



MED-SPRING (Mediterranean Science, Policy, Research and Innovation Gateway)

Analysis of FP7 call-topics addressed to the Mediterranean

Introduction

This fast-track study has been carried out in the frame of MEDSPRING. In particular, the present document provides a brief overview of the activities (call topics) targeted to the Mediterranean Partner Countries in the frame of FP7 (EU 7th Research Framework Programme), particularly in FP7-Cooperation Themes “Environment - ENV”, “Food, Agriculture and Fisheries and Biotechnology – KBBE”, “Non-nuclear energy – ENERGY”. The selection of these “Themes” was made taking into account the main societal challenges focused by MEDSPRING: “Resource efficiency, particularly water”, “Energy” and “High Quality Affordable Food”.

Call topics in other FP7-Cooperation Themes, although targeted to the Mediterranean, did not result relevant for the study.

The document also provides some consideration on the correspondence between FP7-call topics in above Themes and research priorities identified in three Euro-Mediterranean Workshops respectively on Water, Food and Energy, organised in the frame of MIRA (Mediterranean Innovation and Research Area), the predecessor of MEDSPRING.

Overview of FP7 call topics

A total number of 47 call topics have been supported by FP7 for the period 2007-2013. The call topics distribution is as follows: -) 27 topics in KBEE, -) 6 topics in ENERGY, -) 12 topics in ENV. Two call-topics addressed to the Mediterranean are launched jointly by ENV-KBBE-ENERGY under the OCEAN programme. (Figure 1).

The number of topics include both SICA¹ (Specific International Cooperation Actions) or action in which the participation of Mediterranean Partner Countries is encouraged or welcome. An exhaustive list (with title) of the call topics is included in Annex 1.

¹ SICA is a call instrument that foresees the participation of Mediterranean Partner Countries as an eligibility criteria.

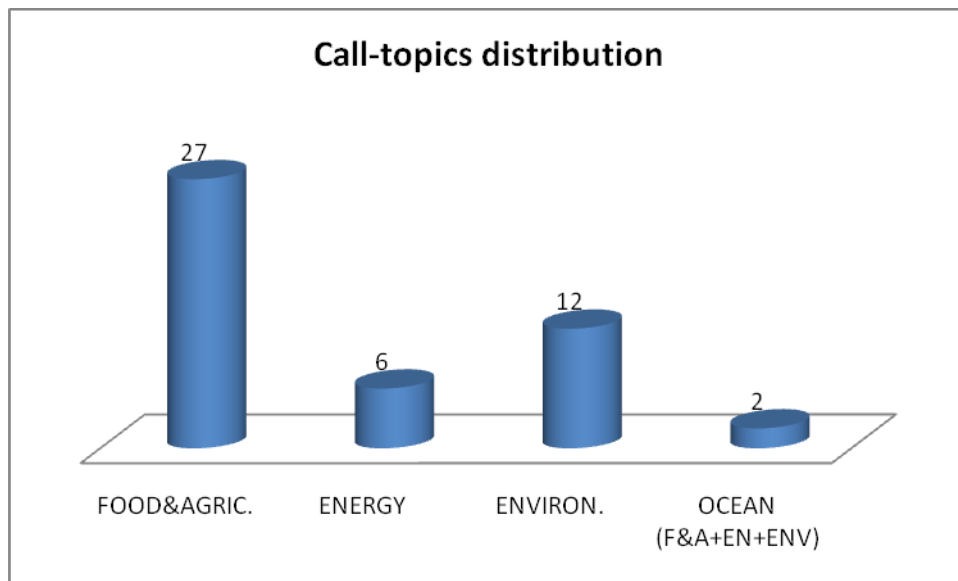


Figure 1 – Distribution of call-topics addressed to the Mediterranean in FP7 Cooperation (KBBE, ENERGY and ENV Work Programmes 2007-2013)

An aggregation of call topics was done on the base of objective similarities and common denominators. This work highlights the areas of major interest by KBBE, ENERGY and ENV in which different call topics could be aggregated.

The main “aggregation” areas are:

- Food and food market
- Fisheries, ecosystems, biodiversity and rural development
- Agricultural water management
- Water and climate, sanitation
- Food and climate
- Food and energy
- Food and health
- Energy and water
- Solar and photovoltaic
- Mediterranean sea and coastal zone
- Cultural heritage
- Horizontal issues and policy

As shown in Figure 2, the most relevant number of topics and efforts is linked to the “Food and food market” and “Fisheries, ecosystems, biodiversities, rural development”, with a relatively relevant number of topics in “Agricultural water management”, “Water and climate, sanitation” and renewable energy “Solar and photovoltaic”.

The above areas encompass specific call-topics that – in the region – are favourable for the valorisation of research results. These call-topics are also key to enhance innovation or social innovation in the region, like for example call-topics addressed to:

- Irrigation water saving solutions
- Solar and photovoltaic

- Aquaculture
- Non-traditional sources of foods
- Biotic and abiotic stress of plants
- Biotechnologies in bio-wastes.

Horizontal issues like climate, demography and socio-economic are included by default in the above items.

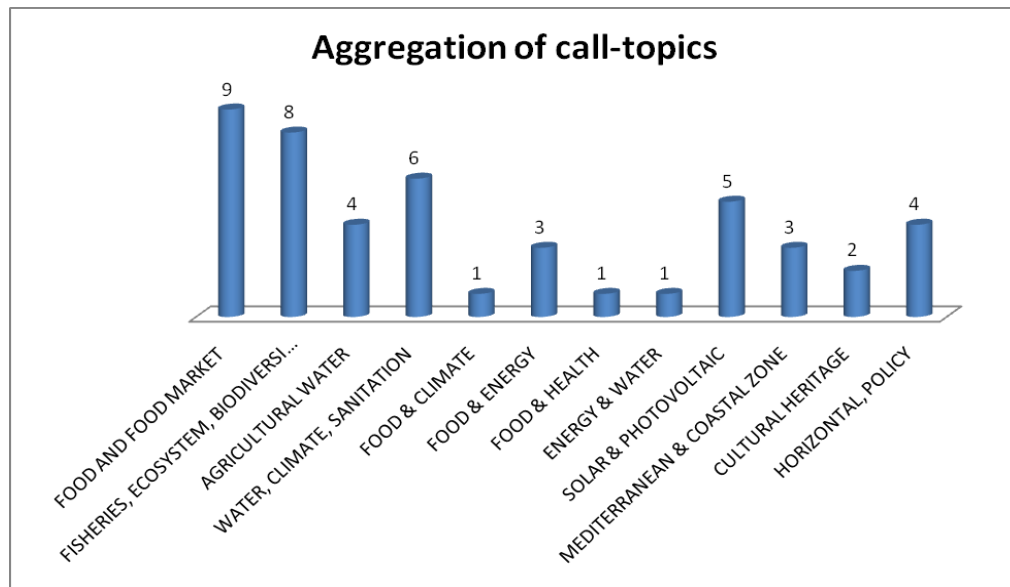


Figure 2 – Main thematic areas aggregating KBBE-ENERGY and ENV call-topics

Correspondence between FP7-calls topics and MIRA prioritisation scheme

Three Euro-Mediterranean Workshops on Water, Food and Agriculture and Energy have been organised by MIRA in year 2009.

The events conveyed researchers and stakeholders from Mediterranean Partner Countries, EU member states as well as the thematic services of EC-Directorate General Research and Innovation.

Participants agreed on an important number of thematic priorities to be considered by FP7 in the coming Work Programmes 2010, 2011, 2012 and 2013 (Annex 2).

The correspondence between MIRA priority areas and FP7 call-topics is shown in Annex 3. As shown in this Annex, more than 20 call-topics were published in Work Programmes 2007-2013, contributing directly to the priorities areas agreed in the thematic Workshops.

The following main comments can be done:

KBBE

- Each MIRA thematic priority has been addressed by at least one call-topic of relevant pertinence throughout the all FP7 period (2007-2013). Few MIRA thematic priorities received the attention by Work Programmes 2010-2013, particularly water scarcity

management in agriculture, post harvest losses, agro-food product and global market.
Level correspondence: good.

ENERGY

- Photovoltaic, Concentrating Solar Power (CSP), Wind and Energy efficiency are the main priority areas identified in MIRA. Almost all FP7 call-topics (5 call-topics) for the Mediterranean have a focus on CSP, highlighting an high interest of research on this matter. Two call-topics were published in Work Programme 2012, after the MIRA workshops. One call-topic on Energy Efficiency and Wind Energy was supported by Work Programme 2013. No call-topics have been supported by FP7 on photovoltaic and wind energy. *Level correspondence: fair.*

ENV

- Coastal zone, freshwater ecosystems, catchment scale management of resources, sustainable technology and natural hazards were identified in MIRA workshop as main priority areas. Coastal zone, Freshwater ecosystems and Natural Hazards received higher attention by FP7 (8 call-topics). Only one relevant call-topic (although addressed to all Africa) is worth of mention in relation to catchment scale management . No call-topics were supported for sustainable technologies. *Level correspondence: fair.*

The above analysis shows that there has been a relevant contribution by FP7 to some important priority areas identified by MIRA. Some call-topics falls in areas for which there is need of innovation, like for example renewable energy, water saving or agro-food. Building on efforts in these areas, niches for research valorisation and actions for innovation could be furthered.

About 50% of the FP7 call-topics have been launched in Work Programmes 2010-2013 after the MIRA workshops.

ANNEX 1 – Call Topics addressed to Mediterranean in FP7-Cooperation 2007-2013 (KBBE, ENERGY and ENV Work Programmes)

FOOD, AGRICULTURE AND FISHERIES AND BIOTECHNOLOGY (KBBE)

2007

- Annual Food crops with improved tolerance to multiple abiotic stress
- Coordination of Agricultural Research in the Mediterranean (ERANET)
- Policy and institutional aspects of sustainable agriculture, forestry and rural development in the Mediterranean partner countries
- Interactions of fisheries and aquaculture of bluefin tuna

2008

- Obesity prevention in the Mediterranean Area

2009

- Irrigation water saving solutions for Mediterranean agriculture, CP-FP, Mediterranean
- Policy and institutional aspects of sustainable agriculture, forestry and rural development in the Mediterranean partner countries
- Consolidate alliances with the Mediterranean in the field of aquaculture

2010

- Sustainable water resources management and Soil fertility conservation for food production in Africa.
- Identifying research needs on malnutrition Africa.
- Coping with water scarcity in developing countries: Role of biotechnology in water treatment.
- Networking non-governmental organisation involved in agricultural research for development.
- Integrating mitigation and adaptation options for sustainable livestock production under climate change.
- Approaches towards bioremediation of the Mediterranean Sea by exploring its microbial diversity.
- Improving research in support to scientific advice to fisheries management in the Mediterranean and Black Seas.
- Promoting global cooperation to facilitate and accelerate knowledge transfer on abiotic stress tolerance of plants.

2011

- Forest Research in the Mediterranean Region (ERANET)
- Reducing post-harvest losses for increased food security
- Perennial grasses: optimising biomass production.
- BioWASTE - Novel biotechnological approaches for transforming industrial and/or municipal biowaste into bioproducts.

2012

- Integrating the role of marine benthic ecosystems in fisheries management
- Conversion of bio-waste in developing countries

- International comparisons of product supply chain in the agro-food sectors: determinants of their competitiveness and performance on EU and international markets
- Insects as novel sources of proteins

2013

- Agro-forestry systems for Europe
- Innovative insights and tools to integrate the ecosystem-based approach into fisheries advice.
- Mediterranean Agriculture (ERANET)

NON-NUCLEAR ENERGY

2007

- Using CSP for water desalination

2008

- Enhancing strategically important international cooperation initiatives in the field of concentration photovoltaics
- Improve the environmental profile of the CSP installations

2012

- Hybridisation of CSP with other energy sources
- Research and development for medium temperature range solar collectors

2013

- Research cooperation and knowledge creation in the area of renewable energy with the Mediterranean partner countries.

ENVIRONMENT (including climate change)

2009

- Climate induced changes in water resources in southern Europe and neighbouring countries as a threat to security.
- Integrated Coastal Zone Management.
- Technologies for protecting cultural heritage assets from risks and damages resulting from earthquakes.

2010

- The effect of environmental change on the occurrence and distribution of vector-borne diseases in Africa.
- Decentralised water supply and sanitation technologies and systems for small communities and peri-urban area.
- Water harvesting technologies in Africa.
- Early warning systems to predict climate related drought vulnerability and risks in Africa.
- Integrated management of water and other natural resources in Africa.
- Impact of ocean acidification in the Mediterranean in a changing climate.

2011

- Assessing the ecosystem status, including fisheries, within the Mediterranean marine coastal areas of North African countries.

2012

- Development of advanced technologies and tools for mapping, diagnosing, excavating and securing underwater and coastal archaeological sites.

2013

- Knowledge platforms, networking and uptake of research results for more strategic international R&I cooperation.

OCEAN Call – 2010 (KBBE-ENERGY-ENV)

- Assessing and predicting the combined effects of natural and human-made pressures in the Mediterranean and the Black Sea in view of their better governance.
- Knowledge-base and tools for regional networks of MPAs, integrated management activities together with assessment of wind energy potential in the Mediterranean and the Black Sea.

ANNEX 2 – Thematic priorities identified by MIRA

Thematic Workshop KBBE (13-14 July 2009, Bari) – Proposed priority areas

Water and Land Resources Management

- Design, develop and disseminate appropriate and sustainable technologies through multi-scale and multidisciplinary approaches to promote the efficient and productive use of available water in agriculture
- Development of affordable technologies (emphasizing biotechnologies) for waste water treatment and safe agricultural reuse in the Mediterranean
- Develop new tools to target more effective measures to assess and manage climatic risks, to enhance adaptation to drought and climate change and contribute to mitigation via land and water management
- Develop new plant materials specifically adapted to climate change, drought and salinity in the Mediterranean
- Explore new governance, institutional mechanisms (or models) and economic tools enabling the implementation of sustainable water use.

Food Chain, Food Safety and Food Security

- Measures to adapt the crop chains of Mediterranean products (i.e. olive, citrus) to the effect of climate change
- Reducing post-harvest losses and contaminations
- Improvement of access to nutritious and safe food
- Low environmental impact for the quality improvement of Mediterranean fruits (dates, citrus, olive etc.) and vegetables productions
- Competitiveness of agricultural products from non EU Med. countries to global market
- Networking for data and technology exchange in the Med. Area
- Governance and institutional aspects for sustainable development

Thematic Workshop Energy – 23-24 March 2009, Cairo – Proposed priority areas

Photovoltaic

- Advancement of PV system components including cells, storage devices, inverters, and controllers for micro grid applications
- Integration of PV/CPV systems in industrial grid connected applications
- Development of operation and maintenance training programs to support deployment of PV technology
- Policy research and legislation development and awareness building for integration of PV technology application in energy management and resource planning

Concentrating Solar Power

- Local manufacturing of components

- Advanced materials and surfaces
- Improved weather forecasts models for direct normal Irradiation
- New joint test facilities for CSP in the MENA region collocated to pilot power plants
- CSP Dissemination and Education Program “Educate the Educators”
- Evaluation of Hybrid Concepts

Wind Energy

- Wind Energy Conversion Systems in Desert “extreme” Conditions (industrial aspects)
- High penetration of wind energy in electric grid for southern Mediterranean countries
- Stand alone Autonomous wind systems

Energy Efficiency

- Energy Efficiency Road Map (Prospects and Challenges)
- Develop optimized energy efficient buildings for the region
- Increasing efficiency and reliability of the solar collectors through developing new materials, specific coating materials & cleaning techniques
- Large energy intensive industries: Energy intensity improvements through Energy Efficiency

Thematic Workshop Environment, 26-27 January, Cairo – Proposed priority areas

Response of coastal Mediterranean ecosystems to anthropogenic pressures

- Responses and adaptation of freshwater ecosystems/systems in the Mediterranean region in response to climate change
- Integrated assessment of hydro-ecological functioning at catchment basin scale for sustainable management of natural resources
- Sustainable technologies and alternative management options for agricultural and agro-industrial activities in the Mediterranean region
- Natural hazards analysis and construction of scenarios for natural risks

ANNEX 3 – Matrix of correspondence between FP7 call-topics and MIRA thematic priorities

FOOD, AGRICULTURE AND FISHERIES AND BIOTECHNOLOGY		
MIRA KBEE PRIORITY AREAS	YEAR	Call-topics in FP7 Work Programmes 2007-2013
Design, develop and disseminate appropriate and sustainable technologies through multi-scale and multidisciplinary approaches to promote the efficient and productive use of available water in agriculture	2009 2010	Irrigation water saving solutions for Mediterranean agriculture Sustainable water resources management and Soil fertility conservation for food production in Africa.
Development of affordable technologies (emphasizing biotechnologies) for waste water treatment and safe agricultural reuse in the Mediterranean	2010	Coping with water scarcity in developing countries: Role of biotechnology in water treatment
Develop new tools to target more effective measures to assess and manage climatic risks, to enhance adaptation to drought and climate change and contribute to mitigation via land and water management	2010	Integrating mitigation and adaptation options for sustainable livestock production under climate change.
Develop new plant materials specifically adapted to climate change, drought and salinity in the Mediterranean	2007 2010	Annual Food crops with improved tolerance to multiple abiotic stress Promoting global cooperation to facilitate and accelerate knowledge transfer on abiotic stress tolerance of plants
Explore new governance, institutional mechanisms (or models) and economic tools enabling the implementation of sustainable water use	2007 2009	Policy and institutional aspects of sustainable agriculture, forestry and rural development in the MPCs Policy and institutional aspects of sustainable agriculture, forestry and rural development in the MPCs
Measures to adapt the crop chains of Mediterranean products (i.e. olive, citrus) to the effect of climate change	2007	Annual Food crops with improved tolerance to multiple abiotic stress
Reducing post-harvest losses and contaminations	2011	Reducing post-harvest losses for increased food security.
Improvement of access to nutritious and safe food	2008 2010	Obesity prevention in the Mediterranean Area Identifying research needs on malnutrition Africa

Low environmental impact for the quality improvement of Mediterranean fruits (dates, citrus, olive etc.) and vegetables productions	2013	Mediterranean Agriculture
Competitiveness of agricultural products from non EU Med. countries to global market	2012	International comparisons of product supply chain in the agro-food sectors: determinants of their competitiveness and performance on EU and international markets
Networking for data and technology exchange in the Mediterranean Area	2007 2009 2010 2011	Coordination of Agricultural Research in the Mediterranean Consolidate alliances with the Mediterranean in the field of aquaculture Networking non-governmental organisation involved in agricultural research for development Forest research in the Mediterranean region?
Governance and institutional aspects for sustainable development	2007 2009	Policy and institutional aspects of sustainable agriculture, forestry and rural development in the MPCs Policy and institutional aspects of sustainable agriculture, forestry and rural development in the MPCs

ENERGY

MIRA ENERGY PRIORITY AREAS	YEAR	Call-topics in FP7 Work Programmes 2007-2013
<p>Photovoltaic</p> <p>Advancement of PV system components including cells, storage devices, inverters, and controllers for micro grid applications</p> <p>Integration of PV/CPV systems in industrial grid connected applications</p> <p>Development of operation and maintenance training programs to support deployment of PV technology</p> <p>Policy research and legislation development and awareness building for integration of PV technology application in energy management and resource planning</p>		
<p>Concentrating Solar Power (CSP)</p> <ul style="list-style-type: none"> • Local manufacturing of components • Advanced materials and surfaces • Improved weather forecasts models for direct normal Irradiation • New joint test facilities for CSP in the MENA region collocated to pilot power plants • CSP Dissemination and Education Program “Educate the Educators” • Evaluation of Hybrid Concepts 	<p>2007</p> <p>2008</p> <p>2008</p> <p>2012</p> <p>2012</p>	<p>Using CSP for water desalination</p> <p>Enhancing strategically important international cooperation initiatives in the field of concentration photovoltaics</p> <p>Improve the environmental profile of the CSP installations</p> <p>Hybridisation of CSP with other energy sources</p> <p>Research and development for medium temperature range solar collectors</p>

<p>Wind Energy</p> <ul style="list-style-type: none"> • Wind Energy Conversion Systems in Desert “extreme” Conditions (industrial aspects) • High penetration of wind energy in electric grid for southern Mediterranean countries • Stand alone Autonomous wind systems 	<p>2010</p>	<p>Knowledge-base and tools for regional networks of MPAs, integrated management activities together with assessment of wind energy potential in the Mediterranean and the Black Sea. SICA</p>
<p>Energy Efficiency</p> <ul style="list-style-type: none"> • Energy Efficiency Road Map (Prospects and Challenges) • Develop optimized energy efficient buildings for the region • Increasing efficiency and reliability of the solar collectors through developing new materials, specific coating materials & cleaning techniques • Large energy intensive industries: Energy intensity improvements through Energy Efficiency 	<p>2013</p>	<p>Research cooperation and knowledge creation in the area of renewable energy with the Mediterranean partner countries.</p>

ENVIRONMENT (including Climate Change)

MIRA ENVIRONMENT PRIORITY AREAS	YEAR	Call-topics in FP7 Work Programmes 2007-2013
Response of coastal Mediterranean ecosystems to anthropogenic pressures	2009 2010 2011	Integrated Coastal Zone Management Assessing and predicting the combined effects of natural and human-made pressures in the Mediterranean and the Black Sea in view of their better governance (OCEAN call – coastal zone) Assessing the ecosystem status, including fisheries, within the Mediterranean marine coastal areas of North African countries
Responses and adaptation of freshwater ecosystems/systems in the Mediterranean region in response to climate change	2009 2009 2010	Climate induced changes in water resources in southern Europe and neighbouring countries as a threat to security Water harvesting technologies in Africa Early warning systems to predict climate related drought vulnerability and risks in Africa
Integrated assessment of hydro-ecological functioning at catchment basin scale for sustainable management of natural resources	2010	Integrated management of water and other natural resources in Africa
Sustainable technologies and alternative management options for agricultural and agro-industrial activities in the Mediterranean region		
Natural hazards analysis and construction of scenarios for natural risks	2009 2009	Climate induced changes in water resources in southern Europe and neighboring countries as a threat to security Early warning systems to predict climate related drought vulnerability and risks in Africa

