



FEMIP
Space for Med Initiative
Final Report – Executive Summary



Space for Med Initiative "SpaceForMed"

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Disclaimer:

a) This document was produced with the financial assistance of the FEMIP Trust Fund. This Fund was established in 2004 and has been financed – to date – by 16 EU Member States and the European Commission, and is managed by the European Investment Bank. It is intended to support the development of the private sector via the financing of studies and technical assistance measures and the provision of private equity.

b) The authors take full responsibility for the contents of this document. The opinions expressed do not necessarily reflect the views of the European Union or the European Investment Bank.

SpaceForMed is a joint initiative between the European Investment Bank (EIB) and the European Space Agency (ESA) aiming to support economic growth in Southern and Eastern Mediterranean region by exploring the possibilities offered by space-based services in key economic sectors such as water management, transport and logistics, as well as energy and renewable energies.

The initiative, funded by the EIB FEMIP Trust Fund¹, builds upon ESA's Integrated Applications Promotion (IAP) programme, aiming to provide new and innovative sustainable services in close partnership with end-users, as well as on EIB's experience in innovation and funding space technologies. The initiative has been promoting since it was launched in late 2012 the use and extension of applications and services relying on a combination of existing space and terrestrial infrastructure and capabilities.

The Grand Duchy of Luxembourg also supported the initiative through LuxInnovation (LU) and the University of Luxembourg - Interdisciplinary Centre for Security, Reliability and Trust (LU), acting as Ambassadors of the initiative.

Context and Objectives

MENA (Middle East and North Africa), and in particular Mediterranean Partner Countries (MPCs)¹ are currently characterised for large investments in infrastructure dedicated to serve their citizens and to expand their economic activities. Infrastructure set-up, operation and maintenance offer the possibility to bring additional value to the local economy beyond the purposes of the infrastructure. In a region where the economy is dominated by three main activities (petrochemicals, finance and ICT), *SpaceForMed* intended to explore the possibilities space assets and services offer to expand the current economic mix in the region, find opportunities and bring closer Europe and Southern Neighbourhood countries.

As such, defined objectives of *SpaceForMed* were:

- to understand the needs of relevant Southern Neighbourhood stakeholders in the fields of *Energy & Renewable Energy, Transport & Logistics* and *Water Management*;
- to identify the technology developments and service requirements necessary to provide the service in the Mediterranean region, taking advantage where possible of EIB's FEMIP for infrastructure-related projects and ESA's IAP for any service-related project;
- to assess the opportunity behind and to define the best way forward for both EIB and ESA.

¹ FEMIP – Facility for Euro-Mediterranean Investment and Partnership. The full set of countries benefitting from EIB's FEMIP Trust Fund are Morocco, Algeria, Tunisia, Egypt, Gaza/West Bank, Israel, Jordan, Lebanon, (Syria) and Libya in the near future. During the *SpaceForMed* initiative, Libya was not considered, as it has not officially signed the FEMIP agreement with EIB. From now on, these will be referred as *Southern Neighbourhood, Mediterranean Partner Countries, MPCs*.

Approach and Methodology

SpaceForMed was designed to understand if and how space-based services can support development and operation of infrastructure, in this respect:

1. Can the business case of infrastructure-related projects in Southern Neighbourhood countries be significantly improved by new additional information and means delivered by space-based services?
2. Can space-based services be introduced in Southern Neighbourhood countries and benefit from having infrastructure projects and operators as customers to scale-up their activities and businesses?

SpaceForMed relied **on three main pillars**:

- Awareness activities, dedicated to establish a direct interaction with potential stakeholders to identify needs, discuss the added-value of possible space-based services and identify project opportunities.
- Project-related activities, to assess the opportunities identified via awareness activities or those proposed directly by the industry.
- Ambassador Platform, supporting awareness and project-related activities, but also acting as a coordination body between EIB and ESA.

Summary of key findings and results

SpaceForMed was received with interest by both Southern Neighbourhood and European industry. The work done by *SpaceForMed* can be summarised in the following key findings:

1. Opportunities for space-based services supporting infrastructure exist. *SpaceForMed* identified a number of opportunities for new applications and services, and discussions are on-going to proceed to their implementation.
2. While being the association with local Southern Neighbourhood companies, particularly SMEs, essential, such companies experience similar difficulties to the European ones when coming to stakeholder federation, although their knowledge of the local environment can provide them certain advantages when communicating.
3. It is crucial to the success of *SpaceForMed*-like frameworks to provide a long term vision and support. ESA IAP Programme and EIB's FEMIP one have intrinsic synergy to act in that direction i.e. *SMAP (SpaceForMed Acceleration Programme)* was created for the benefit of Jordan's start-up companies through space technologies.
4. *SpaceForMed* generates interest in European and Southern Neighbourhood companies, thanks to the quality branding of ESA and EIB. Significant interest was shown by tens of companies and institutions both from Europe and Southern Neighbourhood. This demonstrates the potential of any follow-on frameworks alike.

The **main results** achieved by *SpaceForMed* are summarised as follows:

1. An ESA IAP pilot demonstration project on GIS asset management for water-related infrastructure involving the Ministry of Water Resources and Irrigation of Egypt (MWRI). The pilot project targets one Egyptian governorate with the intention to pursue a national scale implantation if results are in line with MWRI's expectations. The project will support MWRI to prepare their next plan on water-related infrastructure where investments in infrastructure will be necessary.
2. Another ESA IAP pilot demonstration project on water catchment management in Tunisia is planned with the Tunisian Ministry of Agriculture.
3. A new framework named *SpaceForMed Acceleration Programme (SMAP)*, focused on start-up acceleration and knowledge transfer between Europe and Southern Neighbourhood, and capitalising on the lessons learned from *SpaceForMed*.



Awareness activities

	No.	Stakeholders addressed	Remarks
Workshops / conferences organised or participated	9 events, more than 400 people	Related to the nature of the event, but mostly entrepreneurs, European Space Industry, European and MPCs transport-related industry, Energy-related industry, MPCs regulators (mostly transport and water management related),	<p>Between the inauguration workshop and the two ARTES Applications events, approximately 250 people were exposed to the <i>SpaceForMed</i> initiative and its objectives belonging to the entrepreneurial and European Space Industry community. The participation of 6 MPCs entrepreneurs, representatives of various acceleration mechanisms coming from Jordan, Egypt, Tunisia and Palestine, was remarkable.</p> <p>Through the workshops attended by the <i>SpaceForMed</i> Ambassador Platform, a network of 74 people was built. 24 of them related to the energy sector in Europe and in Southern Neighbourhood, in particular the National Gas Company of Egypt, and around 50 dealing with ports and airports in various modalities, followed during the project-related activities; in particular the SNTR - National Society of Transport of Algeria (AL) and the Port Authority of Tanger (MA).</p> <p>Workshops organised through the various project-related activities addressed a total of around 100 people between the even and the post-workshop consultations. These workshops addressed mostly regulators and financiers with interest in the transport and water management sector.</p>
Direct Contacts (exc. Workshops and conferences)	No full record, apprx. 100 people	Variety of stakeholders, mostly MPCs regulators and financiers	<p>Excluding contacts that participated in workshops, the estimation is that more than 40 people were interviewed thanks to networking done in the various workshops; this includes direct personal interviews, telephone interviews or e-mail exchanges. People in this group includes European space industry and port authorities of Mediterranean Partner Countries (Morocco, Egypt).</p> <p>The project-related activities interviewed directly more than 60 people, mostly MPCs regulators, MPCs public water companies, MPCs transport consortiums, financiers (incl., EIB, GIZ and KfW), universities and entrepreneurs). Exhaustive lists of all stakeholders contacted are available through the Final Reports of all the different project-related activities.</p>



Project-related Activities

Activity / Subject	Team	MPCs countries addressed	Follow-on	Remarks
PIMSIS / Energy: Oil & Gas pipeline integrity monitoring	S&T (NL)	All, focus on Algeria and Egypt	S&T will commercialise the services developed under the ESA framework directly in Southern Neighbourhood.	Activity completed. Main markets identified: Algeria & Egypt.
Demersal / Transport & Logistics	TIS.PT (PT), GMV (ES), University of El-Jadida (MA)	Morocco, Algeria	No way forward identified that consortium could address directly.	Main opportunities addressed: space-based services for railways, ports and airports
Waterman / Water Management	Noveltis (FR/CH), Ernst Basler (CH), Comete (TN), University of El-Jadida (MA)	Morocco, Tunisia	Discussions on-going with Tunisian Ministry of Water Resources to get their support in a pilot project. Estimated costs of a follow-on project: 400 – 500 kEur . ESA IAP will co-finance 50 %.	Main opportunities addressed: surveillance of water catchments in Tunisia and Morocco. Possibility to combine with other identified services.
Water Management	Mott MacDonald (UK)	Egypt, Jordan	Ministry of Water Resources and Irrigation (MWRI) agreed to participate in a pilot project. Country-wide follow-on project estimated costs is 4.3 M Eur , ESA will co-finance a pilot project of 300 k Eur .	Main opportunities addressed: water management infrastructure inventory and maintenance
Water Management	Kosmonauta.NET (PL)	Jordan	Roadmap: The implementation will require an agreement with Jordanian entities and public authorities. Resulting activity on sewage proposed to the SpaceForMed Acceleration Programme (SMAP) board. Overall investment required to get into operations: 400 kEur .	Main opportunities addressed: water sewage, illegal water usage.

Conclusions and Recommendations

1. Opportunities for space-based services supporting infrastructure exist. *SpaceForMed* has been able to identify a number of opportunities for new applications and services, and discussions are on-going to proceed to their implementation.
2. Finding the right stakeholders is key for any of the identified opportunities to happen. Frameworks like *SpaceForMed* can act in supporting the federation of the right stakeholders, since this is the major challenge faced.
3. Local MPCs companies, particularly SMEs, face the same challenges when coming to stakeholder federation, although their knowledge of the local environment can provide them certain advantages when communicating.
4. To offer a way forward is crucial to the success of *SpaceForMed*-like frameworks. Its supporting programmes (ESA's IAP in terms of services and EIB's FEMIP in terms of infrastructure) are active on this respect. Moreover, *SpaceForMed* supported the creation of new frameworks like *SMAP (SpaceForMed Acceleration Programme)* to create additional value by supporting start-up companies through space technologies.
5. In this sense, bringing MPCs entrepreneurs to technology centres in Europe proved extremely valuable. To expose them to the possibilities offered by space assets and services, the networking and matchmaking offered, as well as discussions held allowed a better definition of the next steps.
6. The *SpaceForMed* experience showed that to succeed in building a value-added services economy in MPCs, knowledge transfer initiatives are necessary between the academia and the business environments.
7. The market for space-based services can be too small if focused just on governments as customers. To achieve additional revenues to ensure sustainability, additional revenues can come out of sharing and monetising specific services with private companies. However, this will require agreements with public customers.
8. Frameworks like *SpaceForMed* generate interest in multitude of companies in Europe and Southern Neighbourhood, thanks to the credibility of the institutions supporting them. Significant interest was shown by tens of companies and institutions both from Europe and Southern Neighbourhood, demonstrating the potential that frameworks such as *SpaceForMed* have. Interest materialized in terms of proposals to be included in the framework (some of them part now of *SMAP*), networking, and interest in next steps.
9. The knowledge and support provided by EIB in terms of contacts, facilities and local representatives was essential for all the industrial players benefiting from *SpaceForMed*. Thanks to this it was possible to host a number of events in MPCs and attract a number of key stakeholders to contribute with their ideas to the success of the initiative.
10. The Ambassador Platform proved to be a valuable instrument in aligning the positions of both EIB and ESA. This was also possible due to the willingness of both institutions to explore new routes.



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SpaceForMed is a joint initiative between the European Investment Bank (EIB) and the European Space Agency (ESA) aiming to leverage European expertise in the space industry to strengthen infrastructure operations in the Southern Neighbourhood. Its objective is essentially to focus on examples in key application sectors where the bridging of the digital divide via tailored satellite based service could bring economic growth of direct benefit for the Mediterranean region.

The cooperation between the EIB and ESA is geared to increasing access to space technologies that can increase the efficiency and returns of projects in various sectors of the economy.

The FEMIP Trust Fund (FTF) identified and assessed project-related activities in three sectors (transport, energy and water) assessing the potential contribution of satellite based service to the benefit of Southern Neighbourhood countries. Additionally, the FTF has funded workshops and seminars targeting specific user groups and external stakeholders to stimulate the submission of proposals from relevant actors in line with SpaceForMed initiative.