efficiency and sustainability of food production and water provision. Food security and water availability on one hand as well as water and food quality and safety on the other will be the guiding objectives of the programme. As of today, it is envisaged to implement the programme through eight operational objectives:

- To develop smart and sustainable farming systems to maintain natural resources and to increase production efficiency;
- To test and stimulate adoption of context-tailored water-saving solutions, in particular in agriculture;
- To innovate in the Mediterranean food products based on Mediterranean diet heritage and to enhance the links between nutrition and health;
- To find context-adapted solutions to increase food and water chain efficiency, and reduce losses and wastes;
- To design and promote the adoption of novel approaches to reduce the impact of pests and pathogens in farming;
- To conceive and implement innovative, quality oriented models in agro-business as potential sources of new jobs and economic growth;
- To improve land and water sustainability in arid and semi-arid watersheds;
- To elaborate and stimulate adoption of new policies and protocols for the governance of water management systems.

However, PRIMA Participating States will retain **a certain degree of flexibility** to adjust the scope and content for the programme, in particular through the annual work plans and regular updates, for at least three main reasons:

- The programme has been written in 2014 while the start of PRIMA is foreseen in 2017 only. Due to the rapidly-evolving nature of the challenges in the food- and water-related domains in the Mediterranean area, adjustments might be needed in the course of PRIMA implementation;
- PRIMA Participating States are proposing to the European Commission the use of a 185 TFEU as most appropriate instrument and are aware that this is subject to a legislative proposal from the European Commission to be co-decided by the European Council and the European Parliament. Therefore, the European institutions might decide to reformulate the PRIMA objectives if a Union's participation is decided, and this will be duly discussed in a partnership approach;
- Finally, the programme might need to be adjusted if further countries are joining and decide to contribute to the funding at a later stage (i.e. EU Member States or Associated Countries to the Framework Programme or Mediterranean Partner Countries).

Which are the PRIMA participating States and the ex-ante financial commitments?

The following countries participated to the preparation of the PRIMA programme: Algeria, Croatia, Cyprus, Egypt, France, Greece, Italy, Jordan, Lebanon, Malta, Morocco, Portugal, Slovenia, Spain, Tunisia and Turkey. Moreover, Germany, Israel and the European Commission took part in PRIMA meetings as observers. Most recently, Luxembourg and the Czech Republic expressed their willingness to join PRIMA and to contribute to the funding of the programme, and Romania joined as an observer as well. The PRIMA initiative remains constantly open to any country willing either to observe or to join the Programme, including those associated to Horizon 2020.

As of December 2014, a total of **200 million euro cash contributions** has already been committed ex-ante by the Czech Republic, Cyprus, Egypt, France, Greece, Italy, Luxembourg, Malta, Morocco, Portugal, Spain and Tunisia. Equivalent in-kind contributions are foreseen by the Participating States as well, especially salaries of permanent researchers and equipment/infrastructures. These contributions are long-term national commitments (10 years) expressed subject to the use of an Article 185 TFEU. Therefore, the use of Article 185 TFEU would have the highest leverage effect on national public funds compared to other instruments and could ensure the most stable commitments in the long-term in an integrated manner. Although expressing long-term commitments over 10 years, PRIMA Participating States have noted that a potential participation of the Union in an initiative pursuant Article 185 TFEU could not exceed the duration of the current multi-annual financial framework in the first stance.

Should alternative co-fund actions be proposed in support of the PRIMA scientific programme, this option would be considered as "business as usual" and the PRIMA participating states would reserve their right to decrease the amount and the duration of their ex-ante financial commitments.

Finally, it is worth noting that the following countries have shown interest but not yet decided whether they would like to commit national resources to take part to the PRIMA initiative: Albania, Denmark, Germany, Jordan, Lebanon, Netherlands and Slovenia.

Which added value could PRIMA bring if implemented through an Article 185 TFEU?

Scientific links between research performers (universities, research and technological institutes) from the EU and MPCs have steadily increased, both through intense bilateral initiatives as well as through numerous multilateral cooperation projects supported by EU framework programmes for R&D. More recently, institutional dialogue and cooperation at the level of research funding organisations were supported through Joint Programmes in the Mediterranean area such as INCO-Nets (MIRA and MEDSpring) and ERA-Nets (FORESTERRA, ARIMNET, ARIMNET2 and ERANETMED), encouraging Euro-Mediterranean cooperation at the level of programming and research funding. These programmes produced valuable research results but also a fragmented landscape of a high number of projects, limited in time, lacking global coherence and critical mass in terms of funding. **The integration of small-sized projects into one coherent large-scale research Programme lasting a significant number of years is a pressing need** in order to achieve more impact, tackle the agricultural, food and water challenges of the area and lead to socio-economic development, growth and jobs. This explains why the start of the PRIMA programme will coincide with the end of the ongoing cofund actions supported by the European Commission (ARIMNET2 and ERANETMED are expected to end in 2017, immediately followed by the launch of PRIMA first calls at the end of 2017).

Fragmentation can be reduced only through an integrated and long-term approach between the EU and the national programmes for RDI. Integration of "solely" national programmes in the region will not be efficient and effective enough without the expertise and the relevant funding programme from the European Commission. This is why most Participating States committed funding for 10 years and are calling for a participation of the European Union in the programme through the use of **the most stable instrument in the long-term: an Article 185 TFEU.** Such durable stability, integration and socio-economic impact would also be facilitated by the use of Article 185 TFEU since this is the only instrument which foresees a specific implementing structure - instead of being based on mere networks of national funding agencies as this is currently the case. In order to achieve not only scientific but also socio-economic impact, PRIMA intends to support the whole innovation chain to ensure that research results are translated into economic development. A true Agricultural Knowledge and Innovation System (AKIS) needs indeed to be fostered in the region. To this end, PRIMA activities will promote the **inclusion of end-users** especially in the collaborative projects and dissemination activities. Foreseen end-users identified for the PRIMA programme include farmers and farmers' associations, agro-food industries, with special attention for SMEs, extension organisations, water users associations, water Basin Agencies, water technology companies and decision-makers.

Providing solutions for citizens' prior concerns for ensuring food and water security in an ecologically sustainable way has been retained as the goal of the PRIMA programme. This will

allow PRIMA to address not only objectives of the current Framework Programme for Research and Innovation, Horizon 2020, but also to contribute to 2 of the 3 long-term **political objectives of the new Common Agricultural Political (CAP)** of the EU for 2014-2020: viable food production on the one hand and sustainable management of natural resources and climate action on the other hand. PRIMA objectives will also ensure that PRIMA contributes to the sustainable development goals of the EU. Finally, it should be recalled that PRIMA brings added value compared to other initiatives in the field of RDI by being based on the principles of **co-ownership, mutual interest and shared benefits**. Scientific priorities and the design of the programme have been decided in a spirit of mutual understanding and co-decision between all participating countries. No matter if a Participating State belongs to the EU or is associated to Horizon 2020 or is a MPC, it will have the same rights and obligations in the governance and implementation of the PRIMA, provided that it financially contributes to the programme. This "scientific diplomacy" aspect of PRIMA further enhances the argument in favour of the use of the most stable instrument in the long-term. This has been acknowledged by Ministers in different fora. In particular, the 28 EU Research Ministers adopted Council Conclusions on PRIMA on 5th December 2014 acknowledging, among others, the potential of this initiative, if based on Article 185 TFEU, "to give research and innovation a bridging role between participating countries, to significantly enhance the EU scientific diplomacy with its Southern Neighbours in the long-term, while providing concrete solutions to common challenges facing EU Member States and MPCs"[1].

Not only Research Ministers but also Agriculture Ministers have expressed themselves in favour of the use of article 185 TFEU. Indeed 27 Ministers of Agriculture from the European Union, the Balkans, North Africa and the Middle East agreed on a declaration[2] in Palermo on 28th November 2014 at the end of the Euro-Mediterranean Conference on Agriculture, in which they "requested to the EU to take part in and support through the use of Article 185 TFEU PRIMA (…)".

Which implementation foreseen for PRIMA?

All PRIMA Participating States agreed that the Secretariat of the Union for Mediterranean (UfM) would be the most appropriate hosting organization for PRIMA's implementation, with financial and administrative autonomy to be guaranteed by the UfM Secretariat. Therefore informal contacts have taken place between the PRIMA group and the UfM Secretariat, and the UfM Secretariat expressed its availability to host the DIS at the Senior Officials Meeting of the Union for the Mediterranean in Naples on 28th October 2014. The terms and conditions of such an association with the UfM Secretariat are pending on the choice of the European Commission of the instrument to support PRIMA. The use of article 185 TFEU would, in this respect as well, allow for the highest visibility and institutional stability. Should the PRIMA proposal be successful and approved by the co-legislators (Council and European Parliament), the start of the

[1] http://data.consilium.europa.eu/doc/document/ST-16421-2014-INIT/en/pdf
[2] http://seerural.org/wp-content/uploads/2014/12/DECLARATION-OF-THE-MINISTERS-OF-AGRICULTURE_Palermo-28-November-2014.pdf

programme is foreseen no later than the first half 2017 (end of the ongoing ERA-Net Cofund actions), to allow the launch of the first calls for proposals in 2017 (annual calls are foreseen, so that 5 PRIMA calls for proposals could be launched under Horizon 2020).

For this first period under Horizon 2020, the Participating States agree to implement PRIMA according to the Rules for Participation and Dissemination of results of Horizon 2020 with only one derogation: research entities established in countries not contributing to PRIMA could take part in a research project only if they bring their own funding, in order to avoid the "free-rider" phenomena observed in other initiatives pursuant article 185 or 187 TFEU. Naturally, applying Horizon 2020 rules or derogating to it will be subject to the provisions of the basic legal act, therefore depending on the decision of the Council and the European Parliament.

Finally, the "virtual common pot" option has been retained for the allocation of the national financial contributions.

The Conclusions adopted by the Competitiveness Council on 5th December 2014 invite the Commission, in full respect of its right of initiative, to assess as soon as possible whether a participation of the EU in PRIMA on the basis of Article 185 TFEU is justified. Once this decision on the instrument will be known, further work on the implementing provisions for PRIMA can take place. PRIMA participating States would like to highlight that they hope to discuss in-depth the modalities of implementation with the European Commission and to define these more precisely hand-in-hand, in a true partnership approach.

All PRIMA participating States wish to reiterate their strong dedication and commitment to make this challenging programme a success on the long-term. Preparatory works have started in 2013, let's allow PRIMA to fly by the start of 2017.

2 INTRODUCTION

2.1 Background and rationale for PRIMA

In 1995, the Barcelona Process, with its Declaration, initiated an ambitious programme for Euro-Mediterranean partnership aiming at establishing an area of peace, stability and prosperity. Since the outset of this process, cooperation in research and innovation has been considered of significant importance.

In 2007, 12 years after the initiation of the Barcelona Process, which was meanwhile supported by a newer instrument, the European and Neighbourhood Policy Instrument (ENPI), the Ministers of Higher Education and Research convened the first and only Euro-Mediterranean Ministerial Conference on Higher and Research issued an ambitious paper, the Cairo Declaration, where they placed Research and Innovation (R&I) as a priority sector in the Euro-Mediterranean cooperation. Indeed, the Euro-Mediterranean cooperation in the area of research and innovation have a major role to play in this context and may deliver economic, environmental and social benefits on a wider scale. Research and innovation will contribute to reinforce the economic stability and democracy, to ensure peace, welfare and prosperity in the region and to respond to the democratic and economic aspirations that are so closed to European values. Science will not alone build democracy but it can contribute to it. Investing in and cooperating on research and innovation promotes growth and jobs, and improves people's lives across both regions.

All through these years, the cooperation between the EU and the south Mediterranean countries was mostly governed by EU instruments and initiatives, which, while involving the institutions on both shores of the Mediterranean in substantial cooperation, did not quite establish the desired true partnership towards a common knowledge and innovation space.

After the Arab spring the European institutions have developed a new EU Neighbourhood policy in 2011, which includes a new strategy for the Mediterranean area in response to the rapid transformations taking place in the Arab countries in the last years. The "Partnership for democracy and shared prosperity"[3] focused actually in March 2011 on three elements: democratic transformation, a partnership with people and civil society, and sustainable and inclusive growth.

Furthermore in the joint communication on 'A New Response to a Changing Neighbourhood'[4] the EU develops this policy and sets the goal to work together with its neighbours, both to the South and to the East, towards the creation of a Common Knowledge and Innovation Space (CKIS). The CKIS intends to pull together policy dialogue, national and regional capacity-building, cooperation in research and innovation as well as increased mobility of researchers. This

[3] "A partnership for democracy and share prosperity", COM(2011)200, 8 March 2011
[4] Joint Communication of 25 May 2011 of the High Representative of the Union for Foreign Affairs and Security Policy and the Commission on 'A New Response to a Changing Neighbourhood', COM(2011) 303, 25 May 2011

is reflected in the Communication on "Enhancing and focusing international cooperation in research and innovation: A strategic Approach"[5] where ENP countries are explicitly targeted.

Recognizing the challenge of engaging the Mediterranean Partner Countries (MPCs) in a true partnership, the senior officials at the 15th Meeting of the Euro-Mediterranean Monitoring Committee on Research and Innovation (MoCo – established in 1995 – or currently GSO) in 2011 revisited the principles of Euro-Med cooperation. In this regard, MoCo pronounced the principles of true partnership through demand driven, impact driven cooperation based on the principles of co-ownership by means of co-funding initiatives of mutual interest and shared benefit.

During the Euro-Mediterranean Conference on Research and Innovation (Barcelona, 2-3 April 2012), the EC, its Member States and the MPCs recognized that cooperation in higher education, research and innovation are the only means to create social and economic development on both sides of the Mediterranean Sea. "The aim of the conference, the first of its kind, was to map out a pathway to establishing a Common Research and Innovation Agenda, aimed at addressing the grand societal challenges impacting the region, notably in the field of energy, water, food, transport and health[…]. Conference participants said that a renewed partnership in Research and Innovation should be based on the **principles of co-ownership, mutual interest and shared benefit**. They urged the agenda to **cover the whole chain from research to innovation**, mobilising universities, research centres, industry and extending to organisations that provide support services, such as financial institutions and investors."[6] Indeed, rethinking the EU-MPC cooperation agenda in R&I is a necessity to address dynamic transformations and adequately tackle the abovementioned challenges[7]. The Commission highlighted the **potential of using Article 185 TFEU** to implement the renewed partnership in STI between the EU and its Southern Neighbourhood.

The appropriateness of an Art.185 TFEU for Mediterranean was also fully recognized also during the 16th MoCo (Monitoring Committee for the Euro-Mediterranean cooperation) meeting (Brussels, 21-22 June 2012)[8], on the basis of the work done so far to coordinate research in the Euro-Mediterranean area. This was then fully endorsed by the EU Research Ministers who met during the Informal Competitiveness Council in Nicosia (20 July 2012)[9]. As an immediate follow-up to this ministerial meeting, a group of Member States was initiated by the European Commission and joined by Mediterranean Partnering Countries (MPC's). This group launched the PRIMA initiative aiming at exploring the potential of Article 185 TFEU to support a long-term

[5] COM(2012) 497, 14 September 2012
[6] Outcome of the Conference, http://ec.europa.eu/research/conferences/2012/euro-mediterranean/index_en.cfm?pg=outcome.
[7] Report on the Euro-Mediterranean Conference on Research and Innovation Barcelona, 2-3 April 2012
[8] http://www.miraproject.eu/workgroups-area/workgroup.wp4/workgroup-documents-library/calendar/16th-meeting-of-the-monitoring-committee-for-euro-mediterranean-cooperation-in-rtd-moco
[9] http://www.cy2012.eu/index.php/en/news-categories/areas/competitiveness/press-release-common-understanding-between-eu-ministers-on-financial-instrument-for-euro-med-partn

structured partnership in research and innovation in the Mediterranean area, building on the multiple bilateral and multilateral research and innovation activities in the region.

Two years of institutional and scientific intense contacts allowed the PRIMA Participating States to elaborate this proposal for a Joint Programme to be implemented through Article 185 TFEU. They agreed on the following key features: a scientific joint programme focused on food systems and water resources, an implementation structure to be established in the framework of the Union for the Mediterranean and financial indicative commitments from both EU Member States and MPCs reaching 200 million euros in-cash, with equivalent in-kind contributions.

On this basis, the conclusions adopted by the Competitiveness Council on 5th December 2014 invite the Commission to assess as soon as possible whether a participation of the EU in PRIMA on the basis of Article 185 TFEU is justified.

2.2 Joining forces to address key societal challenges of the Euro-Mediterranean area

The current situation of social and political turmoil in the Mediterranean Basin invites us to reflect upon the challenges facing economies in EU's bordering countries and the potential leverage for sustainable development in the region. An improvement of living conditions is among the main demands of Mediterranean citizens, facing a multidimensional insecurity that plunges them in a highly vulnerable situation on a daily basis. The access to food and water are determining, interconnected challenges in this area and securing food and water availability is of paramount – political, social, economic - importance in the region. Therefore these domains have been selected by the PRIMA Participating States as the focus of their Joint Research and Innovation Programme, reflecting priorities of highest importance for all Ministries involved in the design of the PRIMA proposal[10].

With food insecurity back in the world headlines and the need to globally feed 9 billion people in 2050 foresights, agriculture has once again become the crucial concern in international strategies. Food security has long been a political concern for obvious reasons. The Mediterranean area is no exception. Indeed, it is a region where this concern is magnified for the following reasons: demographic trends (an increase of around 100 million inhabitants from 1990, fast urbanization), strong socio-economic disparities (between generations, between coastal areas and hinterlands, access to work), high vulnerability to the markets stocks for the food commodities prices, lack of investments in agriculture and in rural territories, insufficiency of natural resources (water, soils) and inefficiency of logistics systems and agro-food chains. The whole amalgam creates a pressure

[10] PRIMA preparatory work involved, in alphabetical order, representatives from the Ministries of Algeria, Cyprus, Egypt, France, Greece, Italy, Jordan, Lebanon, Malta, Morocco, Portugal and Spain – working under the co-chairmanship of Italy and Jordan. More recently, Czech Republic and Luxembourg have joined and expressed their intention to financially contribute to the program, while all preparatory meetings were opened to any other EU Member States or country associated to Horizon 2020 willing to observe the preparatory works.

zone to the EU countries from the Northern African and the Middle East countries that irrevocably affects the whole Europe.

This focus on providing solutions for citizens concern in international strategies. Food security has long been a political concern for obvious reasons. The guarantee long-term impact on human well-being, stable societies, job creation, good health and welfare in the Mediterranean area while addressing environmental pressures. Indeed, the EU absorbs 50% of agricultural and agro-food exports from South-Eastern Mediterranean Countries while in turn accounts for 38% of their agricultural and agro-food imports. There are obvious opportunities and complementary products for all Euro-Mediterranean countries.

In the Mediterranean region, which is one of the most arid agricultural regions on earth, the interrelationship of sustainable food and water resources is particularly pronounced: more than 70% of water resources are used for agriculture. Given the scarcity of this vulnerable resource, a proper and prospective water management is one of the most crucial issues for the sustainable future of the Mediterranean basin.

Although the increasing demand for food and water is a multidimensional and not trivial problem to solve, research and innovation programmes to address such challenge remains fragmented into several small projects lacking overall complementarity and coherence. Such projects are very useful but would gain in being interconnected and programmed in a more comprehensive approach. Indeed, many bi-lateral, multi-lateral and network initiatives have been implemented at the level of research institutes and universities, creating a cooperative environment and reaching promising results in some areas; however PRIMA Participating States believe that these efforts remain insufficient and fragmented being given the dimension of the challenges ahead in the region and the current oversubscription observed in ERA-Net transnational calls dealing with food and water resources in the Mediterranean area. An integrated coordinated supranational response is required for the whole area. Reducing fragmentation and creating a critical mass in a coordinated regional programme will allow to increase the impact of RDI funding for food- and water-related domains. No doubt that co-ownership between the EU, its Member States and Mediterranean Partner Countries is crucial to make PRIMA a success.

3 THE PRIMA PROGRAMME

3.1 The context

a. The geographical setting of the Mediterranean Area

From a geographical point of view, the Mediterranean area is bounded on the north by a series of mountain ranges: the Pyrenees on the Iberian Peninsula, the Alps on the Italian peninsula, and the Dinaric Alps and Rhodope Mountains in the Balkans. Eastward it includes the peninsula of Anatolia and the Levant, bounded by the Taurus range and the Negev desert. To the south it includes the Maghreb, Libya and Egypt, which are bounded by the Atlas Mountains and the Sahara. This bio-geographical complex is characterised by its Mediterranean climate, hot and dry in summer, temperate and wet in winter. It has very characteristic terrestrial and aquatic natural environments, flora and fauna, with an exceptional diversity of endemic species. Its vulnerable ecosystems are today threatened by risks of various types.

Another distinguishing feature of the Mediterranean world is its very ancient human occupancy. Here agriculture and animal husbandry emerged in the Neolithic; here were born many great empires and rich civilisations beginning in antiquity. For millennia the region has played a leading role in the diffusion of knowledge and world trade. The shores of Mediterranean are never more than a few hundred kilometres apart at the outermost points. Strong neighbourhood interactions are the core of Mediterranean history, with population movements that have led to economic, social and commercial changes and exchanges, but also to conflicts. Cultural and scientific links have been developed over years in this context of proximity.

Geographically, 22 countries are bordering the Mediterranean countries and territories: on the North shore: Spain, France, Monaco, Italy, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, Albania, Greece, Turkey, Malta and Cyprus; and on the South shore: Morocco, Algeria, Tunisia, Libya, Egypt, Israel, Palestine, Lebanon and Syria. Although not being geographically on the Mediterranean shore, three other States are considered to be part of the Mediterranean basin: Portugal, Jordan and Mauritania and they are already involved in various Euro-Mediterranean initiatives. Taking account this regional setting, 28 European Union Member States and 15 non-EU Mediterranean countries and territories are forming a large Euro-Mediterranean Area; politically, this geographical setting is reflected by the fact that these 43 countries are the constituting members of the Union for Mediterranean established in Barcelona in 2008.

b. The demographic trends

The population of Mediterranean countries[11] has been steadily increasing over the last 50 years. It doubled from 230 million in 1960 to 480 million in 2011, this increase being mostly due to the demographic growth in Southern countries (figure 1). The increasing trend will continue in the future in particular in the Southern and Eastern shores. In 2025, the total population of the region is estimated to be around 600 million persons (UN, World Population Prospects).

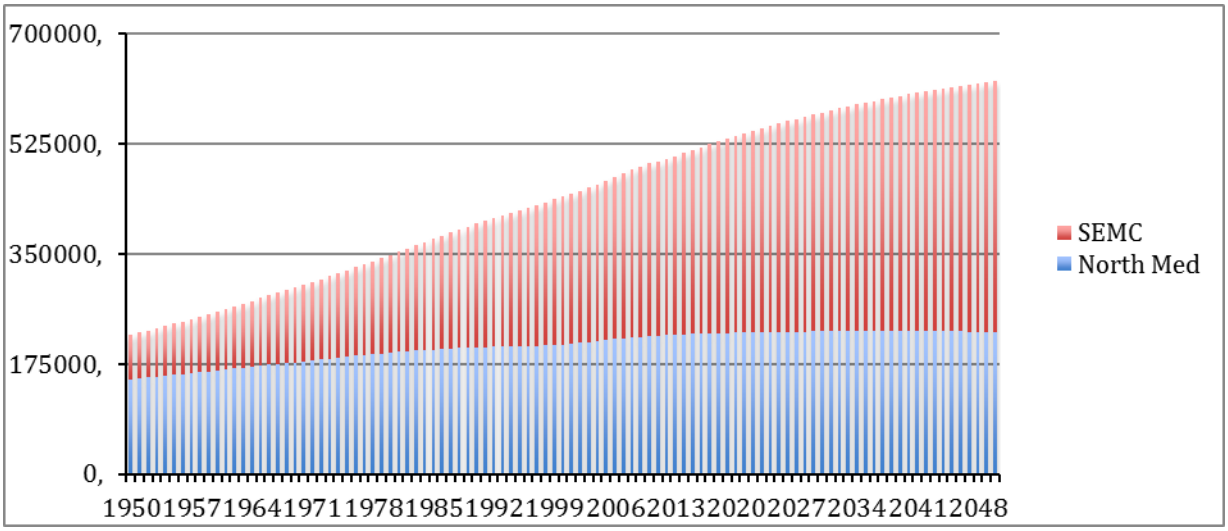


Figure 1 – Total population growth of Mediterranean countries (1950-2050) in million inhabitants.
[Source: UN data base, November 2014, observed date until 2011, UN prospects "medium fertility" from 2012 to 2015]

In fact, the main demographic change over the last 20 years has been the demographic transition in Southern and Eastern countries resulting in the convergence of fertility rates between developing and developed countries. Nevertheless, despite this accelerated demographic transition in the South, the demographic gap between the two shores is expected to continue in the future years. While the ageing issue is becoming a cause of increasing concern in the North of the Mediterranean, in the South creating jobs for the young people is today the main societal challenge. It has been estimated that over the next two decades, 30 to 40 million new jobs must be created to maintain the current rate of employment in the Southern and Eastern Mediterranean Countries (SEMCs), and even more jobs are needed to reach full employment (World Bank, 2012).

It was mainly in the urban areas and in particular along the costs that the increase of population has

[11] 22 countries

been the strongest in the Northern shore as well as in the Southern shore. However, in Southern and Eastern Mediterranean countries, rural population is still increasing (figure 2).

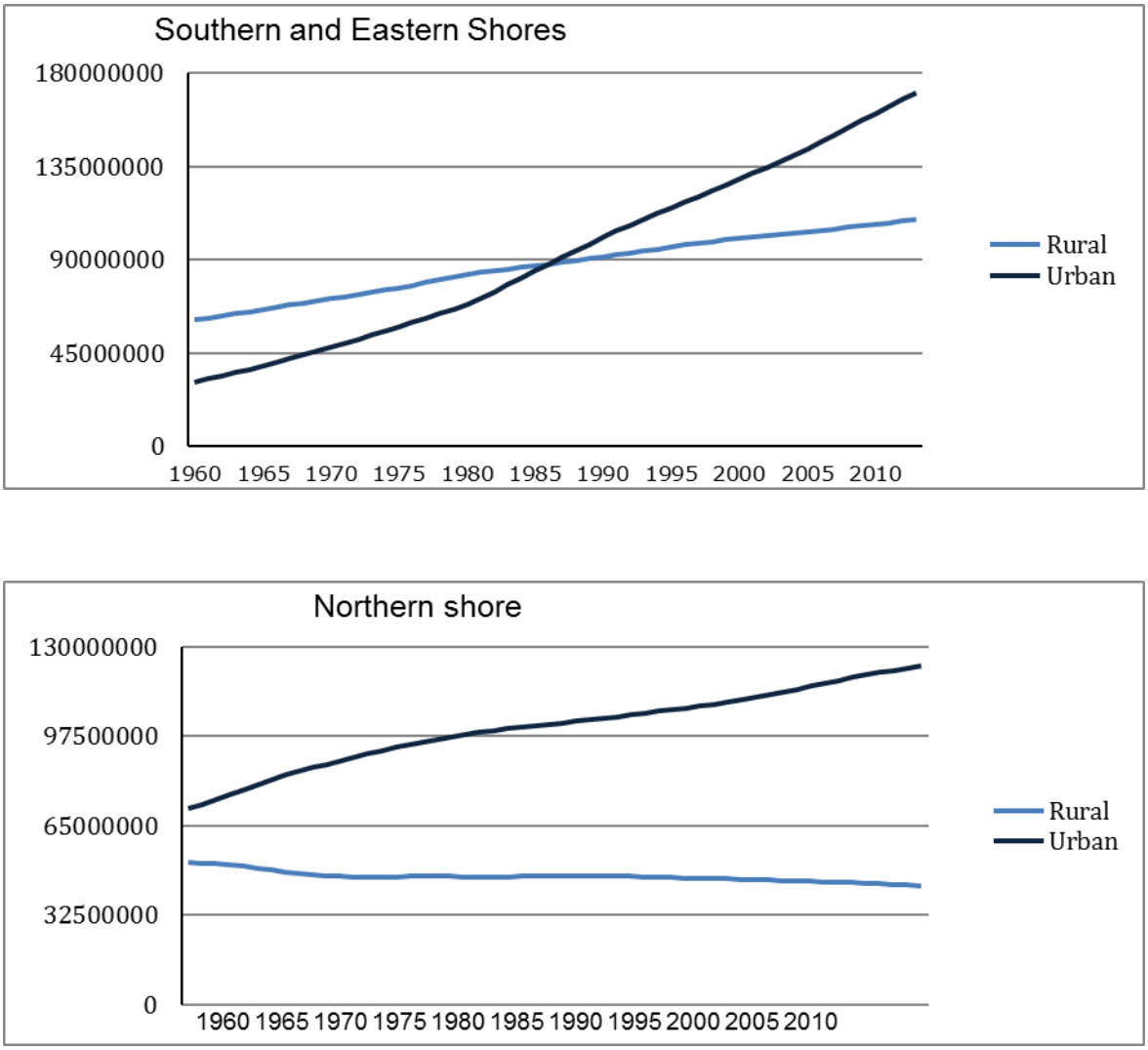


Figure 2 - Urban and Rural population of the two shores of the Mediterranean.
[WDI data base, November 2014]

c. The climate evolution

The Mediterranean climate is characterised by infrequent rainfall (less than 100 days a year) that is unevenly distributed over time (long periods of summer drought) and sometimes quite sparse (about 300 to 500 mm per year in some semi-arid regions).

Most climate change scenarios for the region call for decreased rainfalls and higher temperatures. IPCC forecasts for the Mediterranean area indicate a yearly temperature increase between 2 and 4°C and a decrease in rainfall between 4 and 30% by 2050. In the most pessimistic scenario, a significant decrease of more than 50% of water resources is predicted for Morocco, Algeria, in the Middle East and in South of Spain (IPCC, 5th assessment 2013; Navarra and Tubiana, 2013a). The impact of climate change on the precipitations concerns the whole Mediterranean Area

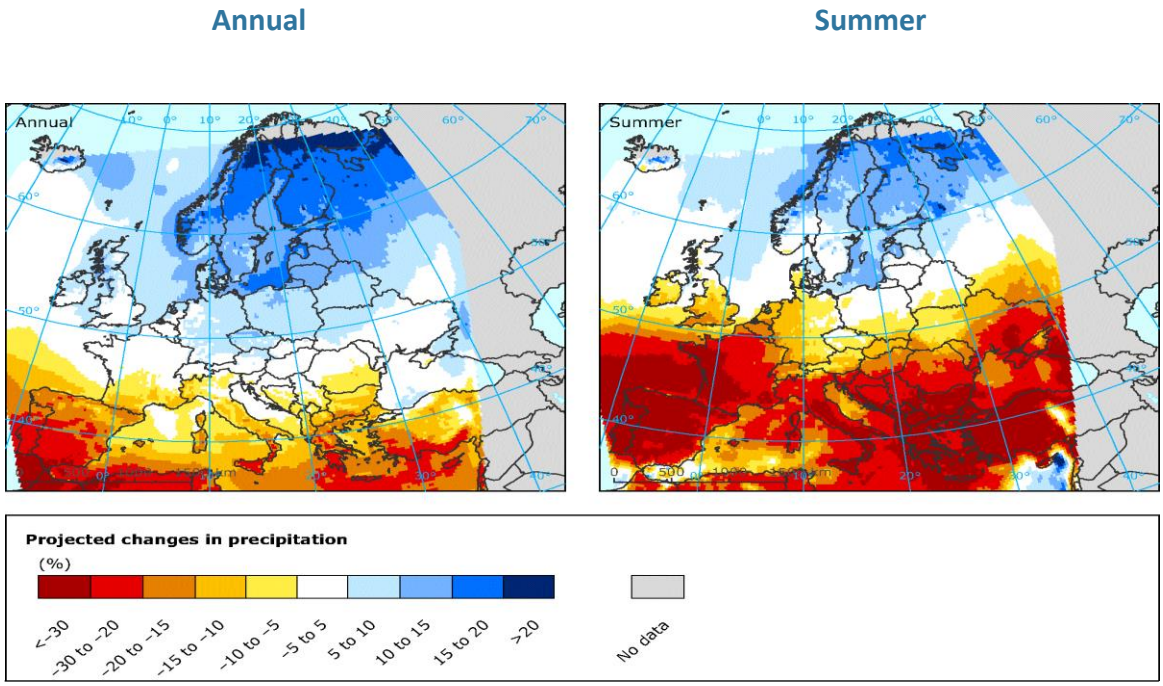


Figure 3 - Projected changes in precipitation (in annual and summer).
[Source: European Environmental Agency, 2013]

3.2 The challenges targeted by PRIMA

Everywhere in the world, food and water are fundamental challenges. In the Mediterranean Area, the climate context and demographic trends are strongly increasing the pressures on the capabilities of the societies to provide affordable food and good quality water to their inhabitants.

a. Food Systems and Water Resources in the Mediterranean Area

Food security is a serious emerging problem in the Mediterranean. Increase in imports and trade balance deficits at the national level are connected with increase in poverty at individual level and social instability. In recent years, rising food prices played an important role in the social and political crisis of the Arab countries. This is particularly the case in rural arid and semi-arid areas, the latter being the most vulnerable regions, exposed to multiple challenges. At the same time, the production and processing of food is still a key economic activity for the Southern and Eastern Mediterranean Countries (SEMCs) providing jobs and supporting local rural and urban economies. In fact, agriculture and food sectors are strategic in the whole Mediterranean area in terms of employment, livelihoods of rural population, opportunities for job creations and territorial development. Changes in lifestyles, evolutions in food demand, diets and nutritional transitions, food safety and food sanitary issues are other major features of the ongoing

Mediterranean situation and they call for a comprehensive and integrated approach of the food systems as a whole.

Water is one of the basic resources to ensure availability of abundant, high quality healthy food, job creation and human development. Water scarcity in the Region arises from the pressure to meet the increasing food and domestic water needs, exacerbated by extreme climate variability. Increased cost of energy production coupled with water scarcity, misuse of irrigation water, deteriorated water quality and overexploitation of resources often results in deficit in food production. Consequently, it negatively affects economic conditions and produces various types of conflicts ranging from social domestic conflicts to sector conflicts (from agriculture and aquaculture to urban areas, industry, and tourism) and trans-boundary conflicts. Due to its limited availability and the high connections with societal and economic challenges, addressing sustainable water management is vital in the region.

In the Mediterranean area, health, energy, environment and transportation are key issues strongly related to food and water availability and quality. Therefore, when dealing with food systems and water resources in this geographical area, multiple dimensions will be impacted and should be taken into consideration such as: sustainable agriculture, land-use and forestry management, environmental management of production systems, energy-saving techniques, health, coastal zone dynamics. The strong inter-linkages and interdependences that exist among climatic, environmental, social, economic and institutional drivers and variables of the Mediterranean area make monothematic and exclusive approaches inadequate to correctly address these complex problems. An integrated approach is needed in order to face the multiple, emerging and interrelated problems/challenges of the Mediterranean area.

The sustainable production and provision of adequate quantity and quality of food and water in the Mediterranean Area is seriously threatened by the erosion of natural capital, water scarcity and climate change. This affects socio-economic conditions, wellbeing and health of people living in the Area, and the societal stability of the Region, therefore impacting European Union as a whole. Ultimately, addressing these core challenges could result in an increase of growth and creation of jobs in the Region.

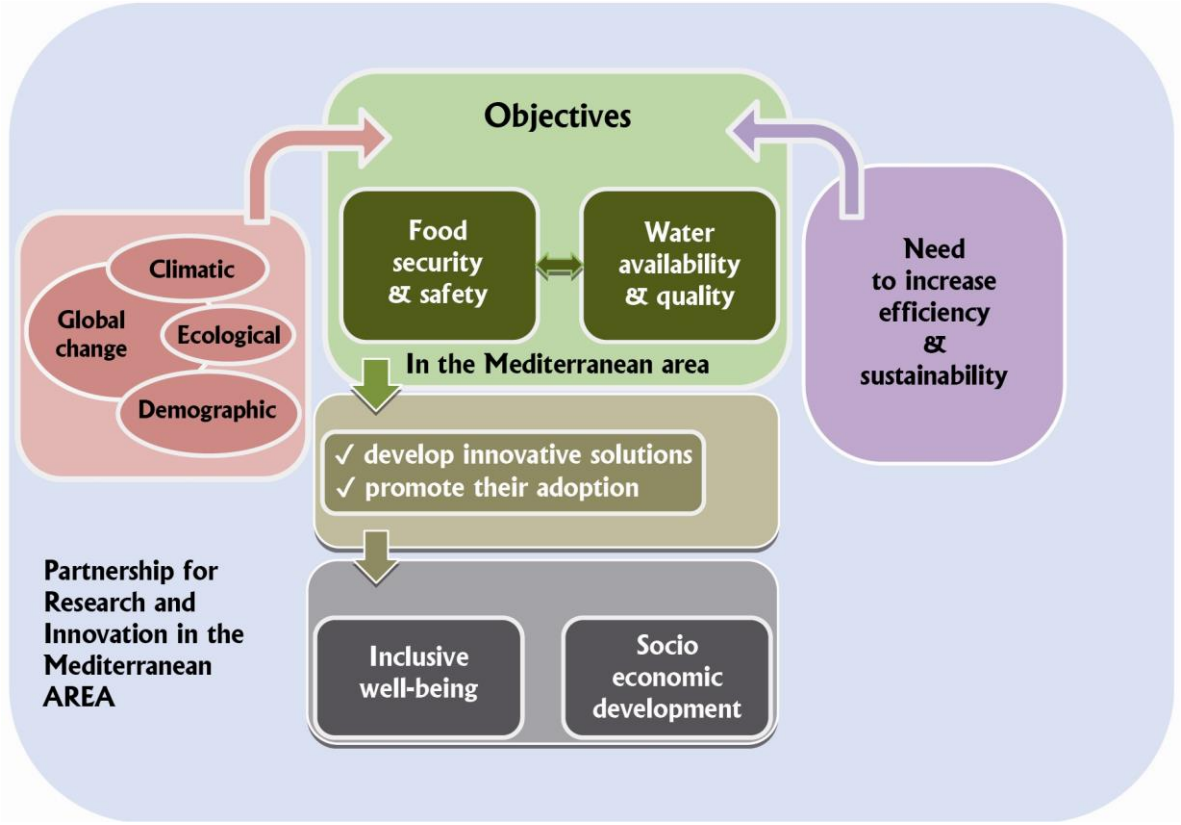


Figure 4 - Rationale, main pillars and scope of the PRIMA project

b. Who is affected by the problem?

Today, the Southern and Eastern Mediterranean countries (SEMCs) are the most affected by challenges in the area of food systems and water resources. The food insecurity of the region will probably be reinforced in the future years due to the growing population of the SEMCs. It could have tremendous impact for people living in these countries but also for the European Union as a whole. Migration from Southern territories to the North will continue to rise if food security, political stability and employment are not ensured in the countries of migrants' origin.

Accessing food at an affordable price and good quality concerns all EU citizens. Water scarcity is already a tangible problem in southern Spain, Italy, Southern France, Greece and EU islands such as Malta and Cyprus. By 2050, in terms of water scarcity and climate conditions, southern EU agriculture conditions could be similar to those of North Africa (IPCC, 5th Assessment 2013 Report, 2014).

Seeking how to produce more food in a context of water scarcity and, at the same time, increase water resources is the main challenge for the Mediterranean area in order to secure the wellbeing of the citizens and continue supplying high quality food in the EU countries.

Socio-economic contribution of agriculture and food sectors to economic growth, rural development and employment is important all around the Mediterranean. It is particularly strategic in Southern Mediterranean countries where agriculture is already providing employment

from 20 to 30% of the population in Morocco, Egypt, Turkey or Tunisia (www.ciheam.org). Rural development is not only an issue for Southern Mediterranean Countries. In several Mediterranean EU countries, agriculture is the main pillar to support employment in rural areas and it should be reinforced. Innovation in crop production, animal farming, forestry management, aquaculture and food sector, aiming to economic development and employment must be adopted. In coastal areas, supporting and maintaining small scale fisheries is one of the ways to support sustainable development.

Besides, the Mediterranean countries are the first destination for all the EU countries in terms of touristic activities and retirement stays, which is expected to trigger new demands for food, quality and quantity of water, and for the preservation of terrestrial and marine environments, especially the coastal biodiversity (Plan Bleu 2012a, 2012b). The disappearing of Mediterranean food knowhow and heritage could also be a major loss for the entire European Union. The European lifestyle has inherited a Mediterranean culture that benefits food systems, which have been proven to produce one of the healthiest diets worldwide. The promotion of social interaction, respect for the Mediterranean territory and its biodiversity as well as preservation of tradition and cultural identity are other beneficial aspects, having led the Mediterranean Diet to be listed as Intangible Cultural Heritage of Humanity by UNESCO.

c. Challenges and scale of the problem

PRIMA is addressing the Mediterranean food systems and water resources challenges taking into account the following characteristics and criticalities of the current situation and the necessity to foresee adaptation to climate change in the future.

Mediterranean agriculture is globally less and less able to provide sufficient amount of good quality, healthy food for its inhabitants. This is particular crucial for the Southern shores where the demographic trend is continuing at a high level. The total agricultural deficits of Southern and Eastern Mediterranean countries increased from an average of 13 billion USD in 1980-2007 to an average of 48 billion USD in 2008-2013 (figure 5).

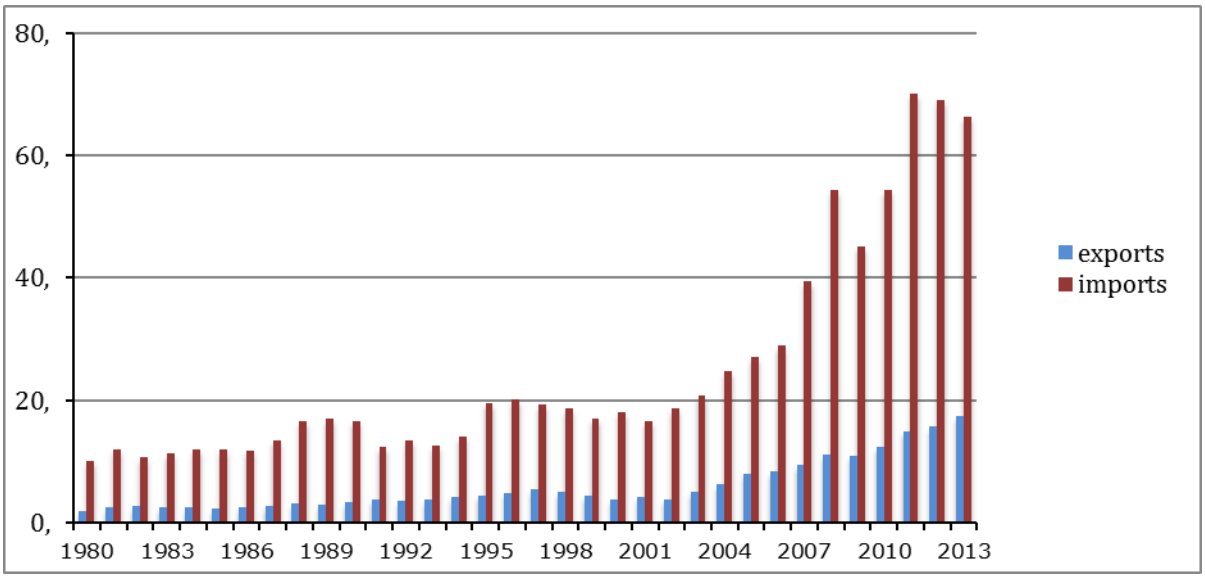


Figure 5 - Total agricultural exports and imports of Mediterranean Countries (Non EU) in Billion US Dollar. [Source : WTO database]

Several EU Mediterranean countries and territories are also relying more and more on international markets to respond to basic food needs for their citizens. Although the Mediterranean area concentrates only 7% of the world's population, it stands for 25% of the world cereals imports (Abis, 2012a). Except for France, Morocco, Spain and Turkey, most Mediterranean countries and territories are importing cereals and the total amount of imported cereals doubled between 1980 and 2000 (CIHEAM, 2012). Imports can certainly compensate for a lack of production, but at the cost of high dependency on the international market and the social risks that have been already evidenced by the recent food crises, due to the price of food commodities in the world market. The fact that Mediterranean region and namely the southern shore relies on imports for a large share of its food consumption is a major concern for policymakers who view this as a threat to national food security and a source of political vulnerability (Löfgren, 2008, CIHEAM 2014).

Mediterranean countries have currently reached a situation of hydric stress where water resources are insufficient in quantity and quality to answer to human needs and ecosystems needs (Plan Bleu, 2012a). The alert threshold fixed by the United Nations (1 700 m3 of fresh drinkable water by inhabitant and by year) is no more reached. In the Mediterranean, 180 million people are considered as "water poor", i.e. relying on less than 1000 m3 /year (figure 6). Water pressures are expected to worsen in the future with population growth in the South and East, the development of tourism, industry and irrigated land, in addition to climate change impacts (Milano *et al.* 2012a, Milano *et al.* 2012b, Plan Bleu, 2012c).

According to existing projections and literature, "water-poor" Mediterranean populations are forecast to increase to over 250 million people within 20 years (UN-MAP-Plan Bleu, www.planbleu.org). Most climate change scenarios for the region call for decreased rainfall and higher temperatures, while population will continue to increase until 2030. Water shortages are

expected to worsen in the future due to increasing demand for urban uses, energy production and other human related activities such as agriculture.

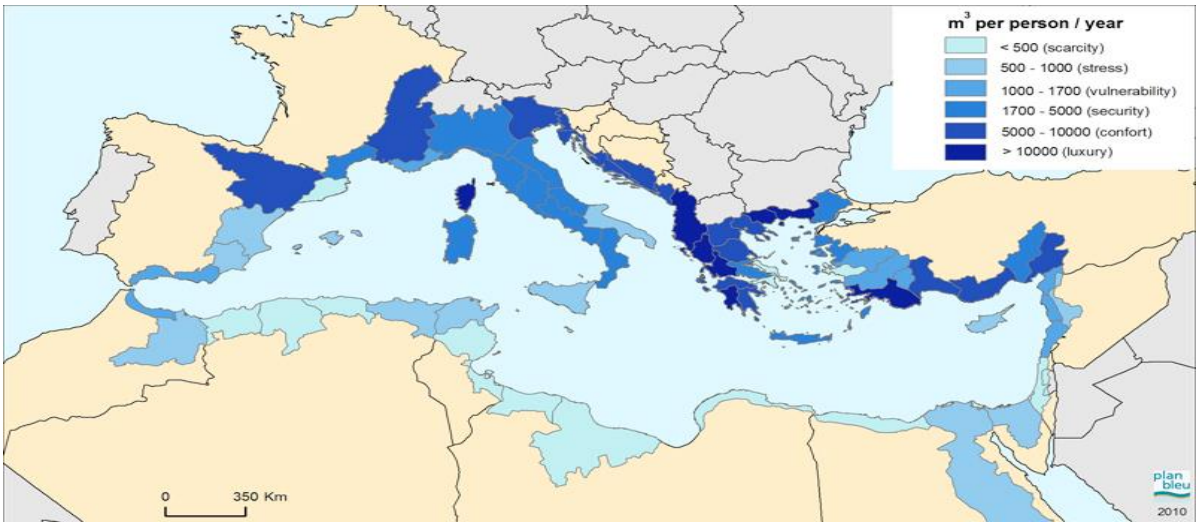


Figure 6 - Water in m3 per person/year in the Mediterranean basin
[Source: MAP-Blue Plan 2010]

Moreover, since decreased rainfall and higher temperature occur in combination, water stress very often couple with heat and/or light stress posing to agriculture the challenging issue of "multiple summer stresses".

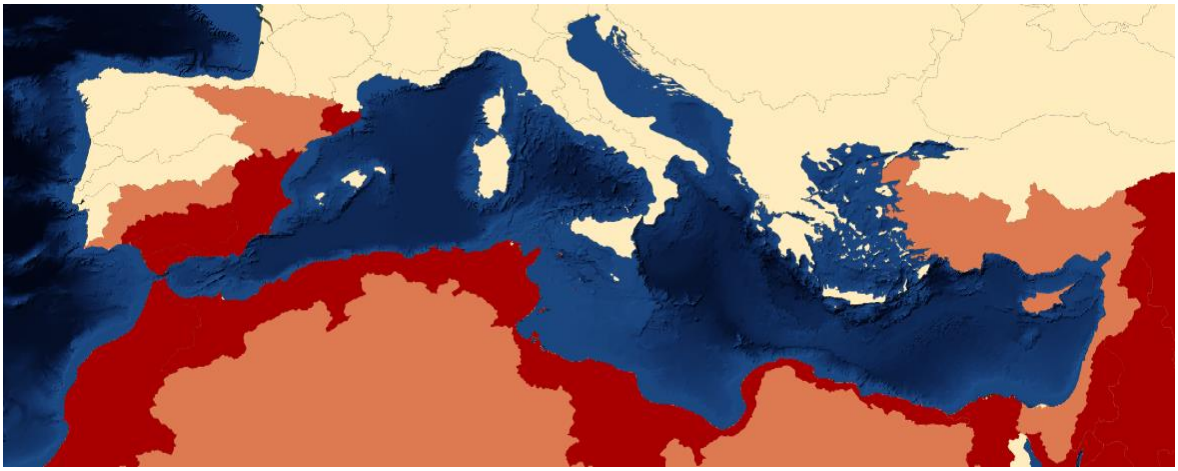


Figure 7 - Global distribution of physical water scarcity by major hydrological basin.

[FAO, 2010][12]

[12] This map provides a representation of levels of water scarcity by major hydrological basin, expressed in terms of the ratio between irrigation water that is consumed by plants through evapotranspiration and renewable fresh water resources.
The legend distinguishes three classes:

The competition for water use between agriculture, drinking water and other uses, such as tourism-related activities, is more and more severe. Water used for irrigation represents 60% of the total water quantities used for human related activities in the Mediterranean area, and this percentage extends to more than 80% of total water uses in Morocco, Greece, Egypt, Cyprus, Syria, Tunisia and Turkey (figure 8).

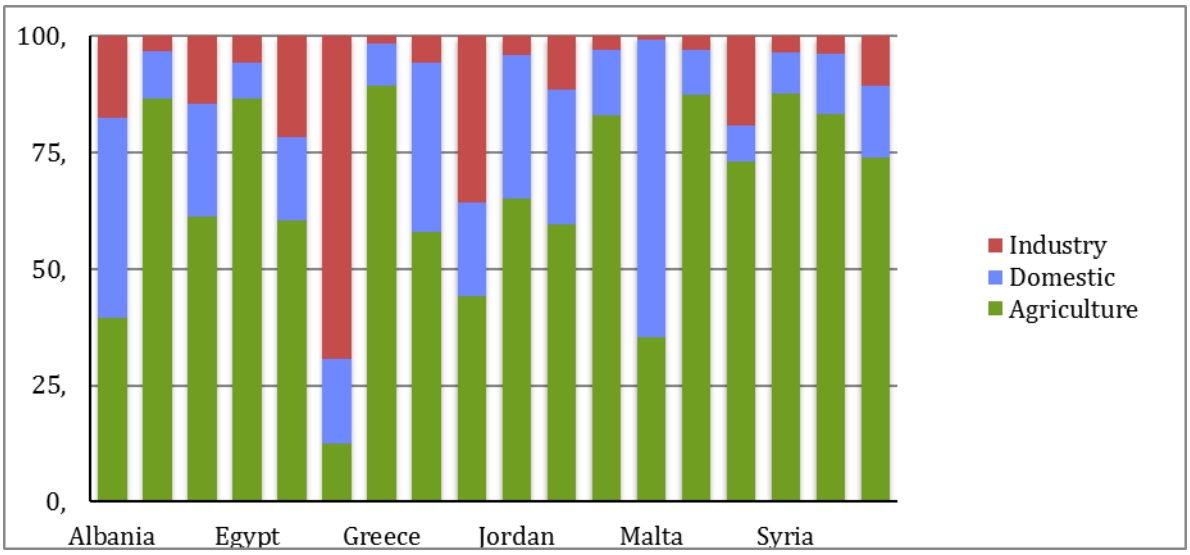


Figure 8 - Shares of total fresh water withdrawals per Sector in the Mediterranean Countries in 2013. [FAO, AQUASTAT data]

Increasing agriculture production by simply increasing water supply is no longer sustainable. It is essential, therefore, to begin today to design new ways of water management aimed at ensuring greater equity and efficiency of resource use.

Agriculture is already affected by climate change all around the Mediterranean and will be even more affected in the near future. Proactive adaptation to climate change as well as mitigation strategies are urgent needs for the Mediterranean agriculture and seafood production. Mediterranean countries share similar climatic features within a range of climatic conditions that will change in the future. The Northern part of the Region is expected to experience similar conditions with those existing today in the Southern shore. Some crops or agricultural practices, currently used in the southern countries, could become relevant also for the Northern shore in the future. Mediterranean crops like durum wheat, olive, grapevine, food and feed legumes (chickpea, lentil, faba bean), may become of interest to a more extended number of EU countries in the next years. Agriculture and animal production management, in conditions of aridity is today more an issue in the southern shore than in the northern one. However, problems or practices frequently

• Water scarcity in river basins where evapotranspiration due to irrigation is less than 10% of the total renewable water resources is classified as low;
• Water scarcity in river basins where evapotranspiration due to irrigation is in between 10% and 20% of the total renewable water resources is classified as moderate;
• Water scarcity in river basins where evapotranspiration due to irrigation is more than 20% of the total renewable water resources is classified as high.

encountered in the southern part of the Mediterranean are less frequent but still present in Europe (e.g. effect of decreased water supplies and mild winter on fruit production, supplementary irrigation, saline intrusions in the coastal zone) and could become more important in the future. Along with a geographical redistribution of crops according to climatic pressure, the item of mitigation is the tool that has to be improved and implemented to maintain certain crops in their natural environments. Mitigation especially includes new genotypes and cultural practices aimed at counteracting unwanted effects bound to warming.

Pollution and contaminations of the environment are another key problem in the Mediterranean that can also have a direct or indirect impact on human health. It is urgent to develop new strategies integrating mitigation, remediation, restoration and novel approaches for a sustainable tourism development, the sustainable exploitation of natural resources and smart valorisation of related waste production (Plan Bleu, 2012a). Chemicals and physical stressors related to industrial activities and fertilizers use in agriculture should take into account their flows and impacts on the environment. Food production systems must evolve to be environmentally and economically sustainable. Seafood provisioning (from fisheries and aquaculture) in the Mediterranean can also be critically endangered by the same factors, coupled with an increased presence of bioactive molecules, xenobiotics, pollutants, toxic algae toxins, new parasites and diseases. (UNEP/MAP 2012).

Located at the intersection of tropical, arid and temperate influences, the Mediterranean area is a unique bio-geographical entity, considered one of the world hotspots of global biodiversity (Medail *et al.* 1997, Blondel *et al.* 2010, CEPF 2010). Its rich and varied natural environments show high rates of endemism. Because of its three millennia of permanent human occupancy, it has also seen many novel types of interaction between human societies and their environments. Globally, the Mediterranean area supports 10 % of known plant species and 7 % of marine species (Medail et al 1997, 2008, UNEP/MAP 2012). This biodiversity is clearly an asset for the region that should be preserved as a common heritage, exploited through specific agricultural and food products and used to tackle new challenges such as those inflicted from climate change and water scarcity. However biodiversity is threatened by pressure of different kinds. Population growth and the strong pressures exerted by tourism particularly in coastal areas, are seen as the main causes, leading to overexploitation, and degradation, even destroying natural habitats. (Cuttelod et al. 2008).

Regarding Mediterranean Fisheries in 2014, 80% of demersal stocks and 75 % of small pelagic stocks are fully exploited or overexploited, i.e. stocks with a level of exploitation above the Maximum Sustainable Yield and a decrease of annual landings of 15%(GFCM, 2014). GFCM recommends, appropriate measures for the conservation and rational management of living marine resources.

Marine biodiversity safeguard needs to be made compatible with the production of high added value products in marine bio-systems. Seafood provisioning (from fisheries and aquaculture) in the Mediterranean Area can be critically endangered by environmental degradation, including effects of climate change, mismanagement (e.g. leading to overexploitation and exhaustion of

resources), pollution, the presence of bioactive molecules, xenobiotics, heavy metals, new chemicals and pharmaceuticals, etc), eutrophization (including toxic algal blooms) and also by the spreading of invasive species, new parasites and diseases. (UNEP/MAP 2012)

The Mediterranean area is also exposed to the emergence of animal and plant diseases. Human health as well as efficient agricultural practices and animal husbandry systems in the region may also be affected by these risks. This is a challenge that should clearly be addressed by countries both from the Mediterranean Basin and the European Union as a whole taking into consideration recent experiences in pathogen flows from the South to North through the Mediterranean (figure 9). The issue of animal health is set both in terms of emergence of new pathogens and vectors and in terms of emergence of zoonosis. Plant diseases and pests cause significant losses in cereal crops, vegetables and fruit crops. Animal diseases have already a strong impact on production and trade as well as on public health through several zoonoses or their risk of emergence (brucellosis, Rift Valley Fever, West Nile fever…).

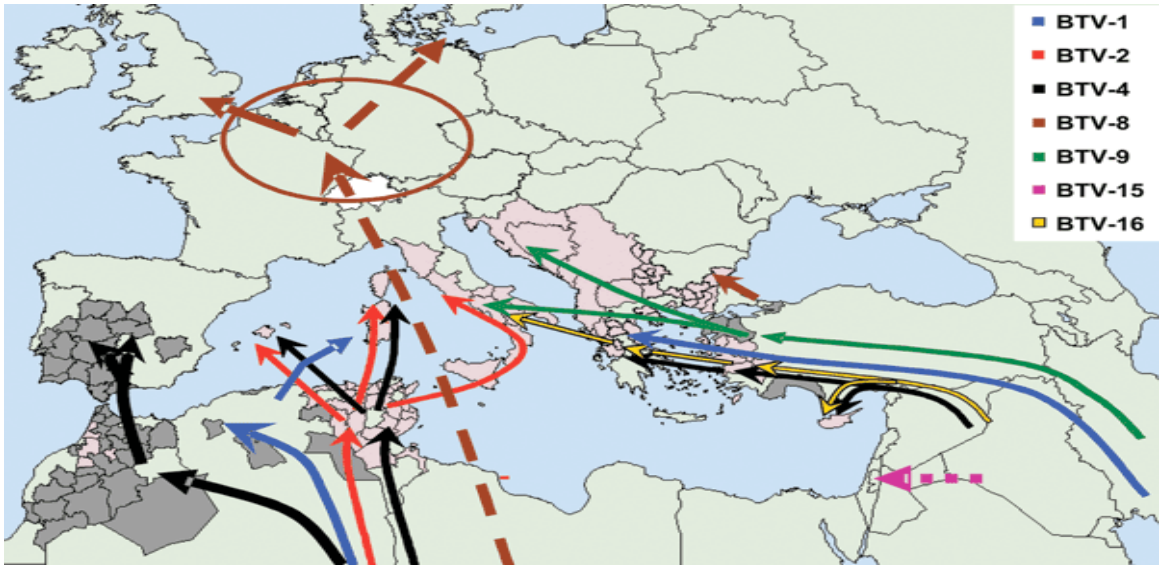


Figure 9 - The molecular epidemiology of bluetongue virus (BTV) in Europe since 1998: routes of introduction of different serotypes and individual virus strains;
[Source: Centres for Disease Control and Prevention, USA]

Many infectious diseases in the Mediterranean area are associated with contaminated food and water. Bacteria cause them and their toxins, parasites and viruses transmitted via the fecal-oral route, and can be spread from infected animals or persons. Most of these diseases cause diarrhea that can be quite severe. Food-borne diseases are particularly frequent in the SEMCs and they call for improvements in the microbiological safety of foods and drinks. Toxic pollutants or other harmful substances represent also a threat for food production but their bio-accumulation can also constitute a direct problem for consumers. Impact of chemical contaminants such as heavy metals, persistent organic pollutants (pesticides, PCBs), on human health is of major concern.

Diet-related chronic diseases are increasing in the Mediterranean. This may sound paradoxical as the health benefits of adhering to the Mediterranean diet are well known. Indeed, the Mediterranean diet is considered as the gold standard of healthy nutrition associated with decreased morbidity and mortality (Sofi et al. 2008, Frisardi et al 2010, Kastorini et al. 2011, Estruch et al. 2013, Samieri et al. 2013). However, the Mediterranean diet, which has been associated with longer life spans and lower rates of heart disease and cancer, is in retreat in its home region. Urbanisation and the development of food industry based on imported products have led to a change in food habits and consequently to decrease the consumption of traditional food products. Recent demoscopic studies indicate that populations in the Mediterranean area that have switched to a more westernized a higher incidence of diet-related chronic diseases also occur.

The prevalence of diet-related chronic diseases is rising rapidly in Mediterranean countries and territories as a result of the complex interactions between changes in lifestyles, changes in food products and diets and genetic factors. This imposes tremendous demands on social welfare and health systems. In Greece, three-quarters of the adult population is overweight or obese, the worst rate in Europe "by far," according to the United Nations. Italy and Spain are not far behind, with more than 50 percent of adults overweight. Overweight and obesity are also dramatically increasing among adults in the Southern and Eastern Mediterranean area. Data for adults aged 15 years and older show high levels of overweight and obesity in most of the countries. In Egypt, levels of overweight are up 74-86% in women and 69-77% in men (World Health Organization, http://www.emro.who.int/health-topics/obesity/). The Mediterranean food systems, including food policies, food industries and the way they address consumers' needs, must evolve in order to contribute to promote an healthier diet.

Energy demand is increasing in the Mediterranean area, particularly in Southern and Eastern Mediterranean countries that have to face with an increasing energy demand linked to demographic and economic growth. From 2000 to 2010, the countries of the southern Mediterranean (Morocco, Algeria, Tunisia, Lebanon) showed an average increase in primary energy consumption of 3.8% per year , an increase that is similar to that of GDP (MENEDER, 2013). Energy security will thus become a major challenge for several Mediterranean countries in the future. The food sector currently accounts for around 30% of the world energy consumption (FAO, 2011a). Main share of this energy consumption (70 percent) is related to the downstream phases, when food leaves farms and it is transported, processed, packed, shipped, stored, and prepared. Given these facts, Mediterranean's food and water sectors require rethinking their energy solutions and introducing more efficient patterns. Renewable energy (bioenergy, wind, solar) can also be integrated in the processes to replace fossil fuels.

3.3 State of the art, gaps and PRIMA Objectives

a. State of the art and gaps

The Mediterranean criticalities presented here have already been addressed through several R&I projects.

Experiences and knowledge accumulated through different projects supported by FP6 and FP7 related to Food and Water issues (see Annex 1), several foresights studies namely MEDPRO, (http://www.medpro-foresight.eu/), EuroMED-2030, (European Commission 2010), Mediterra 2008, (CIHEAM 2008), Parme Prospective (Hubert et al. 2011), and work done in ERA-Nets (see Annex 2) allows to draw up a list of eight criticalities to be tackled.

a.1. Overexploitation of natural resources and unsustainable ways of farming

- Due to the features of the Mediterranean landscape (percentage of hilly and mountainous lands), the availability of arable land is quite limited in the Mediterranean. Arable land represents about 25% of total land in Italy and Spain, less than 20% in Tunisia and Morocco, only 3% in Algeria and Egypt (www.ciheam.org/observatory). Soils in the Mediterranean are highly vulnerable and susceptible, due to unsuitable farming practices and overexploitation of natural plant cover, to loss of fertility, erosion and, in some cases, to desertification (De Franchis et al. 2003, Roose et al. 2008).

- A substantial proportion of agriculture in the Mediterranean area has been modernized and intensified via improved farming practices, cultivar selection and supplemental irrigation. Improvements have also been achieved in the livestock and aquaculture area. However, yield increases are still insufficient to face the increase in food demand. Furthermore, intensification of farming practices have often led to pollutions, overexploitation of natural plant cover, loss of fertility of agricultural land, soil erosion and runoff, and in some cases to desertification. Poor irrigation management has often resulted in several sites to soil salinization and underground water contamination and pollution (UNEP/MAP 2008, UNEP/MAP 2012).

- Over the last decades, intensification and specialization in farming systems have resulted in an increase of production but also to environmental negative externalities. Today, there is a need to foster the adoption and implementation of alternative cropping models based on accumulated experiences in the field of genetics and agronomy but also social sciences. Taking into local resources, such as biodiversity and local knowledge is part of the solution. Indeed, there is need to find new ways of development that ensure increase productivity and in the same time preservation of resources.

- It applies also to aquaculture and fisheries. Appropriate measures for the conservation and rational management of living marine resources are to be designed. Marine and freshwater aquaculture production is increasing, in particular in Egypt, Turkey, Greece, Tunisia, France, Spain, Croatia and Italy. Efforts must be done on diversification of the species, supporting the herbivorous species and multispecies and polyculture systems. Spatial planning with concurrent

activities must be developed in an environmentally friendly way (Coll et al. 2013, Sacchi et al 2011).

a.2. On-farm irrigation systems inefficiencies

- Irrigated agriculture provides today more than 50% of the food production in the Mediterranean basin while using 15% of the land devoted to agriculture and accounting for 80% of total water use. In many watersheds of the Mediterranean countries, water, land and marine resources are presently fully or overcommitted. Because of the scarce precipitation, rainfed agriculture is extremely constrained by soil water deficit but also by emerging and changing biotic stresses due to pests and diseases and environmental pollution. Besides, due to higher occurrence of high light and thermal stresses, temporary drought symptoms might take place even in the absence of a water shortage. Indeed, on-farm irrigation efficiency is then the main agronomic factor to be considered. This is not just because the irrigation practice plays a major role on crop productivity and harvest quality, but also because improper irrigation management has considerable environmental implications due to the risk of soil salinization and underground water pollution due to the over-leaching of nutrients and pesticides (Roose et al. 2008, Garduño H. and Foster S, 2010).

- Despite the development of techniques, decision support systems and models to promote a more efficient use of irrigation water, their actual use and implementation by farmers is rather limited. The successful adoption of new irrigation strategies and technologies and their integration into the farm management practices, require an additional effort in improving the exchange of information and dialogue between the end-users, farmers and policy makers, and the research teams, to facilitate the transfer of new knowledge and technologies and their practical implementation at field level (Molle et al. 2010, Ruf et al. 2001).

- Despite the progress achieved in the last years in water-saving strategies in irrigated agriculture, the actual level of field implementation of the most innovative technologies and techniques is still insufficient to significantly contribute to reducing fresh water consumption in Mediterranean irrigated agriculture. (Bosello et al. 2013) As a paradox, an example is offered by some northern countries of the Mediterranean Basin which under the pressure of global warming need to start to consider supplemental irrigation in traditionally rainfed crops without any previous experience or skills. But, when supplemental irrigation is introduced in areas having no previous experience of irrigation management, over-use is quite common with obvious over-irrigation and plant imbalances.

a.3. Changes in food demand and their consequences on food supply chains, nutrition and health

- Urbanisation and the development of food industry based on imported products have led to changes in the food supply chain. Most of the food in urban areas comes from the agro-industrial and agro-service sector (retail, foodservice). Suppliers of these downstream firms must meet rigorous standards of quality, traceability and product homogeneity, on the one hand, and supply regularity, on the other hand (Ghersi et al. 2004).

- In the Southern and Eastern Mediterranean, upstream suppliers are usually widely dispersed, creating logistical difficulties in gathering raw materials (with significant post-harvest losses) and

assessing their quality. To meet retail or food industry requirements, local operators must reorganise, leading to a concentration of production and processing, as smallholdings and small businesses have enormous difficulty in gaining access to commercial channels. The integration of small producers into formal supply channels is one of the major challenges: the role of public and private standards, logistical infrastructure and public policies in promoting such integration are crucial (Lemeilleur et al. 2008, Codron et al 2004, Padilla et al. 2001).

- Consumption of Mediterranean foods usually prepared at home or in a small industry setting, is giving ground to fast food, subject to modern distribution models and often made from imported and subsidised raw materials. This not only contributes to poor nutrition, a source of significant health problems, but it also causes a decrease in agricultural activities and accelerates rural exodus and urbanisation and increases the market share of imported products. It also hinders the development of local food industries, which generate employment and add value.

- The globalization of life-styles leads to the higher consumption of "modern" processed foods and a decline of traditional products. Although the availability of several Mediterranean dietary components has increased - such as fruits, vegetables and olive oil - the trends are not necessarily favourable, as the availability of the non-Mediterranean foods has increased to a much greater extent. The Mediterranean Diet is being increasingly eroded (Da Silva et al 2009), and this loss is more pronounced through the younger generations'. The lack of interest is leading to an unavoidable erosion of the Mediterranean dietary cultural heritage (Reguant-Aleix J. et al. 2009).

a.4 Food and water losses and wastes

- Post-harvest losses remain very high in many Mediterranean countries, representing up to 30% of the production in some of them. Globally the food losses and wastes are estimated to be around 280 kg per person per year in Europe and about 215kg per person per year in Northern Africa (FAO, 2011b). Reducing these losses can contribute significantly to improve food security.

- Transportation inefficiencies have strong effects on this issue. Improved logistics can lead to a better marketing of products and contribute to opening up remote rural areas. In terms of food and water safety, the optimisation of the conveying of agricultural and agro-food products can significantly improve the quality of products. Finally, transportation and logistics is of primary importance for the reduction in losses and wastes, and thus can contribute to increase availability of food and water for consumers (CIHEAM, 2014).

- Good functioning of food chains greatly relies upon physical infrastructure yet also on good management of the whole chain by a better organization of information systems and administration.

a.5 Animal and plant diseases

- The fragility of Mediterranean ecosystems, the flows and concentrations of human and animal populations, the proximity of humans and animals, the uncontrolled use of antibiotics and anti-

parasitic products, the difficulties in implementing effective health inspections, and the effects of climate change are all factors that favour the persistence of pandemic animal diseases, the resurgence of epidemics and the emergence of new pathogens (Jones 2008, Bargaoui et al. 2013, Kramer et al. 20008, Ponçon et al. 2007).

- The issue of regional animal and plant health requires a more effective fight against plant pests through the identification of plants' resistance genes and better management of cropping systems to limit the spread of diseases, the development of resistance by pathogens, and loss of effectiveness of pesticide treatments. In particular, biological diversity plays an important role in controlling animal and plant pests, as regards both the temporal (crop succession) and the spatial dimension at various organisational levels (from plot to whole landscape).

- In aquaculture, increased fish population densities, crowding of farming sites, and failure to isolate fish farming units with infected animals have increased diseases in farmed populations and the possibility of rapid spread of infections (Cabello 2006). This has resulted in a widespread and often unrestricted use of antibiotics (Seyfried 2010) and the emergence of antibiotic-resistant bacteria in fish and aquaculture environment (Schmidt AS et al 2001), in the transfer of these resistance determinants to bacteria of land animals and to human pathogens, and in alterations of the bacterial flora both in sediments and in the water column (Kümmerer 2009).

- Surveillance of animal disease and mitigation of their impact on food security and/or human health should involve different stakeholders including human and animal health sectors and taking into account the ecology and environment within a "One Health" paradigm. Research should be done in relation with surveillance and control activities, in order to enhance the efforts already made to coordinate the national and regional resources capacities (in particular through the Mediterranean Animal Health Network – REMESA supported by FAO and OIE).

a.6. Unsufficient contribution of the food systems to employment and economic growth

- In most of the Southern and Eastern Mediterranean Countries, rural population is very high in absolute terms and agriculture is a major economic activity, providing employment from 20 to 30% of the population. Thus, the role of agriculture and food industries to support employment in rural areas is crucial. However, the current business models of the small and medium enterprises are not currently able to adapt to changes in demand and economic context. Small, low-cost entities produce a high proportion of staple foods (milk, meat, fruits and vegetables and processed products), often with unique qualities derived from local tradition. Yet, most of these small companies operate in an informal setting, with recurrent food safety problems. An intense urban population growth asks for the organization of supply chains which in many cases prove to be inefficient: the distribution of margins between producers, intermediaries and distributors and agents is rather unclear and poor quality signals do not allow adjusting the requirements of consumers and characteristics of the products. This latter, added to the safety issues and the absence of cold chains, make local products uncompetitive Vis à Vis imported products often sold at much higher prices.

- In such a context, supporting competitive and innovative businesses and efficient marketing chains able to promote local products while adapting to consumption models in line with changing lifestyles, is a major issue for sustainable development in the Mediterranean area. Hence, food industry research faces a threefold challenge: technological innovation in the industrial development of traditional products, nutritional and health quality of processed foods, and competitiveness of local products vis-à-vis imports. Innovation in the agriculture, animal production, and aquaculture and food sector should thus be created in this perspective. In most Mediterranean countries, in particular the SEMC's, fisheries and aquaculture activities have also a major role to play, in terms of growth and employment.

a.7. Erosion of soil and mismanagement of the water cycle at the watershed level, in particular in arid and semi-arid areas

- Nowadays, around 40% of Mediterranean soils face problems of soil quality, evidenced by low levels of organic matter, and almost 15% from moderate to high salinity. In addition, around 45% of agricultural land is vulnerable to nitrate pollution, deteriorating water resources; which are not only scarce but also threatened by salinity. Moreover, the effects of global change imply the decrease of precipitation and hence the subsequent raising of salinity.

- Semi-arid or arid areas are currently covering more than half of the Mediterranean area, and the proportion is expected to increase in the next future, especially in the European shore. Soil, water and vegetation need to be viewed as a whole. The way the soils, plant cover and the vegetation are managed is crucial in regulating water resources and is currently not properly done. The mechanisms of soil erosion should be taken into consideration at different spatial and temporal scales. Soil microbiology and mineral nutrient cycles are also important issues. Degraded soils need remediation solutions to be found.

a.8. Inequitable water allocation and un-sustainable water management

- Economic development and population growth in the countries of the Mediterranean area together with climate change and altered environment conditions have resulted in extensive exploitation of the available resources to face severe water shortage. Ambitious agricultural and water exploration programs, aimed at meeting food and water requirements, have often led to significant overdraft of water sources far in excess of the natural renewal capacity.

- There has been an intensification of water development and withdrawals through the building of dams/reservoirs and capturing or pumping groundwater. As a result, renewable water resources have been highly exploited. In Libya, the amount of water withdrawal is over eight times its renewable water resources, a gap filled largely by the pumping of non-renewable fossil groundwater. A similar situation is also evident in Egypt and Israel, though the overdraft there is not as serious as in Libya. In Tunisia and Morocco, the ratio of water withdrawal to renewable water resources is around 86% and 50%, respectively. The high withdrawal ratios leave them little potential for additional water supply and are clearly not sustainable.

- The water quality is alarming because of the increase of salt in drinkable water. Furthermore, 80% of pollution in the Mediterranean is coming from urban and municipal waste (UN-MAP-Plan Bleu) since no more than 60% of the sewage is treated. Accumulation of heavy metals (e.g. mercury), organic compounds as PCBs, pesticides, in particular in fishes, which are more consumable by vulnerable populations (children, pregnant women, and older persons; WHO recommendations) is alarming.

- Water demands are expected to increase with population growth to the South and East Mediterranean, due to the development of tourism, industry and irrigated land, and even more because of the impact of climate change. To face the increase of the urgent demand of water, economic aspects, relevant policies, national and regional governance are crucial issues to solve for the sustainable management of water resources at the regional, national and international level.

b. PRIMA Objectives

Given the previous described problem and challenges to be tackled, the **overall aim** to be pursued is the following:

"To develop innovative solutions and promote their adoption for improving the efficiency and sustainability of food productions and water provision, in order to support an inclusive well-being and socio-economic development in the Mediterranean Area, within the framework of a reinforced Euro-Mediterranean co-operation".

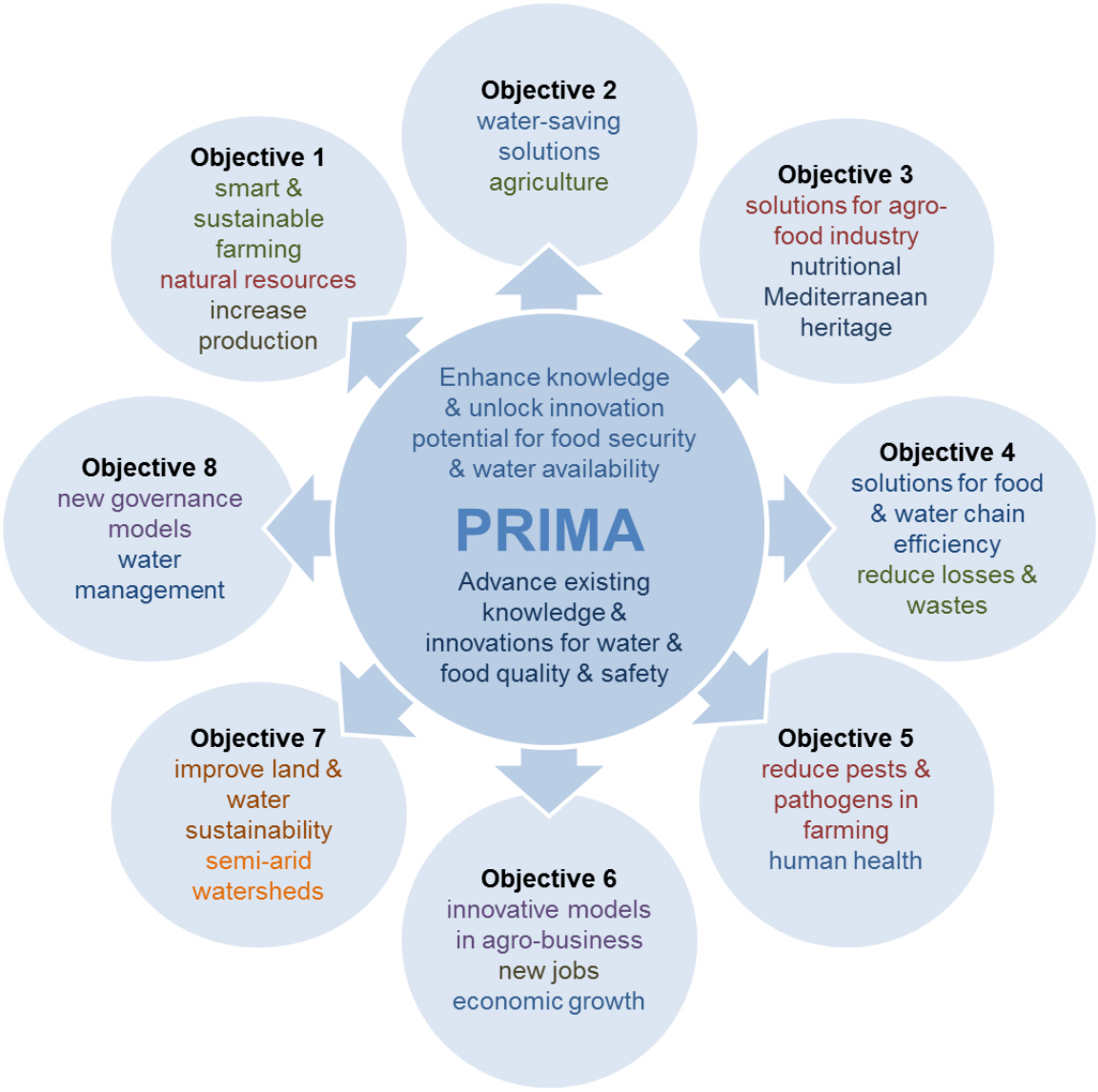
To achieve such goal, the PRIMA Initiative will be organised around **two objectives:**

1. To enhance knowledge and unlock its innovation potential for food security and water availability through end user-friendly solutions in a context of ecological, demographic and climatic change

2. To advance existing know ledge and innovations for water and food quality and safety

These two objectives will allow PRIMA to address **eight operational objectives** related to the main identified criticalities:

1	Overexploitation of natural resources and unsustainable ways of farming	To develop smart and sustainable farming systems to maintain natural resources and to increase production efficiency
2	On-farm irrigation inefficiencies	To test and stimulate adoption of context-tailored water-saving solutions, in particular in agriculture
3	Changes in food demand and their consequences on food supply chains, nutrition and health	To innovate in the Mediterranean food products based on Mediterranean diet heritage and to enhance the links between nutrition and health
4	Food and water losses and wastes	To find context-adapted solutions to increase food and water chain efficiency, and reduce losses and wastes
5	Animal and plant diseases	To design and promote the adoption of novel approaches to reduce the impact of pests and pathogens in farming, including their consequences on human health
6	Business Food systems unable to create employment and economic growth	To conceive and implement innovative, quality oriented models in agro-business as potential sources of new jobs and economic growth
7	Soil erosion and mismanagement of water cycle at the watershed level	To improve land and water sustainability in arid and semi-arid watersheds
8	Inequitable water allocation and un-sustainable water management	To elaborate and stimulate adoption of new policies and protocols for the governance of water management systems


Objective 2
water-saving
solutions
agriculture
Objective 1
smart &
sustainable
farming
natural resources
increase
production
Objective 3
solutions for agro-
food industry
nutritional
Mediterranean
heritage
Enhance knowledge
& unlock innovation
potential for food security
& water availability
PRIMA
Advance existing
knowledge &
innovations for water &
food quality & safety
Objective 8
new governance
models
water
management
Objective 4
solutions for food
& water chain
efficiency
reduce losses &
wastes
Objective 7
improve land &
water
sustainability
semi-arid
watersheds
Objective 5
reduce pests &
pathogens in
farming
human health
Objective 6
innovative models
in agro-business
new jobs
economic growth

b.1. Objective 1: To develop smart and sustainable farming systems to maintain natural resources and to increase production efficiency

Keywords: *sustainable intensification, agro-ecology, biodiversity, resilience, drought and salinity crop tolerance, on-farm efficiency, precision agriculture, plant and animal production, aquaculture.*

Rationale:
Today, agro-ecology proposes to mobilize agronomy, ecological and social sciences in an integrated manner, in order to find new solutions for increasing on-farm efficiency under both an economic and environmental standpoints. This is part of the so-called sustainable intensification, which aims at increasing productivity through an efficient use of resources to satisfy current and future needs (Cassman, 1999; Griffon 2006).

This is both particularly relevant and difficult to achieve in the Mediterranean agriculture where cropping systems have to cope with preservation (or restoration) of the natural resources in a very constrained environmental context (climate change, water scarcity).

Several reasons call for addressing this issue at the Mediterranean level:
- The sensitivity of the ecosystems coupled with the heterogeneity of the farming structures need to develop approaches that take into account the diversity of the situations all around the Mediterranean basin in order to find solutions that could be site-specific and adopted by different types of farmers;
- The richness of the Mediterranean biodiversity is an asset that can be used to restore or develop new varieties and hybrids, crops and breeds, but that requires shared resources and objectives;
- Some species or farming practices that are currently used in the southern Mediterranean countries could be relevant for other locations, even in the Northern shore, to adapt agriculture to the changing climatic conditions.

Approaches:
Disciplinary and integrated approaches should be developed:
- Omic approaches for a better understanding of how plants adapt to environmental constraints and why certain crop varieties are tolerant to abiotic and biotic single or multiple stresses. Here a primary focus will be on the genotype x environment interaction trying to understand how transcriptomics and metabolomics might help to assess if and how much the effects bound to agricultural practices are stable and repeatable across a range of environments and over time;
- Ecophysiological and agronomical approaches of farming operations at plot, farm and landscape levels for optimizing water and other inputs (fertilizers, pesticides) in rainfed and irrigated agriculture;
- Approaches focusing on feeding and animal breeding systems for improving sustainable animal production under the Mediterranean environmental constraints, focusing on climatic changes and water restrictions;

- Biodiversity approaches for taking advantage of spontaneous and domesticated biological diversity in Mediterranean agricultural and husbandry systems;
- Multidisciplinary approaches, including genetics, agronomy, animal production, nutrition, ecology, hydrology and social sciences for developing the integrated assessment and design of smart and sustainable agricultural systems;
- Participatory approaches for integrating farmers' knowledge in the innovation process: the adoption by the farmers of new techniques pertinent to cropping systems, crop conservation and post-harvest management and technology should be considered all along the research process as a main objective. Farmers' knowledge, objectives and constraints should be studied simultaneously with the development of technical solutions;
- Territorial approaches that analyse the diversity and spatial organization of farming systems and their environmental and social conditions in the Mediterranean in order to be able to develop site-specific solutions needed by the heterogeneity prevailing within and between the Mediterranean countries.

Expected results:

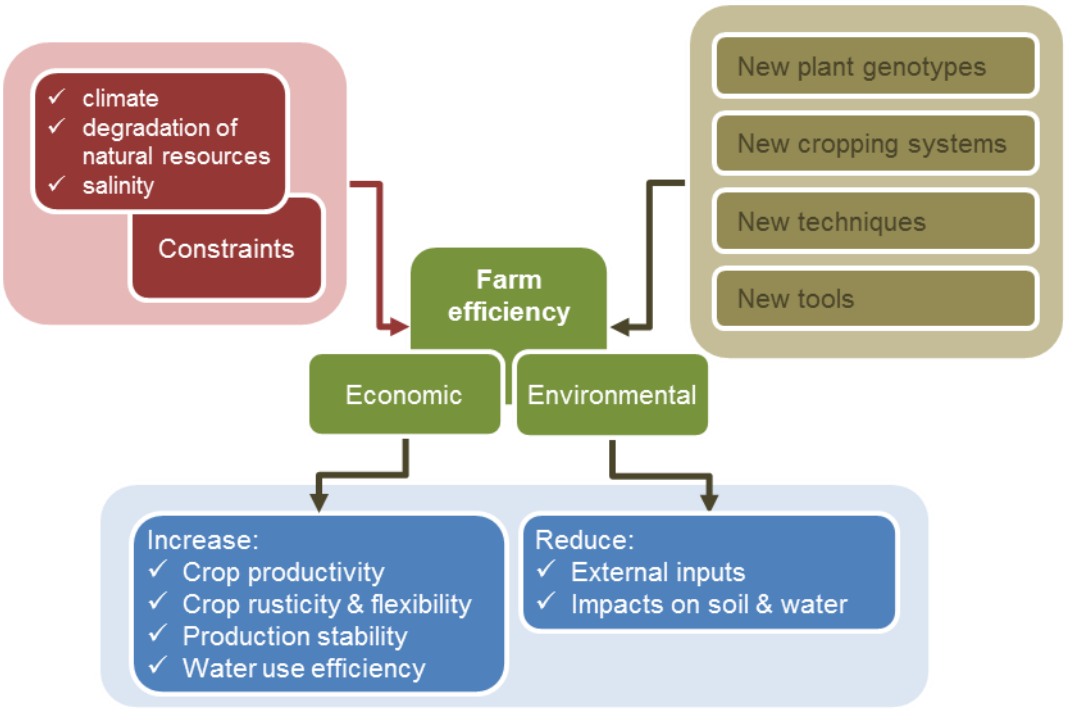
- New genotypes and cropping systems suited to Mediterranean severe climatic conditions: aridity, high evaporative demand and multiple summer stresses, warm winters, salinity, etc..;
- New farming systems and techniques adapted to the diversity of Mediterranean environmental constraints, available resources, cultural habit of growers and to the heterogeneity of farming structures (i.e. specialised or multiple cropping, size, level of mechanisation, etc.);
- Tools (best practices, decision support system, models, etc.) that can assist farmers to improve their day to day or year-to-year decision making management in a risky and uncertain environment.

Expected impact:

- Improving crop and animal productivity, crop nutritional quality and management, thus increasing external inputs use efficiency;
- Increasing rusticity and flexibility of the farming systems in terms of yield and quality stability under the highly variable climatic Mediterranean conditions;
- Limiting and reducing negative externalities on soil and water resources by Mediterranean farming systems.

Activities:

Collaborative research, training/capacity building, demonstration projects, dissemination.



PERT diagram for objective 1.

b.2. Objective 2: To test and promote adoption of context-tailored water-saving solutions, in particular in agriculture.

Keywords: *innovative irrigation technologies, precision irrigation, crop water requirements, "more crop per drop", water footprint, plant water use efficiency, water harvesting, waste water treatment and re-use, desalinization, water recycle.*

Rationale:

- The global change predictions put more stress on water resources and worsen the current problem of unsustainable resource exploitation. Not only environmental sustainability, but also economic and social stability are at stake. In order to support innovative technologies encouraging water use efficiency and treated wastewater use in agriculture, cross-border cooperation is need. The solutions to be developed should be of common interest to all the target regions, involving both Mediterranean shores and in particular areas where agriculture is the main economic activity and the main water user in volume terms. The cross-border dimension should be related to the different techniques and technologies that can be adapted to different pedo-climatic and socio-economic constraints and implemented in different areas;
- The adaptation of the technical solutions to the real farm conditions should be addressed, and their adequacy to the diversity of cropping systems, sites and cultural practices has to be deepened. Adaptation strategies should include: a) deficit/supplemental irrigation; b) application of more efficient irrigation technologies; c) introduction of new resistant (to water/salinity/heat stresses) and slow-maturing crop varieties; d) smart, locally tailored, agricultural practices;
- Rain-fed agriculture needs to adapt to seasonal changes; stable or increasing productivity likely depends on additional irrigation. Most countries have a large set of actual and indigenous knowledge concerning water harvesting technologies and a great potential of adaptability. However, more research is needed concerning the cost of those technologies in order to better assess the feasibility of their implementation.

Approaches:

Innovation should be based on both; (1) the technical solutions to be adopted and (2) the approach followed to implement the tools.

1. Where irrigation modernization has already started through the replacement of surface irrigation with drip or trickle systems, new irrigation scheduling programs for a better matching between water application and real crop needs should be investigated and proposed. Regulated deficit irrigation (RDI) strategies will have to be implemented in those countries where chronic paucity of summer rainfall allows supplemental water to act as a major controller of growth, yield and fruit quality. Under such specific cases, adjusting amount and timing of water supply according to phenology-related plant sensitivity to water deficit will allow to optimize the yield/quality balance; conversely in some countries of the North Mediterranean basin (namely part of Italy and France) now frequently experiencing temporary yet still fairly occasional summer drought, the major challenge is having physiological and/or agronomical decision making tool to assess if

severity of the reached water stress might justify supplemental watering. In other cases, the innovation will aim to the conversion of inefficient surface irrigation systems to drip irrigation, where the energy for pressurization and water needs estimates should be obtained from renewable energy sources. Finally, promoting non-conventional water use should be guaranteed by evaluating the mid-term impacts of the soil-plant ecosystems.

The methodology used should assess water-saving opportunities at the farm scale and include 1) water use efficiency through agronomy, physiology and soil management; 2) irrigation system performance through engineering, modelling and management and 3) use of unconventional waters through the reuse of treated wastewater and desalinization. In addition, all agricultural water management stakeholders should be actively involved in order to accelerate the transfer of the suggested efficient irrigation protocols and to warrant that any activity to be developed will be in line with the water policy of each region as well as other external constraints. The activities should be mainly stakeholder-oriented in order to provide solutions to increase competitiveness and ensure sustainability of the most important socio-economic activity of the involved areas and warranting crop nutritional value, safety and security.

2. Irrigation technical change in the Mediterranean has presently mostly taken place on large farms with the support of large-scale public subsidies. Smallholders, which represent hundreds of thousands hectares of irrigated lands, face considerable difficulties to access such subsidized programs and to adopt standardized new technologies. However, some of them have adapted these new irrigation techniques to their own needs, involving local entrepreneurs and creating new jobs. This innovation process responds to small farmers objectives mainly focused on labor and crop productivity instead on water saving issues. Furthermore, this technical change is often not aware of the related actual water footprint, and sometimes is based on new sources of water (open-access groundwater or treated or non-treated waste water reuse) that leads to serious environmental hazards (groundwater overexploitation, water pollution, health issues). From a users' perspective, the approach will learn from local experiences from the Mediterranean countries, enhance this (informal) innovation process, and will connect it to official national programs dealing with water saving issues.

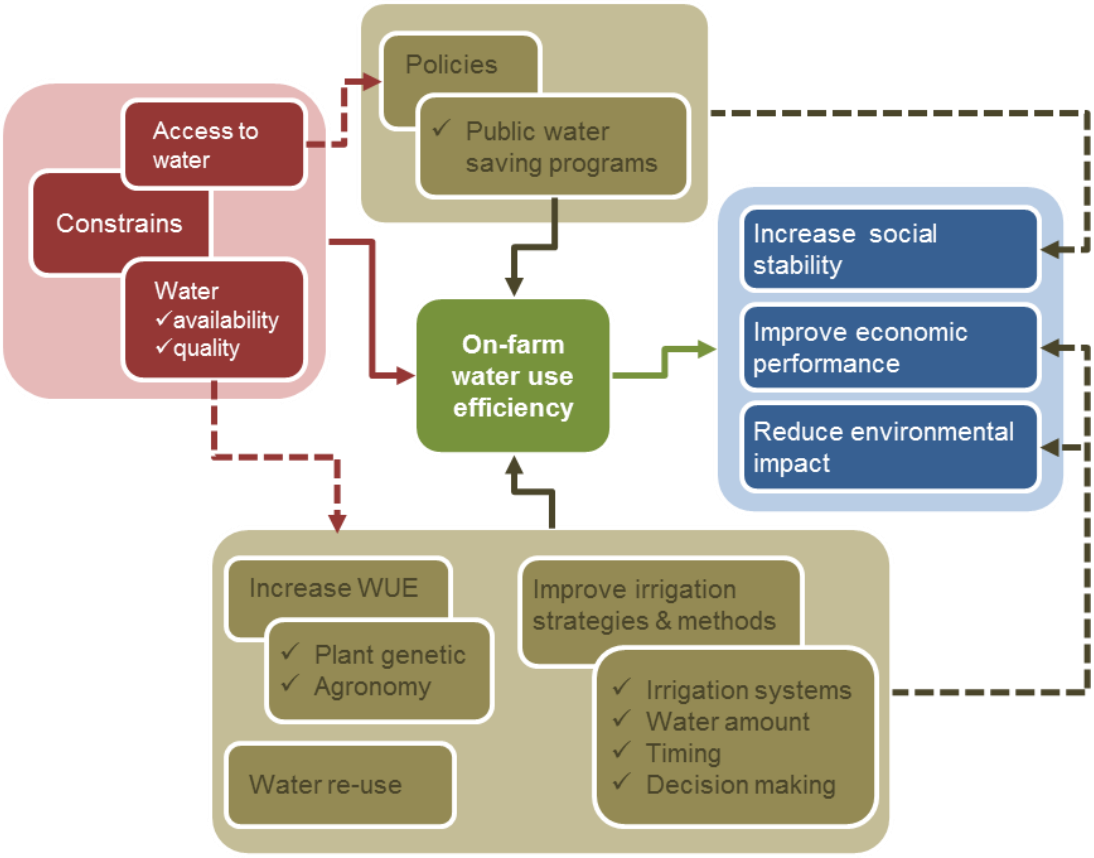
Expected results:

- Availability of cost-effective and tested plant varieties and technological devices to support farmers in targeted irrigation scheduling to increase both crop productivity and water use efficiency while warranting crop nutritional value, safety and security;
- Better consistency between local farmers' and entrepreneurs' innovation process and national and public water saving programs;
- Where applicable, increase in farmers' adoption of specific water supply strategies (i.e. RDI) targeting desired yield level or quality compositional traits and of the reuse of treated wastewater.

Expected impact:

Higher irrigation efficiency enabling water savings. Higher water availability through non-conventional water resources, enabling extension of farming areas.

Activities:
Benchmarking approach, Collaborative research, Prototype development, Demonstration projects, Infrastructures sharing.



PERT diagram of objective 2.

b.3. Objective 3: To innovate in the Mediterranean food products based on Mediterranean diet heritage and to enhance the links between nutrition and health

Keywords: *New product formulation, new ingredients, functional foods, " Mediterranean diet", traditional knowledge, health-promoting diet, nutritional transition, consumers' behaviour*

Rationale:

The scientific literature produced over six decades, from the pioneer Seven Countries Study to the very recent PREDIMED study, establishes the health benefits associated with better adherence to the Mediterranean diet pattern (MDP), mainly in relation to reducing the risk of developing the metabolic syndrome, type 2 diabetes, cardiovascular disease and some neurodegenerative diseases and cancers. A higher adherence to the MDP has been associated with a better nutrient profile, with a lower prevalence of individuals showing inadequate intakes of micro- and macronutrients in comparison to other patterns such as the Western. In the Mediterranean basin, a decrease of MDP adherence has been observed, while the prevalence of obesity and their associated metabolic diseases increased. MDP is characterized by the consumption of nutritionally dense food products. MDP has been identified as a dietary pattern characterized by plant foods (cereals, fruits, vegetables, legumes, tree nuts, seeds and olives), with olive oil as the main source of added fat, along with high to moderate intakes of fish and seafood, moderate consumption of eggs, poultry and dairy products cheese and yogurt), low consumption of red meat (mainly sheep and goat) and a moderate intake of alcohol (mainly one glass of wine at meal).

Together with the traditional main drivers of consumption, such as prices, taste and convenience, there has been an increasing concern towards food-related health issues, quality and sustainability, in a multi- dimensional context (health, environment, and socio-economic conditions). Thus, assessing the sustainability of the MDP (in terms of high-nutritional quality and health benefits, low environmental impact, and accessibility to the whole population) is also crucial in designing intervention policies.

Approaches:

If the efficacy of the Mediterranean diet model on prevention of chronic degenerative diseases has been extensively studied, the Mediterranean diet as a type of sustainable diet has been poorly explored. A valorisation of the nutritional qualities of Mediterranean foods and the development of new MDP based functional foods are certainly an important issue for the agro-food system. Besides nutritional quality, Mediterranean foods include many dimensions such as quality (availability of fortified plant varieties and products), potential health benefits, accessibility (price), convenience (easy to prepare), safety, plus environmental and social requirements. As an added value, Mediterranean food can include also health-promoting and nutraceutical plants thanks to the large biodiversity of this basin.

The compatibility between the environmental and nutritional dimensions of the food systems sustainability has never been investigated. For instance, the dietary recommendations of higher consumption of some crops (fruit, vegetables) that need high level of irrigation can increase

pressure on water use in agriculture in the Mediterranean basin, as countries are developing these crops to satisfy domestic and international demand.
Furthermore, eco-innovation and promotion of local heritage by a better organization of local players (producers, industries, tourism actors), as well as the development of production chains that include food having a high added value can provide a solution to support the development of Mediterranean territories.
Such approach needs to develop collaborations between the different disciplines, nutrition, food sciences, agronomy and social sciences.

Expected results:

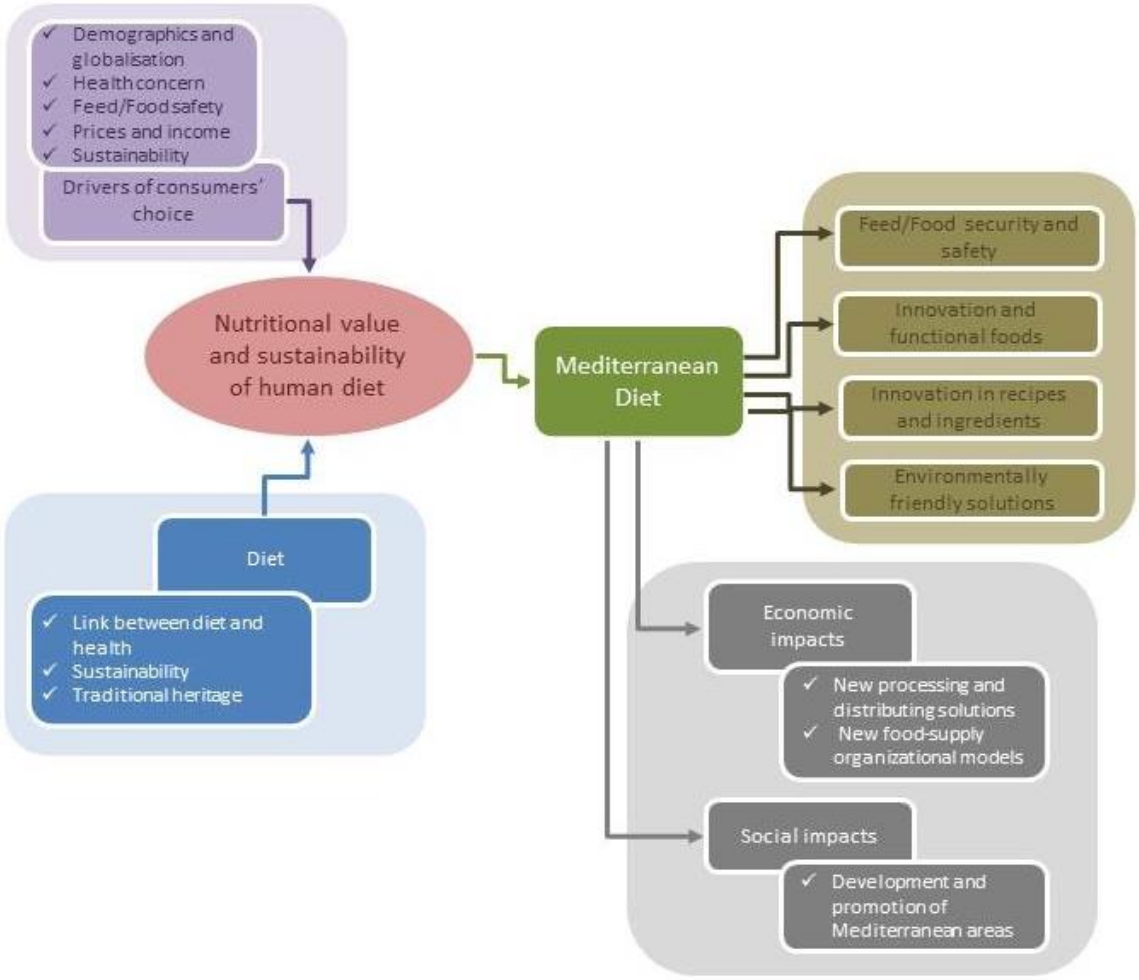
- better exploitation of the raw products (avoiding waste and losses) and the biodiversity to increase the nutritional quality of food products or to produce stable nutritionally dense ingredients;
- New "traditionally" fortified plant varieties and friendly processed food products (such as legumes more convenient for the consumer;
- New formulations of recipes (nutritionally adequate and compatible with other dimensions of sustainability) based on new ingredients, new processing methods or combination of both factor;
- New MD based functional foods formulated or fortified to include health-promoting factors (polyphenols, anti-oxidants, resistant starch, polyunsaturated fatty acid (PUFA) and conjugated linoleic acid (CLA) enriched foods;
- Proposition to "locally" processing solution;
- New modes of «locally» distribution and communication (relation between producers and consumers;
- A policy menu for the promotion of sustainable food choices in Mediterranean countries.

Activities:

Collaborative multidisciplinary projects focusing on contrasting case studies (urbanized vs. rural) could be successful to sustain food security and health in the Mediterranean basin; educational and dissemination activities.

Expected impacts:

Improving food systems capable of sustaining food security and health. Collaborative projects will contribute to raise awareness among decision makers about the necessity to put nutrition at the heart of agriculture and food production and processing systems, in order to improve dietary diversity, food quality and health, while preserving environmental resources. It would be a motivation for the farmers and agro-industries to produce high value added products.



PERT diagram of objective 3.

b.4. Objective 4: To find context-adapted solutions to increase food and water chain efficiency, and reduce losses and wastes.

Keywords: *post-harvest losses, minimal food processing technologies, shelf-life preservation, stocks logistics, biomass reuse, by-product, co-product, energy efficiency.*

Rationale:

Mediterranean food industries produce large quantities of products, often with unique compositional traits, and contribute to rural employment; however, there are many sources of wastes or losses that are discarded or unable to be used along the food and water chain. These losses start from water supplying, agricultural production, to processing, handling, storage, transportation, sale, preparation, cooking and serving of foods and consumption and also water sanitation. About two thirds of all these wastes reach the landfills, more than any other type of municipal solid waste. In low-income countries, most food loss occurs during production and storage of raw products, while in developed countries much food is wasted at the consumption stage. Similarly, water losses are encountered in the different stages of water supply and use processes.

There is therefore a great opportunity and an urgent need of research to find solutions to reduce food and water losses in order to improve food and water security. Furthermore, reduction of production costs by less waste levels and reuse of by-products, shorter supply chains with lower logistic costs and reduced energy consumption will increase the competitiveness and the environmental sustainability of Mediterranean food and water chains.

Approaches:

Technological innovations as well as social innovations are requested to improve efficiency in transportation and processing methods and to enhance waste reduction and valorisation of by- and co-products.

- Food chain efficiency in Mediterranean Area tackles unavoidably water as the main limiting factor for both agriculture and food productions. Their nexus throughout the whole food value chain starts with public water supply that needs developing innovative solutions on desalination and distribution leakages. Introducing water saving technologies like drought tolerant plants, conservation agriculture or precision and deficit irrigation methods in Agriculture are also needed (see objective 2) as well as reducing post harvesting losses in crops and aquaculture. Food product handling and conditioning and extending the shelf life increase their added value (e.g. 4th and 5th range food products "ready meals"), reduce wastes and losses amount, its environmental impact and provide logistical advantages when accessing more distant markets. Yet, water also is involved at this step, comprising reduced water processing technologies or minimal food processing technologies (water and steam in heating treatments) or less water dependent cleaning techniques and appliances.
- Co-using: Food industry, agriculture, livestock, aquaculture or discarded fisheries of the Mediterranean Area generate large volumes of biomass in terms of co-products, by-products, and waste streams that can constitute the basis for the valorisation and recovery of an extraordinary

amount of functional biomolecules and biomaterials with high added value that can re-enter the food production chain. Besides such products, conversion of by-products into energy can play an important role as well. The development and formulation of new functional foods as well as natural preservatives and additives in food (& feed) processing and manufacturing or for pharmaceutical or nutraceutical industry can be conveniently done. These valuable side-products, bio-based chemicals and materials could be used for packaging or coatings, thereby contributing to the creation of additional sustainable value side streams chains for farming and food processing sectors. They might also have great relevance for soil improvement and/or as biomass feedstock via a more efficient/convenient production of bioenergy. Water is also involved in this by-concept, reuse of treated wastewater is clearly a side way to optimize wastewater discharge, rainwater harvesting at food industries or water sanitation procedures.

- Shortcutting and barriers reduction: Good functioning of food and water chain highly relies on physical infrastructure but also on a good management of the whole chain by a better organization of information systems and administration. Good water infrastructures and logistics are the core of efficient food chain governance as well as clustering together primary food producers and the processing and distribution industry to urban markets but also with water provision and distribution in a single chain with mutual commitment and dependency. The integration of small producers (see objective 6) into formal supply channels constitutes another challenge for research on agro-food supply chains.

- Reduction of energy consumption: The large amount of energy consumption for water and food production is a key bottleneck in the whole chain. Energy saving technologies, systems and practices, and approaches for energy recuperation and production from renewables (e.g. food waste streams) will deliver a huge economic advantage by reducing costs. Optimization of logistics goes further into infrastructures and transportation systems, includes shelf life and food quality management during transport and accommodation of production lines to raw materials variability and it is combined with energy consumption assessment, monitoring and control to tackle prime target as cold chain reduction, logistic shortage or new drying methods.

Expected results:

- Development of effective approaches for the determination of water and carbon foot-printing in agriculture livestock, aquaculture and food industries;
- Optimization of transportation and logistics in the food and water supply systems;
- Integration of all processes along the whole food chain to minimize waste and losses and recycling biomasses;
- Optimized processing technologies and production lines able to (i) adapting to quality of the incoming raw materials in order to reduced water/energy consumption; (ii) effectively handle food to reduce costs and increase production flexibility; (iii) minimize processing technologies for 4th and 5th range products; (iv) reducing water consumption or promoting its reuse; (v) implement more energy saving technologies, systems and practices;
- Development and optimization of novel preservation and processing technologies including clever packaging and non-cooling demand for the production of food;

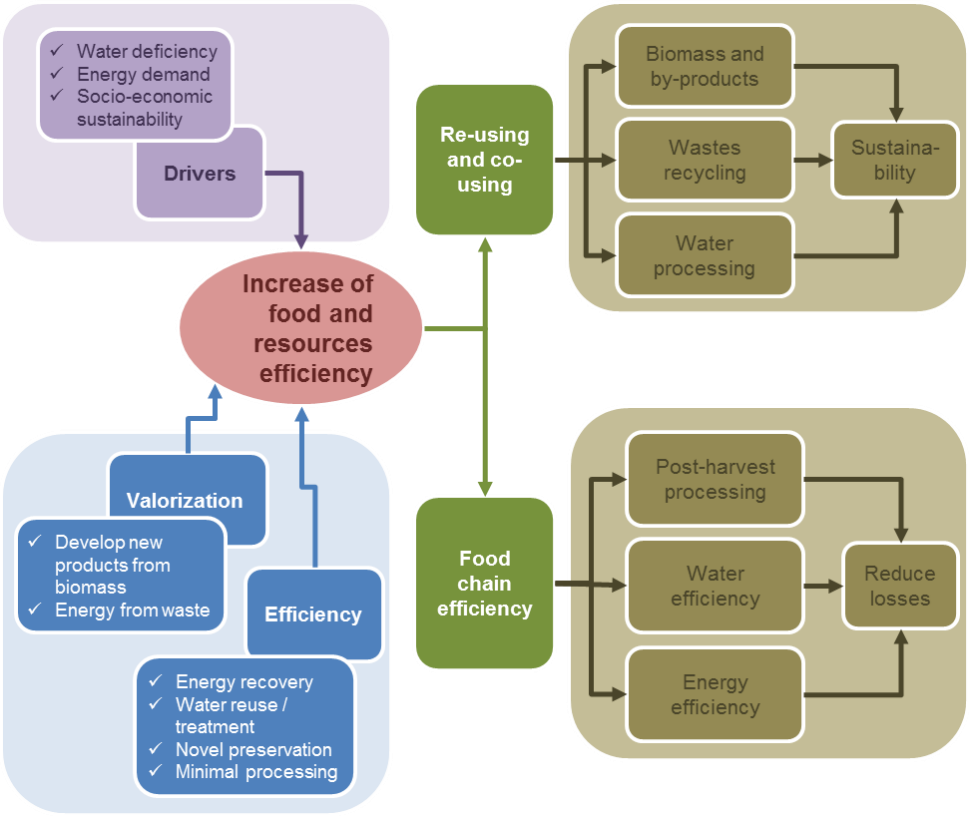
- Development of new products, bioactive extracts, and functional ingredients using by-products and discard from agriculture. These products will target food, nutraceutical, pharmaceutical or environmental applications (natural additives, functional foods, bioenergy, biodegradable packaging materials);
- Effectively recovering energy from waste in the landfill, in composers as well as via biogas production form slurry.

Activities:

- Collaborative research in a multidisciplinary context, to develop new processes along the whole food production chain and minimize waste and losses;
- Multi-actor cooperation, including research entities, industry and stakeholders to develop new technologies related to co-products and co-processes;
- Training and capacity building, needed to promote the implementation of effective technologies, and to characterize water and carbon foot-printing of food and water chains;
- Prototyping and Demonstrators for recovering energy from food wastes and losses.

Expected impacts:

- Improvement in product processing and storage efficacy and efficiency, as an essential contribution in the context of food security policies;
- Improvement of the food chains sustainability by the reduction of wastes and losses;
- Support to the food chain industry, via the identification of added value co-products;
- Optimization of logistics for food production and distribution either at local or transnational level;
- Production of food products with longer self-lives and more favorable microbial stabilities.



PERT diagram of objective 4.

b.5. Objective 5: To design and promote the adoption of novel approaches to reduce the impact of pests and pathogens in farming systems (agriculture, aquaculture and fisheries), including their consequences on human health

Keywords: *integrated pest management, emerging plant and animal diseases, contaminants, marine and freshwater quality, bioaccumulation and magnification.*

Rationale:

The crop and animal production and health issues in the Mediterranean have long been recognized as crucial for four main reasons: i) their impact on local food security and safety; ii) their impact on trade (food products are both imported into and exported from Mediterranean countries, and make a large share of economic balance in these countries); iii) the challenge of economic development of rural areas, where innovative strategies like for instance biocontrol (fueled by the biodiversity resources present in Mediterranean countries and local knowledge) or integrated pest and disease management provide many opportunities for reducing agricultural yield losses and improving farm's business development with a sustainable impact on the environment; and iv) the impact on public health of several zoonosis or the risk of emergence especially from North Africa to Southern Europe (Brucellosis, Rift Valley Fever, West Nile fever, etc.) as well as mycotoxin contamination.

The urgency of this topic on the Mediterranean R&D agenda is reflected in the results of the first ARIMNet call, where 6 of the 10 projects selected for funding partly or fully deal with health issues. These projects show the value of joint research activities between teams around the Mediterranean basin, but also highlight a clear need for a wider and more integrated scheme, as today's projects deal with only one production each when farms in the Mediterranean countries are often managed as multi-production, multi-scale systems.

Approaches:

Tackling these challenges requires trans-disciplinary research actions, involving plant/animal health specialists (biology, entomology, plant pathology, and epidemiology), plant breeders, agronomists & zoo technicians, technologists (health product development and application, information scientists) and socio-economists (acceptability of systems, accompanying measures for innovation adoption). The issue of the impact of food products and their nutritional and safety quality for human health also require medical teams and nutritionists to be involved. More generally, surveillance of plant and animal diseases, as well as mitigation of their impact on food security and/or human health, will involve different stakeholders including human and animal health sectors and taking into account the ecology and environment within a One Health paradigm.

The research strategies should combine laboratory, on-station and on-farm experiments, field surveys and animal cohort monitoring, modelling, and technological development (e.g., ICT-based decision-support systems and candidate biocontrol agents/vaccine products) with a system approach leading to an integrated control strategy.

Moreover, tackling with trans-boundary diseases such as foot-and-mouth disease or *peste des petits ruminants* will require a regional approach to involve all countries at epidemiological risk, as well as the requested panel of skills and technology platforms.

Expected results:

Technological innovations: control tools for plant and animal pests and diseases in agriculture and aquaculture (including biocontrol agents, vaccines, antibiotics, and innovative therapeutics), decision support systems, innovative databases (with diseases and pathogens, breeding material, environment and economic data, etc.).

Networking: research and disease surveillance networks in tight link with existing official networks such as the Euro-Mediterranean network for animal health (REMESA).

Regulation: refinement of quarantine rules and/or lists, risk analysis of introduction and spread of harmful organisms to plants, animals and humans, as well as their vectors.

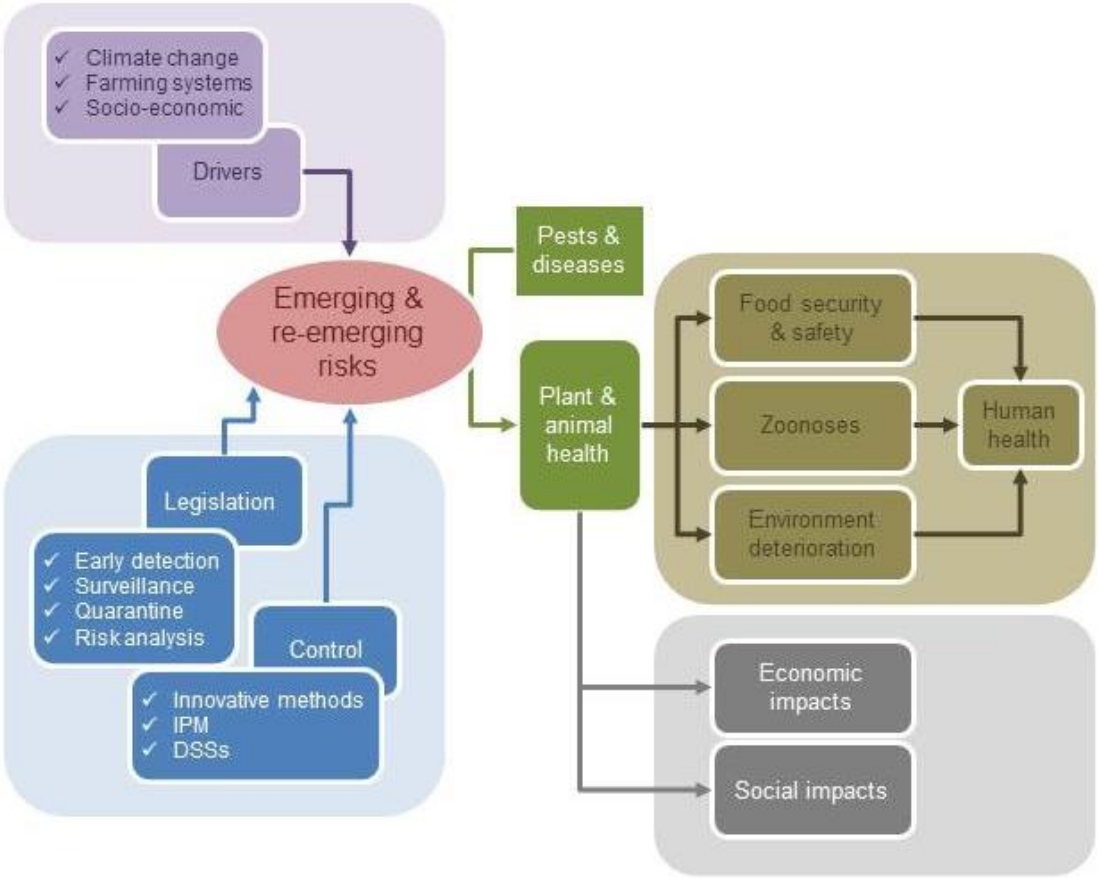
Activities:

The best tools to reach these aims are large collaborative research projects, managed under a single umbrella with a multi-actors approach, and mobility/training programs for undergraduate and graduate students, as well as for researchers.

- Integrated, interdisciplinary and inter-sectorial research projects on diseases impacting production and food security and/or public health;
- These projects should specifically address the vulnerability of the Mediterranean area to emerging and re-emerging pests and diseases in relation with environmental (e.g., climate change) and socio-economic factors (e.g., structure of the rural communities) and their changing patterns. In addition to technological aspects, these project should devote substantial means for a sociological approach of public health, including risk perception, and acceptability of control programs. They should also deliver quantitative epidemiological and economic models and scenarios to support early warning for emerging and re-emerging problems, and decision making systems.

Expected impacts:

- Better knowledge on pest and disease distribution and their drivers (environment, farming systems, cropping practices, animal mobility, etc.);
- Better pest and disease surveillance methods and networks, including diagnostic tools and shared information systems;
- Pest and disease spread and emergence models for decision makers to improve surveillance and control (risk maps, control tools, cost-effective control strategies, etc.);
- Better preparedness at the national and regional levels for quick reaction in case of emerging trans boundary pest and disease outbreaks.



PERT diagram of objective 5.

b.6. Objective 6: To conceive and implement innovative, quality oriented models in agro-business as potential sources of new jobs and economic growth

Keywords: *business models, management systems, certification, traceability, small-scale enterprises, competitiveness, rural development*.

Rationale:

The food sector, mostly based on Small and Medium Enterprises (SMEs), grants millions of jobs in the Mediterranean area, and is becoming more and more strategically important for societal well-being and development because it meets primary human needs.

Nevertheless, the last decades have witnessed the crisis of traditional agricultural paradigms, now considered incapable both to adequately respect natural environment (UN, 2012) and to provide adequate nutrition to a large part of world population (FAO, WFP and IFAD, 2012). Since then, global scientific community has increasingly focused on the research of alternative paradigms, able to produce healthy and quality food, respect natural environment and be in harmony with social contexts involved (Dobermann and Nelson, 2013; SDSN, 2013). This not only regards the innovation of products produced and/or services offered by companies in the sector (the food and beverages sector scores second for radical eco-innovation - EIO, 2011 - following the automobile industry), but also the revalidation and change of all the business processes implemented, in order to introduce an effective sustainable agribusiness management system (as acknowledged by Frondel et al., 2008, food companies are particularly willing to introduce environmental management systems, in comparison to other sectors).

In particular, alongside the emergency for more sustainable practices, the need for agro-food sector companies to shift to more sustainable business models has emerged (Jolink and Niesten, 2013). It is widely recognized, in fact, how corporate efforts towards sustainability should rely on radical changes in the logic according to which value is generated (Stubbs and Cocklin, 2008; Wells, 2013), not only within company boundaries, but along the entire value chain to ensure greater food safety, security and quality.

Adoption of eco-innovation and sustainable business models, together with the reorganization of marketing chains in order to concretely implement the potential sustainability, may then represent the chance for SMEs to increase their competitiveness and give their contribution to the struggle of sustainability issues. This is particularly relevant in the Mediterranean area, where Micro, Small and Medium Enterprises (MSMEs) constitute a significant economic and employment driver, representing ~70% of total workforce and 99% of overall enterprises in the region (EMDC – Euro-Med Development Center for Micro, Small and Medium Enterprises, 2012).

Approaches:

PRIMA intends to analyse the management systems adopted by the companies of the food industry in the Mediterranean area with the aim to suggest possible paths of development to better manage sustainability issues both within the company boundaries and along the entire value chain. This also means to harmonize the different management systems of the companies that make up the same supply chain, sometimes coming from diverse countries. Today more than ever, in fact,

food products regularly cross national boundaries at every stage of the supply chain, and the definition and development of international standards and certifications call for implementing food traceability.

- Focusing on Quality is a general trend in the market, where premium quality and the Country of Origin identity can add substantial value to food products. Notably, regional and traditional foods often have uniqueness in terms of health promoting, sensory and chemical as well as culinary properties. To meet the expectations of today's consumers it is necessary to retro-innovate by applying new technologies on traditional products. Improve the quality of traditional foods from intrinsic food properties, food production methodologies with a view to enrich nutritional characteristics and, possibly, improve the diet and cooking procedures and at the same time preserving local resources, and important elements of the Mediterranean cultural inheritance. The Protected Designation of Origin (PDO) and Protected Geographical Indication (PGI) or a more general systems related to the Lisbon System (WIPO): International Protection for Identifiers of Typical Products from a Defined Geographical Area can be used in order to identify, code and maintain rigorous standards of quality, traceability and product homogeneity.

- Market efficiency and improvement in business models. Most of food companies are generally very small, family firms with limited financial resources and management competences. These features conflict with the need for efficiency increase requiring growing investments-especially to use innovative equipment - and an enhanced commercial distribution to compete in the food market that is becoming more and more global where big corporations have achieved almost dominant positions with respect to small firms. Alternatively SMEs can focus into local markets avoiding long distribution chains with complicated and expensive logistics, clustering together the primary food producers and the processing and distribution industry in a chain with mutual commitment and dependency. Trade policies Public and private standards, and public policies in promoting such integration influence all of these aspects. Characteristics and key features of business models should be analysed, in order to highlight major changes towards sustainability occurred, as well as their impact on economic, social and environmental performance of SMEs.

- Improve the horizontal and vertical organization of supply chains. The adoption of efficient business models at the level of individual agro-food SME's could be of limited use if their connection with the other levels of the supply chain and above all the final market remain questionable. The diffusion and adoption of formal contracts can guarantee to agricultural and basic food producers a safe market access, risk reduction, credit as well as efficient information and technology transfer. Especially at the primary production level, horizontal coordination can also be pursued through producers associations in order to concentrate and manage supply, offering to the following actors in the marketing chain a reliable procurement in terms of quantity, quality and timing, reducing at the same time the scope for opportunistic behaviours.

- Eco-innovation and Eco-innovative business models. In the food and water industry, the pressing need for sustainable production and consumption processes requires new Eco-innovative processes and business models to be settled. Appropriation /adoption of ecological or eco-friendly production or products will be principally driven by consumers' concern about food safety and low impact on environment. Certification, such as the EMAS (Eco-Management and Audit Scheme)

or ISO14001, opens the possibility to segment customers on the basis of the sustainability in the food industry.

Expected results:

Comparative analysis between different Mediterranean countries may facilitate the individuation of best practices in sustainable business models and horizontal and vertical coordination which, in turn, could represent key elements in the process of advance towards solutions to profitability and sustainability problems of agro-food sector as a whole.

In this sense, PRIMA aims to support SMEs to develop their business models and chain management systems, in order to allow them to deploy their full potential, in terms of employment, income, conservation of culture and traditions of the areas, landscape and environment use, upgrading of products, as well as satisfaction of customers' needs.

The evolution of the Mediterranean food industry towards eco-friendly paradigms, integrating safe and quality food production and ecosystem conservation, will reduce environmental impacts, drop waste production, decrease pollution levels and water and energy consumption.

Mediterranean typical premium quality products can represent a fundamental driver for competitive advantage and new business opportunities, selecting a value added market and avoiding the destructive competition on low cost commodities.

These kind of processes/products but also business models will benefit local value chains and economies and are likely to generate new entrepreneurial initiatives and more jobs opportunities and management competences in the food industry.

Activities:

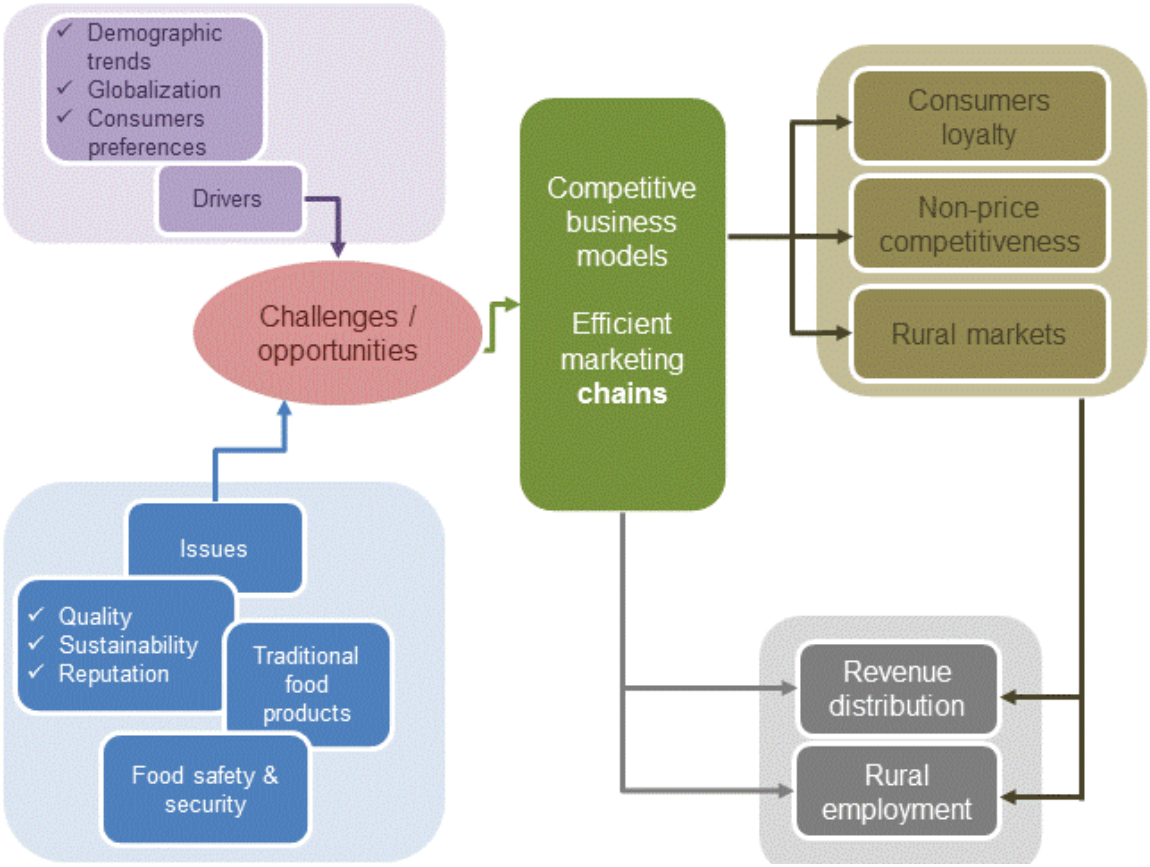
Collaborative research is needed for the analysis of:

- the role of management system in supporting sustainability in food industry;
- the impact of business models and/or management systems innovation on sustainability and economic performance;
- the potential improvement deriving from the vertical coordination through formal contracts and the horizontal coordination among producers;
- to help providing more sustainable food processing and valorizing traditional Mediterranean foods and Eco-friendly food products;
- Training and capacity building both in laboratories and companies would be required to foster the adoption of the technical solutions;
- Research network will be very useful to share experiences to apply agribusiness models to the Mediterranean area characteristics.

Expected impact:

- Increased sustainability of the entire production, trading and consumption cycles of food and enhanced firm competitiveness and rural markets;
- Increased competitiveness of Mediterranean products vs. imported products, based on quality, high added value, reputation and consumers loyalty;

- Increased efficiency and profitability of SMEs;
- Positive environmental and social impacts;
- Spread of innovations;
- New entrepreneurial initiatives and new investment and job opportunities;
- Cluster food producers, processors and consumers into a more efficient chain;
- Increased economic value of eco-friendly products.



PERT diagram of objective 6.

b.7. Objective 7: To improve sustainability of land and water use in arid and semi-arid areas

Keywords: *groundwater, water cycle, water and soil conservation, land and water use, contamination, non-conventional resources, salinization*

Rationale:

More than half of the Mediterranean area is considered as semi-arid or arid and the proportion is expected to increase in the next future, especially in the European rim.

Over the last decades, the concentration of people and economic activities in narrow areas (especially in coastal zones) and the intensification of agriculture have led to a severe pressure on resources in soil and water (e.g. overexploitation of aquifers, contamination by waste disposals and excessive fertilization, increased salinization of soils and waters). In parallel, the relative abandonment of hinterlands and the water and soil conservation works have had multiple impacts on natural resources, improving or worsening the previous situations.

While soil resources are spatially fixed, shifting the cursor between green water and blue water means arbitration between local and distant uses of water. The exacerbated imbalance between different regions (e.g. water availability vs water consumption, economic efficiency vs. social equity) and the increased fragility of the socio-environmental systems are common features of the Mediterranean semi-arid areas. Moreover, usual limits of rural territories (e.g. watersheds, crops vs. grazing lands) are less and less meaningful: among many others, transfers of water, expansion of irrigation, prices in international markets are examples of continuously evolving drivers of the rural systems impacting at various scales.

A sustainable management of water and land resources requires an integrative vision of such complex systems. Beyond local specificities, many experiences must be shared, and lessons taken before reaching extreme, or even irreversible, states of degradation.

Approaches:

The different Mediterranean countries provide a large range of physical and, above all, social, economic and political situations where the current management of water and soil resources is not sustainable. The numerous reasons and paths leading to such critical cases may vary with time, and internal and external conditions. A comparative analysis of such cases, developed from various points of views (in terms of scientific disciplines, socio-educational position of the analyst, etc.) will help at identifying the major drivers of changes in socio-environmental systems, and their interactions (e.g. water access, land status).

A really interdisciplinary approach is required, surpassing sector-based or purely technical approaches. It should address simultaneously biophysical processes, technical changes and social and territorial dynamics. As an example, the real strategies of stakeholders, far from modelled optima or policy-makers wishes, is insufficiently worked out when it often explains the failures of theoretically perfect plans.

Integrated management of watershed systems in order to achieve higher sustainability should be implemented, using also the new GIS-based technologies in conjunction with modelling approaches. Attention should be paid to design innovative agricultural systems optimizing several

agricultural practices: soil use (including animal grazing or other activities involving both livestock and farming benefits), rotation, tillage, fertilization, irrigation, and cover cropping, with the main scope to reduce soil degradation and salinization, maintaining or improving yields. In this full management, studies on soil fertility could also be also taken into account. A new approach addressing soil and underground water degradation accompanied by land and water monitoring mechanisms must be promoted. The factors impacting on soil and water quality must be reduced with a mix of policy measures and innovation actions in order to develop a more sustainable land and water use. This might include designing land management practices to maximise on-site resources and determining how soil inherent properties and cropping practices affect soil's ability to supply minerals and trace elements to plants.

Expected results:

- Improvement of the survey of water and soil resources: identification of the most relevant indicators, minimum density of information, etc… ;
- Anticipation of the impacts of future changes on resources and societies, whatever the biophysical, technical or socio-territorial causes;
- Specific attention to non-conventional water resources and their uses in agriculture (e.g. waste water reuse, desalination for irrigation);
- Test of resilience of natural socio-environmental systems to both variability and long term trends impacting land and water;
- Better vision of the impact of the expansion of semi-arid areas on the Mediterranean budget for water uses and food production;
- New strategies for soil management to provide higher sustainable and productive use of this valuable resource;
- Mitigation of salinization process by combining land conservation and efficient water use from the farm to the watershed scale;
- Development of an interdisciplinary analysis capacity at the Euro-Mediterranean level;
- New vision of the dynamic management of natural resources, considering simultaneously quantity and quality dimensions.

Activities:

- Collaborative research projects;
- Networking for sharing a common vision, selecting the representative case studies, and defining the approaches to be implemented;
- Demonstration and prototype;
- Infrastructure sharing.

Expected impacts:

- Comparison of current management policies (construction, enforcement, adaptability, efficiency);

- Definition of more relevant strategies of water and soil management considering major factors in present and future conditions;
- Better agreement of stakeholders on mitigation proposals, and easier implementation;
- Decrease surface runoff, soil loss and degradation in arid and semiarid region;
- Slowdown soil salinization;
- Reduce underground water salt concentration.
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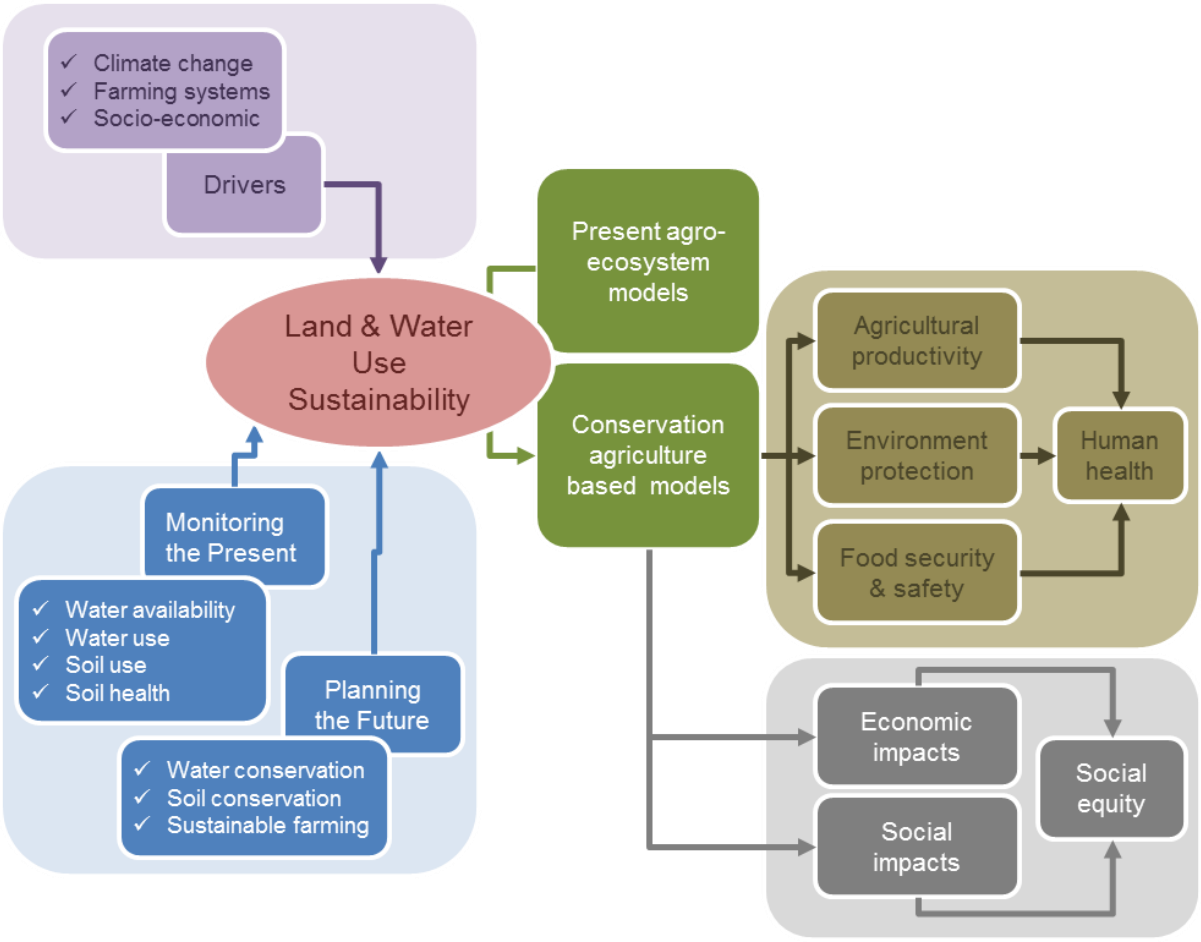


PERT diagram of objective 7.

b.8. Objective 8: To elaborate and stimulate adoption of new models for the governance of water management systems.

Keywords: *water scarcity, water pollution, hydro-graphic basin/district, participatory approaches, non-conventional water, multiple water uses, regulation strategies, integrated approaches.*

Rationale:

Miss-management and poor governance for planning and adaptation to global changes with inequitable water allocation and un-sustainable water management have been pointed out as major problems during several Euro-Mediterranean meetings (Barcelona 2012, CRIA 2012, MIRA 2009-2012). PRIMA programme is representing an opportunity to join new technological approaches to the methodological ones promoted in past research and pilot activities (INTERREG IIC "Drought", INTERREG IIIB SEDEMED, FP5 ARID cluster, MEDA Water MEDROPLAN, FP6 IWRM-NET, FP7 XEROCHORE, CLIWASEC cluster, DROUGHT R&SPI).

A sustainable integrated water resources management should ensure efficient multiple uses in irrigation, drinking and industrial activities as well as the preservation of the natural eco-systems through the quantity and quality of water needed for the functioning of aquatic ecosystem services. In the European Southern countries the complex geomorphologic and institutional asset hosted the implementation of the EU water related directives starting from the difficulties in overcome some geo-political constraints in approaching the water management at the physiographic unit indicated by the WFD that is the basin/district scale. This problem is even more present in the Middle-East and Northern African context where a proper governmental approach could positively act on the conflicts in place and the reduction of some societal crises producing migration from the disadvantaged areas toward the more developed ones.

In FP6 and FP7, in addition to the supply side management of water scarcity, a number of projects have addressed and highlighted the role of demand-side management of water resources as increasingly important in the face of continued expansion of urban growth, water quality degradation, and new uncertainties brought on by climate change. Demand-side management options such as the efficient use of water through the reduction of losses, conservation, and water recycling and re-use will become a more important component of sustainable water management. As of today, the main response to an increasing water demand in the Mediterranean, while not yet considering climate change as a driving force, is a progressive externalization of water resources. Many stakeholders do not seem to realize the limits to this extension within national borders and at the international level. All case studies with an existing water management plan mention desalination as an option for the Mediterranean region to counteract water scarcity. Socio-economic research is needed to assess further competing water use between water for food production and the increasing demand for new services such as energy production in urban areas.

Progress has been made but uncertainties in climate projections and related (hydrological) impact assessment remain and still impose strong limitations on water-related decision-making under conditions of climate change. In particular there is a lack of regional data and the yet unresolved mismatch of spatial and temporal scales of operation from different scientific perspectives.

For some areas, particularly in non-Mediterranean countries, further research is required to reduce uncertainties in crop water requirements in the hydrological modelling of the catchments under existing and future conditions.

Approaches:

PRIMA intends to improve the water governance taking into consideration both from the socio-economic context and properly downscaling to the Mediterranean basin the meteo-climatic trends as important drivers of nowadays and future water resources management.

The development of innovative governance strategies, advanced planning methodologies and monitoring tools are necessary to take into account the huge number of physical, technological and socio-economic variables in water management to better deal with an ever growing need for water and food.

Drought analyses and water accounting at regional scale will be performed taking into account the outputs of monitoring and forecasting systems at Mediterranean scale (downscaling global meteorological models and CC scenarios) in order to plan and manage the water supply systems considering climatic and anthropogenic changes and cope with water scarcity. Production of new resources, e.g. from desalination, through technologies even more efficient, with a lower power consume and competitive costs will be taken into account in a framework of IWRM.

Participatory approaches will improve the water resources management giving the possibility to better consider the needs from different economic sectors and the civil society. The awareness produced by a proper information and communication activity will result in a productive cooperation in saving water resources and in the public services organization and regulatory activity. The integration among the scientific knowledge and the local experiences had to be facilitated by proper methodological approaches.

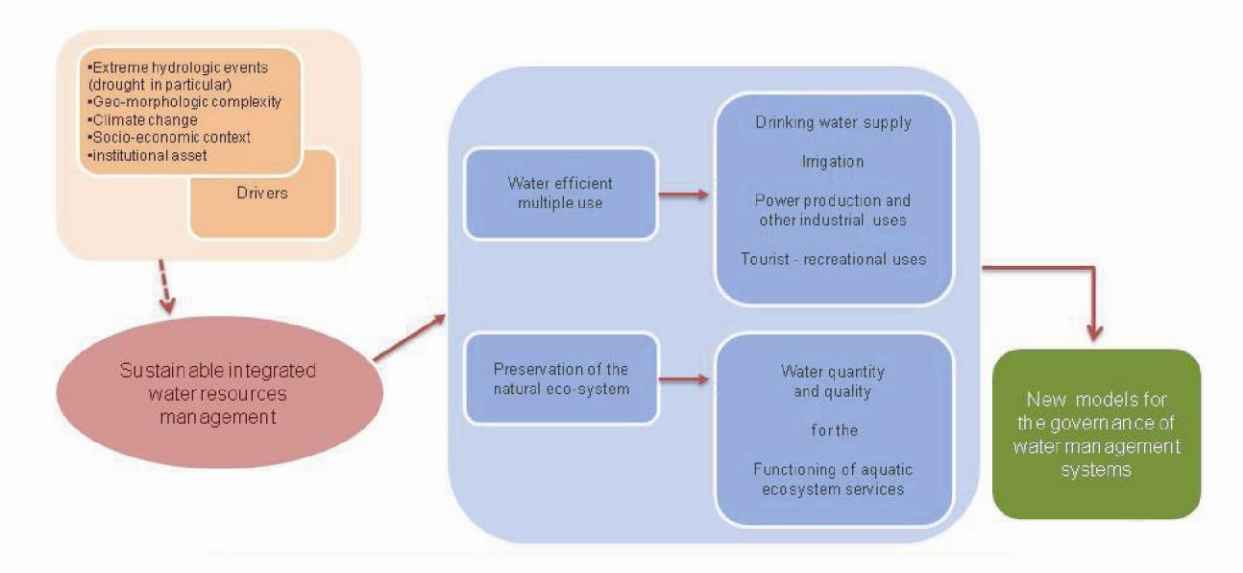
Expected results:

- Development of innovative tools/DSSs for planning and adaptation to global changes including public and private stakeholders' involvement;
- Implementation of monitoring and forecasting systems to support the water management under scarce condition;
- Integrating new resources production (desalination and treated waste water) into water management system;
- New methodological approaches to enhance public, stakeholders involvement and empowerment of civil society in water resources management;
- Protection of quality water resources for agriculture and aquaculture;
- Ensuring the water sanitation and detoxification from food production systems.

Activities:

Research and Demonstration projects

Expected impact:
improved governance, integrated water resources management in all the MA, minor events of water scarcity, adaptation to drought and CC effects.



PERT diagram of objective 8.

c. Activities to be launched

The PRIMA Programme will include the following activities:

- launching joint Calls for Collaborative research;
- promoting networking, coordination, alignment, collaboration and integration of national research programmes and activities;
- fostering capacity development for research and innovation in Mediterranean Partner Countries through grants for: career development of junior and senior fellows, promoting mobility, staff exchange grants, research training networks, mentoring and partnerships at individual or institutional or regional level;
- ensuring awareness, endorsement and acknowledgment of the PRIMA Programme and its activities through advocacy and communication, not only at Union level and in developing countries, but also at global level;
- **Mobility** programmes;
- Networking activities and exchange of good practices amongst the participating states in order to favour **stronger integration at scientific, managerial and financial level and a stronger coordination, alignment and integration of national research programme**;
- Brokerage, programme promotion and networking activities with other stakeholders (investors, research and innovation providers, intermediaries) to **widen participation from beneficiaries in all Participating States and to connect supply and demand-side organisations and investors.**

Private entities, particularly companies and SMEs' participation in the projects will be encouraged in order to translate R&D results into socio-economic results.
Nevertheless, PRIMA will not use PCPs and PPIs, instruments that have not been broadly tested transnationally at EU level yet and that require very specific expertise.

The following table presents the activities that PRIMA intends to launch for each thematic objective. This is subject to adjustments in annual work plans according the budget available. Moreover the annual work plans will defined whether the activities foreseen are to be supported through in kind or in cash contributions by Participating States.

	Objective	Collaborative Research Projects	Demonstra-tion projects	Prototype development	Infrastructure Sharing	SMEs partnership	Training	Disse-minatio n
1	Smart and sustainable farming	X	X		X	X	X	X
2	Water-saving solutions	X	X	X	X	X	X	X
3	Nutrition/ Mediterranean diet	X	X			X	X	X
4	Food and water chain efficiency	X	X	X	X	X	X	X
5	Reduce the impact of pests and pathogens in farming	X			X		X	X
6	Innovative business models in agrofood industry	X	X			X	X	X
7	Land and water sustainability in arid and semi-arid watersheds	X	X	X	X		X	X
8	Policies and governance of water management systems	X			X		X	X

Gender issue

In all its activities, the PRIMA Programme will ensure the effective promotion of gender equality as set out in Horizon 2020. It will therefore pay particular attention, in so far as possible, to gender balance, subject to the situation in the field, in evaluation panels and in bodies such as advisory groups, expert groups and the DIS. The gender dimension will be adequately integrated in research and innovation content in strategies, programmes and projects and followed through at all stages of the research cycle.

4. PRIMA Added-Value

4.1 From a fragmented RDI landscape to an integrated programmatic approach for food- and water-related domains

a. A rich scientific cooperation between researchers and research performing organisations lacking global coherence and integration into a mutual programmatic approach

Links between research performers (universities, research and technological institutes) from the EU and MPCs have steadily increased and became abundant. This is not only due to historical relationships and proximity of the all countries around the Mediterranean but also, in the field of Food and Water, to the need to address common challenges in terms of adaptation of agriculture to global change, water and natural resources scarcity or changes in food systems. Partnerships among teams or research institutions have been increasing along time through researchers' mobility, joint supervision of PhD, and joint research projects. Food and water is the most intensive domain of R&I cooperation between Euro-Mediterranean countries, in terms of number of FP projects funded, bilateral cooperation in the region and bibliometric outputs.

Bilateral agreement between research organisations, national research funding programmes and international scientific exchanges programmes have been developed at the national and bilateral level allowing different types of partnerships. Such scientific links between researchers from the EU and MPCs have also largely benefited from a rather large number of multilateral cooperation projects supported by the successive EU framework programmes for R&D.

However, little was made to join the efforts and ensure that bilateral initiatives and supported small-scale projects were reinforcing each other. That's why PRIMA Participating States are proposing a change of scale by integrating these numerous projects into a single programmatic approach in the long-term. To achieve this, a legislative proposal from the EU would make a clear difference by enabling coordination, co-funding and co-ownership between the EU level and the national levels.

As of February 2014, 580 participations from Southern Mediterranean countries were registered in FP7 signed agreements, receiving a total EU contribution of about 60 million euros[13]. Besides the "Capacities" programme, the KBBE programme is the most important in terms of MPCs participation, followed by Environment and Energy. Sustainable agriculture and water management issues are the major topics covered by the funded research projects inside KBBE programme, which demonstrates the relevance of the chosen fields for PRIMA if we want to overcome fragmentation in research and innovation.

[13] European Commission, SWD(2014) 276 final SFIC, Roadmaps for international cooperation

A consequence of this intensification of RDI common projects is the increase of co-publications among countries all around the Mediterranean over time. In the fields of Agriculture, Food and Water Resources, the publications and co-publications of the Mediterranean countries[14] have been studied through a bibliometric analysis (ARIMNet WP1). The results of this study in the Mediterranean area are the following:

Spain, Italy, France and Turkey are the four first in terms of number of total publications (their number of publications representing respectively 26% for Spain, 23% for France and Italy and 15% for Turkey); the other countries are far behind with less than 5% of the total each. Inside this total number, we can identify the publications that are co-authored with a researcher from another country. These co-publications give an indication on the importance of partnerships. The strongest links seems to be between France, Italy and Spain but these countries are co-publishing also with Southern Mediterranean Countries. There are still few South-South collaborations.

If such cooperation projects and co-publications at the level of research performing institutes are abundant, they are often disconnected and some duplication can be observed. They lack a platform to communicate and exchange practices. Coordination between them could improve their efficiency in addressing the Mediterranean Challenges to the benefit of citizens and tax-payers. An integration of these scientific projects and agendas into a coherent programme for food and water at the regional scale is what PRIMA is aiming at. Hence, the highest degree of integration should be pursued, which is precisely what article 185 TFEU offers. This instrument would allow higher impact and a more cost-efficient use of both national and EU research funding.

b. Preparatory transnational research funding cooperation have prepared the ground for integration into a large-scale unique programme for food and water-related R&I

Institutional dialogue and cooperation at the level of research funding organizations are already supported through several INCO-Nets (MIRA, MED-Spring) and ERA-Nets for the Mediterranean region (FORESTERRA, ARIMNET following by ARIMNET2, and ERANET-MED), thereby encouraging Euro-Mediterranean cooperation at the level of programming and research funding agencies. Supported by FP7, MEDSPRING, ARIMNet, ARIMNet2 and ERANETMED are important steps towards PRIMA: they involve a large number of Mediterranean countries willing to intensify and deepen their cooperation after 2017 in an integrated funding programme for food and water-related resources, they are launching transnational calls for proposals that are co-funded and co-decided between all participating countries, no matter if they are EU Member States or MPC. They therefore prepare the ground and practices in line with principles that PRIMA has retained.

MEDSPRING (2012-2016) is a bi-regional cooperation platform financed by the European Commission (DG Research and Innovation) under the 7th Framework Programme. The project

[14] Only the countries members of the ARIMNet Network have been considered in this study. Data from 12 Web of Science Subject Categories chosen in relation to ARIMNet fields of research, 2007-2012 (Bedu et al. 2012)

aims at reinforcing the Euro- Mediterranean Cooperation on Research and Innovation in relation to the Barcelona priority areas: water, food, energy, health, transport and marine environment and, in particular, in the field of the three relevant societal challenges of the Mediterranean region: Resource efficiency (particularly Water), High Quality Affordable Food and Energy (particularly renewable energies).

The programs in the MPC cover a large variety of topics. The topical area supported by most programs are agriculture, "energy, energy technologies" and "environmental research", followed by "economics, social sciences and humanities" and "healthcare and medicine" as well as "biology and biotechnology".

ERANETMED (October 2013 – September 2017) in an ongoing ERA-Net supported by FP7-INCO. They address the main Euro-Mediterranean societal challenges (energy, water and food, health, marine environment). **ERANETMED** involves Algeria, Cyprus, Egypt, France, Jordan, Greece, Germany, Italy, Lebanon, Malta, Morocco, Portugal, Tunisia, Turkey, Spain. One year after its kick-off, ERANETMED has announced its first transnational call for proposals on renewable energies and water resources and their connections for the Mediterranean region[15] , for an amount of more than 13 million€ co-funded by Algeria, Cyprus, Egypt, France, Germany, Greece, Italy, Jordan, Lebanon, Malta, Morocco, Portugal, Spain, Tunisia, and Turkey.

Covering the issues of agricultural production, food systems and natural resources used by agriculture, **ARIMNet 2** (2014-2017) is the successor programme of ARIMNet (2008-2011) and involves Algeria, Croatia, Cyprus, Egypt, France, Greece, Italy, Israel, Malta, Morocco, Portugal, Slovenia, Tunisia, Turkey, and Spain. In ARIMNET, a call for research proposals has been successfully launched in 2011 with the participation not only of five European countries (France, Italy, Spain, Greece, Cyprus) and two associated countries (Turkey, Israel) but also of four Mediterranean Partner Countries (Algeria, Morocco, Tunisia and Egypt). All the countries have participated on an equal basis in co-funding and in designing the priorities and procedures for the call. Evaluation and selection have been conducted on rules and procedures that are already in line on what is currently asked in ERANet+ Cofund actions. Ten research projects have been launched and are currently running with a total funding of 7 million euros. The second call of ARIMNet2 is ongoing (a very large number of pre-proposals have been submitted). Two more calls are planned for 2016 by these two ERANETs (see annex 1 for details).

Therefore ARIMNET 2 and ERANET MED currently develop and test the processes for transnational calls for research proposals in the region. It demonstrates that PRIMA Countries (EU Members, Associated Countries and MPCs) have already the willingness, the capacity and the experience of co-funding joint activities; it therefore provides a strong basis to go further and

[15] http://www.eranetmed.eu/index.php/component/phocadownload/category/7-calls-announcement#

deeper towards integration in a reinforced partnership. After ERANETMED and ARIMNEt2, which both end in 2017, there will be a need to step up a gear and strengthen the cooperation under a more ambitious and integrated way. This is what PRIMA, as a successor programme, proposes to do. If based on an Article 185 TFEU, PRIMA would allow to:

- Integrate scientific issues at stake in common challenges: Water and Food systems are currently addressed separately by ERANETMED and ARIMNet whereas they need to be addressed jointly as shown in the scientific part of this document;
- leverage and pool public funding for R&I to reach critical mass: PRIMA initiative will have the advantage of concentrating amounts of funding for research goals which are currently split in different initiatives (cf. also part 5.2. of this proposal on national financial commitments already expressed and additional leverage effects);
- avoid duplication of efforts: as described above, the Mediterranean area is the attention of many research initiatives that highly fragmented and lack of coordination and a platform for interactions within the same fields;
- enhance cost efficiency and better use of tax-payer money: multiple small-scale projects with independent management structures on the same topic are more costly than a single, centrally coordinated large-scale initiative (economies of scale);
- sharing existing resources such as technological infrastructures and human resources.

4.2 Ensuring long-term commitments in a well-structured and integrated partnership

a. Integration to leverage a critical mass of national funds

As described above, PRIMA Participating States already have the experience of launching co-funded transnational calls for proposals in ERA-NET actions. When these cofunded actions will end (2017), they would like to move forwards to reach the **highest level possible of regional integration of their RDI programmes in the fields of food and water.** They therefore propose to use Article 185 TFEU to replace the current cofunded actions and to undoubtedly give an incentive in the long-term for the alignment of national and EU programmes.

In the eventuality of a programme established on the basis of Article 185 TFEU, PRIMA Participating States would be committed to ensure scientific, managerial and financial integration through the following actions:

Science integration

- to define together and develop in a coordinated manner a multidisciplinary, integrated and forward-looking strategic research and innovation agenda (SRIA): all partners will join forces in terms of competences, skills, and infrastructures in order to carry out the SRIA and implement its annual work plans, attract further contributions and establish wider collaborations; the scientific integration of the national programmes realised in the framework of an Article 185 TFEU, while creating and optimising cooperation and complementarities,

would prevent duplications and initiatives overlapping or even sometimes competing with each other. A common SRIA would save time and resources, shorten the track leading to the translation of research results into socio-economic impact.

- to develop a dynamic approach in a changing context: PRIMA needs to be able to fast and efficaciously adapt to the a rapidly-evolving context in which the whole programme is embedded (R&I continuously produce new results, new technologies, the social contexts and innovation paradigms are moving systems, and the environmental pressures (climatic, political, cultural, etc.) may differently affect the programme in the long run and in the wide area involved. On the other hand, the partnership needs to maintain a high level of balance and cohesion.

Management integration

- to initiate a balanced partnership based on equal footing according to key principles: co-ownership (shared responsibilities and governance), cofunding, mutual interest, shared benefits;
- to initiate a solid co-managed partnership: the Dedicated Implementation Structure (DIS) sets up a fully integrated management, where all partners are equally called to express needs and opinions, propose, decide, find solutions, take their share of the work upon themselves, assume responsibilities, enjoy successes, bear consequences of possible inadequacies and take measures to solve them; at the same time, the joint management operated by the DIS helps to overcome organizational difficulties and possible lack of human resources in participating countries;
- to rationalize the organization of the activities within a single management structure that will contribute to reduce the transaction costs in a cost-effective manner;
- to work according to ERA and Horizon 2020 key principles, in particular scientific excellence, free circulation and impact, and Horizon 2020 rules of participation;
- to agree on common application, evaluation, funding and reporting procedures on the basis of H2020 principles;
- to improve the governance in RDI cooperation with MPCs.

Financial integration

- to attract for the first time large investments from several Euro-Mediterranean Countries (irrespective of their status as MSs or MPCs), thereby to reach a critical mass that has never been obtained so far in any cofund action ;
- to pool resources in a sustainable way and considering the long-term perspective (10 years ex-ante financial commitments from the PRIMA Participating States);
- to increase the efficiency and impact of public investment in R&I in the area by leveraging funds from different level;
- to guarantee the multiannual financial commitments of the participating states and the EU;
- to optimize the Member States investments;

- to use a 'mixed pot' system (national contributions for national researchers but a reserve from the EU contribution to ensure that selection list of projects follows experts list);
- ultimately, to manage national and EU contributions centrally within the DIS, with a single central grant agreement and a single set of rules;
- to implement Horizon 2020 at regional level with a smart specialisation on food systems and water resources in interplay with environment, health, energy and transport.

Policies integration

- to implement other EU policies, e.g. to enable RDI policy to contribute to the objectives of the neighbourhood policy, rural development and water policy, environmental policy through the 'greening' of food production and sustainable water management;
- to implement commitment[31] of the Innovation Union that aims at proposing common EU/MS priorities and approaches for scientific cooperation with third countries;
- to integrate southern neighbour countries in the European Research Area[16];
- to hopefully preserve Europe's position as the privileged partner of the MPCs in STI while our main competitors are increasingly investing in this region.

Such levels of integration, in the long-term can be reached only through the use of Article 185 TFEU and thanks to the institutional stability that it can create, which is so crucial in the Mediterranean area. Long-term perspective will go hand in hand with flexibility to allow PRIMA to redefine some of its features in order to keep them up-to-date. In particular, PRIMA should be able to target the financial resources where they can make the most for the attainment of the results, or where an emerging issue requires immediate attention.

b. A key feature of PRIMA: co-ownership, mutual interest and shared benefit

A specific added value for PRIMA which distinguishes it from other initiatives based on Article 185 TFEU is that all Participating States, no matter if they belong to the EU or if they are so-called "third countries" are developing the programme in a true partnership approach by being all placed on an "equal footing" basis in all phases. Therefore, the conception of the partnership and the definition of the programme clearly reflect the interests and priorities of all countries involved. The preparatory works were chaired by Italy and co-chaired by Jordan to enhance collective ownership from European countries and MPCs, they were discussed at length and co-decided. The ex-ante financial commitments expressed also reflect this (cf. Annex 4). This partnership approach will prevail naturally also for all incoming implementation phases.

[16] « The EFTA countries, EU enlargement countries and countries covered by the European Neighbourhood Policy, where the focus will be on fostering integration into – or alignment with – the European Research Area, including through their possible association to Horizon 2020. For the Neighbourhood, this will contribute to developing a "Common Knowledge and Innovation Space", including improving the research and innovation competences of these countries. Cooperation will be in close coordination with the instruments of the enlargement and neighbourhood policies, as underlined at the recent conference on a renewed Euro-Mediterranean partnership in research and innovation. In: Enhancing and focusing EU international cooperation in research and innovation: A strategic approach, COM(2012)497, 14 September 2012

Therefore there is no doubt that PRIMA is based on the principles of co-ownership, mutual interest and shared benefit. No matter if a Participating State belongs to the EU or is associated to Horizon 2020 or is a MPC, it will have the same rights and obligations in the governance and implementation of the PRIMA, provided that it financially contributes to the programme. The cooperation in the Mediterranean is so advanced that it would have been unthinkable to agree first within the EU, internally, on a programme and then propose it to the MPCs. Everything is to be developed and decided hand in hand.

To sum up, PRIMA presents all features for being a tool of "scientific diplomacy". This further enhances the argument for the use of the most stable instrument in the long-term. No solid diplomacy can be built when the horizon is a co-fund action.

The proposal of PRIMA as an Article 185 TFEU comes at the end of a long, challenging and exciting process, in which the participating MSs and MPCs have built on – and reinforced – the trust already developed through their bilateral and multilateral relations and cooperation. It is the public-public partnership instrument that can keep alive and make the most of this **transnational and international convergence exactly where it meets interests and objectives of the European Union** on its way to the realisation of Europe2020 and to the strengthening of its role as regional and global partner.

c. Completing other European initiatives

It is worth mentioning two types of European initiatives that PRIMA could complement, therefore bringing further EU added value: Joint Programming Initiatives (JPIs), aimed at aligning national R&I agendas to address societal challenges, and the European Innovation Partnerships (EIPs) which are a new approach to EU research and innovation focusing on societal benefits and a rapid modernisation of the associated sectors and markets. PRIMA will complement the actions of the relevant JPIs and EIPs, related to its field of activities, by addressing the specificities of the Mediterranean Area. Furthermore a third type of European action, the *European Neighbourhood Programme for Agriculture and Rural Development* (ENPARD), could also benefit from PRIMA research and innovation activities.

Joint Programming Initiatives

- The on-going **JPI FACCE** (Agriculture, Food Security and Climate Change) has been launched in October 2010 and involves 21 Countries. The Strategic Research Agenda focused on five core themes, which are relevant within PRIMA: Sustainable food security under climate change; environmentally sustainable growth and intensification of agriculture; Trade-offs between food supply, biodiversity and ecosystem services; Adaptation to Climate Change; Mitigation of Climate Change.

The Mediterranean priorities issues expressed during the MEDSPRING Joint MPCs-JPIs inter-institutional meeting[17] include, among others:

- Mediterranean crop yields in the face of climate change;
- Resilience of regional food system and food chains to climate change;
- Water management for agriculture and precision water management in crop production at farm and catchment scale;
- Urban agriculture, precision agriculture and multi-component agriculture;
- Adaptation of livestock to heat.

However, out of 21 countries represented in FACCE, only 4 are Mediterranean MSs, 2 are Mediterranean ACs, and no MPC is involved. The under-representation of Mediterranean stakeholders limit the potential efficacy in tackling the regional issues, the availability of local financial support in the long term, the uptake of results, and therefore the impact of the initiative to face the Mediterranean challenges.
PRIMA will capitalize on the activities that are currently done to develop common reflexions. The work done in the ARIMNet2 Strategic and Scientific Research Agenda on the basis of the JPI FACCE SRA will constitute a first input in this direction.

- The **JPI Water** aims at "Achieving Sustainable Water Systems for a Sustainable Economy in Europe and Abroad" by implementing a Strategic Research and Innovation Agenda (SRIA) focused on Maintaining Ecosystem Sustainability; Developing safe water systems for the citizens; Promoting competitiveness in the water industry; Implementing a water-wise bio-based economy; Closing the water cycle gap. All these actions contain key implications for the Mediterranean area, but no specific focus is foreseen in the JPI in order to take into consideration the specificity of water issues in the Mediterranean: soil situation, the population distribution, water scarcity, desertification issues and so on. The holistic approach of PRIMA integrates all these elements, and can therefore produce innovative results tailored for the situation, thus fostering their uptake. On the other hand, many of the JPI Water partners will be actively involved also in PRIMA, and will foster the complementarity of approaches and strategies already defined at programme level.

JPI FACCE and JPI Water have designed broad Strategic Agendas, however they mobilize insufficient funding for implementing specific actions on geographical areas. They recognize that the Mediterranean Area is a region where the problems they tackle are particularly accurate. PRIMA will be the funding instrument for addressing the issues in the Mediterranean Area.

- To a lesser extent, interactions should also be considered with the **JPI Healthy Diet Healthy Life** and the **JPI Oceans.** They will be organized when time will be to design more precisely the work plan of PRIMA.

[17] *Flash note*, Joint MPCs-JPIs inter-institutional meeting, Bari, 15 July 2014

European Innovation Partnerships

European Innovation Partnerships (EIPs) are a new approach to EU research and innovation. EIPs are challenge-driven, focusing on societal benefits and modernisation of the associated sectors and markets. EIPs act across the whole research and innovation chain, bringing together all relevant actors at EU, national and regional levels in order to step up research and development efforts. Two EIPs are of interest for PRIMA.

The **EIP Water** which aims at stimulating creative and innovative solutions to tackle water challenges. In particular to:

-speed up development of water innovation through a multi-stakeholder water innovation network;
-contribute to sustainable growth facilitating co-generation of innovations for sustainable growth;
- stimulate uptake of water innovations by market and society;
- promote policy changes towards improved innovation transfer.

One of the 25 Action Groups active within EIP Water is: "WIRE, Water & Irrigated agriculture Resilient Europe", committed to unlocking the potential of innovative or improved water management in irrigated agriculture. WIRE considers that a more efficient and productive use of water is intended also to preserve and increase the employment in the irrigated agriculture sector and in the related ones. In this sense, WIRE has identified three priorities primarily to address: 1) water reuse in irrigation, 2) energy saving in irrigation and 3) integrated agricultural water management under drought. These three topics are well covered within the PRIMA eight operational objectives that imply that the identified priorities will be possibly funded through PRIMA.

The **EIP on Agriculture Productivity and Sustainability** mainly aims to foster a competitive and sustainable agriculture and forestry sector. Its aim is to contribute to increase production and productivity in order to respond to the growth in global food demand, to improve sustainability and resource efficiency and address environmental issues. This EIP aims to provide a working interface between researchers, extensions services, and other stakeholders at EU, national and regional level. It will help to bring innovative approaches faster from science to practice and to ensure feedbacks about needs from practice to the scientific community. The EIP will facilitate exchange among innovation actors, sharing good practice, and informing about opportunities, in view of enhancing and improving the effectiveness of innovation-related measures on the side of both the Common Agricultural Policy and the Union Innovation and Research Framework.

PRIMA will help tailoring existing or upcoming innovation to farmers' needs in view of facilitating the uptake of innovative approaches. This will be done while taking into account the specific requirements deriving from the agro-climatic conditions across the Mediterranean shores, the legal framework as well as the multiplicity of farming systems and crops grown. PRIMA will therefore liaise with the EIP on Agricultural Productivity and Sustainability, with a strong commitment to

develop synergies where possible and draw on mutual benefits to make use of innovation in view of a more sustainable water management and more effective return of investments in agriculture.

ENPARD

The *European Neighbourhood Programme for Agriculture and Rural Development* (ENPARD) is a policy initiative that is part of the EU's commitment to inclusive growth and stability in its Neighbourhood, recognising the importance of agriculture in terms of food security, sustainable production and rural employment.

Currently, an ENPARD project aims at supporting the preparation and start-up phase of ENPARD in the Southern Neighbourhood, through supporting beneficiaries and the European Commission in elaborating and fine-tuning the ENPARD concept on regional and national level. Starting from a comprehensive analysis of the existing situation in agriculture and rural areas in each country, ENPARD first phase supports the partner countries in identifying their challenges and needs in the sector in a wide national consensus and, on this basis, preparing long-term strategies for agriculture and rural development. Pilot activities are then be formulated - according to the particular interests of each of the partner countries – to facilitate these processes and to gain first-hand experience on how to best adapt specific elements of ENPARD concept to the realities on the ground.

A joint action linking ENPARD and PRIMA can be very fruitful to identify the research needs, to feed the research agenda and, as well, to assess the impact of research on agricultural and rural development.

Only a central DIS for the implementation of an article 185 TFEU can ensure that PRIMA will be such a well-structured partnership, complementing other EU's initiatives.

4.3 A greater socio-economic impact for the whole euro-mediterranean area

a. Working along the whole value chain: including end-users in order to foster a true Knowledge and Innovation System

In order to achieve not only scientific but also socio-economic impact, PRIMA intends to support the whole innovation chain to ensure that research results are translated into economic development.

Knowledge and Innovation System is a concept that has been developed during the last decades. It helps to emphasize that innovation is an interactive process more than a top-down process that goes from science to the implementation. In this framework, innovation is produced by the links between different actors and their interaction.

It has been largely used in the Agricultural Sector. An Agricultural Knowledge and Innovation System (AKIS) includes different categories of actors: Farmers, Research, Advisory services,

Education and training, upstream and downstream enterprises, that are linked, interact and contribute together to the generation, diffusion and utilization of knowledge and information (SCAR WG paper on AKIS[18]).

The World Bank defines AKIS as a system that links people and institutions to promote mutual learning and generate, share, and utilize agriculture related technology, knowledge, and information. The system integrates farmers, agricultural educators, researchers, and advisors to connect knowledge and information from various sources for improving livelihoods. This concept can be enlarged to Agricultural Innovation System (AIS) defined as a network of organizations, enterprises, and individuals focused on bringing new products, new processes, and new forms of organization into economic use, together with the institutions and policies that affect their behaviour and performance (World Bank 2012)[19].

The need for enhancing Knowledge and Innovation Systems in the Mediterranean Area is a crucial issue, in particular in the MPCs. It is particularly relevant for Agriculture where most countries don't benefit Agricultural Extension services able to build links between research and farmers, but it also applies to the entire Food sector and to the Water sector. Context-tailored knowledge and Innovation System need indeed to be fostered in the region.

To this end, PRIMA activities will promote the **inclusion of end-users** especially in the collaborative projects and dissemination activities. Foreseen end-users identified for the PRIMA programme are: farmers and farmers' associations, agro-food industries, with special attention for SMEs, extension organisations, water users associations, water Basin Agencies, water technology companies and decision-makers.

b. Ensuring synergies with regional initiatives in the Mediterranean Area

Similarly, dialogue and inclusion of key stakeholders active in the Mediterranean Area will be key for the success of PRIMA and will allow to multiply its impact.

Several intergovernmental or international organizations are present in the Mediterranean. Even if Research is not always the core of their activities, they develop activities that should be taken into account in the PRIMA action.

The International Centre for Advanced Mediterranean Agronomic Studies (**CIHEAM**) is an intergovernmental organization that has to be mentioned first, due to its long lasting activities in the Mediterranean Region. Today, 13 countries are CIHEAM members: France, Greece, Italy, Portugal, Spain, Turkey, Tunisia, Egypt, Algeria, Malta, Morocco, Lebanon and Albania. CIHEAM is made up of four Mediterranean Agronomic Institutes, located in Bari (Italy), Chania (Greece), Montpellier (France) and Zaragoza (Spain), and a General Secretariat based in Paris, the total

[18] EU SCAR (2012), Agricultural knowledge and innovation systems in transition – a reflection paper, Brussels.
[19] World Bank, 2012. Agricultural Innovation Systems: An Investment Sourcebook. Washington, World Bank, 660p.

permanent staff being 170 persons. CIHEAM's missions are: training, networking, research and facilitation of the regional debate, in the fields of agriculture, food and rural development.

CIHEAM is working in the scientific fields addressed by PRIMA, and thus complementarities between CIHEAM activities and PRIMA will need to be developed. Experience of CIHEAM in training in the Mediterranean Countries, at the level of Master degree and PhD and in lifelong continuous training will be useful to reinforce the research capacity of Southern Mediterranean Countries and to ensure the conditions for adoption of innovations. Capacity building is a real need in the Southern Mediterranean Countries that applies to research sector as well as to the agricultural extension services and CIHEAM has the appropriate competence in this domain.

-**Plan Bleu** is a Regional Activity Centre implemented in the framework of the Mediterranean Action Plan of the United Nations Programme for the Environment and the Convention for the protection of the Marine environment and Coastal Region of the Mediterranean (Barcelona Convention). Its aim is to enlighten the environment and development issues in the Mediterranean. For that purpose, Plan Bleu's activities include: Development of database and meta-database on environment, economy and society; Analysis and prospective regarding sustainable development's major issues through the Mediterranean basin and its ecologic and geographic components by using systemic methods; Publication and dissemination of its studies and synthesis' results; Development and facilitation of experts' networks in the Mediterranean countries and capacity-building support; Support to the Mediterranean Strategy for Sustainable Development in the framework of the Mediterranean Commission for Sustainable Development.

Plan Bleu has no direct research activity, however its expertise and its activities in science-based studies, prospective and experts networking, in the field of Water and Environment in the Mediterranean will call for an indispensable interaction with PRIMA.

-In the Eastern and Southern Mediterranean, activities of the **CGIAR** in developing applied agronomic research inside the general aim of reducing rural poverty and improving food security is significant. This is in particular ensured through the activities of the International Center for Agricultural Research in the Dry Area (**ICARDA**) which research activities cover: crops suited to dry conditions (wheat, barley, faba bean, lentil, chickpea and forage legumes), management of natural resources, small ruminant production, farming systems and policies. Crop improvement research and the development of new varieties are the core of its activities, but ICARDA produce also research and innovations in the following topics: Water harvesting, supplemental irrigation and other low-cost methods to increase water productivity; conservation agriculture methods to reduce production costs and improve sustainability; diversification of production systems ; Integrated crop/rangeland/livestock production systems; Policy and institutional options to improve rural livelihoods. Several CGIAR programmes in which ICARDA is involved is of interest for PRIMA, namely the programmes on Dryland Systems, on Grain Legumes and on Dryland Cereals.

The role of ICARDA and other CGIAR Centres in developing international networks of researchers with the strong objective to produce innovations for sustainable agriculture is very in line with the spirit of PRIMA and interactions will be implemented. ICARDA is already involved, as partner in ARIMNet2 and links will be deepened.

Multilateral development banks (i.e. the European Investment Bank, The World Bank, African Development Bank) and specialized UN agencies and organizations (FAO, IFAD) are implementing water and agriculture related activities in the region. Some of them are related to the objectives of PRIMA. PRIMA will take care to exchange knowledge and to organize common activities or events with these organisations.

- The **European Investment Bank (EIB)** assists the economic and social development of the Mediterranean partner countries through the "Facility for Euro-Mediterranean Investment and Partnership" (FEMIP). FEMIP began in 2002, after more than 30-year financial activities of the EIB. Since 2002, EUR 14,8bn has been invested. FEMIP is a key player in the partnership between the EU and the Southern and Eastern Mediterranean countries. It supports private sector and contributes to improve infrastructures. PRIMA will complement in particular EIB activities in the sectors of water sanitation, pollution abatement, irrigation and support to agrofood industries (SMEs)

- The **World Bank** supports projects in the Mediterranean Area in relation with water resources management and water supply, and projects aimed to improve food security and to cope with global changes (i.e. on trade liberalization in Morocco, mountainous areas development in Tunisia or irrigation in Egypt). **IFAD** (International Fund for Agricultural Development has a large portfolio of investments in the region with water management and water harvesting and storage being key activities. Other projects address the adaptation of agriculture to salinity, water stress, drought and high temperatures through crop and livestock diversification. The possibility of cofunding research action to support these projects will be considered.

- **FAO** develops activities related to agriculture, food systems and water use in agriculture. FAO actions in the Mediterranean Region are in particular significant in the field of Plant and Animal Health, where the coordination at the regional level is required. The FAO Emergency Centre for Locust Operations and the Mediterranean Animal Health Network are the two main examples. Mediterranean Animal Health Network (**REMESA**) links the veterinary services of each country with the objective of harmonization of surveillance and control methods as well as strengthening the national devices. The activities that will be launched in objective 4 of PRIMA will address issues that have been identified in interaction with REMESA. The FAO is also involved in developing activities on Integrated Pest Management at the regional level and develops projects on specific topics of interest for the Mediterranean Region such as the Agriculture Stress Index System (ASIS), or MOSAICC (for MOdelling System for Agricultural Impacts of Climate Change) which aims is to develop a system of models and utilities designed to carry out inter-disciplinary climate change impact assessment on agriculture through simulations, both relevant for PRIMA actions.

Finally, it is noticeable that today countries that were not traditional partners in the Southern Mediterranean Region are becoming more and more active in the Region. That is the case for **Brazil, China, Japan, South Korea, Russia** in terms of economic as well as R&I partnerships. Brazil develops an active influencing strategy in all the countries of Northern Africa, through partnerships in the field of Agricultural Research, carried by its public research institution EMBRAPA. Mediterranean is becoming a geographical priority for China that develops agricultural demonstration centres to disseminate Chinese scientific research abilities and projects linked with private partners in the agri-supply industry sector. China signed recently scientific agreement with Tunisia and with Egypt.

For many years, the European Union, its member states and regional organizations were the only actors in Scientific Cooperation with Southern Mediterranean Countries. This is no more the case today, where Scientific Partnership is considered as a part of a strategy of many countries in the Region. In this context, it seems important that the EU increases the consistency and strength of its actions in partnership with the MPCs, and PRIMA will be acting in this direction.

c. Measuring PRIMA's added value: activities, outputs, socio-economic impact

In interaction with all the European actors and international organizations involved in the development of Euro-Mediterranean Partnership, PRIMA will develop a large range of activities aimed at achieving its objectives to increase the sustainability and efficiency of Food systems and Water Resources. The added-value and the performance of PRIMA will have to be measured and regularly monitored. The impact of the programme will be analysed throughout the programme duration, at the different stages of the "impact chain" (figure 10).

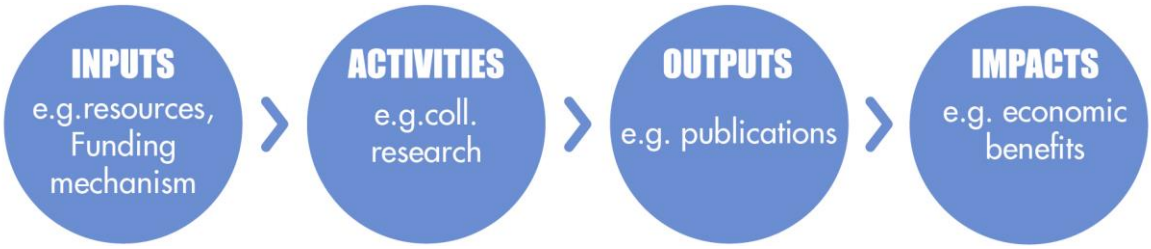


Figure 10 - Pathway to Impacts

Different indicators will be built to measure:

- at the level of inputs: involvement of countries, financial commitments, funding mechanisms;
- at the level of activities: implementation of different types of activities: collaborative research projects, demonstrators, training etc...;

- at the level of outputs: scientific publications, new products, technical solutions;
- at the level of impacts: improvements in food and water situations.

The list below gives a preliminary idea of the indicators that will be monitored. This list will be regularly updated and enriched in order to facilitate as well the ex-post evaluation of PRIMA.

Indicators	**inputs(i) activities(a) outputs (o) impacts (m)**
(1) Financial and Programmes integration	
Programme's total budget	i
Percentage of funding to national research programmes in the related topics that is integrated into one macro-regional programme.	i
Number of member states participating in the programme	i
Number of joint transnational calls	i
Number of infrastructures opened to support joint projects	i
...	
(2) Scientific integration	
Number of joint research projects funded	a
Number of demonstrators implemented inside the projects	a
Number of peer review articles produced by the co-funded projects	o
Number of review, knowledge synthesis and foresight articles produced	o
Joint events/co-operation activities/partnerships involving Partners from EU and MPCs	a
Number of persons and working days spent by foreign scientists using research facilities and infrastructures	a
Number of entries to existing infrastructures shared inside the programme	a
Number of transnational post graduate courses organised within the programme	a
Number of mobility activities (persons, visit days) by scientists of one participating state to another participating state	a
Total number of PhD students and post-docs funded by the programme	o
Number of projects / networks funded that gather researchers and end-users	o
Number of dissemination papers	o
…	
(3) Strengthening the innovation capacity	
Successfully commercialized new products or technologies originating from the programme	o
Innovations brought to the demonstrator phase through programme's effort	o
Number of patents licenced as an output of projects	o
Number of innovation projects supported by the programme	a
Number of innovation projects that include a SME	a
Number of public-private collaborations created with programme's support	a
New/improved methodologies	o
…	
(4) EU-level added value	
Number of research and innovation calls arranged in collaboration with JP initiatives or other EU initiative	a
Number of times the programme has participated to EU research events	a

Indicators	**inputs(i) activities(a) outputs (o) impacts (m)**
Joint activities that contribute significantly to the development and implementation of Food and Water policies and management practices at international, European, macro-regional or national level	a
Number of international, national and regional stakeholder events organised to promote knowledge-based implementation of various EU policies	a
Number of research projects implemented in relation with a EIP	o
Number of publications producing results related to EU policies	o
…	
(5) Food Systems and Water Resources improvements	
New crops or livestock varieties	o
New products or technologies	o
….	
Indicators of water use and water availability*	m
Indicators of agricultural production and trade *	m
Indicators of land use changes*	m
Natural resource used by agriculture, sustainability indicators*	m
Indicators of animal and plant diseases*	m
Indicators of food balance, nutrition and diet*	m
....	

*These indicators will be defined more precisely later. In order to address the final impact of the PRIMA project, these indicators will be continuously monitored during the project, and studies will be launched with PRIMA partners and related organisations (such as Plan Bleu, FAO,.) to assess the contribution of PRIMA outcomes to the Mediterranean Food and Water Situation. A conference will be organised each year to bring together all the regional organisations addressing Food systems and Water of the Mediterranean in order to set up a state of the situation and to assess the contribution of PRIMA.

5. ADMINISTRATIVE AND FINANCIAL FRAMEWORKS

5.1 Governance

Background considerations for the discussion over legal issues concerning the launch and organization of PRIMA include the respect of principles of co-ownership, mutual interest and shared benefits among MSs, ACs and MPCs, also with respect to governance, program management. This means equal rights and obligations for all Participating States co-funding the programme and is an essential element differentiating PRIMA initiative from other art. 185 initiatives 20.

a. The legal requisites for the participation of Mediterranean non-EU countries in the initiative

The PRIMA initiative is open to all EU Member States, countries associated to Horizon 2020 and Mediterranean Partner Countries. Any Member State other than those listed in the decision and any other country associated to Horizon 2020 will be able to participate in the PRIMA program, provided it fulfils the condition set out in the relevant regulation. But the PRIMA group noted that the decision from **the Parliament and Council establishing PRIMA on the basis of article 185 TFEU will have to clearly stipulate the possibility for Mediterranean Partner Countries (MPCs) to participate (cf. Commission's letter of 17 January 2013 in Annex 5).**

In addition, any partnership developed during for the launch of art. 185 and within the framework of the agency that will manage art. 185 and sign the related agreement with the European Commission on behalf of non-EU actors will have to take place based on a previously signed and ratified international cooperation agreement on research between the non-EU country and the European Commission/EU.
Standard EU-third country S&T cooperation agreements are not sufficient as they do not contain such a provision. The countries that already have an existing S&T agreement can choose to amend the existing one or to sign a new one. The PRIMA Participating States took good note of the recommendation of the Commission for new bilateral agreements because they can enter "provisionally" into force (the Commission can give a provisional effect to the new agreement during the signature and ratification process, if so provided for by national public law) The signature of the agreement allows the signatories to participate to PRIMA governance.

Therefore, there are two possibilities for the legal act between the Mediterranean Partner Countries that are not associated to H2020 and the EU:

- introducing an amendment into the existing scientific and technological cooperation agreements (5 countries in the region have an agreement) when they are renewed;

20 although participating countries in EDCTP 2 include African third countries with the same voting rights than EU Member States in the General Assembly

- signing a series of bi-lateral agreements only on Article 185 TFEU with the same short text instead of the same text for all MPCs to avoid a longstanding ratification process: this option is recommended by the Commission vis-à-vis the signing of one single agreement between the EU and all MPCs because a longstanding procedure in one country could postpone the entry into force for all partners. The agreement will target only PRIMA.

Since a timely preparation of international agreements or amendment of existing EU-third country S&T cooperation agreements is an important pre-requisite to the participation of third countries as "participating states", the EU Member States co-submitting this proposal would like that to encourage the European Commission to negotiate the relevant agreements with the MPC as soon as the proposal is submitted by the European Commission for approval by the Council and the European Parliament.

b. Dedicated Implementation Structure (DIS)

In the case of an initiative pursuant Article 185 TFEU, an Dedicated Implementation Structure is needed to:

- implement the programme (the DIS will receive a delegation from the Participating Countries to contract with the European Commission);
- be the governance structure for the programme.

The Participating States have debated all possible options for the legal status of the DIS. They expressed their strong preference for the establishment of a new structure or an autonomous unit to be hosted by the Secretariat of the Union for Mediterranean in Barcelona (UfMs). In comparison to the use of an existing structure, a new structure or an autonomous unit within UfMs in an existing structure is a guarantee of neutrality (avoidance of conflicts of interests) as well as managerial and administrative autonomy (for example, own banking accounts, own IT system). People engaged for the PRIMA DIS should be recruited in an open and transparent way, based on merit and competences. They should be engaged specifically for the management of the programme.
Besides, all PRIMA Participating States are already members of the UfMs, which allow to put EU Member States and MPCs on an equal footing within the DIS. Being located within the UfMs will also allow regular exchange of information and valuable synergies between UfM activities and PRIMA. This will undoubtedly increase the institutional visibility both for PRIMA and UfM and lead to a tight cooperative association in order to foster coordination between initiatives for the Euro-Mediterranean area.

It should be noted that the option of an international association was also carefully studied by PRIMA participating States but has not been retained since this was raising many concerns especially for non EU-countries who could not transfer national public funds to an association.
Should the European Commission propose an Article 185 TFEU initiative, then further dialogue will be needed with the UfMs and the PRIMA Participating States in order to define the best way for the UfMs to host PRIMA. The UfMs has already received and managed contributions for the EU, but not yet in the framework of an Article 185 TFEU initiative.

The following features of the UfMs can be underlined:

Although UfM is not a multi-governmental organization per se, the Secretariat is a legal independent entity which, as such, has signed an agreement with Spain (place of its headquarters, under which laws it enjoys international organization status). According to several UfM States, such as Spain, Malta, Egypt, France, UfM's Secretariat can be considered as an international organization, for it was created via an international agreement.
In fact, following the Paris Summit of the 'Barcelona Process: Union for the Mediterranean' (Paris, 13 July 2008), the UfM Secretariat was created according to the Marseille Declaration on 3-4 November 2008, stating as follows:

> *"I/ Institutional structures of the "Barcelona Process: Union for the Mediterranean".*
> *Euro-Mediterranean Heads of State and Government agreed in Paris on 13 July 2008 to establish new institutional structures to contribute to achieving the political goals of the initiative (…)The Secretariat*
> *12. The joint Secretariat will have a key role within the institutional architecture. The Secretariat will:*
> *(…)*
> *- Have a separate legal personality with an autonomous status."*

Although both the Declaration of Paris and the Declaration of Marseille do not enjoy the formal status of an international treaty (for they were not ratified by member states) they can be considered under international law as having binding force as agreements concluded in a simplified form, the so called executive agreements.

Once it is established that the UfM Secretariat enjoys the status of an international organization under international law, the possibility of UfM Secretariat to sign a delegation agreement with the EC is provided for by EU Financial Regulations under article 58, c. ii.
In this sense it must be noted that, in case an Article 185 TFEU is agreed by the European Commission as the implementing instrument for PRIMA, **the UfM Secretariat should act as the PRIMA DIS, with a new special unit designed within the Secretariat itself and devoted exclusively to the managing of the Prima Programme (both EU and national contributions). In order to do so, an agreement will be entered into between Prima's member States and the Secretariat; in addition, it is well noted the European Commission will undertake a specific ex-ante assessment (audit) of the UfMs in order to be able to sign up a delegation agreement UfMs. The delegation agreement between the Commission and the UfMs should be signed before the start of the implementation of the PRIMA programme.**

As to the management of both national and EU funds, UfM Secretariat will channel them through a separate and specific account. The UfM will also undertake to be subject to the same monitoring, control and accountability procedures foreseen in the EU Financial Regulation. In this respect, article 5.2 of the Host Site Agreement, signed between Spain and the secretariat, enables the UfM

to waive the rights of immunity to specific issues (e.g. the obligations listed under article 60.5 of the EU Financial regulation).

Moreover PRIMA Member States are fully aware of the fact that "In accordance with Article 58(1)(c)(vi) of the Financial regulations, the implementation structure has to provide adequate financial guarantees. The Participating States took good note that such guarantees should consist of joint and several liability for any debt at the level of the DIS. This concerns both cases of liability in the context of the implementation tasks as well as outside the contractual frame (extra-contractual liability). Considering the legal status of the implementation structures and their weak financial capacity, it is expected that the signature of the delegation agreements will be conditional upon the Participating States accepting to stand as first-call guarantors of the debt of the implementation structure and submitting to the Commission the corresponding guarantees (statements)". The PRIMA Participating States noted that the EC will require this first-call guarantee from each of them.

The possibility of the Prima DIS to be represented by a special new unit within the UfM Secretariat is somehow confirmed by the EC Letter above mentioned where the EC declares that there is a possibility for the EC itself to recognize the nature of international organization of the UfM Secretariat ("The Commission would like to clarify that, pursuant to Article 43 (1)(d) of the RAP, the Commission may decide, subject to further inquiry on the statutes/functioning/governance, to formally assimilate a non-profit organisation to an international organisation (via a Commission decision).

In the proposed scheme the special unit within the UfM Secretariat will be acting as the Prima Secretariat (see below).

c. Governance of the PRIMA DIS

Based on the experience of the other Art. 185 initiatives, particularly EDCPT2, the following organs are proposed for the GOVERNANCE of PRIMA:

- *President and Vice-president*
- *General Assembly*
- *Board/Bureau/Bureau*
- *Scientific Advisory Board*
- *Executive Secretariat*
- *Focal Points*

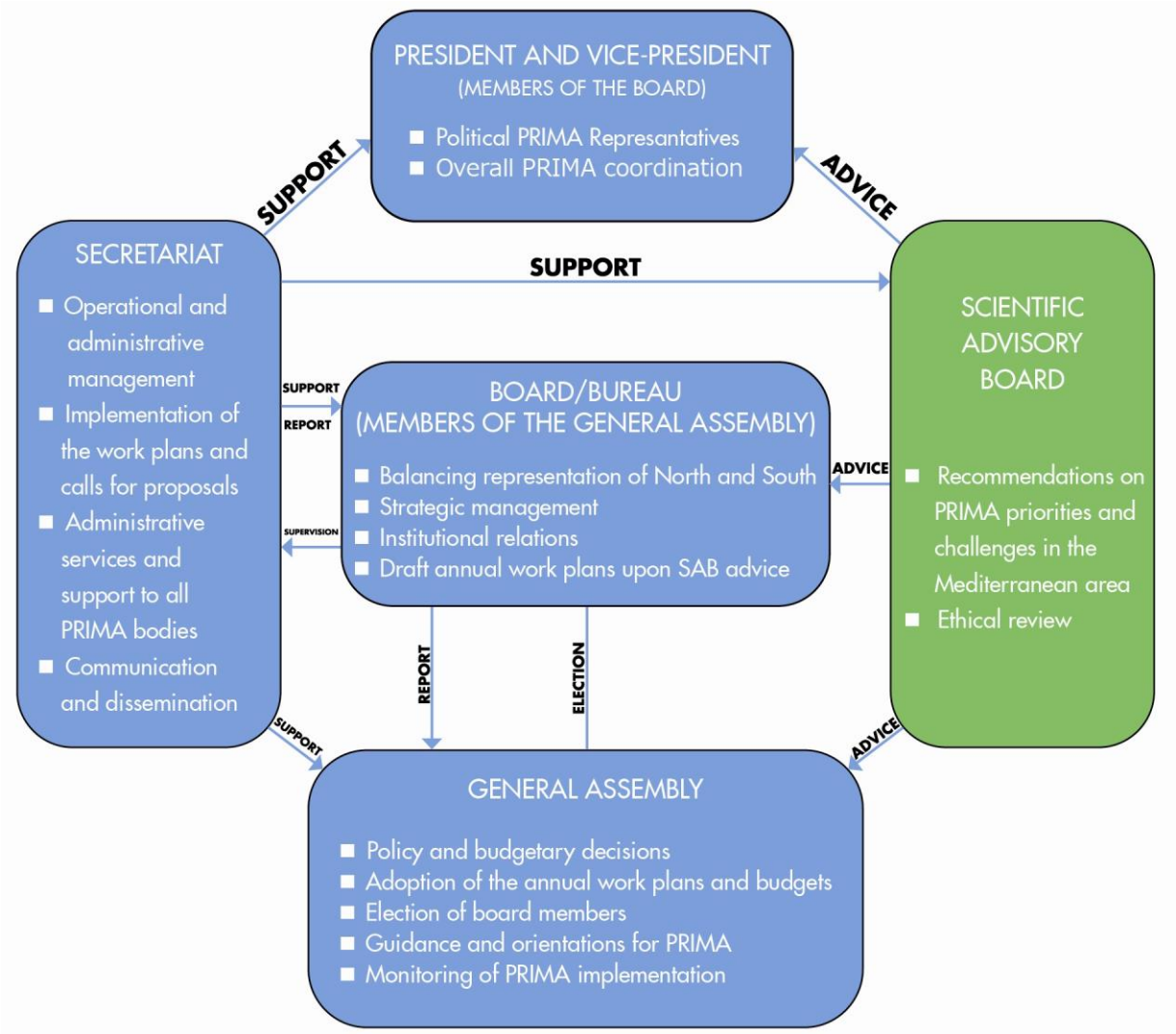


Figure 11 - Governance of Prima

President and Vice-President

The President, assisted by the Vice-President, ensures global coordination and public representation of PRIMA on political level. They are elected by the General Assembly of the association. They chair both General Assembly and Board of Directors or Steering Committee meetings. They might be elected for two years and shift the position every year. One of them will come from a EU MS/AC and the other one from a MPCs.

General Assembly

The General Assembly is the supreme political decision making body of the Association. It is composed of all the Members represented by High Level delegates (1 delegate and 1 alternate). The European Commission and the Union for the Mediterranean are observers and may take part in the deliberations without voting rights. Non-participating states (EU or third countries) may

also be involved in the General Assembly. It works on the basis of a one country one vote principle. The European Commission and the Union for the Mediterranean as well as delegates from different organizations investing in the Mediterranean area or dealing with, e.g. Union for the Mediterranean, European Investment Bank (EIB), European Bank for Reconstruction and Development (EBRD), World Bank, CIHEAM, CIESM, FAO, DG MARE, DG ENTR, DG CNECT, Réseau universitaire et scientifique euro-méditerranéen sur les femmes et le Genre, Agence universitaire de la francophonie (AUF), non-profit organizations are observers and may take part in the deliberations without voting rights upon invitation of the General Assembly. The General Assembly meets at least once a year. The chair of the Scientific Advisory Board and the head of the secretariat.

The General Assembly elects the President and the Vice-President of PRIMA and the Board/Bureau. The General Assembly gives orientations to the Board/Bureau and elects its members. It ensures that all necessary activities are undertaken to achieve the objectives of the PRIMA programme and that its resources are properly and efficiently managed. The General Assembly endorses the annual work plan and approves the annual budget as well as the list of selected projects to be funded. It handles applications for new membership. The General Assembly ensures the soundness, relevance and quality of PRIMA scientific activities.

Board/Bureau

The Board/Bureau is the strategic governing body. Members should be elected by the General Assembly on a four years basis. The composition of the Board should be gender balanced and should take into account a proper balanced between EU MS/AC and MPCs. The European Commission may participate as an observer. The Chair of the Scientific Advisory Board and the Head of the Executive Secretariat attend the Board meetings without voting power. The President and Vice-President chair the Board/Bureau. The Board/Bureau supervises contracting and budget planning. It proposes an annual work plan upon scientific advice from the Scientific Advisory Board. It supervises all activities and implementations in the programme, including the approval of the allocation of national funding to projects. The Board/Bureau is in charge of institutional relations (EU, UfM, governmental funding agencies, etc.). The Board/Bureau reports to the General Assembly.

Scientific Advisory Board

The Scientific Advisory Board is composed of excellent scientific experts on the themes covered by PRIMA and preferably having worked with institutions or programmes involved in the Mediterranean area or related to the food and water issues (e.g. various JPIs, relevant European Technology Platforms, KICs, etc.). They are appointed by the General Assembly independently of their nationality.

This is a Board with advisory power. It gives advice to the President and the Vice-President, the General Assembly and the Board/Bureau by providing independent advice, guidance and recommendations regarding scientific and challenge-related issues of PRIMA (overall strategy concerning priorities and topics to be addressed in the calls for proposals and regarding other relevant actions of the PRIMA programme). It ensures strategic scientific intelligence. The Board pays also particular attention to ethical issues. Given the rapidly evolving nature of the

Mediterranean area, the Scientific Advisory Board may mobilize external expertise on specific issues.

Executive Secretariat

This is the operative body of the Association and deals with its ordinary administration.

The Secretariat works according to the orientations delivered by the PRIMA General Assembly and the Board/Bureau. The head of the Secretariat is responsible for contracting and budget planning. The Secretariat executes the annual work plans, provides support to all PRIMA bodies (President and Vice-President, General Assembly, Board/Bureau and Scientific Advisory Board). It launches and manages the PRIMA calls for proposals (launch organization, evaluation, monitoring of running projects), therefore managing the financial contributions from the Union and from participating states willing to transfer their national funds committed for PRIMA to the DIS, and reports on their use to the or General Assembly, the Board/Bureau. In liaison with PRIMA bodies, it is also in charge of increasing the visibility of the PRIMA programme (communication and dissemination activities) and liaising with the European Commission. It monitors and reports on the implementation of the PRIMA programme to the Board/Bureau and the General Assembly.

The General Assembly will decide on the appointment of specific Focus Point on based on different locations in order to better disseminate the Project and to coordinate the relationships with different stakeholders.

Focal Points

If needed, promotion and dissemination activities could be run through the establishment of focal points on specific matters.

Voting rights

Only full members have voting right on the basis of a one-country one-vote principle. Decisions are taken by simple majority, except for decisions on the succession, admission or exclusion of members or the dissolution of the PRIMA DIS, for which specific voting requirements may be set out in the rules of procedure of the PRIMA DIS.

Development of the PRIMA DIS statutes

An agreement is concluded between the DIS and each participating entity. It foresees limited liability of each funding authority defined as a percentage of initial commitment in PRIMA programme and money received from EC.

The PRIMA-DIS is responsible for all the activities of the PRIMA programme: contract and budget management, the development of the annual work plans, organisation of the calls for proposals, handling of the evaluation and ranking of proposals for funding.

The PRIMA-DIS supervises and is responsible for project monitoring and shall transfer the associated payments of the Union contributions to designated national programme management funding bodies. It organises also dissemination activities.

PRIMA secretariat implementation

The administrative staff of PRIMA should be selected through transparent proceedings, involving nationals of all PRIMA's participating states. The Secretariat is composed of 8-9 staff members: 1 general secretary, 5 programme managers (1 collaborative research, 1 networks, 1 mobility, 1 capacity building, 1 innovation), 1 finance officer or accountant, 1 legal officer, 2 secretaries.

5.2. Financial Commitments

Proposed funding volume and leverage effect

PRIMA Participating States share the willingness and the ambition to coordinate their research efforts and national RDI programmes by contributing to the funding of the PRIMA programme in the long-term. Accordingly, each Participating State has made a decision as reflected in the commitment letters attached to this proposal, in the hypothesis that Article 185 TFEU would be proposed to implement PRIMA. Subject to the use of this instrument, contributions in cash have already been announced by the Czech Republic, Cyprus, Egypt, France, Greece, Italy, Luxembourg, Malta, Morocco, Portugal, Spain and Tunisia for a total amount of 200 million € over a period of 10 years. These contributions are not be based on GDP or any other any common indicator like the number of scientific publications or the number of researchers in the corresponding scientific area. The Participating States have defined their level of contribution, on the basis of an analysis of their priorities, the kind of activities they are willing to engage in, their national strengths, the expected participation of their researchers, etc.

In addition to these countries, others have shown interest for the PRIMA programme and participated, either actively or as observers, to the preparatory works leading to the proposal (Algeria, Croatia, Germany, Jordan, Lebanon, Slovenia and Turkey). However they have not yet decided whether they would like to commit resources to PRIMA and coordinate their national programmes. Once the decision of the Commission on the participation of the Union to PRIMA and on the instrument to be used to implement the programme will be known, they might take their decisions.

In any case, the PRIMA Participating States are herewith applying for an equivalent amount of cash contribution from the European Commission to match with their ex-ante financial commitments and they will additionally ensure a higher leverage effect through in-kind contributions, as well as through the possible use of structural funds or funds from the neighbourhood instrument to support additional projects and teams. These additional contributions are estimated to reach the same value than the cash contributions, especially because most of the PRIMA Participating States offer a status of civil servant to their researchers and do not use full cost accounting systems. They will be precisely valuated in the annual work plans of PRIMA.

Eligibility of participants from countries non-contributing to the funding of the PRIMA programme:

R&I entities from non-contributing countries are eligible for participation, but they are not eligible for PRIMA funding in order to avoid the "free-rider" phenomena. In other words, PRIMA projects can include participants from "non-PRIMA Participating States" provided that these participants brings their own funding to the project.

This is foreseen to be the only derogation to the H2020 rules for participation and dissemination of results. However, PRIMA Participating States have noted that such a derogation to H2020 rules should be agreed by the European Council and the European Parliament in the decision establishing PRIMA.

Operational costs and administrative costs

The cash contributions will mainly be used for operational costs of all activities based on open calls for proposals (collaborative research projects, demonstration projects, prototype development, projects with and for SMEs, training fellowships). The in-kind contributions from PRIMA Participating States will be used for operational costs linked with the sharing and use of infrastructures, for salaries of permanent researchers participating to PRIMA projects. In addition, PRIMA Participating States will most probably contribute in-kind to the administrative costs with secondments of staff to the PRIMA DIS in Barcelona or in all countries through the communication, networking and dissemination activities. Such administrative personnel costs covered by Participating States increase once more the leverage effect to be expected from an EU contribution with the use of article 185 TFEU.

It is expected to cover all other administrative costs of the PRIMA DIS in Barcelona with the EU contribution only. It is a guarantee of independency and efficiency and then avoids any debate among participating states on their level of contribution to the DIS. PRIMA would like to use between 5% and 6% of the Union's financial contribution to cover the administrative costs incurred by the PRIMA DIS.

A "mixed" virtual common pot

PRIMA Participating States **have decided that their national financial contributions are granted only to national researchers, with a top-up of the Union contribution (virtual common pot)**. In this case, after the evaluation, projects are selected in accordance with their ranking and taking into account the available funding from Participating States. The PRIMA Participating States took good note that their financial commitments should reflect the expected participation of their researchers in the projects to make sure that selection list follows ranking list.
However, in case some researchers in a highly-ranked project cannot be funded by their state of origin, PRIMA Participating States would like to set aside part of the Union contribution to make sure that selection follows ranking list. In order to avoid free-riding, the use of this "reserve" will most probably be conditioned (for example, when a Participating State has benefited of this

reserve, it should then increase its financial contribution in the calls that will be launched on the following year. The use of the reserve should be limited to 20% of the financial contribution of the Participating State).
Once the European Commission has assessed whether a legislative proposal is justified, PRIMA Participating States hope to enter into a fruitful dialogue with the Commission to discuss more in-depth the precise conditions for the management of such a mixed virtual common pot.

Transfer of contributions to the legal structure and transfer back to the project owners or keep it in the country

The PRIMA Participating States understand and take good note of the strong preference of the European Commission for all national contributions in-cash to be transferred to the DIS. Although national contributions could be centrally transferred and managed, the national funds will still be distributed to national selected researchers only (no "real common pot" from the national contributions).

Having all national contributions centrally managed would present advantages of administrative simplification, efficiency, rapidity and safety, both for the national administration and for the beneficiary:

- this would require only one central grant agreement instead of several national grant agreements to be established between the Commission and each of the national funding entity involved;
- this would imply only one set of rules for the beneficiaries (H2020 rules). Otherwise, when national funding entities implement national contributions, the beneficiary has to handle the complexity of 2 different set of rules for one single project: EU rules for the European funding and the national rules for the national part of the funding;
- this would avoid double audits (by the EU and by the national control bodies).

However, PRIMA Participating State have still reserved their decision on whether they would agree on a unique centralised management system or whether they would prefer not to transfer their national funds. If PRIMA is established on the basis of Article 185 TFEU, this would need to be carefully discussed during a PRIMA General Assembly so that all countries concerned could dialogue with the European Commission and the DIS (UfMs).

Duration of the programme

As reflected in the commitment letters (Annex 4), most of the PRIMA Participating States have expressed contributions through long-term commitments over 10 years, they hope to be able to implement PRIMA on the basis of article 185 TFEU from 2017-2026.
They took good note however, that the whole EU contribution can be committed only under the current multi-annual budgetary period. So they understand, that the last injection of EU funds should come from the financial year 2020. However, they would like to ask to the Commission to

allow the PRIMA DIS to use it in calls for proposals until 2023 in order to allow the programme to be run with EU top-up contribution until the end of the Participating States' commitments.

PRIMA Participating States also understand that if they do not fulfil their ex-ante commitments in-cash, the European Commission might decide to decrease proportionally the Union's contribution, unless other States contribute more. In most extreme cases, suspension/termination of payment may be decided in accordance with the terms of the basic act and of the delegation agreement concluded between the Commission and the DIS.

In turn, PRIMA Participating States would like to draw the attention to the fact that if an alternative instrument to the Article 185 TFEU is proposed by the European Commission, they might decide to decrease as well their contribution in order to use it nationally for bilateral cooperation instead of a coordinated programme. Therefore Article 185 TFEU would be the instrument with the highest potential leverage effect on the funding.

PRIMA Participating States hope to enter into a fruitful dialogue with the European Commission on how to prepare the best possible implementation for PRIMA on the basis on article 185 TFEU.

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ANNEX 1

FP7 Research Projects related to Food Systems and Water Resources

Acronym	Content	Duration	Total costs (€)	EC funding (€)	Participation
AQUAMED	The future of research on aquaculture in the Mediterranean Region	From June 2010 to May 2013	996.854	996.854	Participants from 10 Countries including France Morocco, Lebanon, Israel, Egypt, Algeria, Turkey, Tunisia
WATERBIOTECH	Biotechnology for Africa's sustainable water supply	From August 2011 to January 2014	1.264.465,8	999.528	Participants from 10 Countries including Spain Saudi Arabia, Burkina Faso, France, Tunisia, Italy, Senegal, Egypt, Sri Lanka, Morocco, Algeria
AMIGA	Assessing and monitoring impacts of genetically modified plants on agro-ecosystems	From 1st December 2011 to 30 November 2015	7.779.852	5.997.963	Various countries
ANIMALCHANGE	Integration of Mitigation and adaptation options for sustainable livestock production under climate change	From 1st March 2011 to 28 February 2015	12.680.895,38	8.999.535	Participants from 17 countries, including Spain, France, Portugal, Italy, Tunisia
AQUASTRESS	Mitigation of Water Stress through new Approaches to Integrating Management, Technical, Economic and Institutional Instrument	From February 2005 to January 2009	14.015.072	10.300.000	Participants from 15 countries including Spain, France, Cyprus, Greece, Italy, Tunisia, Morocco, Portugal
ATHENA	Anthocyanin and polyphenol bioactives for health enhancement trough nutritional advancement	From 1st July 2010 to 30 June 2015	4.292.680,85	2.996.226	Participants from 6 countries including Italy, France, Turkey
BIOBIO	Indicators for biodiversity in organic and low-input farming systems	From 1st March 2009 to 31 August 2012	3.920.679	2.999.614	Participants from 13 countries, including Spain, France, Italy, Tunisia

BIOWASTE4SP	Turning biowaste into sustainable products: development of appropriate conversion technologies applicable in developing countries	From October 2012 to September 2015	3.885.598	2.992.555	Participants from 11 countries including, Morocco, Egypt, Italy, Turkey
CIRCE	Climate Change and Impact Research: the Mediterranean Environment. The project focused on the Mediterranean environment	From April 1st 2007 to December 31st 2013	10.000.000	10.000.000	65 Participating institutions including Spain, France, Cyprus, Greece, Italy, Tunisia, Israel, Portugal
CLIMB	Reduces existing uncertainties in climate change impact analysis for understanding the factors behind and the major impacts of climate change. Facilitates the management of water resources and agricultural practices in the Mediterranean.	From 1st January 2010 to 31 December2013	4.157.348	3.148.945	11 participants from 8 countries, including Med-countries Italy, France, Turkey, Egypt, Tunisia, Palestinian-administered areas
CREAM	Coordinating research in support to application of EAF (Ecosystem Approach to Fisheries) and management advice in the Mediterranean and Black Seas	From May 2011 to April 2014	6.372.756	4.199.478	Participants from 17 countries including, Spain, France, Malta, Egypt, Cyprus, Greece, Turkey, Italy, Lebanon, Tunisia, Morocco
CREAM	Coordinating research in support to application of EAF (Ecosystem Approach to Fisheries) and management advice in the Mediterranean and Black Seas	From 1st May 2011 to 30 April 2014	1.237.119,16	999.137	Participants from 18 countries including Spain, France, Malta, Egypt, Cyprus, Greece, Turkey, Lebanon, Tunisia, Morocco
CYNARES	European genetic resources of Cynara	From 2007 to 2011	907.419	-	Italy, France, Spain

DEVELONUTRI	Development of high throughput approaches to optimise the nutritional value of crops and crop based food	From 1st February 2007 to 31 July 2010	3.928.500	3.269.600	Participants from 2 countries including Italy
ENORASIS	Aims to develop an integrated Decision Support System for environmentally optimised and sustainable irrigation management by farmers and water management organisations.	From 1st January 2012 to 31 December 2014	2.716.118	2.085.965	Participants from 8 countries including Greece, France, Cyprus,
FIGARO	Flexible and precise irrigation platform to improve farm scale water productivity	From October 2012 to September 2016	8.057.923	5.999.987	17 participants from 7 countries, including Med-countries Israel, Italy, Spain, Greece, Portugal
FOODMANUFUTURE	Innovation in food industry	From 1st 2012 to 31 December 2013	2.106.267,2	1.971.283	Participants from 2 countries including Italy
FRUITBREEDOMICS	Integrated approach for increasing breeding efficiency in fruit tree crops	From 1st March 2011 to 31 August 2015	5.999.296	-	Participants from 12 countries including Italy, France, Spain, Israel
IMAGE	Sustainable use of water resources and rural development in drought affected areas	From 2006 to 2008	-	-	Italy, Greece
MARSOL	Promotes the storage of reclaimed water or excess water from different sources in Managed Aquifer Recharge (MAR) schemes as a sound, safe and sustainable water management strategy to tackle water scarcity in Southern Europe.	From 1st December 2013 to 30 November 2016	8.039.988	5.176.078	Participants from 7 countries including Greece, Portugal, Spain, Italy, Malta, Israel
METAPRO	Development of tools and effective strategies for the optimisation of useful secondary metabolite	From 1st December 2009 to 31 May 2013	4.137.742	2.981.469	Participants from 5 countries including Italy and Israel

	production in planta				
NATIONEM	Alleviates water scarcity, due to a global shortfall of potable water developing a novel technology not requiring electrical power, chemicals or other logistical support. It is important for poor areas lacking infrastructure.	From 01 July 2010 to 30 June 2013	4.093.310	2.993.230	7 participants from 7 countries, including Med-countries France, Italy, Israel, France, Jordan
NEWATER	New approaches to adaptive water management under uncertainty.	From 1st January 2005 to 28 February 2009	15.118.673	11.999.960	Participants from 16 countries including France, Italy, Spain
NEXTGEN	Next generation methods to preserve farm animal biodiversity by optimizing present and future breeding options	From April 1st 2012 to 31 March 2014	3 758 355	2.999.999	Participants from 8 countries, including Italy, Morocco
OPTIMA	Optimization of perennial grasses for biomass production in the mediterranean environment	From 1st October 2011 to 30 September 2015	3.913.249,84	2.998.319	Participants from 12 countries including Italy, Greece, Portugal, Spain
PACMAN	Setting effective synergic actions enhancing new solutions applied to agrofood clusters for their attractiveness and internationalization	From 1st March 2013 to 29 February 2016	1.564.801	1.191.015	Italy, Portugal, Spain, Greece, Cyprus
PURE	Pesticide Use-and-risk Reduction in European farming systems with Integrated Pest Management	From 1st March 2011 to 28 February 2015	12.371.762,69	8.999.828	Participants from 10 countries including France, Spain, Italy
SAFENUT	Safeguard of hazelnut and almond genetic resources		557.000	-	Participants from 6 countries including Italy, Greece, Spain, France, Portugal
SINERGIA	Energy efficiency in the agro food	From 2013 to 2015	1.616.065		Participants from 7 countries including Italy, Spain, France, Greece

SIRIUS	Addresses efficient water resource management in water-scarce environments. It focuses in particular on water for food production with the perspective of a sustainable agriculture in the context of integrated river-basin management.	From 14 October 2010 to 30 September 2013	2.934.818	2.499.997	18 participants from 13 countries, including Med-countries Spain, Malta Italy, France, Turkey, Egypt
SIRRIMED	Sustainable use of irrigation water in the Mediterranean region	From July 2010 to March 2014	4.239.534	2.999.078	15 participants from 9 countries, including Med-countries Italy, France, Greece, Spain, Morocco, Lebanon, Egypt
SUSTAINMED	Sustainable agri-food systems and rural development in the Mediterranean Partner Countries	From 1st March 2010 to 30 June 2013	2.644.116	1.996.771	Participants from 11 countries including France, Spain, Tunisia, Morocco, Italy, Turkey, Egypt, Greece
SWITCH4FOOD	Services for water and integrated techniques for food industry	From 2010 to 2012	840.413	-	Participants from 8 countries including Italy, Spain, Greece, Turkey, Israel
SWUP-MED	Sustainable water use securing food production in dry areas of the Mediterranean region	From July 2008 to June 2013	3.992.766	2.728.104	9 participants from 9 countries, including Med-countries Portugal, Italy, Turkey, Syria, Egypt, Morocco
TREAT&USE	Safe and efficient treatment and reuse of wastewater in agricultural production scheme	From June 2012 to December 2014	1.336.990	999.858	Participants from 4 countries, including Spain
TRUEFOOD	Improving quality and safety and introducing innovation into traditional European food	From 1st May 2006 to 30 April 2010	20.500.768	15.499.993	Participants from 17 countries including Italy, France, Spain, Portugal, Turkey, Greece
VEG-I-TRADE	Impact of climate change and globalisation on safety of fresh produce governing a supply chain of uncompromised food sovereignty	From 1st May 2010 to 30 April 2014	7.584.416,25	5.999.997	Participants from 9 countries including Spain, Egypt

Vmerge	Integrative and innovative research for improving surveillance and control of emerging vector-borne diseases of farm animals in Europe and neighbouring countries	From 1st December 2013 to 30 November 2016	3.920.939	2.999.120	Participants from 12 countries, including Spain, France, Italy, Morocco, Tunisia, Egypt.
WAHARA	Develops innovative, locally adapted water harvesting solutions with wider relevance for rainfed agriculture.	From 1st March 2011 to 29 February 2016	2.619.115	1.999.312	8 participants from 6 countries, including Med-country and Tunisia
WASSERMed	Evaluated climate change impacts on tourism, agriculture and water resources.	From 1st January 2010 and spans a 3 year-period	3.669.943	2.933.973	Participants from 9 countries including Italy, Greece, Spain, Greece, France, Egypt, Jordan, Tunisia

Reference: Some parts are taken from an analysis from the European Commission Services and from "FP7 projects with Mediterranean Partners Countries (MPCs) in the area of Food, Agriculture and Fisheries, and Biotechnology research"

ANNEX 2

Achievements of Euro-Mediterranean ERA-Nets: Financial Commitments in Calls

Call launched in:	ARIMNET 2011	ARIMNET2 2014	ERANETMED 1 November 2014
Topic	Agriculture, Food and management of resources used by agriculture	Agriculture, Food and management of resources used by agriculture	Renewable energies and energy efficiency Water resources management Energy-Water-Nexus
Algeria	1 M€	0.03 M€ per project + in kind	1 M€
Croatia	no participation	0.03 M€ per project + in kind	no participation
Cyprus	0.06 M€	no participation	0.2 M€
Egypt	0.35 M€	0.64 M€	1 M€
France	2 M€	2 M€	2.5 M€
Germany	no participation	no participation	1.5 M€
Greece	0.1 M€	0.2 M€	0,8 M€
Israel	0.25 M€	0.3 M€	no participation
Italy	0.5 M€	0.8 M€	2 M€
Jordan	no participation	no participation	0.22 M€
Lebanon	no participation	no participation	0.2 M€
Malta	no participation	0.03 M€ per project + in kind	0.4 M€
Morocco	1 M€	0.8 M€	1 M€
Portugal	no participation	0.4 M€	0,5 M€
Slovenia	no participation	0.3 M€	no participation
Spain	0.4 M€	0.2 M€	1 M€
Tunisia	0.3 M€	0.9 M€	0.6 M€
Turkey	0.5 M€	0.6 M€	no participation
CIHEAM			0,3 M€
Total amount	6.46 M€	7.03 M€ + in kind	13,22 M€

ARIMNET funded projects (2011 Transnational Joint Call)

Name of Projects	Partners	Grant
APMed Apple and Peach in Mediterranean orchards – Integrating tree water status and irrigation management for coping with water scarcity and aphid control	France, Israel, Italy, Morocco, Spain	634.618
ARIDWASTE Development of specific agricultural practices with the use of recycled wastes suitable for intensively cultivated Mediterranean areas under degradation risk	Greece, Israel, Italy, Spain	317.000
CLIMED The future of Mediterranean Livestock Farming Systems: Opportunity and efficiency of Crops – Livestock Integration	France, Morocco, Egypt	-
DOMESTIC Mediterranean biodiversity as a tool for the sustainable development of the small ruminant sector: from traditional knowledge to innovation	Greece, France, Cyprus, Morocco,	175.909
MEDILEG Breeding, agronomic and biotechnological approaches for reintegration and revalorization of legumes in Mediterranean agriculture	Spain, Morocco, France, Italy, Tunisia, Portugal, Egypt, Algeria	542.945
PESTOLIVE Contribution of olive history for the management of soil-borne parasites in the Mediterranean Basin	France, Greece, Morocco, Spain, Tunisia, Turkey	575.354
POHMED Potato Health - Managed for Efficiency and Durability	France, Algeria, Morocco, Egypt	486.000
REFORMA Resilient, water- and energy-Efficient FORage and feed crops for Mediterranean Agricultural systems	Italy, France, Morocco, Algeria, Tunisia, United States	568.727
SAFEMED Food safety regulations, market access and international competition	France, Italy, Morocco, Tunisia, Spain, Algeria	548.545
SWIPE Predicting whitefly population outbreaks in changing environments	Israel, France, Spain, Greece, Italy, Turkey, Switzerland, United States	500.500

ANNEX 3

MAPPING OF NATIONAL RESEARCH PROGRAMMES FOR MSs, ACs and MPCs

In order to reduce/avoid fragmentation of programming for MSs/ MPCs joint programming to be addressed today in the Mediterranean Area, a survey on initiatives in the concerned fields – *food systems and water resources* – was done ensuring that future initiatives will be able to build on the results of previous initiatives rather than duplicate the existing research projects.
Reference for identification of National Research Programmes in MSs, ACs and MPCs are:

- Deliverable (D6.1) and Questionnaires analysis of the FP7 INCONET MEDSPRING [21]"Mediterranean Science, Policy, Research & Innovation Gateway" taking into consideration national programmes of seven Mediterranean Partner Countries (MPCs): Algeria, Egypt, Jordan, Lebanon, Morocco, Palestine and Tunisia.

- Deliverable of the ERANETMED (D2.2)[22] gathering and analysing information from EU Member States (Italy, Germany, France, Spain, and Cyprus). The information on the national research programmes have been collected using the same MEDSPRING questionnaire to ensure methodological and analytical coherence with the work done with MPCs.

- Other Programmes and activities (not analysed in MEDSPRING and ERANET MED). Contributions provided by National Contact Points of the Ministries involved in the PRIMA initiative.

Research programmes analysis in MEDSPRING INCONET Project

Reference: Deliverable 6.1 Title: Programme Level Cooperation analysis and evaluation report - http://www.medspring.eu/wp6-deliverables

MEDSPRING is a bi-regional cooperation platform financed by the European Commission (DG Research and Innovation) under the 7th Framework Programme. The project aims at reinforcing the Euro- Mediterranean Cooperation on Research and Innovation in relation to the Barcelona priority areas: water, food, energy, health, transport and marine environment and, in particular, in the field of the three relevant societal challenges of the Mediterranean region: Resource efficiency (particularly Water), High Quality Affordable Food and Energy (particularly renewable energies).

The programs in the MPC cover a large variety of topics. The topical area supported by most programs are agriculture, "energy, energy technologies" and "environmental research", followed by "economics, social sciences and humanities" and "healthcare and medicine" as well as "biology and biotechnology".

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21 Medspring project: Deliverable N: D6.1 Title: Programme Level Cooperation analysis and evaluation report http://www.medspring.eu/wp6-deliverables
22 ERANET MED Deliverable N. D2.2: Title: Report/White paper on strategic areas of cooperation for joint activities

The analysed programmes go from national programmes to the participation of MPCs in the ERA-Nets (mainly ARIMNET at the time of the survey).

EGYPT

- Water Desalination (STDMaximizing Egypt water resources through water desalination
- National campaigns for improvement of strategic crops;
- Renewable Energy–Design;
- Fabrication and Verification/Testing of 1.5MW Wind Turbine (STDF);
- Improvement of Sustainable Food Production (STDF).

JORDAN

- SRTD II Support to Research, Technological Development and Innovation in Jordan Phase II

The overall objective of SRTD II is to increase the contribution of Jordan's Research & Technological Development and Innovation sectors to Jordan's economic growth and employment. The specific objectives are to a) further develop Jordan's applied research and technological capacity with a focus on the commercialisation of RTD results for use by the private sector, especially SMEs; and b) continue the integration of Jordan into the European Research Area. The project l build on the achievements of the SRTD project, namely additional support to the new Thematic NCPs, significantly more support to technology transfer offices, renewed focus on applied research and commercialising results of grants.

LEBANON

- GRP Grant Research Program

One of the major programs of the CNRS-L is the Grant Research program (GRP).
The program is made up essentially of research projects fully or partially supported by the CNRS in all fields of knowledge, mainly in basic and engineering sciences, agricultural sciences, environmental sciences, biological sciences, medical and health sciences, human and social sciences. It is carried out either in partnership with existing independent institutions such as universities and national research institutions, or in the CNRS research centers, namely the Lebanese Atomic Energy Commission, The National Center for Remote Sensing and the center for Geographical Research and Center for Marine Research.

The Associated Research Units (ARU) of the CNRS-L are a part of the GRP. They were established in late 2008 in order to enhance multidisciplinary research and serve the long term development strategy of Lebanon. Similar to the individual research grants, the ARUs should focus on subjects in line with the CNRS's priorities. 5 ARU are currently active: Air Quality, Water Quality, Under-nutrition and Obesity, Environment and Energy, Hypovitaminosis D and Metabolic disorder.

MOROCCO
National research and development around the phosphates;
Programme de coopération inter-universitaire franco-marocain (Programme Hubert Curien - Volubilis);
ARIMNET (Agricultural Research In the Mediterranean Network).

TUNISIA
- MHESR Tunisian (Egyptian/Algerian/German/Portuguese/Spanish/Indian/South Korean) programme for cooperation on scientific research and technology.
This cooperation aims at the internationalisation of science and technology, at intensifying the cooperation between Tunisia and foreign parties in the field of science and technology and to develop and deepen relationship between Tunisian researchers and Arab or European or Asian researchers.

Relevant Tunisian Egyptian Research and development projects (2012-2016)
- Improving the livelihood of smallholder farmers through optimal utilization of saline agriculture system;
- Innovative greener approach for enhancing the performance of food paper packaging, using undesirable agro-wastes;
- Production and Encapsulation of Flavours and Antioxidants from Arabian Aromatic Plants;
- SMGPVS-AEMC) Smart PV Micro-Grid System with Advanced Energy Management Control.

Research programmes analysis in ERANETMED Project
Reference: project: Deliverable N. D2.2: Title: Report/White paper on strategic areas of cooperation for joint activities (draft Report as beginning of November 2014)

ERANETMED is an international ERA-Net project financed by European Commission under FP7 The main aim of the project is to enhance Euro-Mediterranean co-ownership through innovation and competitive research in the societal challenges of the region. The project aims at reducing fragmentation of programming in the Mediterranean region by increasing coordination among national research programmes of European Member States, Associated Countries and Mediterranean Partner Countries.

ITALY
Italy has bilateral programs with Euro-Mediterranean partners, involving a total of 11 partner countries. These partners are, by alphabetical order: Albania, Algeria, Bosnia, Egypt, Israel, Lebanon, Montenegro, Morocco, Serbia, Slovenia, Tunisia and Turkey.
At the Italian level, these bilateral programs are funded and administrated by: Ministry of Foreign Affairs (MAE), Ministry of Education, Universities and Research (MIUR), CNR (Italian National Research Council).

The aim of the bilateral protocols is to enhance cooperation in Science and Technologies by taking into account the priorities set out in the National Research Programs and the European Union's Framework Programs.
The financial resources are aimed at implementing: mobility projects that envisage exchanges of researchers (on a bilateral basis); research projects of major importance that can be funded under the provisions of Italian Law 401/1990.

- GOVERNMENTAL BILATERAL AGREEMENTS FOR S&T BETWEEN ITALY AND MPCs;
- EXECUTIVE PROTOCOL FOR S&T COOPERATION ITALY-ALBANIA;
- EXECUTIVE PROTOCOL FOR S&T COOPERATION ITALY-SLOVENIA;
- EXECUTIVE PROTOCOL FOR S&T COOPERATION ITALY-SERBIA;
- SCIENCE FOR DIPLOMACY: MULTIDISCIPLINARY TRAINING PROGRAMME "DIPLOMAZIA";
- BILATERAL AGREEMENTS OF CNR WITH ASRT, CNRST, TUBITAK, CNRS-L;
- AGREEMENT ON SCIENTIFIC COOPERATION BETWEEN THE NATIONAL RESEARCH COUNCIL OF ITALY (CNR) AND THE CNRST (Morocco);
- AGREEMENT ON SCIENTIFIC COOPERATION BETWEEN THE NATIONAL RESEARCH COUNCIL OF ITALY (CNR) AND TUBITAK (Turkey);
- AGREEMENT ON SCIENTIFIC COOPERATION BETWEEN THE NATIONAL RESEARCH COUNCIL OF ITALY (CNR) AND THE CNRS-L (Lebanon);

Italy is also involved in 20 ERA-Nets involving 5 Italian Ministries in accordance with the topics targeted by the ERA-Net: the Ministry of Education, Universities and Research (MIUR); the Ministry of Agricultural, Food and Forestry Policies of Italy (MIPAAF); the Italian Ministry of Economic Development; Ministry for the Environment, Land and Sea of Italy; the Italian Ministry of Health.

LIST of ERA-Nets with Italy participation

CHIST-ERA II, ERA-CAPS, M-ERA.NET, ERANETMED, CORE-ORGANIC, EUPHRESCO, FORESTERRA, WOOD-WISDOM II, ICT-AGRI, RURAGRI, ARIMNET 1,ARIMNET 2, EMIDA, EUROTRANSBIO, CIRCLE2, CIRCLE MED, SKEP, SPLASH, TRANSCAN, NEURON II, E-RARE, EURONANOMED2.

The ERA-Net principle of networking for research allows a wide range of cooperation of Italy with several countries. France, Spain and Germany are the most involved countries with Italy.
Non EU Mediterranean countries are within Italy partners, from which Israel, Morocco and Turkey are the most involved.

Scope of these ERA-Nets concern the coordination of research in the specific area targeted by each of those ERA-Nets, through implementation of calls supporting collaborative research projects, analysis, and policies assessments. The main topic developed within these ERA-Nets, is agriculture

followed by food and environmental research, each of those topics associating economics and social sciences through policies assessment.
The ERA-Net (EUROTRANSBIO) is dedicated to cross border partnerships between SMEs and their strategic partners to achieve industrial development in biotechnologies.

GERMANY

BILATERAL PROGRAM GERMANY-EGYPT (GERF)
BILATERAL PROGRAM GERMANY-TUNISIA (TUNGER)

FRANCE

MISTRALS: Mediterranean Integrated Studies at Regional And Local Scales;
Partenariats Hubert Curien (PHC);
EC2CO (CNRS-INSU);
LEFE (CNRS-INSU);
ERA-Net ERAMIN (CNRS-INSU);
BILATERAL PROGRAMMES CNRS DERCI;
COOP. AGREEMENT INSERM AND ACADEMIE HASSAN II (Morocco);
COOP. AGREEMENT INSERM AND CNRS AND FRENCH UNIVERSITIES AND CNRST (Morocco);
COOP. AGREEMENT INSERM AND CNRST (Morocco);
COOP. AGREEMENT INSERM AND TUNISIAN MINISTRY OF HIGHER EDUCATION AND THE TUNISIAN MINISTRY OF HEALTH (Tunisia);
COOP. AGREEMENT INSERM AND TECHNION (Israel);
INSERM INTERNATIONAL ASSOCIATED LABORATORIES (France);
IRD PROGRAMME PACEIM;
IRD PROGRAMME ARTS;
IRD PROGRAMME BEST;
IRD ERA-Net ERAFRICA;
IRD PROGRAMME JEAI;
CEA/ALLIANCE ANCRE EUROSUNMED;
CEA/ALLIANCE ANCRE STAGE-STE;

SPAIN

BECAS MAEC AECID (MINECO)
PROGRAMMA DE COOPERACION INTERUNIVERSITARIA E INVESTIGACION CIENTIFICA (PCI)(MINECO)
i-LINK+ and I-COOP. Scientific cooperation programme between CSIC and Mediterranean Countries with a call for water in 2014 and a call for agrofood in 2015.

CYPRUS

MULTITHEMATIC RESEARCH DEVELOMENT PILLAR (DIDAKTOR)
DEVELOPMENT OF HUMAN RSOURCES PILLAR (DIDAKTOR)
BILATERAL COOPERATION PROGRAMME
JPI FACCE
JPI WATER
Cyprus is involved in the frame of the SOLAR-ERA-Net started in 2012 and gather Programme owners participating with national funds to the 2 joint calls launched within this project.

All these programs are managed by the Cyprus Research Promotion Foundation (RPF) either as the Programme owner or the funding/administering agency.
Some of analysed programmes started in 2008 (Development of Human Resources Pillar, Multi-thematic Research Development Pillar, Targeted International Cooperation under Bilateral Cooperation Programme). Others like actions launched under Bilateral Cooperation Programme started from 2004 up to the present since the last bi-lateral Programme started in 2014.

Other Programmes and activities (not analysed in ERANET MED)

FRANCE

ANR has launched 3 foresights studies on the Mediterranean Region
2010-2011 PARME : "Which research and partnerships for the Mediterranean?"
2012-2013 FUTOURAUMED: Tourism and migrations between the two shores of the Mediterranean
2013-2014 MEDMER : Environmental Changes and the Mediterranean Sea
2012: TRANSMED national transdisciplinary research programme for transnational research in the Mediterranean with participants of countries of the Southern part of the Mediterranean
6 international research projects are on-going - ALMIRA, AMETHYST, CIRELANMED, MEDINA, MED-INN-LOCAL, SODEMOMED

Among them, 4 are addressing Food and Water issues in North and South Mediterranean Countries:
ALMIRA Adapting Landscape Mosaics of mediteranean Rainfed Agrosystems for a sustainable management of crop production, water and soil resources;
AMETHYST The AMETHYST project aims to analyse the co-evolutions of the water resources under the influence of global change (climate and anthropogenic changes) and of the water uses trajectories;
MEDINA Promoting sustainable Mediterranean food systems for good nutrition and health;
MED –INN- LOCAL Innovations around the development of local specificities in the Mediterranean hinterland.

INRA-CIRAD-IRSTEA have established bilateral cooperation agreements with many Southern Mediterranean Countries, in particular Morocco, Tunisia, Egypt, Algeria.
INRA Metaprogrammes and Agropolis foundation are supporting International Research Projects in the Mediterranean Area such as:
GALIMED (Genetic Adaptation of bovine LiIvestock and production systems in MEDiterranean region);
RECOLAD Climatic Change adaptation of livestock – Mediterranean Network;
SMART Sustainable Mediterranean Agricultural Systems for the future. Designing sustainable agricultural systems for food security under global change in the Mediterranean: a SMART flagship programme for the Agro Labex;
FABATROPIMED Integrating Legume in Mediterranean Cropping systems: nutrient use efficiency, interaction between Nitrogen and Phosphorus with legumes as tools to produce high protein content feed/food with much lower input and biodiversity of soil bacteria and mycorrhizae.

GERMANY

Bilateral Agreements
Memorandum of Understanding on the organisation of scientific and technological cooperation between BMBF and MOST, Germany and Tunisia
Cooperation Agreement between TÜBITAK-DFG , Germany and Turkey
Cooperation Agreement between TÜBITAK-FZ-Jülich, Germany and Turkey
Cooperation Agreement between DAAD –YÖK, Germany and Turkey
Joint Declaration of Intent on Cooperation in Research, Education and Innovation Between BMBF and MoSIT, Germany and Turkey
Intergovernmental Agreement on Scientific and Technological Cooperation, Germany and Egypt
Cooperation Agreement between FZ Jülich and ASRT (Academy for Science and Technology), Germany and Egypt
Cooperation Agreement between FZ Jülich and Qattara Authority, Germany and Egypt
Cooperation Agreement between FZ Jülich Atomic Energy Authority, Germany and Egypt
Intergovernmental Memorandum of Understanding on scientific and technological cooperation, Germany and Morocco
Cooperation Agreement between MOST and BMBF, Germany and Israel
Cooperation Agreement between MOITAL and BMBF, Germany and Israel
Rahmenvereinbarung zwischen FZ-Jülich und der Al-Quds University (AQU) zur weiteren Vertiefung der bilateralen Zusammenarbeit
Memorandum of Understanding on Cooperation in Education, Science and Research between the Federal Ministry of Education and Research of the Federal Republic of Germany and the Palestine Liberation Organization for the benefit of the Ministry of Education and Higher Education

Research Programmes
German-Egyptian Research Fund (GERF), Germany and Egypt
Programme Maroc Allemand de Recherche Scientifique (PMARS), Germany and Morocco

Scientific and Technological Cooperation between Tunisia and Germany (STC-TUNGER)
German-Israeli Project Cooperation (DIP), Germany and Israel
German-Turkish Year of Research, Education and Innovation 2014, Germany and Turkey
Programme for research cooperation between universities (IntenC), Germany and Turkey
Programme for research cooperation between academia and industry (2+2programme), Germany and Turkey
ERANET MED financial support for programme strand "Renewable Energy"

Bi- and multilateral Projects
EU-Inco-Nets: MIRA, MEDSPRING
EU-ERA-Nets: ERA-Net/ERA-Net +: ERANET MED, ERAFRICA, Circle2, Biodiversa, WoodWisdom-Net 2, RURAGRI, ECO-INNOVERA, SEAS-ERA, IWRM-Net, BONUS, ERA-Net CRUE, Eurotrans-Bio, ERA-IB, M-era.Net, ERA-NET SIINN, ERA-Net ANIHWA, Era-Net Bioenergy, ERASysAPP, ERANET SUSFOOD
EU-BILATs: Fetric (Tunisia), Sheraca-Plus (Egypt), EARN (Algeria), Mobilise (Morocco), EU-JordanNet II
JPI/EIP: JPI Water, JPI Healthy and Productive Seas and Oceans, JPI Climate, JPI Healthy Diet for a Healthy Life (HDHL), JPI Agriculture, Food Security and Climate Change (FACCE), European Innovation Partnership Water

SPAIN

Within the Ministry of Economy and Competitiveness (MINECO), the Secretariat of State for Research subsumes the responsibilities for scientific and technical research, development and innovation, and facilitates Spanish representation in programmes, forums and international organizations.

Other Ministries (for instance, the Ministry of Foreign Affairs and the Ministry of Agriculture) as well as Autonomous Regions are actives in the promotion and development of R&D and Innovation in the Mediterranean Area, including areas such are in food, agriculture and water and has a strong linkages between universities and Public Research Organizations (PROs) and industries with a good balance between publications and degree of specialization and societal impact.

By way of example, within the FP7 activities, Spain has participated in more than 280 projects in the area of KBBE and in more than 275 in the area of Environment, both areas of the interest for PRIMA.

Some of actions or programmes or actions that could be related with future PRIMA initiatives

INCO 7FP/H-2020. For instance, MIRA - Mediterranean Innovation and Research coordination Action; SUWARESA - Capacity and knowledge building on i.e. Sustainable Use of Water

Resources and Syrian Agriculture or MedSPRING-Mediterranean Science, Policy, Research & Innovation Gateway

ERANET. In the frame of ERA, and Horizon 2020, Spain is currently working in more 22 ERANET scheme activities. Some initiatives of interest for future PRIMA initiatives: FORESTERRA; BIODIVERSA 2; ECO-INNOVERA SEAS-ERA - SOLAR-ERA.NET - ERAFRICA - ERANET MED - ERA-IB2

INTERREG MED. For instance, APICE - Common Mediterranean strategy and local practical Actions for the mitigation of Port, industries and Cities Emissior, TOSCA - Tracking Oil Spills and Coastal Awareness Network or MYTILOS-Développement d'un réseau interrégional de surveillance de la qualité des eaux côtières par des bio-intégrateurs por la protection durable de la Méditerranée Occidentale

ENPI CBC MED. For instance, NANOWAT-Diffusion of nanotechnolgy based devices for water treatment and recycling or MED-JELLYRISK-Integrated monitoring of jellyfish outbreaks under antropogenic and climatic impacts in the Mediterranean sea (coastal zones): trophic and socio-economic risks.

MISTRALS (Mediterránean Integated Studies at Regional and Local States)

EXCELLENCE NETWORKS: For instance, MEDVETNET the European network for prevention and control of zoonosis and foodborne diseases. It integrates animal health, human health and food safety at European level to improve research, prevention and control of zoonosis.

EPISHOUTH/EPISOUHT PLUS: project aimed at creating a framework of collaboration on epidemiological issues in order to improve communicable diseases surveillance, communication and training across the countries of the Mediterranean and the Balkans at national / regional level under the implementation of the IHR Emergency Committee

MEDIPIET: project that aims to increase health in the Mediterranean region through education and training of professionals in public health surveillance.

BILATERAL AND MULTILATERAL REASEACH ACTIONS (PCI) . As it constitutes a Cooperation Programme (MAEC) it is clearly linked to ADO thus; Rural Development and Fight Against Hunger and Agriculture, Health and its basic social services, Water, Hygiene and Waste Management, Economic growth for Poverty Reduction or Combating Climate Change and Environmental Sustainability are the priorities. One of the characteristics of this program is the integration of co-ownership in the base of the cooperation, by giving R&D authorities of Algeria, Egypt, Jordan, Morocco, Mauritania Tunisia the opportunity to select the projects in bilateral meetings. For instance, the Scientific Cooperation Project To Develop The Research On Purification And Reuse Of Waste Water In Tunisia or development of methodologies for the

determination of toxic residues in drinking water and wastewater in areas less favoured in the north of morocco to ensure environmental sustainability

GRANTS FOR FOREIGNERS –Grants provided by the MAEC AECID (AECID_ Spanish AID Agency) for Maghreb, Middle and Near East: Morocco, Mauritania, Algeria, Tunisia and Sahrawi population, Lebanon Palestinian territories Iraq, Syria, Egypt and Jordan

TEMPUS. For Instance, NORIA Project, strengthening innovation strategy and Improving the technology transfer in the water technology sector of Morocco

REGIONS-FP7/H-2020 such is SWAM Project., increasing the regional competitiveness and economic growth through the R&D and Innovation on sustainable water management.

NATIONAL R&D AND INNOVATION PROGRAMME. The Secretariat of State for Research is founding at national level with or without international participation more than 100 projects per year focussed in Food, Agriculture and Water with interest in the Mediterranean Region.

AGREEMENTS ON SCIENTIFIC AND TECHNOLOGICAL COOPERATION BETWEEN THE COUNTRIES OF THE SOUTHERN SHORE OF THE MEDITERRANEAN AND EU

Reference: ERA-Net MED Deliverable D2.6 Title: Report on the analysis of R &I bi-lateral and bi-regional cooperation

Agreements on Scientific and Technological Cooperation between the countries of the southern shore of the Mediterranean and EU. The relations between the EU and the Mediterranean countries are governed by the Association Agreement, the signing of this agreement gave birth to the Agreement on scientific and technical cooperation.

Objectives of the Agreement
Structuring dialogue between the Community and the national scientific authorities;
Develop a knowledge economy by research and innovation;
Ensure the opening of the European Research Area and increase participation of the countries in Frameworks Programmes.

Working methodology
Identification of joint priorities S &T;
Mutual in formation to scientific and technological programmes access;
Exchange and sharing of research facilities and know-how;
Synergies, consistency with other policies and instruments of cooperation and development.

Signatory Countries
Morocco
The Association Agreement was signed on February 1996 and started in March 2000. The Agreement on Scientific and Technical Cooperation (S & T) between the European Union and Morocco was signed on 26 June 2003.
The EU and Morocco are fully engaged in a strong and deep cooperation supported by a high-level policy dialogue, and pertaining to multiple sectors including research and innovation. At the institutional level, the Association agreement (1996), the ST agreement (2003), the European neighbouring policy (2004), the new 'advanced status' and the programme called "To succeed the advanced status" have put emphasis on the consolidation of scientific and technological ties, and are supported by relevant implementation mechanisms and instruments. In May 2011 an institutional twinning program was launched to strengthen and bring closer the Moroccan research and innovation system to ERA. Morocco is highly devoted to reinforce and intensify the current bilateral initiatives and programmes in the field of science and technology, aiming to the preparation and definition of joint activities targeting themes of mutual interest, the improvement of cooperation on industry-oriented ST cooperation between EU and Morocco, the setting up of joint collaboration and networking of technical platforms and research laboratories. Through these efforts, the scientific and technological cooperation with the EU is considered as a driver for the implementation of the national strategy for research Horizon 2025, a support to sectorial national programmes of socio-economic development and to the achievement of the knowledge-based economy.

Algeria
The Association Agreement was signed on 2002 and started in September 2005.
The Agreement on Scientific and Technical Cooperation (S & T) between the EU and Algeria was signed on 19 March 2012.

Tunisia
The Association Agreement was signed on 1995 and started in March 1998. The Agreement on Scientific and Technical Cooperation (S & T) between the European Union and Tunisia was signed on 26 June 2003.

Egypt
The Association Agreement was signed on June 2001 and started in June 2004. The Agreement on Scientific and Technical Cooperation (S & T) between the European Union and Egypt was signed on 21 June 2005.

Jordan
The Association Agreement was signed on November 1997 and started in Mai 2002. The Agreement on Scientific and Technical Cooperation (S & T) between the European Union and Jordan was signed on November 2009 and started on 29 Mars 2011.

ANNEX 4

Answers to the letter sent by Minister Giannini concerning the participation of MSs, ACs and MPCs in PRIMA:

- Albania
- Austria
- Czech Republic
- Denmark
- Estonia
- France
- Germany
- Greece
- Jordan
- Lebanon
- Luxembourg
- Malta
- Morocco
- Netherland
- Norway
- Portugal
- Slovenia
- Spain
- Sweden
- United Kingdom

Il Ministro dell'Istruzione, dell'Università e della Ricerca

Presidenza Italiana del Consiglio dell'Unione Europea

italia2014.eu

Rome, 13 AGO 2014

Dear Minister,

I am writing to you with regard to the Partnership for Research and Innovation in the Mediterranean Area (PRIMA) initiative.

As you may recall, the initiative for a renewed partnership for research and innovation in the Mediterranean Area has its roots in the Conclusions of the European Council held in Lisbon in June 1992. It was resumed in the Barcelona Declaration of 2005, re-launched in Paris in July 2008, and took a new impetus with the Limassol Declaration (2012) on a Marine and Maritime Agenda for growth and jobs.

The impressive bulk of past and ongoing research and innovation activities in the Area showed a widespread interest by several Countries (via bi-lateral and multi-lateral initiatives) and by the European Commission (via several ERA-NETs and other programmes/projects), but provided as well an impression of high fragmentation and, sometimes, unnecessary duplication.

This is the reason why Italy launched the idea of frameworking the numerous initiatives under a common umbrella, represented by a specific Programme, designed according to the Article 185 of the Treaty for the Functioning of the European Union (TFEU).

The focus of this Initiative is on working towards the development of a common knowledge and innovation space, which would pull together a policy dialogue, national and regional capacity-building, cooperation in research and innovation and increased mobility of researchers, thus providing a building block to the implementation of the European Research Area.

After a long and intense preparatory work, which saw the active involvement, on an equal footing, common interest and shared benefit basis, of several Member States, Associated Countries and Mediterranean Partner Countries, the Greek Presidency decided to bring the issue to the attention of the Informal Meeting of the EU Research Ministers held in Athens on May 13, 2014 and then to the Competitiveness Council held in Brussels on May 26, 2014. In both occasions, a widespread political support for the PRIMA initiative was recorded.

Ms. Lindita Nikolla
Minister of Education and Sport
TIRANA

As you all know, the "Regulation (EU) No 1291/2013 of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020)", at its Article 26 defines the five criteria for identifying the proposals which are appropriate for an initiative according to Art. 185 of TFEU. Among those criteria the "*indicative financial commitment of the participating countries, in cash or in kind, including prior commitments to align national and/or regional investments for transnational research and innovation and, where appropriate, to pool resources*" is listed.

In view of the above, I am addressing this letter to you, in order to express the Italian commitment for at least 50 million euros for the 10 year duration of the Programme, plus an equivalent amount in kind, and to ask you to kindly confirm and indicatively quantify the financial commitment of your Country.

I would like to take this occasion also to ask you to confirm/indicate the person who will be the contact point in your Capital for this Initiative. As you know, we consider this dossier a priority of our semester of Presidency of the Council of the EU and we intend to move it forward , with the aim to ensure that the December 5 Council can approve Conclusions inviting the Commission to prepare the proposal on this Initiative, to be submitted for approval to the Council and the Parliament.

Looking forward to receiving your reply, which I am sure will be positive, in time for our Competitiveness Council of September 26, I would like to take this opportunity to send you my most cordial regards.

Sincerely yours,

Stefania Giannini

REPUBLIKA E SHQIPËRISË
MINISTRIA E ARSIMIT
DHE SPORTIT

MINISTER

Nr. 8252 Prot. Tirana, on 06.11.2014

TO: H.E. MS.STEFANIA GIANNINI
MINISTER
MINISTRY OF EDUCATION, UNIVERSITIES AND RESEARCH
ITALY

Dear Minister,

First of all, allow me through this letter to thank You and your ministry for the contribution and support through the years in the field of research and innovation which have been very helpful to Albania's efforts towards qualitative scientific research.

The Albanian Government is very committed to boost the level of investment in research and innovation and encouraging successful joint projects between Albanian research institutions and regional partners. We strongly believe that regional cooperation in research and innovation embodies a precious instrument to deal hand in hand with frequent challenges and to endorse sustainable economic development for all.

Regarding the participation to the Partnership for Research and Innovation in the Mediterranean Area (PRIMA) initiative, the contact person from the Ministry of Education and Sport of Albania will be
Mrs. Linda PUSTINA,
Director of the Department of Higher Education and Scientific Research
Ministry of Education and Sport
Rr. Durrësit, Nr. 23, AL-1001-Tirana
Email: linda.pustina@arsimi.gov.al
Tel: +355 4 222 8347

Looking forward to a fruitful collaboration.

Yours sincerely,

REPUBLIKA E SHQIPERISE · MINISTRIA E ARSIMIT DHE SPORTIT · TIRANË

LINDITA NIKOLLA
MINISTER

Rruga e Durrësit, Nr. 23, AL-1001, Tiranë
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Email: sekretaria@arsimi.gov.al
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DR. REINHOLD MITTERLEHNER
Federal Minister

bmwfw
Federal Ministry of
Science, Research and Economy

H.E.
Prof. Stefania GIANNINI
Minister for Education, University
and Research
Piazza Kennedy, 20
I-00144 Rome
ITALY

Vienna, September 4th, 2014
Business Number: BMWFW-308.299/0033-WF/V/6/2014

Excellency,

Dear Colleague!

Thank you for your letter dated from 13th August regarding a possible Austrian participation in the "Partnership for Research and Innovation in the Mediterranean Area" (PRIMA). I very much appreciate the active engagement and efforts Italy is taking to increase the regional cooperation in the Mediterranean area during the Presidency of the EU Council.

However, I regret to have to inform you that the Austrian Federal Ministry of Science, Research and Economy is not able to take part in this activity.

Nevertheless I would like to stress our excellent bilateral and multilateral cooperation which I hope will be further strengthened within the frameworks of the macro-regional EU-Strategies for the Danube Region and for the Alpine Region, as well as in the frame of the Central European Initiative (CEI), where Austria holds the Presidency in 2014.

Looking forward to our further fruitful and successful cooperation, I remain

Yours sincerely,

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e-mail: reinhold.mitterlehner@bmwfw.gv.at | **www.bmwfw.gv.at**

Pavel Bělobrádek
Deputy Prime Minister for Science, Research and Innovation

Prague, 9th September 2014

Dear Minister,

I am writing to you with regard to the Partnership for Research and Innovation in the Mediterranean Area (PRIMA) and with reference to your letter dated 13th August 2014.

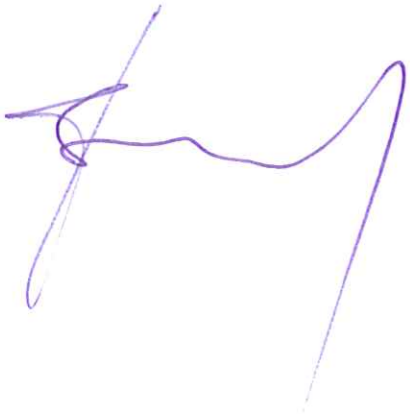
The Czech Republic welcomes a deepening of the cooperation in the Mediterranean area in a field of research and development (R&D) due to indisputable influence of R&D to economic growth and in the context of stability and democratic development in this area. The Czech Republic shares the idea of frameworking the numerous initiatives under a common umbrella designed according to the Article 185 of the Treaty for the Functioning of the European Union (TFEU). The Article 185 of the TFEU is considered as an appropriate and well-proven instrument for cooperation among participating states in specific priorities. Therefore the clear priorities must be setup and approved. We are convinced that the priorities must be directly linked to the targets of Horizon 2020 especially in a section of Societal Challenges and make synergies to other EU strategies and initiatives. Hereby will be ensured benefit for both sides and added value of the cooperation.

To the indicative financial commitment of the participating countries, the Czech Republic indicate for the future Programme according to the Article 185 TFEU at least 10 million EUR for the 10 year duration of the Programme, plus an equivalent amount in kind.

The contact point for PRIMA in the Czech Republic is a Ministry of Education, Youth and Sports (Director of Department of Research a Development, Mr. Lukas Levak, lukas.levak@msmt.cz, +420 234 811 511).

I am looking forward to our future cooperation and I would like to take this opportunity to send you my most cordial regards.

Yours faithfully



Mrs. Stefania Giannini
Minister
Ministry of Education, Universities and Research
Tel: +39 06 5849 2100
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Rome, Italy

Minister for Higher Education and Science

Ministry of Higher Education and Science

Professor Stefania Giannini,
Minister for Education, Universities and Research,
Rome,
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16 SEP. 2014

Ministry of Higher Education and Science

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CVR no. 1680 5408

Ref. no. 14/014536-04

Subject: Reply to your letter of 13 August 2014 regarding PRIMA

Dear Ms Giannini,

Thank you for your letter of 13 August 2014 regarding PRIMA which I have read with great interest.

From my point of view, an enhanced cooperation in the Mediterranean Area is a very important element in relation to finding solutions to our common grand societal challenges. I agree that it is a good idea to strengthen cooperation in this area and also to consider establishing a more strategic and binding partnership.

Establishing an article 185 partnership is a complex affair and I believe that it is highly valuable to learn from existing experiences, for instance by requesting the BONUS secretariat in Helsinki to elaborate an overview of their experiences. We would be delighted to share our experiences from BONUS with you. As you probably remember the Danish delegations touched on these issues at both the Informal Council in Athens on 13 May and at the Competitiveness Council in Brussels on 26 May.

At the Council meeting on 26 May the Commission outlined a roadmap for setting up the future 185 programme concerning the Mediterranean Area. We are very supportive in relation to the on-going process towards realizing a new programme. A final decision regarding Danish participation will be difficult before a concrete proposal is adopted by the Commission.

Nevertheless, I look forward to further constructive discussions on the PRIMA initiative during your Presidency. Your cabinet is more than welcome to contact Mr Ulrik Kjølsen Olsen (uko@fi.dk) who will be our contact point on this matter.

I will also take the opportunity to wish you a very successful Presidency.

Yours sincerely

Sofie Carsten Nielsen

Haridus- ja Teadusministeerium
Estonian Ministry of Education and Research

Ms Stefania Giannini
Ministry of Education, Universities and Research

Your Ref: 13.08.2014 No 0022810
Our Ref : 15.09.2014 No 9.1-3/4994-2

Letter concerning the participation of Estonia in the Partnership for Research and Innovation in the Mediterranean Area (PRIMA)

Dear colleague

Thank you for your letter explaining the procedure of possible joining of Estonia in the Partnership for Research and Innovation in the Mediterranenan Area (PRIMA). Estonia welcomes the PRIMA initiative as a necessary step to unite and coordinate the research and innovation activities in the Mediterranean area that also contributes to our common pan-European goals in the field of research.

After careful review of our possibilites, I regret to inform you that due to limited resources Estonia is not ready to participate in the joint initiative. Although we will not be officially participating in the programme, I hope that we continue to have opportunities to work together and we would appreciate if you could keep us informed with updates on the progress of the implementation of the initiative.

Yours sincerely,

Jevgeni Ossinovski
Minister

Maria Leek +372 735 4031
maria.leek@hm.ee

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RÉPUBLIQUE FRANÇAISE

MINISTÈRE
DES AFFAIRES ÉTRANGÈRES
ET DU DÉVELOPPEMENT
INTERNATIONAL

Direction de l'Union européenne

Sous-direction
de l'Europe méditerranéenne

N° 3215 /DUE/EM

Paris, le 3 novembre 2014

BORDEREAU D'ENVOI

A l'attention de

Son Excellence
Mme Catherine COLONNA
Ambassadrice de France en Italie
ROME

DESIGNATION DES PIECES	NBRE	OBSERVATIONS
A/S : Transmission de correspondance. Lettre de Madame Geneviève FIORASO, secrétaire d'Etat chargée de l'Enseignement supérieur et de la Recherche à l'attention de Madame Stefania GIANNINI, Ministre de l'Education, de l'Enseignement supérieur et de la Recherche de la République italienne.	1	En vous remerciant de bien vouloir transmettre cette lettre à Son Haut destinataire./. P/o **Bertrand BUCHWALTER**

MINISTÈRE DE L'EDUCATION NATIONALE,
DE L'ENSEIGNEMENT SUPÉRIEUR ET DE LA RECHERCHE

Secrétariat d'Etat
chargé de l'Enseignement supérieur et de la Recherche

La Conseillère diplomatique

Paris le, 30 OCT. 2014

BORDEREAU D'ENVOI

à l'attention de

Monsieur Bertrand BUCHWALTER
Sous-directeur de l'Europe méditerranéenne
Ministère des affaires étrangères
Et du Développement international
37 quai d'Orsay
75700 PARIS SP 07

DESIGNATION DES PIECES	NOMBRE	OBSERVATIONS
Lettre de Madame Geneviève Fioraso, secrétaire d'état chargée de l'enseignement supérieur et de la recherche à l'attention de : Madame Stefania GIANNINI Ministre de l'Education, de l'Enseignement supérieur et de la Recherche de la République italienne	1	Pour remise à son haut destinataire. Elsa COMBY

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RÉPUBLIQUE FRANÇAISE

MINISTERE DE L'EDUCATION NATIONALE,
DE L'ENSEIGNEMENT SUPERIEUR ET DE LA RECHERCHE

La Secrétaire d'Etat
chargée de l'enseignement supérieur et de la recherche

Paris, le 30 OCT. 2014

Chère Madame la Ministre, Dear Stefania

Le Partenariat pour la Recherche et l'Innovation dans la Région Méditerranéenne (*Partnership in Research and Innovation in the Mediterranean Area*, PRIMA) est une initiative qui aura certainement un impact majeur dans la zone non seulement sur nos coopérations scientifiques et technologiques, mais aussi à terme sur la vie quotidienne de nos concitoyens. C'est également une opportunité exceptionnelle de renforcer les liens avec nos partenaires du sud de la Méditerranée, de les accompagner dans la construction de leurs systèmes de recherche et d'innovation, tout en bénéficiant de la richesse de leur communauté scientifique.

C'est pourquoi la France qui s'est engagée dès le début dans la préparation de cette initiative aux côtés de vos services continuera de soutenir PRIMA et y participera activement dès qu'elle sera lancée.

En effet, l'initiative au titre de l'article 185 du traité sur le fonctionnement de l'Union européenne est l'instrument le plus approprié pour assurer une coopération scientifique durable d'excellence avec nos partenaires du Sud et garantir les financements nécessaires à la réalisation de nos objectifs.

L'engagement financier de la France sera de quatre millions d'euros par an pendant la durée de ce programme. Mes services préciseront ultérieurement le montant de la contribution en nature qui pourra être dévolue à PRIMA.

Le point de contact PRIMA pour la France est Monsieur Michel Trebel (michel.trebel@recherche.gouv.fr, +33 1 55 55 97 18).

Chère
Je vous prie d'agréer, Madame la Ministre, l'expression de ma haute considération.

Bien amicalement

Geneviève FIORASO

Madame Stefania GIANNINI
Ministre de l'Education, de l'Enseignement supérieur
et de la Recherche de la République italienne
Ministère de l'Université et de la Recherche
viale Trastevere 76/A
00153 ROME - ITALIE

Bundesministerium
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Freiheit
Einheit
Demokratie

Prof. Dr. Johanna Wanka
Federal Minister of Education and Research

POSTANSCHRIFT Bundesministerin für Bildung und Forschung, 11055 Berlin

Prof. Stefania Giannini
Ministro dell'Istruzione, dell' Università e
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E-MAIL johanna.wanka@bmbf.bund.de
HOMEPAGE www.bmbf.de

DATUM Berlin, September 2014

Translation

Dear Colleague,

Thank you very much for your letter of 13 August 2014, in which you inform me about the planned Partnership for Research and Innovation in the Mediterranean Area (PRIMA).

The Federal Ministry of Education and Research (BMBF) attaches great importance to the Euro-Mediterranean partnership. Germany has been involved in multilateral and bilateral cooperation with the Southern Mediterranean region for many years. We have also been able to expand this cooperation via the Euromed process and through participation in the Union for the Mediterranean (UfM).

I therefore welcome the PRIMA initiative as a further step towards strengthening cooperation with the countries bordering the Mediterranean. The involvement of the various Mediterranean partners on an equal footing is particularly important in this context.

My Ministry's openness towards PRIMA has been expressed on several occasions. This still holds true despite the various criticisms concerning the identification of a thematic focus and the overall process. Now that a focus has been established, we are taking another close look at the planned initiative reassessing its financial implications. I will come back to your letter as soon as possible.

I hope we will soon have an opportunity to meet personally.

Yours sincerely,

Signed: Johanna Wanka

HELLENIC REPUBLIC

MINISTRY OF EDUCATION AND RELIGIOUS AFFAIRS

MINISTER

Athens, 19 September 2014

Num. Prot : 76

To : Professor Stefania Giannini
Minister for Education, University and Research

Rome

Dear Stefania,

Thank you very much for your kind letter focused on the Partnership for Research and Innovation in the Mediterranean Area (PRIMA) initiative.

I fully agree on the necessity of promoting PRIMA Initiative as a Programme designed according to the Article 185 of the Treaty for the Functioning of the European Union.
As you mentioned, the Greek Presidency alongside with Italy and several countries has long worked on bringing it up and including it in the Agenda of the Informal Meeting of the EU Research Ministers held in Athens, in May 13th, 2014 and two weeks later of the Competitiveness Council in Brussels, with a widespread political support recorded on both occasions.

Based on the fruitful outcome of the deliberations of both above mentioned Councils, we are fully supportive of the excellent work the Italian Presidency is currently undertaking, according to the time schedule proposed by the PRIMA Core Group in which the contact person in Greece is Mrs Afroditi Patroni, Head of the International Scientific and Technological Cooperation Directorate of the General Secretariat for Research and Technology.

Welcoming the Italian commitment for the 10 year duration of the Programme, we have the pleasure to inform you on our turn, that Greece is committing for an in cash contribution amounting to 10 million euros, as well as an in kind contribution as the case may be, without excluding an additional funding in the future.

Wishing you every success in your Presidency,

Yours sincerely,

Professor Andreas Loverdos

37, Andrea Papandreou str. - 15180 Maroussi, Athens - Tel. +30 210 344 3611, 210 344 3887 - Fax: +30 210 344 3865
Email: minister@minedu.gov.gr

بسم الله الرحمن الرحيم

The Higher Council for Science and Technology
General Secretariat

المجلس الأعلى للعلوم والتكنولوجيا
الأمانة العامة

Ref. No. 2-26-621
Date : 13-8-2014

الرقم : .....
التاريخ : .....
الموافق : .....

Excellency Stefania Giannini,

Further to your letter dated August 13th 2014, concerning the Partnership for Research and Innovation in the Mediterranean Area (PRIMA) initiative, I would like to express our commitment and support for this initiative which will lead to long term sustainable strategy for research and innovation for the Euro - Mediterranean Area, with the highest social-economic impact, based on the principles of co-ownership, co-decision and co-financing.

In regards to your request to confirm and indicatively quantify the financial commitment of Jordan, I regret to inform you that this is not possible at this stage, as the governance structure for the initiative is not finalized yet, knowing that we demanded a mechanism for funding to be "project oriented" whereas each country manages its own funds and researchers to cover local costs for certain projects aligned with national priorities (a virtual common pot were research project budgets are identified from various resources, i.e partners and EU contribution), and these budgets are distributed between project partners according to the work distribution. Once these issues are clarified, Jordan will quantify its commitments (cash & in kind).

Regarding your second request to confirm/indicate the person who will be the contact point for this initiative, I confirm that myself, as the Secretary General of the Higher Council for Science and Technology, will be the contact person for the PRIMA initiative in Jordan.

Looking forward to a fruitful collaboration and successful implementation of the PRIMA initiative.

Yours sincerely,
Dr. Khaled Elshuraydeh

Secretary General

Cc: Assistant Secretary General for Scientific and Technological affairs
Acting Director of Policies and Scientific Projects Management Department

ص.ب: ٣٦ الجبيهة ١١٩٤١ عمان- الأردن. هاتف: ٥٣٤٠٤٠١ (٦-٩٦٢). فاكس: ٥٣٤٠٥٨٩ (٦-٩٦٢) www.hcst.gov.jo
P.O. Box 36 Jubeiha 11941 Amman-Jordan. Tel: (962-6) 5340401, Fax: (962-6) 5340589, E-mail : info-sg@hcst.gov.jo

National Council for Scientific Research

Ref: 2761
Date: 1/9/2014

H.E. Stefania Giannini, Minister
The *Italian Ministry* of Education, University and *Research* (MIUR)

Ref: Your Letter (Prot. n. 0022820); Dated August 13, 2014

The PRIMA initiative under Article 185 of the TEFU comes at a timely and opportune time in the further development of the EU-MED Cooperation. We take this chance to thank you for the commitment that the Italian Government has undertaken towards the joint development of a common knowledge and innovation space between our two regions; based on the key principles voiced in your letter of equal footing, common interests and shared benefits.

The National Council for Scientific Research in Lebanon (CNRS-L) is pleased to have been actively following and contributing to the various preparatory meetings and work that have been undertaken to date towards the successful completion and submission of the PRIMA Dossier under the Italian Presidency of the Council of the EU.

Strongly believing in the importance of this initiative for EU-Med joint collaborations, I take this opportunity to reconfirm that **Prof. Mouïn Hamzé, Secretary General of the CNRS-Lebanon** will be the contact point for the Lebanese Coordination.

Following the upcoming steps to be undertaken within PRIMA - and particularly the identification of thematic and topics to be covered by this joint programming initiative - The CNRS hopes to shortly communicate our financial commitment in line with available national resources in the identified thematics.

We look forward to a continued collaboration.

Best Regards,

Republic of Lebanon
National Council for Scientific Research

Georges Tohmé
President, Board of Administrators (BoA)
National Council for Scientific Research – Lebanon (CNRS-L)
Beirut, Lebanon

Cc: M. Hamzé, Secretary General, CNRS-L

NATIONAL COUNCIL FOR SCIENTIFIC RESEARCH
P.O.Box : 11-8281 , Riad El Solh 1107 2260 Beirut - Lebanon
Tel. : 961-1-840 260, Fax : 961-1-822 639 ; E-mail: sg@cnrs.edu.lb

المجلس الوطني للبحوث العلمية
ص.ب: ٨٢٨١-١١ رياض الصلح ١١٠٧ ٢٢٦٠ بيروت – لبنان
هاتف: ٨٤٠٢٦٠-١-٩٦١ ، فاكس: ٨٢٢٦٣٩-١-٩٦١

LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de l'Enseignement supérieur
et de la Recherche

Le Secrétaire d'État

Luxembourg le 25 septembre 2014

Prof. Stefania GIANNINI
Ministro dell'Istruzione,
dell'Università e della Ricerca
Viale Trastevere 76/A
I-00153 ROMA

Dear Minister Giannini,

In view of the discussions at the Competitiveness Council on September 26th 2014 in Brussels, I am addressing you this letter in order to express the commitment of Luxembourg for 1,5 million euros for the ten year duration of the Programme with regard to the partnership for research and Innovation in the Mediterranean Area (PRIMA) initiative, plus an equivalent amount in kind.

The contact person for Luxembourg to this initiative is:
Léon Diederich
Premier Conseiller de Gouvernement
Ministère de l'Enseignement supérieur et de la Recherche
Département Recherche et Innovation
20, Montée de la Pétrusse L-2327 Luxembourg
E-mail : leon.diederich@mesr.etat.lu

Yours sincerely,

Pour le Ministre de l'Enseignement
supérieur et de la Recherche

Marc Hansen
Secrétaire d'État à l'Enseignement supérieur
et à la Recherche

MINISTRY FOR EDUCATION AND EMPLOYMENT
GREAT SIEGE ROAD, FLORIANA, MALTA

Prof. Stefania Giannini
Ministero dell' Istruzione, dell' Università e
della Ricerca
Viale Trastevere, 76/A
I-00153 ROMA

27 November 2014

Dear Minister

Maltese contribution to the Partrnership for Research and Innovation in the Mediterranean area (PRIMA)

I am writing to you with regard to the Partnership for Research and Innovation in the Mediterranean Area (PRIMA) initiative.

Malta would like to commit the amount of 500,000 EUR annually towards such an important initiative.

This information will also be communicated electronically to the other Member States via our Permanent Representation.

Yours Sincerely

Evarist Bartolo
Minister for Education and Employment

t + 356 2598 2840 e education@gov.mt | www.education.gov.mt

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المملكة المغربية
وزارة التعليم العالي والبحث العلمي
وتكوين الأطر
الوزير

Royaume du Maroc
Ministère de l'Enseignement Supérieur,
de la Recherche Scientifique
et de la Formation des Cadres
Le Ministre

A
Madame la Ministre de l'Éducation,
de l'Université et de la Recherche
- Italie -

Objet : Contribution Marocaine à l'initiative PRIMA.
Référence : Votre lettre n° 0022820 en date du 13 Août 2014.

Dans le cadre de la mise en place de l'initiative pour le partenariat dans les domaines de la recherche et de l'innovation dans la zone méditerranéenne (PRIMA), j'ai l'honneur de vous informer que la contribution du Maroc dans le programme cité en objet s'élèvera à 40 millions d'euros (20 millions d'euros en numéraire et 20 millions d'euros en nature) sur les dix années de l'initiative PRIMA.

Par ailleurs, Dr Abdelilah AFIFI, le Directeur des Budget et des Affaires générales, a été mandaté par ce département pour participer aux travaux de l'initiative PRIMA.

Je vous prie de croire, Madame la Ministre, à l'expression de mes meilleures salutations.

Ministre de l'Enseignement Supérieur,
de la Recherche Scientifique
et de la Formation des Cadres
Lahcen DAOUDI

Avenue Mohamed Elyazidi - Hassan - Rabat / Tél .: 05 37 21 75 01/02/03 : شارع محمد اليزيدي - حسان - الرباط / الهاتف

STATE SECRETARY FOR EDUCATION, CULTURE AND SCIENCE

To Her Excellency
Stefania Giannini
Minister of Education, Universities and Research
Viale Trastevere 76/A
00153 Roma
ITALY

Date

Subject Partnership for Research and Innovation in the Mediterranean Area (PRIMA)

Dear Ms Giannini,

Thank you very much for your letter of 13 August in which you expressed the Italian commitment to a new Article 185 initiative, 'PRIMA', focusing on issues around the Mediterranean Sea.

As expressed in recent meetings of the Competitiveness Council, the Netherlands believes that this kind of partnership could be a valuable addition to existing networks and cooperation programmes at national and European level for dealing with urgent societal challenges in the Mediterranean area. Of course, solving them is important for the Union as a whole. Moreover, I believe that Dutch researchers could apply their expertise and contribute in areas such as agriculture, land degradation, urbanisation and logistics.

However, it is still too early to demonstrate financial commitment from our side. As we made clear, we will judge the PRIMA partnership on the basis of a sound plan, which shows that the initiative is founded on excellence, impact, focus, clearly defined European added value and explicit complementarity with existing funds, programmes and initiatives. Therefore, the Netherlands invites the founding Member States and third countries to develop the initiative in order to enable us to make a well-considered decision. I will follow the developments concerning PRIMA with great interest.

Marjan van Meerloo of the Ministry of Economic Affairs (m.vanmeerloo@minez.nl) will be the Dutch contact point for PRIMA during the next months. Any questions can be directed to her.

Kind regards,

Sander Dekker

RIJNSTRAAT 50 - P.O. BOX 16375, 2500 BJ THE HAGUE - THE NETHERLANDS - TELEPHONE: +31 70 4123456

ROYAL NORWEGIAN MINISTRY OF
EDUCATION AND RESEARCH

The Minister of Education and Research

Minister Stefania Giannini
Ministry of Education, Universities and Research
Rome, Italy

Your ref	Our ref	Date:
	14/4277-	08.10.14

Your Excellency Stefania Giannini,

I thank you for your letter regarding the Partnership for Research and Innovation in the Mediterranean Area (PRIMA) initiative. I appreciate your invitation to take part in the development of this very interesting initiative which I understand is essential to address challenges and unlock the potential of the Mediterranean region.

As you might know, Norway has a strong commitment regarding the activities of JPI Healthy and Productive Seas and Oceans. This broad platform covers all European seas and oceans and the various aspects from the marine environment and ecosystems through to the exploitation of marine resources in the light of climate change. The Mediterranean Sea is well embedded in the JPI's portfolio. I am certain JPI Oceans would be happy to discuss synergies and possible ways how the JPI can strengthen the PRIMA-initiative, as the JPI has done with the BONUS-program.

In the light of these perspectives I regret to inform you that Norway is not able to engage directly in the PRIMA-initiative.

Wishing you all the best for a successful development of PRIMA,

Yours sincerely,

Torbjørn Røe Isaksen

Office address: Kirkeg. 18 Telephone: +47 22249090 Telefax: +47 22242764
Postal address: PO Box 8119 Dep, N-0032 Oslo, Norway
Org. no.: 872 417 842

GOVERNO DE PORTUGAL | MINISTÉRIO DA EDUCAÇÃO E CIÊNCIA

Prof. Stefania Giannini
Minister for Education, Universities and Research
Italy

Cara Stefania,

Let me thank you for the letter you sent me regarding the Partnership for Research and Innovation in the Mediterranean Area (PRIMA) initiative. We would like to emphasize that Portugal is an active partner in the preparation of the future PRIMA initiative as a Joint Programme on the basis of Article 185º of TFEU.

We strongly believe it will stand as a powerful element for the neighbourhood policy in the Mediterranean area and, therefore, agree with a focused proposal within the sustainable water and food security domains, although allowing consideration of their interfaces.

Though it is our practice to advance financial commitments only at a later stage in the proposal development, we think that the PRIMA proposal design has been settled in solid ground. In this view, we can anticipate the availability of a minimum figure of 0,5 Million EUR for the first 5 years. This figure would be revised for the following 5 years, based on the progress of the initiative.

We hope this proposal suits the best interest of the initiative and would like to take the opportunity to indicate our National Contact Points to engage in its preparation along the future steps:

- Dr. Ricardo Pereira
  Address: Fundação para a Ciência e a Tecnologia
  Tel.: +351 213 911 565 / Email: ricardo.pereira@fct.pt

- Dr. Victor Silva
  Address: Fundação para a Ciência e a Tecnologia
  Tel.: +351 213 924 479 / Email: victor.silva@fct.pt

Please accept my kindest regards.

Yours sincerely,

Nuno Crato

Minister for Education and Science

Gabinete do Ministro da Educação e Ciência
Av. 5 de Outubro, 107-13º, 1069-018 Lisboa, PORTUGAL
Palácio das Laranjeiras - Estrada das Laranjeiras, 205, 1649-018 Lisboa, PORTUGAL
TEL + 351 21 781 18 00 FAX + 351 217 811 835 **EMAIL** gmec@mec.gov.pt www.portugal.gov.pt

Roma, lì 15 settembre 2014

Gentile Ministro Giannini,

con la presente mi pregio di trasmetterLe la lettera in inglese, da parte dell'uscente Ministro dell'Istruzione, della Ricerca e dello Sport della Repubblica di Slovenia S.E. Jernej Pikalo relativa all'iniziativa di sviluppare un'area di conoscenza e innovazione comune nel Mediterraneo (PRIMA).

Colgo quest'occasione per rinnovarLe i miei distinti ossequi,

S.E. Stefania Giannini
Ministro dell'Istruzione, dell'Università e della Ricerca
della Repubblica Italiana
Viale Trastevere, 76/a
00153 Roma

REPUBLIC OF SLOVENIA
MINISTRY OF EDUCATION, SCIENCE AND SPORT

Masarykova cesta 16, 1000 Ljubljana

T: +386 1 400 52 00
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H. E. Ms Stefania Giannini
Minister of Education, Universities and Research
Ministry of Education, Universities and Research
Viale Trastevere 76/A
I-00153 ROMA
Italy

segreteria.particolare.ministro@istruzione.it

Ljubljana, 11th September 2014

Dear colleague,

Allow me to sincerely thank you for informing me on the development of the Partnership for Research and Innovation in the Mediterranean Area (PRIMA) initiative.

We are aware of the immense importance of the initiative for the development of a common knowledge and innovation area in the Mediterranean region, which will attract and mobilize key regional stakeholders, especially by providing a building block for the improvement and more efficient implementation of the European Research Area in that important neighbouring area.

Slovenia firmly supports the future framework for a renewed partnership for research and innovation in the Mediterranean Area, however before we fully commit ourselves also financially to this initiative, we would need to have some more information about the programme (a governance structure, clear division of labour among partners, envisaged deliverables, defined European added value etc.) Therefore further information about the mentioned aspects of the programme will enable us to make a long term decision about our political and financial commitment or in kind contribution. Another important fact is also that at the moment we are facing changes of the government of the Republic of Slovenia so I will have to hand over this dossier to the new Minister, when she arrives and takes her position in few week time.

Please allow me to take this opportunity to indicate to you a contact person at our Ministry who is dealing with this initiative at the operational level. It is Mag. Peter Volasko, senior official in the Directorate of Science (address: Kotnikova 38, 1000 Ljubljana; E-mail: peter.volasko@gov.si; Phone: +386 1 478 4768 Fax: +386 1 478 47 23).

I take this opportunity to thank you warmly for the excellent collaboration we shared during the last years. It has been a great honour for me to get acquainted and work with you in the field of education, science and research.

I wish you every success in your professional activities and personal life.

Yours sincerely,

dr. Jernej Pikalo
MINISTER

S-255
24-09-14

MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

Carmen Vela Olmo

SECRETARIA DE ESTADO
DE INVESTIGACIÓN,
DESARROLLO E INNOVACIÓN

Mrs. Stefania Giannini
Minister of Education, University and Research
Viale Trastevere, 76/a
00153 Roma

Madrid, September 23rd 2014

Dear Minister, Dear Stefania,

In response to your letter dated last August in which you request me certain details regarding the art. 185 PRIMA that we all are trying to push up, once we have done our internal consultations, it is a pleasure for me to confirm you that we have a lot of interest in this initiative, as we have shown through our active participation in the design of the actions.

Regarding our financial commitment, we are ready to support the program with at least 3 million euros/year, which could increase depending on the final content of the scientific program.

Lastly, let me conclude indicating that the contact person for anything related to PRIMA is Mr. Juan María Vázquez, Professor at the University of Murcia and scientific collaborator to this State Secretary.

Juan M. Vazquez (PhD, Dipl ECAR& ECPHM)
Professor of Animal Reproduction
Dpt. Animal Medicine and Surgery
Faculty of Veterinary
University of Murcia - Campus de Espinardo
E-30100 Murcia
Phone: +34868884736
Fax: +34868887069
e-mail: vazquez@um.es<mailto:vazquez@um.es>

I look forward to seeing you in Brussels during the Competitiveness Council.

Sincerely

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MADRID - 28027
TF: 91 603 71 51
FAX: 91 603 70 02

REGERINGSKANSLIET

U2014/4924/F

4 September 2014

Ministry of Education and Research Sweden
Minister for Education and Research and
Deputy Prime Minister

Stefania Giannini
Minister of Education, Universities and Research

Dear Colleague,

Thank you for your letter regarding the Prima-initiative and the opportunity to join the project. Sweden believes that cooperation with 3:d countries is crucial to the continuous development and success of research in the EU. The cooperation in the Mediterranean region has reached a high level of maturity and Sweden is positive with regard to strengthening this cooperation further. At this time however, Sweden is not able commit to the Prima-initiative.

I wish you great success with your presidency of the Council of the EU,

Yours sincerely,

Jan Björklund

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SE-103 33 Stockholm
SWEDEN

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Cabinet Office

The Rt Hon Greg Clark MP
Minister for Universities,
Science and Cities

Department
for Business
Innovation & Skills

1 Victoria Street
London
SW1H 0ET

Our ref: MCB2014/20486

22 September 2014

Professor Stefania Giannini
Ministro dell'Istruzione, dell'Università e della Ricerca
Viale Trastevere 76/A
I-00153 ROMA
ITALY

ucd@istruzione.it

Dear Minister

Thank you for your letter about the Partnership for Research and Innovation in the Mediterranean Area ahead of the research day at next week's Competitiveness Council meeting. I will be attending in the morning but need to leave at lunchtime for a longstanding constituency engagement. Our Deputy Perm Rep, Shan Morgan, will be there for lunch, when the Partnership for Research and Innovation in the Mediterranean Area will be discussed and for the rest of the afternoon.

I understand that this proposed Partnership for Research and Innovation in the Mediterranean Area Article 185 initiative is important to Mediterranean Member States and that it a priority for the Italian Presidency.

The UK has participated and continues to participate in a number of research and innovation activities with Euro-Mediterranean countries, for example as part of the Joint Programming Initiative on Agriculture, Food Security and Climate Change. It is therefore likely that our Research Councils may have an interest in the development of the food security aspects of Partnership for Research and Innovation in the Mediterranean Area. However the UK has no current plans to make a financial commitment to the proposed Article 185 initiative.

It is important that, in the next steps of the process, the Commission services work closely with the participating Member States in order to rapidly produce a robust impact assessment which makes the links with Horizon 2020 objectives clear. The primary goal must remain the funding of excellent research.

Please do advise your contact the lead UK official for this area, Julia Lewis (julia.lewis@bis.gsi.gov.uk) if she can be of any further assistance.

I look forward to meeting you at the dinner I am hosting the night before the Competitiveness Council and at the meeting itself.

Yours sincerely,

THE RT HON GREG CLARK MP

ANNEX 5

Letter of European Commission of 17 January 2013

EUROPEAN COMMISSION
DIRECTORATE GENERAL FOR RESEARCH & INNOVATION

Directorate D - International cooperation
The Acting Director

17 JAN. 2013

Brussels,
rtd.ddg2.d.3(2012)1648965

Mr Raffaele Liberali
Head of Department
Italian Ministry for University and Research
By email only

Dear Raffaele,

Thank you for your email of 9 November requesting clarifications on some procedural aspects concerning a Euro-Med Article 185. Let me also take the opportunity to thank you for your participation at the MoCo meeting held in Malta on 19-20 November and your presentation there.

In your email you ask the Commission to provide an analysis of the most effective and simplest way to solve legal issues related to the participation of Mediterranean Partner countries (MPC) – including membership – in the governance of the Article 185 under discussion for the Euro-Med region.

As a first step in the analysis, we need to take stock of the current situation. Article 185 of the Treaty on the Functioning of the European Union (TFEU) is a means for the Union to participate in national programmes and is implemented through indirect management of the EU budget according to Article 58.1 (c)(vi) of the Regulation on the financial rules applicable to the general budget of the Union. In this context, an Implementation Structure is entrusted to implement the Article 185 initiative.

Article 185 TFEU does not include a reference to third countries. Therefore the potential involvement of third countries as participants under an Article 185 initiative should be foreseen in the corresponding Article 185 decision. Third countries could thus participate in the Article 185 initiative under the conditions foreseen in this decision, including the conclusion of an international agreement with the Union. This is why reference is made to international agreements in the decisions on on-going Article 185 initiatives.

For example, the decision establishing BONUS stipulates, that "*the Participating States and the Commission may agree to the participation of any other country subject to the criteria set out in Article 3(1) and Article 3(3)(e) and (f), provided that such participation is provided for by the relevant international agreement.*" (Decision No 862/2010/EU, Art. 12).

Commission européenne/ Europese Commissie, 8-1049 Bruxelles/Brussel - Belgium. Tel: (32-2) 299 1111.
Contact persons : Angela.Liberatore@ec.europa.eu; Elisabeth.Lipiatou@ec.europa.eu
D/D3, Office ORBN 08/085, Tel. (32 229-52229; 32 229-66286)

The 'relevant international agreement' must be an agreement between the EU and a third country which specifically foresees the participation of the third country in Article 185 initiatives. The standard EU-third country S&T cooperation agreements – including those with MPC – do not contain such a provision. Currently only the FP7 association agreements, including in the form of Memoranda of Understanding, as well as Protocol 31 of the EEA Agreement can be considered as international agreements providing for the possibility of participation of a third country in Article 185 initiative. In the case of these agreements the relevant Article 185 decision of the Council and the EP must be rendered applicable in the third country by a decision of the joint EU-third country committee established under the respective international agreement.

Based on our current legal analysis we can thus consider two main options:

1. An Article 185 initiative would be the means by which the Union would participate in Member States' programmes of interest to Mediterranean Partner Countries. The very same initiative could be open for participation of the Mediterranean Partner Countries. Under this option the decision of the Council and the Parliament concerning the initiative would have to clearly stipulate the possibility of participation by MPC in the initiative *and* an international agreement or other arrangement between the EU and Mediterranean Partner Countries would have to foresee their participation in the Article 185 initiative. More specifically: this agreement would need to render an Article 185 decision applicable on the territories of MPC. This would require negotiating new or amending the existing agreements between the Union and MPC (for example an appropriate clause could be included, when so needed, into existing S&T cooperation agreements between the EU and MPC).

2. A second option is not to look at Mediterranean Partner Countries as such but at their research organisations and researchers. For example, in the absence of a relevant international agreement with Russia, a MoU was reportedly signed between BONUS and the Russian Foundation for Basic Research (RFBR). The MoU is about *'supporting participation by the Russian scientists in Bonus'*[1]. It does <u>not</u> imply the participation of Russia as a country participating in the initiative. Russian scientists will not receive funds from Bonus directly: they will be supported by the Russian foundation.

It is also useful to recall here what commitment is requested by Participating States. This involves: a) a Declaration of commitment at Ministerial level; b) ensuring that respective (components of) national research programmes to be part of Article 185 will be implemented throughout Article 185 duration; c) adequate financial (in kind and/or cash) and human resources at national level.

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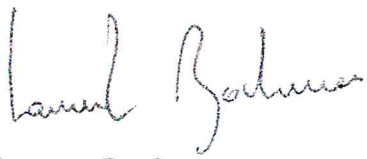
[1] The agreement states that the Parties will, on the basis of equality and mutual benefit, promote and support scientific collaboration between Russian and European scientists in the framework of BONUS; and that, collaboration under BONUS will include the following activities, in line with the BONUS Strategic Research Agenda 2011-2017, with the participation of scientists from both sides: (1) joint participation of scientists in BONUS calls; financial support by RFBR to the Russian scientists for participation up to three years in the BONUS projects, (2) exchange of information, participation in working meetings, conferences and other communications, (3) activities to promote cooperation under BONUS, (4) other activities as may be mutually agreed upon.

Last but not least, it is of utmost importance to carefully elaborate on the core elements that are at the basis of the Impact Assessment on any forthcoming proposal for an Article 185 initiative. These include: 1. *Rationale:* why is Research and Innovation (R&I) important, what are the key R&I trends in the region, why is public support needed through Article 185 (e.g. overcoming fragmentation/allowing synergies of public funded research and innovation on specific domains)? 2. *General objectives*: this includes Treaty based goals (e.g. contribute to shared prosperity and good neighbourliness, Art 8 TEU; promote stronger multilateral cooperation, Art 21 TEU). 3. *Specific objectives*: based on the specific domain and particular nature of the intervention (including reduction of fragmentation and duplication of efforts). 4. *Operational objectives*: 'deliverables', specific to policy area(s), link to output indicators (including joint calls and outcomes – for instance, joint publications, joint university curricula, joint PPP). A short note on the above was circulated at the Paris meeting.

I hope this analysis is useful and I wish you the successful continuation of your activities in the development of a Euro-Med Article 185 initiative. I will keep you immediately informed should any other option allowing for involvement of MPC in the envisaged Article 185 initiative become available.

If you have additional queries related to Article 185, you may wish to contact our colleague Elisabeth Lipiatou, Head of Unit D3 European neighbourhood, Africa and Gulf as first contact person; in relation to legal issues Liliane De Wolf, Head of Unit A4 Legal matters or Olga Kopiczko, Acting Head of Sector International Agreements in Unit D1; or Rita Lecbychova, Head of Unit B4 on Joint Programming on the overall procedures related to Art 185 initiatives.

Kind regards,



Laurent Bochereau