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THEME 7.2

Sustainable Surface Transport

SST 2007-2013

for PEOPLE and GOODS



Rail



Road



Water

towards greener transport

...a guided tour through Work Programme 2011



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Rail



Road



Water



1. GENERAL ASPECTS



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SST FOUNDATIONS

SST 2007-2013

- **Experience** & existing activities, impacts, RTD results, & consultation including Member States
- **Policy dimension:** European Research Area, Transport White Paper mid-term review, wide range of EU Policies, Industry support package & “Green Cars”.
- **Industrial dimension** input from Technology Platforms
 - ◆ ERTRAC
 - ◆ ERRAC
 - ◆ WATERBORNE
and EIRAC
- **Flexibility** to cope with emergencies



COOPERATION



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SST GLOBAL OBJECTIVE

SST 2007-2013



Address to **European Transport System (s)**:

- Develop **greener, smarter & safer** Surface Transport System (s)
- Secure the **leading role** of EU transport **industry** in the global market



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OVERALL APPROACH

SST 2007-2013

- Integrated **Surface Transport System (s)** (3 modes)
- Integrating the **components of the system:**
 - ➔ **Vehicle/Vessel**
 - ➔ **Infrastructure**
 - ➔ **Users**
- ... **interactions, interfaces, logistics, Transport Networks & Services**
- Integrating stakeholders, disciplines, activities, etc.
- Integrating discipline & activities: **5 Activity lines + Cross Cutting + "Green Cars" + "The Ocean of Tomorrow"**



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RESEARCH CHARACTERISTICS

SST 2007-2013

- Basic & applied research
- Breakthrough research / Incremental research
- Development of innovative solutions for surface transport products, processes, operations & services
- Large and multi-disciplinary demonstration
- Socio-economic research
- Structuring European surface transport research (ERA)
- Supporting programme implementation (SMEs, international cooperation, communication, citizen awareness & support to new policies related to transport)



SST-2011-RTD-1

Call texts & Call fiches

Closure date: 2 December 2010





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TERMINOLOGY

SST 2007-2013

- **Work Programme organised by ACTIVITIES**
 - 5 Activities in line with the **strategic objectives**, to ensure impact & facilitate visibility & understanding
 - Cross cutting activities in support of SST
 - "Green Cars" & "The ocean of tomorrow"
- **Activities are sub-divided in AREAS**
 - Research areas are **broad domains of research**, stable during the coming years, and whose expected impacts are indicated
- **Areas are addressed by TOPICS**
 - Identification of research contents to be addressed by proposals to be submitted in the call
- **Topics are either Level 1 or Level 2**
 - According to the degree of specification in the WP
- **Topics are in "groups of topics" Since 2010**



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TOPICS LEVELS

SST 2007-2013

Level 1 (*GENERIC*)



- Define broad fields of activity
- Address one or more modes
- Encourage synergies between modes
- Proposal do not need to cover all the topic content

Level 2 (*SPECIFIC*)



- Mission oriented
- Explicit in their formulation
- Mostly specific to one mode
- Proposals need to cover all aspects of topic content

4. Introduction of hydrogen and methanol technology in surface transport applications by 2020 as an economic, safe and reliable alternative to conventional engines⁵⁰.

5. Reduction of external and interior noise and vibration. For road and rail transport the target will be a 10 dB⁵¹ reduction compared to present noise levels particularly in urban environments.

THE FOLLOWING TOPICS ARE FOR LEVEL 1

SST 2007.1.1.1. Promoting the use of bio-fuels and alternative hydrocarbon fuels

New technologies and innovative solutions for the progressive introduction of bio-fuels and alternative hydrocarbon fuels.

Proposals will cover one or more of the following subjects:

1. adaptation and optimisation of existing power trains (based on gasoline or diesel), systems (including after-treatment), components and materials;
2. new power train concepts with emphasis on efficiency and environmental impact, covering power ranges for all transport modes;
3. effective, safe and clean delivery of these fuels at distribution points.

International Cooperation with Brazil, USA and India is suggested.

Funding scheme: Collaborative Projects small or medium-scale focused research, demonstration and Support actions aiming at coordinating research activities

THE FOLLOWING TOPICS ARE FOR LEVEL 2

SST 2007.1.1.3. Integrating natural gas power-trains

Demonstrate the full potential of natural gas when applied to a custom designed light duty engine (including, for instance, higher or variable compression rates) integrated with specific after-treatment systems dealing more efficiently and at a lower cost than current technology with the reduction of methane emissions in addition to the other pollutants already treated by three way catalysts. Advanced storage systems and vehicle architectures, as well as multi-grade fuel tolerance and fuel flexibility are additional features to be researched.

The research will lead to increased efficiency by 10 % compared with diesel engines of today (2006), particularly at part load, and ultra low emissions (better than EURO 6 and US tier 2).

Funding scheme: Collaborative Projects large scale integrating projects

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

examples



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SST 2007-2013

PROPOSALS apply to TOPICS

SST.2011.X.Y-Z

Each **TOPIC (SST.2011.X.Y-Z)** refers to an Activity (X), an Area (Y) & specifies the type of proposal in terms of:

→ **S&T Content** (Scope & Expected Impacts)

→ **Scale**



→ *Since 2010*

◆ Small Scale: EC funding \leq 3 M€

◆ Large Scale: EC funding \geq 3 M€



→ **Funding scheme**

◆ Collaborative Projects: CP, CP-IP, CP-FP, CP-SICA

◆ Coordination & Support Actions: CSA-CA, CSA-SA

Topics are either **Level 1** or **Level 2** according to the degree of specification in the WP



→ *Since 2010*

Groups of topics (4 groups)





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Rail



Road



Water



2. WORK PROGRAMME 2011



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CALL EMPHASIS

- 3 research challenges
 - For each, a **budget** has been earmarked
 - For each, “**group of topics**” have been defined:
- ◆ Efficient railways services (Group of topics **n° 1**; 26 M€)
 - ◆ Eco-innovations in shipbuilding & waterborne transportation (Group of topics **n° 2**; 26 M€)
 - ◆ The European Green Cars Initiative (Group of topics **n° 3**; 30.25 M€)



Also

- ◆ Untapped research potential & filling gaps (Group of topics **n° 4**, 9 M€)

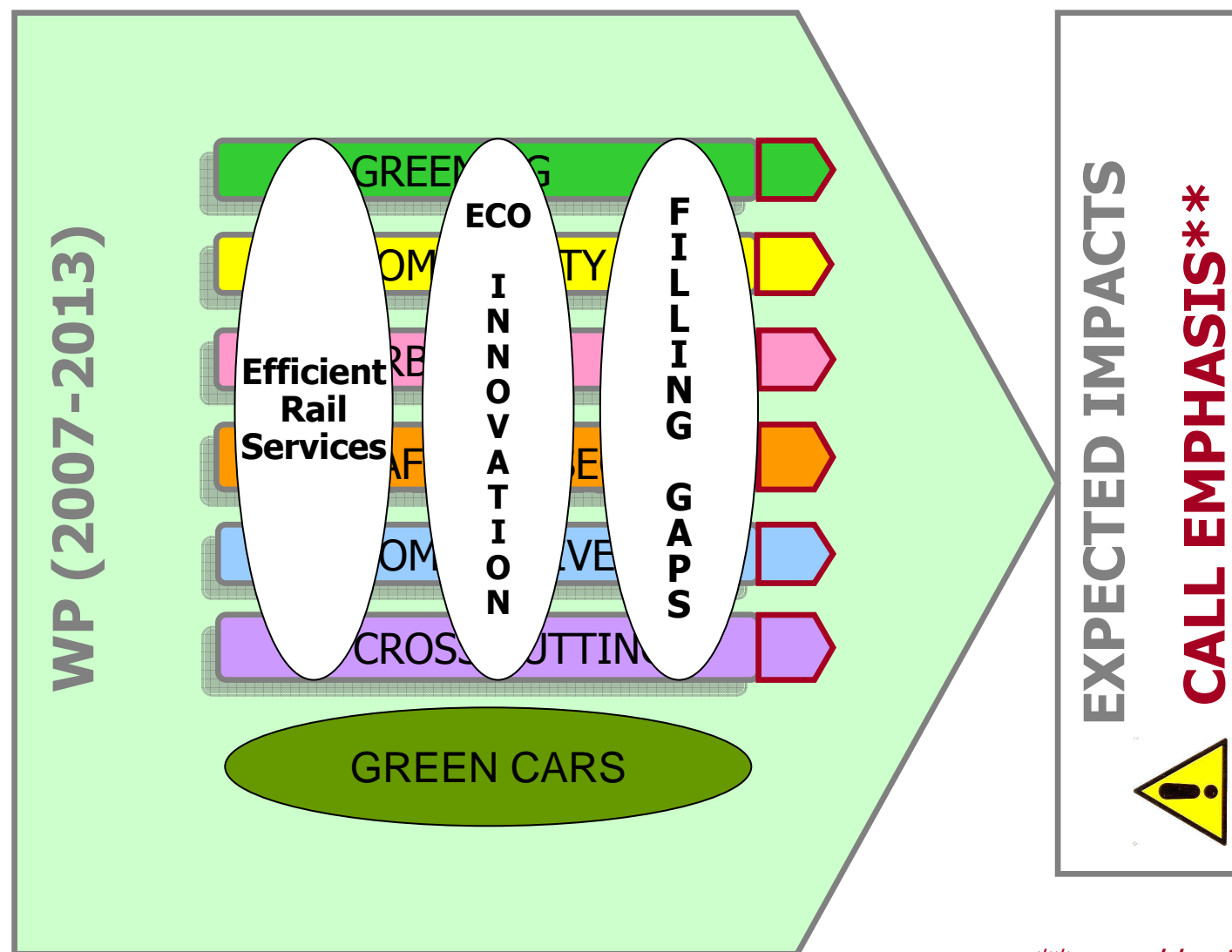


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WP STRUCTURE

SST 2007-2013



Activities are sub-divided in Areas and Topics

*****annual basis***





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CALLS SPECIFICATIONS

FP7-SST-2011-RTD-1

- Date of publication: **20 July 2010**
- Deadline: **2 December 2010**
- Indicative budget: **91.25 M€**
- Funding schemes:
 - CP: Collaborative Projects - **Call RTD-1**
 - ◆ *Small & medium scale ≤ 3 M€ EC funding*
 - ◆ *Large scale ≥ 3 M€ EC funding*
 - CSA: Coordination & Support Action
 - ◆ *Coordinating (also CP): min. 3 partners, from different MS or AS states*

Since 2010



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INDICATIVE BUDGET FOR SUSTAINABLE SURFACE TRANSPORT (M€)

SST call			91.25
	Rail (GT-1)	26.00	
	Waterborne (GT-2)	26.00	
	EGCI, inc. logistics & ITS (GT-3)	30.25	
	Untapped research potential & filling gaps (GT-4)	9.00	
ERA-NET Plus 'Electromobility' (EGCI)			10.00
Joint call 'Advanced manufacturing processes for batteries & electrical components' (EGCI)			10.00
Joint call 'The ocean of tomorrow'			10.00
International Energy Agency			0.05
Total			121.30



COOPERATION



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Greening

Competitiveness

Modal Shift

Green Car

Activities

Urban

Cross Cutting

Safety





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ACTIVITY 1: Greening

7.2.1.1. Products & operations

Environmentally friendly transport through the greening of transport products & operations

Expected impact



- Contribution to **CO₂ emission reduction**: 30% by 2020, 60% to 80% beyond 2050
- Reduction of exhaust & local emissions in view of compliance with future legislation
- Increased share of **alternative fuels** with improved efficiency
- Support the introduction of **hydrogen & fuel cells**
- Reduction of **noise & vibration**
- At least neutral impact to climate change



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Topics for Activity 1

7.2.1. THE GREENING OF SURFACE TRANSPORT

7.2.1.1. The greening of products and operations

L1	SST.2011.1.1-1. Green retrofitting through optimization of hull-propulsion interaction	2	CP-FP
	SST.2011.1.1-2. Retrofitting of existing ships with green technologies	2	CP-FP
L2	SST.2011.1.1-3. Towards zero emission marine engines	2	CP-IP
	SST.2011.1.1-4. Energy consumption reduction in urban rail systems	1	CP-IP



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ACTIVITY 2: Modal Shift & Decongestion

7.2.2.1. Logistics & intermodal transport

Better transport efficiency between modes while recognising complementarities

Expected impact



- Improve the **interfaces** between transport modes
- Maximize cargo **capacity**
- Optimize **logistics services** within global supply chains
- At least neutral impact on climate change



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ACTIVITY 2: Modal Shift & Decongestion

7.2.2.5. Interoperability & safety

A longer-term interoperability & safety perspective from the integration of the EU-rail-networks & neighbouring regions

Expected impact



- At least a neutral impact on climate change
- Enhance **interoperability** on existing infrastructure & new equipment
- Reduce migration time for the implementation of new solutions
- Develop & implement **Technical Specifications for Interoperability**
- Create conditions for **integrating national railway systems**
- Contribute to capturing twice the freight & passenger market share & 3 times the market volume in rail transport by 2020 compared to 2000



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Topics for Activity 2

7.2.2 ENCOURAGING MODAL SHIFT AND DECONGESTING TRANSPORT CORRIDORS

7.2.2.1. Logistics and intermodal transport

L2	SST.2011.2.1-1. Efficient interfaces between transport modes	4	CP-FP
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7.2.2.5. Interoperability and safety

L1	SST.2011.2.5-1. Rail system interoperability (regulatory and non-legislative interoperability based on technological innovations)	1	CP-FP
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ACTIVITY 3: Urban Mobility

7.2.3.4. Innovative strategies for clean urban transport (CIVITAS Plus II)

Aiming to support cities in designing, deploying and evaluating ambitious new policies and technologies for more sustainable urban transport

Expected impact



- Integrated approaches to sustainable **urban transport planning & financing**, linked with inter-urban networks for passengers & freight
- Development, demonstration & validation of **new policy approaches & innovative transport technologies & systems**
- **Networking of cities** to promote political dialogue & joint public procurement for new technologies, and to enhance mutual learning
- Development of methodologies for assessing cost-effectiveness & long term financial viability of integrated packages of mobility measures



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Topics for Activity 3

7.2.3. ENSURING SUSTAINABLE URBAN MOBILITY

7.2.3.4. Innovative strategies for clean urban transport (CIVITAS Plus II)

SST.2011.3.4-1. Design, implement and test innovative strategies for sustainable urban transport		CP-IP
SST.2011.3.4-2. Support action for coordination, dissemination and evaluation, CIVITAS Plus		CSA-CA



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ACTIVITY 4: Safety & Security

7.2.4.1. Integrated safety and security

Technologies & solutions to improve safety & security in transport operations & protect of vulnerable users

Expected impact



- Reduce the number of **fatalities & injuries** caused by accidents
- Decrease the level of **human error** & increase the **safety performance** of the infrastructure through positive interactions between pilot / vehicle / infrastructure
- Maintain the level of safety & security in transport, whilst contributing to mitigation of greenhouse effect
- At least neutral impact to climate change



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Topics for Activity 4

7.2.4. IMPROVING SAFETY AND SECURITY

7.2.4.1 Integrated safety and security for surface transport systems

L1	SST.2011.4.1-1. Design of vehicle safety systems for a better protection of vulnerable road users and other under-protected and less safe user groups	4	CP-FP
L2	SST.2011.4.1-2. Mitigation measures and good practice to reduce human fatalities and disruption of services resulting from suicides and trespasses on railways property	1	CP-FP
	SST.2011.4.1-3. Reducing the occurrences and impacts of freight train derailment	1	CP-FP

ACTIVITY 5: Competitiveness

7.2.5.2. Products and services

Product & system concepts meeting end-user needs, ensuring quality & services strengthening European competitiveness

Expected impact



- Maintain **market-share** for large cruise ship production
- Develop the **new generation of surface transport products**
- Decrease CO2 emissions & other pollutants
- Create **new niche markets**
- Improve the quality & competitiveness of surface **services**
- Reduce maintenance & inspection **costs**
- Create **economic development, jobs & new skills** with a special focus on **green technologies**
- Emergence of new **high-tech SMEs**
- At least neutral impact on climate change

7.2.5. STRENGTHENING COMPETITIVENESS

7.2.5.2 Competitive surface transport products and services

L1	SST.2011.5.2-1. Strengthening the European maritime transport sector competitiveness	2	CSA-CA
	SST.2011.5.2-2. Advanced and cost effective road infrastructure construction, management and maintenance	4	CP-FP
L2	SST.2011.5.2-3. Cost-effective modernization of the inland fleet for freight transport	2	CP-FP
	SST.2011.5.2-4. Exploring and fostering international collaboration in the waterborne transport sector	2	CSA-SA
	SST.2011.5.2-5. A system approach for railway operations management to increase capacity and decrease delays for railway customers' satisfaction	1	CP-IP
	SST.2011.5.2-6. Cost-effective improvement of rail transport infrastructure	1	CP-FP



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ACTIVITY 6: Cross-cutting activities for the implementation of the sub-theme programme

Support an integrated surface transport system across SST strategic activities

Expected impact



- Support **programme implementation**
- Structure European research
- Creation of a SST **European Research Area**
- Support existing & emerging **EU policies**
- Achieve SST expected impacts & ensure at least a neutral impact on climate change



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Topic for Activity 6

7.2.6. CROSS-CUTTING ACTIVITIES FOR IMPLEMENTATION OF THE SUB-THEME PROGRAMME

L1	SST.2011.6-1. Supporting the organisation of the TRA 2012 conference and other research relevant events	4	CSA-SA
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ACTIVITY 7: The European Green Cars Initiative

7.2.7. The European Green Car Initiative

Research for improved combustion engine heavy duty vehicles, electric & hybrid vehicles, intelligent transport systems together with logistics & mobility

Expected impact



Defined for each topic

The European Green Cars Initiative

2010

- Focus on **electric vehicles** & optimal integration of electric & electronic components
- **Joint call** on “Materials, technologies & processes for sustainable automotive electrochemical storage applications”

2011

- Three pillars are covered
 - ◆ **Long distance transportation:** heat recovery, future power trains concepts
 - ◆ **Electrification:** light duty vehicles, integrated thermal management, specific safety issues
 - ◆ **Co-modality:** urban/interurban shipments, travellers information systems, exploiting capacity, supply chain management
- **Joint call** on “Advanced eco-design & manufacturing processes for batteries and electrical components”
- **ERA-NET Plus** on Electro-mobility



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Topics for Activity 7

7.2.7. THE 'EUROPEAN GREEN CARS INITIATIVE'

L1	GC.SST.2011.7-1. Specific safety issues of electric vehicles	3	CP-FP
	GC.SST.2011.7-2. Integrated thermal management	3	CP-FP
	GC.SST.2011.7-3. Efficient long distance transport – waste heat recovery	3	CP-FP
	GC.SST.2011.7-4. Urban–interurban shipments	3	CP-FP
	GC.SST.2011.7-5. Integrated intermodal traveller services	3	CP-FP-SICA
	GC.SST.2011.7-6. Capability of improving and exploiting capacity	3	CSA-CA

7.2.7. THE 'EUROPEAN GREEN CARS INITIATIVE' (cont.)

	GC.SST.2011.7-7. Advanced eco-design and manufacturing processes for batteries and electrical components	3	CP-IP
	GC.SST.2011.7-8. ERA-Net Plus "Electromobility"	3	CSA-CA
L2	GC.SST.2011.7-9. Efficient long distance transport – future power train concepts (includes: advanced combustion and after-treatment)	3	CP-IP
	GC.SST.2011.7-10. Architectures of Light Duty Vehicles for urban freight transport	3	CP-FP
	GC.SST.2011.7-11. E-freight solutions and supply chain management	3	CP-FP



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ACTIVITY 8: EU Marine & Maritime Research Strategy

- **Cross thematic M&M research** to address complex sea-related issues (e.g. Mediterranean & Black Sea, multi-use offshore platforms)
- Promoting marine **research infrastructure** to support cross-thematic M&M research
- Boosting **collaboration between MS**: ERA-NET (SEAS-ERA), Art. ex-169 in Baltic (BONUS), Joint Programming Initiative (Healthy & Productive Seas & Oceans)
- Supporting **cooperation & convergence** within M&M **research communities**
- Strengthening **international cooperation** with 3rd countries in shared seas & the UN at global level



7.2.8. 'THE OCEAN OF TOMORROW'

OCEAN.2011-1. Multi-use offshore platforms	CP-IP
OCEAN.2011-2: Marine microbial diversity – new insights into marine ecosystems functioning and its biotechnological potential (NOT RELEVANT FOR SST)	CP-IP
OCEAN.2011-3. Assessing and predicting the combined effects of natural and human-made pressures in the Mediterranean and Black Seas in view of their better governance (SICA)	CP-IP-SICA
OCEAN.2011-4. Knowledge-base and tools for regional networks of MPAs, integrated management of activities together with assessment of wind energy potential in the Mediterranean and Black Sea (SICA)	CP-IP-SICA