The policy framework of Euro-Med cooperation on research and innovation. Effects on research collaborations

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The policy framework of Euro-Med cooperation on research and innovation
Effects on research collaborations

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Abstract. This article analyzes the policy framework that affects the Euro-Mediterranean research cooperation, since the Barcelona declaration of 1995 until the more recent Neighbourhood policy of the EU. We examine the policy orientations and its changes, the effect on scientific collaborations in terms of publications and number of collaborations as measured by the MIRA Survey. We try to examine the effects in terms of governance of research collaborations. We also compare the EU sponsored research programmes to the bilateral collaborations. Finally we identify a series of proposals in order to generate a co-funded and co-decided partnership.

Keywords. Research policy – Research collaborations – Barcelona process – Neighbourhood policy – Bilateral collaborations – European Union.

Le cadre des coopérations Euro-méditerranéennes de recherche et innovation. Effets sur les collaborations de recherche

Résumé. *Cet article analyse le cadre politique Euro-Med qui affecte les coopérations en matière de recherche depuis la déclaration de Barcelone jusqu'à la politique de voisinage. Nous examinons les orientations de politique et ses changements, les effets qu'ils ont sur les collaborations scientifiques en termes de publications et de gouvernance de la recherche en utilisant les données de l'enquête MIRA sur les collaborations scientifiques. Nous comparons aussi les programmes financés par l'Europe et ceux financés par les coopérations bilatérales. Enfin nous identifions des propositions pour générer des partenariats co-financés et co-décidés.*

Mots-clés. *Politique de recherche – Collaborations de recherche – Processus de Barcelone – Politique de voisinage – Coopérations bilatérales – Union Européenne.*

I – Introduction[1]

The EU policy toward the Mediterranean Countries was defined in the so-called 'Barcelona Process' launched in 1995, where the Member States of the EU and the Mediterranean Partner Countries (MPC) expressed a shared wish of a Mediterranean space of security, economic development and socio-cultural exchanges. The policy instruments were mainly the Association Agreements (AA) between the EU and each MPC. This was followed by some new policy instruments, with a regional scope which ended up in the European Neighbourhood Policy (ENP) in 2003. These instruments had accompanying financial instruments : the MEDA programmes (until 2004)[2] and ENPI since 2004. More recently, the Union for the Mediterranean (UfM) was launched in the summer 2008, with the intention of rebuilding the EU-MPC partnership on the basis of a EU-MPC Co-Presidency.

The Euro-Mediterranean Ministerial Conference on Higher Education and Research held in Cairo in June 2007 (Euromed Ministers, 2007) stressed the need to move toward the creation of a Euro-

Mediterranean Research and Innovation Area, through, *inter alia*, modernizing R&D policies, promoting innovation and supporting institutional capacity building in the southern Mediterranean countries. The Declaration also called upon favouring the mobility of researchers and enhancing the participation of Mediterranean Partner Countries (MPCs) in the EU Framework Programme for Research.

The EUROPE 2020 strategy, which is the overall plan of the EU in science, technology and innovation, mentions, as a key issue, the cooperation with neighbourhood countries on societal challenges, and the European willingness to help their own reform efforts. Scientific cooperation between the EU and MPCs with community funding has had its own identity since 1992 with the INCO programme, which was created during the 3rd Framework Programme (FP) and carried on through successive FPs. So far, some 500 million Euros have been spent on over 600 joint projects in areas dealing with issues of common interest, from health care to the development of Information and Communication Technology (ICT). In May 2011, addressing the ongoing transformation in the Mediterranean, the EU issued a Joint Communication "*A new response to a changing Neighbourhood"* (2011) stressing the need for a new approach to strengthen the partnership between the EU and the ENP countries. Working towards the development of a "common knowledge and innovation space" is underlined as a cooperation priority. The EU member states and MPCs share the responsibility and commitment of putting these words into action.

The recent revolutions in the south Mediterranean have driven the region in the throes of major political, economic and societal transformations, the effects of which will extend beyond the Mediterranean region. Education and research policies, sustainable development, democracy and citizens' empowerment and viable economic, industrial and employment models, among others, are emerging as fundamental areas of transformation in the region. Rethinking the EU-MPC cooperation agenda is a necessity to address such dynamic transformations.

This article aims to review the political framework and outcomes of the Euro-Med cooperation in Science, Technology and Innovation (STI) in an attempt to rethink the course of this cooperation in response to the recent socio-political changes in the southern Mediterranean.

II – The policy framework

Research was part of the initial "Barcelona declaration" with the objective of "strengthening scientific research capacity and development, contributing to the training of scientific and technical staff and promoting participation in joint research projects based on the creation of scientific networks".[3] The mandate given to the European institutions was to create joint research projects. Innovation was not part of the declaration (nor was, for example agriculture). The European Commission proposed with its partners to create a joint committee that would define these common actions. Thus, the Monitoring Committee on ST policy (also known as MoCo) was created. Science and technology were included in the Association Agreements (Table 1) after 1999 (the Egyptian agreement was the first to have a part in science and technology). In the meanwhile, the science and technology cooperation was mainly driven through the meetings of this MoCo and, in Brussels, through the International Cooperation direction (INCO)[4] of DG Research. It should be underlined that the mandate to create research networks and joint research programmes was also the objective of the Framework programmes (since 1984) which apply to cooperation between European Member states. But international cooperation with 'third countries', in particular with developing countries, was part of a specific design of 'research for development'. Until the 4th Framework programme, cooperation in research with Africa, Asia and Latin America was very much influenced by the 'science-for-development' idea which, in Europe, was embodied in specific institutions (ORSTOM and CIRAD in France, SIDA in Sweden, ODS in the United Kingdom, the USAID in the USA and JICA in Japan). Research for development policies was profoundly affected by the globalization

process and, since the nineties, was progressively integrated in more general schemes of cooperation (Gaillard, 1994; Gaillard, 1999).

Table 1. Negotiation of Association Agreements and science and technology agreements.

Partner country	End of negotiations	Signature of Agreement (SA) and Day of Application (DA)	Science and technology agreement
Turkey * +	Accession to EU Under negotiation		Signed 1/06/2007 Entry into force: 29/06/2007
Tunisia	June 1995	SA: July 1995 DA: March 1998	OJ, L 37/17 10/2/2004 (Entry into force: 13/04/2004). Draft Roadmap 2010-2011. July 2010 creating co-funding mechanisms.
Israel *	September 1995	SA: November 1995 DA: June 2000	L220/3 25/08/2007 (International S/T Association Agreement) Entry into force: 17/12/2008 The Agreement was applied from January 2007
Morocco	November 1995	SA: February 1996 DA: March 2000	OJ, L 37/9 10.2.2004
Palestinian authority	December 1996	SA: February 1997 DA: July 1997	No S/T agreement
Jordan	April 1997	SA: November 1997 DA: May 2002	OJ, L 159/108 17/6/2011. Entry into force 29/03/2011
Egypt	June 1999	SA: June 2001 DA: June 2004	(OJ, L 182/12) 13 July 2005 + Draft Road map 2007-2008 creating RDI
Lebanon	June 2001	SA: January 2002 Interim agreement	No S/T agreement
Algeria	December 2001	SA: April 2002 DA: September 2005	19/03/2012 provisional application from signature.
Syria	October 2004	Pending signature and date of application	No S/T agreement

Notes: *Associated country with 7th Framework programme. The country makes a financial contribution to all or part of FP7 and enjoys the same rights as member states.
+ Turkey is a candidate country for membership of the European Union (EU) as of 1999. Accession negotiations started in 2005, and on 18 February 2008 a revised Accession Partnership was adopted.
OJ: means official journal where EU legal documents are published.

The European Union also progressively changed its idea about research and international cooperation. The focus in Brussels progressively became scientific collaboration, that is networking of partners considered to be equal in capacity. The living example was Europe itself (Callon *et al.*, 1995; Vinck, 1995). Very early, the European Commission understood that the Framework programmes were going far beyond the initial objective of creating 'networks' (Callon *et al*., 1992). Technological programmes became relatively common (Larédo, 1997) and they changed profoundly the main orientations of the successive FPs. Progressively, the idea was

that, since the 'Third World' had 'disappeared' (Busch and Gunter, 1996), the only objective was to collaborate with those countries (the emerging ones) and actors that could contribute to strategic alliances toward competitive technologies. Innovation became the buzzword. As opposed to the Barcelona process, that had a socio-cultural and political orientation, profoundly affected by the political instability of the Middle-East and the menacing trends of the North-African neighbourhood for Europe, the European research policy was oriented towards reaching the knowledge economy and strengthening the competitiveness of Europe (mainly against the US, Japan and the emerging economies). The Euro-Mediterranean research cooperation had to face a contradictory and difficult equilibrium: the policy of the EU wishing to open its programmes to any 'third country' (since the 6th FP) under the argument of universality of knowledge and the need to strengthen the competitiveness of the European economies which was *de facto* difficult to combine with the need to have a specific policy towards the Mediterranean because of the political context of the region.

The European Commission's International Cooperation division (INCO) was particularly aware of this situation and was in the midst of a series of demands expressed by the Med countries in the MoCo sessions. Some policy-oriented projects were funded in order to draw a state of the art on science, technology and innovation systems in the region (ASBIMED and ESTIME, as well as other projects on forecasting and innovation in MPCs).

Thus, the urgency of tackling global societal challenges in the Euro-Med area has opened the discussion on global research programmes also based on diplomacy, historical and cultural ties between countries, and political objectives. In addition to this very specific regional context, the new global hierarchy, based on a multi-polar world (Arvanitis *et al*., 2012), exacerbates the opposition between "science for science's sake" – and the predominance of "excellence" criteria mainly in hegemonic countries – and "science for development" – and the defence of "pertinence" understood as useful knowledge.

Of course, excellent research does not necessarily bring about good development, and development is not always linked to excellent research. It is rather a question of defining a clear strategy and enabling an environment that satisfies developmental needs and that gives an impulse to new ideas and knowledge. Thus, "science for development" or "science for innovation" can in no way be opposed to "science for academic excellence".

It seems that epistemological issues have a concrete translation in the practice of cooperation projects: the types of funding, the importance of capacity building, the administrative rules, in brief the practical march of the projects is the expression of these issues. The inequality of partners, in terms of initial resources and access to equipment and instruments in a project, is also related to the structuring of the project with the social and economic context. And the larger context is quite complex.

International scientific collaborations are now part of a world science system that has profoundly changed in its 'governance': decisions are no more limited to the official authorities (governments, international agencies, EU) but include the players of the new learning economy. Final users of science (diseased people in medical research, rural population in agricultural science projects, enterprises in innovation policy, and so on) intervene actively in the definition of the research agendas. Large funding agencies act at the global level and are no more limited by the national boundaries (Losego and Arvanitis, 2008; MIRA Observatory, 2011).

In the case of the Euro-Mediterranean region, one can wonder on how this competence market is structured, who the main actors are, how this new hierarchy of competences is expressed and how it is translated into policies and the actual dynamic of science. Given the history of the Mediterranean basin, it is not surprising to find a multiplicity of competing agendas, agencies and organizations in research, as well as a wealth of research programmes in the Mediterranean area, executed by foreign and local research teams. Bilateral cooperation has usually been the product

of former historical circumstances such as the post-colonial linkages and the advent of a national science system in South and East Mediterranean countries as a product of independence. Most scientific relations in the region have been embedded in this political framework.

Just over the last 20 years, the European Union has appeared as the main player in this institutional space which is literally saturated by institutions that aim at promoting cooperation (Arvanitis, 2012).

The financial weight of the intervention of the EU explains this situation. Its principal instrument of cooperation has been the European Neighbourhood Policy Instrument (ENPI) with almost €12 billion for the period 2007-2013, which replaced the MEDA funding in the Mediterranean area. Additional to the research activities, the European Commission has assigned substantial funding through the so-called "structural programmes". A Cross-Border Cooperation (CBC) Programme for the Mediterranean Sea basin has been also defined which is funded by the ENPI, and the European Regional Development Fund (ERDF). The funding available for 2007-2010 was € 583 million, of which € 275 million from ENPI, and € 308 million from ERDF (Data from Euromed Expert Group Report). It is not here the place to judge the impact or efficiency of these decisions. We just want to indicate that the European Union has a strong commitment in the region and it is no surprise to see the research activities to be part of this political and cooperation framework. The EUROPE 2020 strategy also mentions as a key issue the cooperation with neighbourhood countries on societal challenges. It is worth mentioning that a recent expert group, EuroMed 2030 (2010), also points out to science and innovation as a critical resource to address social and political challenges as well as the needs of industry and the transformation of the production methods, even if research is not yet fully perceived as a need by the industry in the MPCs. One can still wonder why the process has been so slow, either institutionally or why it is perceived rather as a disappointing process.

The first regional political response has been the Euro-Mediterranean Ministerial Conference on Higher Education and Research held in Cairo in June 2007 (Euromed Ministers, 2007). It stressed the need to move toward the creation of a Euro-Mediterranean Research and Innovation Area, by promoting:

- Modernizing the R&D policies in the MPCs;
- Supporting institutional Capacity Building;
- Enhancing the participation of the MPCs in the FP, while taking into account their particular needs and the mutual interest and benefit;
- Promoting Innovation in the MPCs by enhancing exploitation of the RTD outputs by society and Industry;
- Favouring mobility of researchers.

Following this declaration, the process of S/T agreements (Table 1) has been accelerated and the Commission has created a series of types of 'instruments' for project funding that address the institutional and capacity issues. A series of specific 'instruments' specifically designed for international cooperation in science (INCONET, BILAT, ERAWIDE, SICA…) were introduced in this last period of the 7th Framework Programme. The network of National Contact Points for EU-MPC scientific collaboration and in Egypt and Tunisia specific co-funding mechanisms have been created.

In May 2011, addressing the ongoing transformation in the Mediterranean, the EU issued a Joint Communication "*A new response to a changing Neighbourhood"* (2011) stressing the need for a new approach to strengthen the partnership between the EU and the ENP countries. Working towards the development of a "common knowledge and innovation space" is underlined as a cooperation priority. The EU member states and MPCs share the responsibility and commitment of putting these words into action.

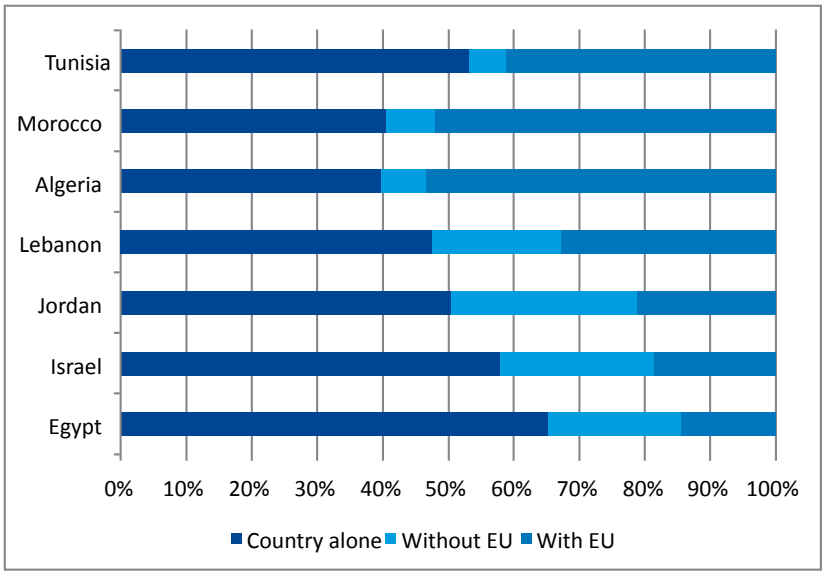

Figure 1. Publications and co-publications of some non-European countries of the Mediterranean region.
Source: SCI Extended - Thomson Reuters. Treatment PL Rossi, IRD.

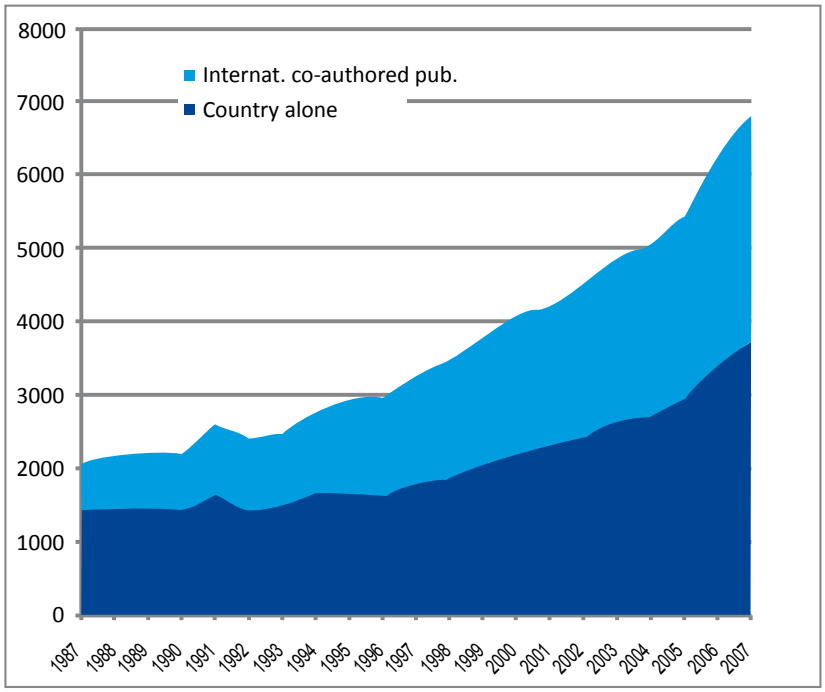

Figure 2. Publications and co-publications of some MPCs with or without EU partners (2007).
Source: SCI Extended - Thomson Reuters. Treatment PL Rossi, IRD. This figure contains the publications of Morocco, Tunisia, Algeria, Egypt, Jordan, Lebanon, Syria and Israel.

The aspirations of the MPCs were also highlighted in the 15th meeting of the Euro-Mediterranean Monitoring Committee for RTD (MoCo) in June 2011 in Szeged (Hungary) where the principles of *demand-driven and impact-driven* EU-MPC cooperation based on co-ownership and co-funding were outlined. As a result of these evolutions, the EC now underlines the news for a '*renewed partnership'* in science, technology and innovation. It was fully addressed in the Euro-Mediterranean Conference on Research and Innovation held in Barcelona on 1-2 April 2012, which proposes a new frame of cooperation based on a renewed partnership according to the principles mentioned above.

III – The state of play

Up to now we have seen the policy framework; it is now necessary to insist on the actual research programmes where collaborations take place. As we already mentioned, until the 6th Framework programme, most funding for scientific cooperation between the EU and MPC researchers were taking place through the INCO programme, created in 1992 during the 3rd Framework Programme (FP) and continued through successive FPs. So far, some 500 million Euros have been spent on over 600 joint projects in the Mediterranean in areas dealing with issues of common interest, from healthcare to the development of Information and Communication Technology (ICT). It is again important to underline the key role played by the MoCo formed by senior officials from the 27 EU Member States and ten Mediterranean countries that form the Euro-Mediterranean association.

Finally, a recurring issue in the region is the difficulty to connect the bilateral cooperation activities between EU member states and MPCs, and actions funded by the European Union through various means, mainly the ENPI and the EU Framework Programme (FP) for Research. As reported in the last section of this article, a clear political mandate is needed to advance in the search for synergies between the various forms of support to scientific research.

A simple manner to measure scientific collaborations –although not a complete or unique one– is by measuring co-authored articles (Gaillard, 2010). Co-publications in the region, as seen from the south and eastern shores of the basin, are reported in Figure 1. As we can notice, the overall production has grown considerably and co-publications of most countries with researchers from the European Union (analysis done on the first seventeen EU member countries) have grown in even higher proportions (Arvanitis, 2012).

This is true for all countries, but co-authorship patterns are very different from one country to the other. Egypt (with 35% of co-publications) in 2007 has still a low proportion of co-publications. Israel is a very open scientific community with 42%. Smaller countries like Jordan (49%) and Lebanon (52%) have higher levels of co-publications with researchers from foreign countries. Maghreb countries have higher proportions, mainly with France. Tunisia, the fastest growing scientific-producing country in the region has the lowest level of co-publications (47%) of Maghreb countries; on the contrary, Morocco and Algeria with a proportion of 60% of co-authored articles, can be considered as open to cooperation (Fig. 2). Even growing in numbers, co-publications tend to diminish relatively (but not in absolute terms). In fact, the overall pattern of French-speaking Maghreb countries is similar: co-publications with France have grown but proportionally less rapidly than the overall production and new partners are appearing from outside Europe (USA, Canada mainly) and from inside Europe (Spain, Italy and Germany).

It is interesting to note that the specialisation pattern of publications of some of these countries, largely oriented towards chemistry, physics and engineering, is different from that in the European countries. This is the case of Egypt, Syria and Algeria. A rather distinct profile is given by Tunisia, Morocco, Lebanon and to a lesser extent Jordan, which tends to emphasize rather biological sciences and agriculture, as well as medical sciences (clinical or more research oriented domains such as neurosciences and immunology). They also favour mathematics, mainly in Maghreb and Lebanon. And, by contrast, they also under-publish in life sciences (biology, bio-medicine)

(see ESTIME report (Arvanitis, 2007, Pasimeni *et al.*, 2007). Israel, Tunisia and Lebanon are exceptions in the MPCs, since they have a relatively strong medical and biomedical basis. This orientation in favour of basic, biological and bio-medical research is also the general tendency of many European countries. We note also a recent up-surge of environmental sciences and we think this is directly related to scientific cooperation with the EU, since a sizable portion of Framework Programmes, in particular related to international cooperation, include environmental objectives and sciences.

Moreover, European countries seem to deploy more research activities in 'basic' science, whereas MPCs seem to prefer quite clearly technologically-oriented and applied research, as confirmed by the MIRA Survey on International Collaborations (Fig. 3). Thus the expectations of MPCs researchers are more "applied", technology-oriented than for Europeans. The same survey shows also that access to equipment and use of equipment is also a stronger motivation for MPC researchers than for Europeans.

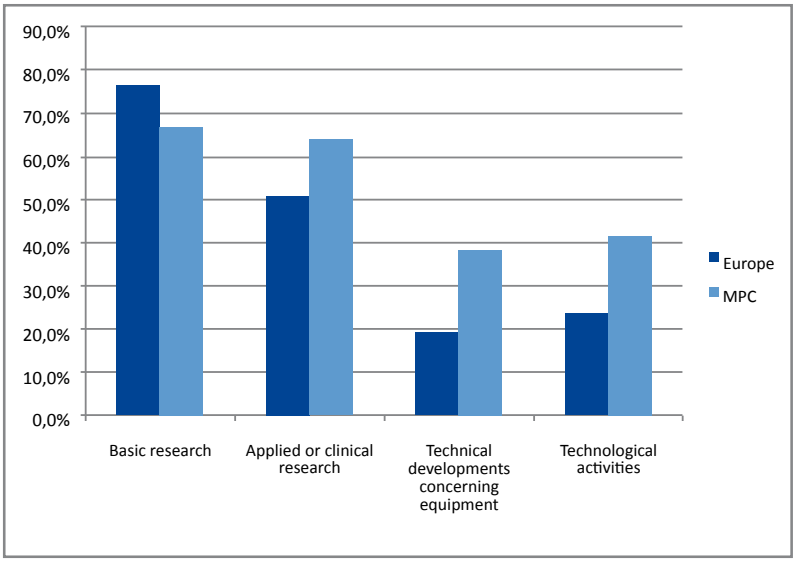

Figure 3. Type of research in research collaborations (MIRA survey).

Source: MIRA Survey Percent responses to the question "Could you indicate the relative importance of each type of research in your collaborations?" as "important" and "major contribution to this type of research" (See article in this issue by Gaillard et al.)

The analysis of specialization patterns is very important for two reasons: a) countries usually tend to reinforce their specialization over time rather than diversify, and b) research and technological development are activities that are "path-dependent', thus feeding on previous work and accumulated competences. It might be more cost-effective and efficient to enter specific domains by favouring areas of competence where the local scientific community has already an advantage. Today, nobody has the ability to orient in such a fine-grained way the scientific cooperations. It would take a certain type of indicators at a very fine level (and not macro-indicators as we present here) in the way it has been proposed by Waast and Rossi for Morocco (Rossi and Waast, 2007; Waast and Rossi, 2009; Waast and Rossi, 2010). It would also take a better knowledge of the organization of the research activities on the ground, by way of impact analysis of the scientific funding as has been proposed by the MIRA Observatory in its White Paper (see in this collection).

1. Bi-lateral cooperation between European countries and Mediterranean non-European countries

Bi-lateral cooperation concerns activities (in research or else) that involve two countries under some legal agreed framework. Usually some general cooperation agreement exists, at a "higher" diplomatic level, and specific agreements are later proposed and signed as needs appear. Figure 4 shows the number of bilateral agreements after a census made in 2007 (Rodríguez-Clemente and González Aranda, 2007). It tells the story of cooperation agreements in science and technology that were still in force at the time of this survey. This is a unique survey that has not been renewed.

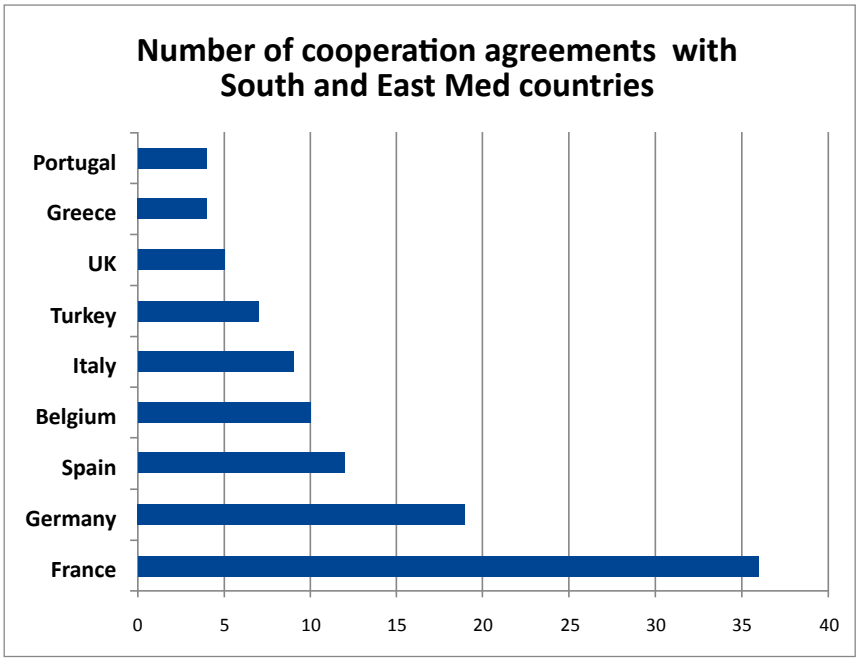

Figure 4. Bi-lateral cooperation agreements as seen from the side of European countries.
Source: ASBIMED Final Report. The figure represents 124 agreements as of June 2006.

The number of these agreements (124 agreements) is relatively high. Most agreements are those made by public entities, involving universities and governmental structures. But many more agreements that are signed between universities for example, or between private entities in both shores of the Basin, are absent from this statistic. One of the difficulties concerning these agreements is their scope and their duration. The agreements are usually not very specific: they just name a domain and some general conventions on possible means that can be mobilised (mobility of researchers, students, co-direction of doctoral thesis, budgeting and so on). As can be seen, the main players are France, Germany, Spain, Belgium and Italy. It is worth mentioning that France has a custom of signing framework agreements – not only in the Mediterranean region – and that its research institutes (CNRS, IRD, INRA…) active in the region are public research institutes whereas other countries usually mobilize universities.

On the side of the MPCs (Fig. 5) we see the large presence of Israel and Morocco, followed by Tunisia as the main countries. Algeria, Lebanon (mainly with France) and Turkey have more or less the same number of agreements.

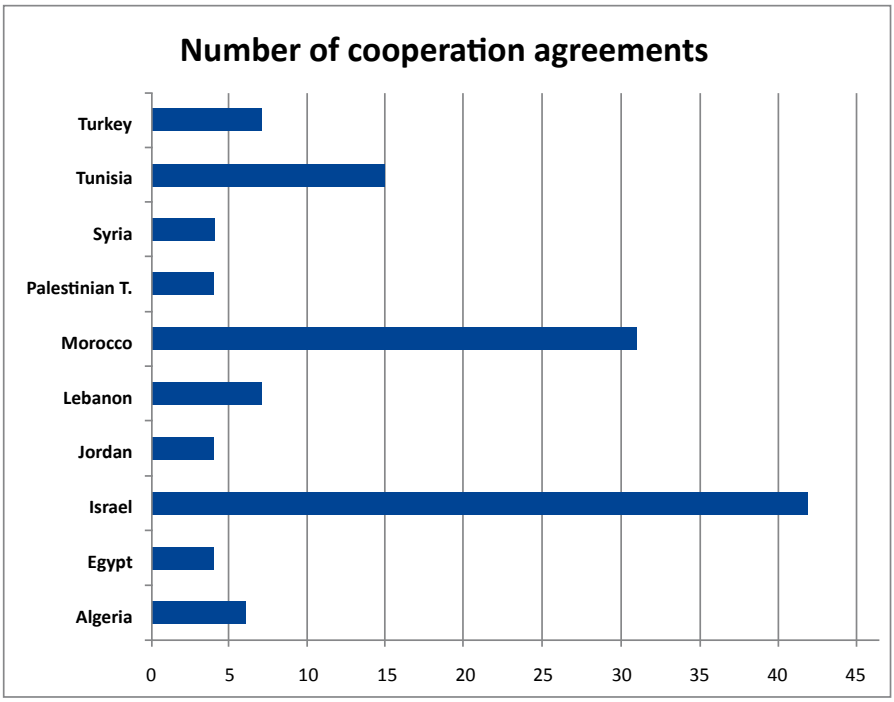

Figure 5. Bi-lateral cooperation agreements as seen from the side of Partner countries.
Source: ASBIMED Final Report. 124 cooperation agreements.

Morocco has been trying since the late nineties and early 2000 to give a priority for research (Waast and Kleiche-Dray, 2009). Moreover, as we already mentioned, Morocco has a history of collaborations with France; it is now extending its cooperation to other European countries and to Canada. Morocco is driving a policy of close relationships with Europe mainly through 'Twinning projects': one of these twinnings concerns science and technology and another concerns Intellectual Property Rights.

2. EU-sponsored research programmes

At the project level, research is mainly funded through the 7th Framework programme. A recent report (European Commission 2012) indicates a total amount of € 430 millions in 168 projects in the region. However, this amount covers the expenditures of both European and Mediterranean units. On a slightly more limited sample concerning 151 projects, we have determined the distribution of funds as reported in Figures 6 and 7. Mediterranean countries receive € 43 millions (10%) out of € 426 millions. The differences in personnel costs of the cooperating countries are partially responsible for this huge difference. The percentage of participation would even be smaller if we put aside some "institutional" or capacity-building projects that are not research projects but policy-oriented platforms, as is the case of international cooperation projects (known as "INCOnets", "BILATs" and "ERAWIDE" projects).

Thus, FP7 projects are mainly oriented to funding European teams working with Mediterranean partner countries. This seems a normal outcome for an instrument that was designed to serve European research. We are still far from the principles that have been laid by the Euro-Mediterranean common research policy.

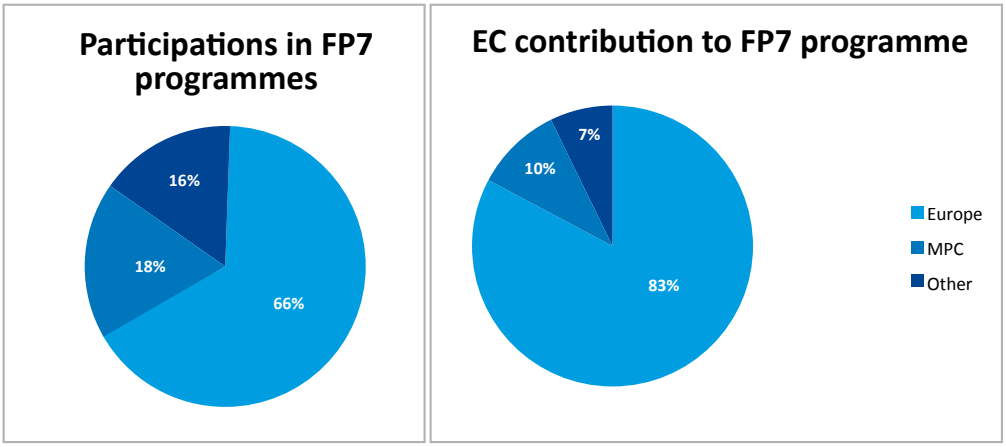

Figure 6a/b. EU-funded projects under the FP7 programme: participations and European Commission contribution.

Source: CORDIS database as of November 2011. 151 projects for a total amount of € 426M of which MPC represent € 43 millions.

Research fields where active cooperation takes place can be easily identified (Fig. 7). We should remark that the domains where the EU contribution received by the MPCs is higher is different from the number of projects by domains. This is an important result because it denotes a discrepancy between what is programmed and considered important by the EC and the actual participation of the non-European partner countries.

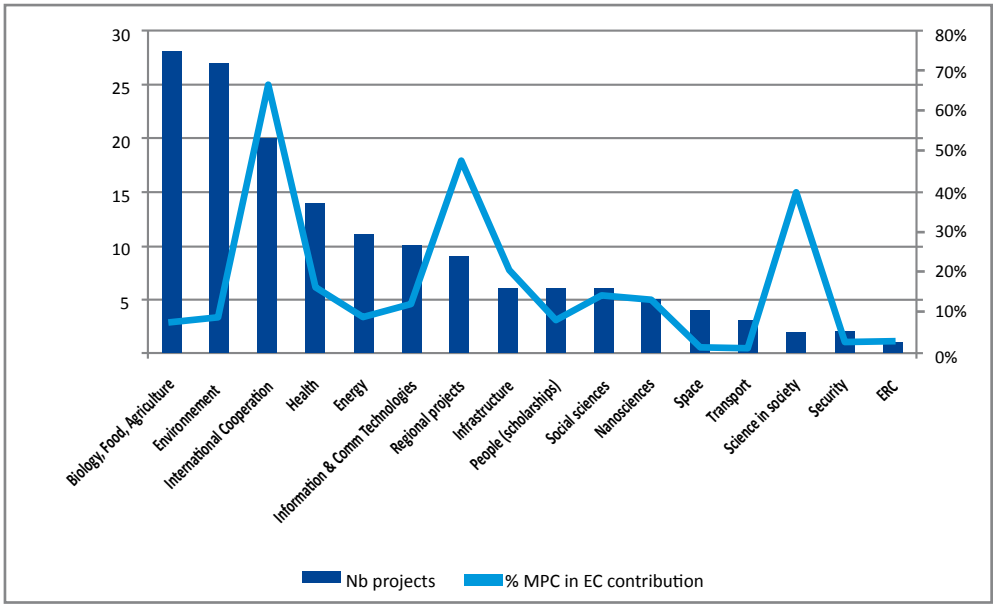

Figure 7. EU-funded projects under the FP7 programme: participations and EC contribution by theme.

Source: CORDIS database as of November 2011. 151 projects for a total amount of € 426 millions of which MPCs represent € 43 millions.

When looking backwards at the whole process, that involved substantial amounts of time and resources, the exchanges between the EU and the Mediterranean countries have remained at a political level and there has been little leverage effect with stakeholders outside governments or public institutions. Simultaneously, the diplomatic effort that has been deployed under the umbrella of the Union for the Mediterranean has been rather slow and has not had the boosting effect that was expected by creating such a wide policy framework.

3. Some opinions of users from the MIRA survey

In order to understand the relative importance of the collaboration frameworks, we can refer to the results of the MIRA survey (www.miraproject.eu) on scientific collaborations (a more detailed presentation of the survey will be made in another article of this collection).[5] As can be seen in Table 2, more than half of scientists mention that their collaborations have been taking place outside any official framework. Practically half of the respondents also mention they have had a collaboration within a bi-lateral framework. EU projects account for one fifth of the responses. The survey also suggests that 61% of Europeans and 49% of South and East Mediterranean scientists are responding to calls for projects, thus making project funding a common practice.

Table 2. Framework of collaboration of scientists from Mediterranean partner countries.

Framework of collaboration	N	%
Without official framework	1104	58,5%
Bilateral co-operation	920	48,8%
International project	461	24,4%
EU project	402	21,3%
Foreign public project	234	12,4%
Foreign private project	51	2,7%
Arab funded project	90	4,8%
Total responses to the question	1887	

Source: MIRA survey on collaborations - Multiple answers possible.

As stated recently in a semi-official document of the 2012 Barcelona Conference (2012), “A pending issue is how to connect the two core components of this cooperation: bilateral cooperation activities between EU member states and MPCs, and actions funded by the European Union through various means, mainly the ENPI and the EU Framework Programme (FP) for Research. A clear political mandate is needed to advance in the search of synergies, as there is a generalized view that the tools and resources available to scientific cooperation policies do not yield the expected results.”

The MIRA survey confirms this statement. Figure 8 shows the opinions expressed by both European and Mediterranean partner countries’ researchers concerning the factors limiting their participation in international scientific calls for proposals/funding.

Thus, ‘bureaucracy’ is considered the main burden and, paradoxically, is believed to be a more limiting factor by Europeans than by the Mediterranean partner countries. We have anecdotal information from the National Contact Points (NCP) which keep the contact between the EU programmes and the local scientific personnel, of a progressive retreat of MPC excellent scientists from the Framework Programme due to their impossibility to handle the administrative aspects

of participating in a project. We can also see that they get very little technical and administrative support from their administrations, even if this aspect is slowly progressing, and the enormous amount of effort and time that implies the reporting and attentions to audit and other activities not related to the strict scientific activity is discouraging.

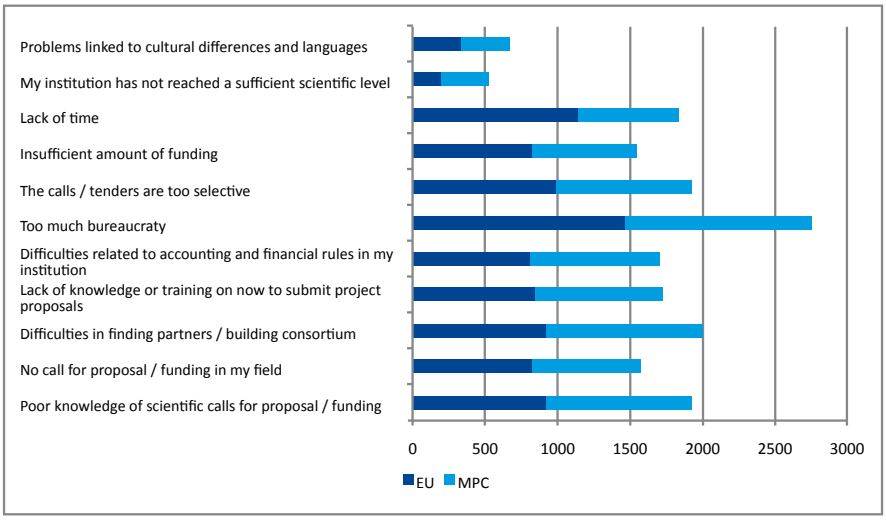

Figure 8. Main factors limiting participation in international projects.
Source : MIRA survey on collaborations - Multiple answers possible.

The information from NCP contradicts partly the results of the survey (the situation is very similar from one country to the other). The administrative burden does not eliminate the enthusiasm and advantages of participating in internationally funded projects. In effect, 48.5% MPCs scientists considers their contribution as “essential for the conduct of the project”; while 40.2% of their colleagues from Europe have the same opinion. Their very positive opinion of their participation in the project is almost the same in Europe as in MPCs when adding “essential for the conduct of the project” and “important for the progress of the project” (85.8% for the MPCs and 85% for Europe). Similarly, a high majority of the respondents (85% for the scientists working in Europe and 83.8% of those working in the MPCs consider that they were able to get involved as much as they wanted in this project.

To interpret these data, we need to go beyond this expressed satisfaction. To begin with, partnerships are not that easy to create, let alone manage. MPCs express a stronger difficulty in finding scientific partners than Europeans. Moreover, we have asked in the survey about international projects and not exclusively EU funded projects. Furthermore, we believe that all scientists (and this is confirmed from the interviews we could have with participating scientists) the situation is not symmetrical for Europeans and for MPCs.

When asked if they had participated in the definition and distribution of tasks and budgets, scientists in the survey answered yes in 82% of the cases as far as tasks are concerned and 61% for budgets. Clearly, budgets are less “democratically” discussed in the management of projects (which is quite understandable, we don’t necessarily interpret this as a problem). But the answers are quite different if we split them between the EU and MPC partners.

Table 3 shows the answers of the survey on this question. As we can observe in the MPCs, 33% were not involved in task distribution and 48% were not involved in the budget discussions. This is significantly higher for EU scientists (8% and 35% respectively) and much more than the whole

sample of the survey. Nearly half of the MPC scientists do not discuss the issues of budget (only one third for EU scientists). We see here a lack of "symmetry" which is, to our understanding, the main obstacle for a structured scientific cooperation.

Table 3. Tasks and budget distribution as discussed (or not) by one's team/lab.

Tasks distribution	EU		MPCs	
	Count	%EU	Count	%MPCs
Your lab was involved	836	91,67%	498	66,14%
Your lab/team was not involved	76	8,33%	255	33,86%
Total	912	100	753	100
Budget distribution	EU		MPCs	
	Count	%EU	Count	%MPCs
Your lab was involved	594	64,78%	382	51,69%
Your lab/team was not involved	323	35,22%	357	48,31%
Total	917	100	739	100

Source : MIRA Survey. See chapter by Gaillard et al., infra pp. 79-102.

We refer to symmetrical systems when a set of management procedures of both systems are known and accepted by each other. The cooperation system is complex, and includes, besides the scientific recognition and common interests, the recognition of the administrative procedures. The main consequence of this lack of connectivity between the cooperating systems is the subordination of the scientific cooperation to the pace of the slowest process that affects it. This lack of swiftness in the practical launching of cooperation actions results in loss of "freshness" and motivation of the partners. More must be done to improve the process of cooperation in its multiple dimensions: scientific, administrative and financial.

IV – Issues for the future

The situation we have described has different facets and it is usual to identify, when actually engaged in the cooperation programmes, the most severe administrative burdens. But these are probably hiding more serious shortcomings. These range from general policy orientation to practical functioning of the projects under EU funding. We will go through them from the most mundane to the most strategic.

1. Amendments to practical issues

The administrative issue would need more capacity building of administrators in the MPCs (management, auditing, etc.). Moreover, the EU financial rules must take into account the specific characteristics of the international cooperation. The "Third Parties" concept, i.e. support structures or companies handling the funding received by MPCs, must be developed and stimulated. In general, we should all benefit from a professionalization of the managerial tasks of accounting, reporting and providing services to the MPC participants in the cooperation projects. At this moment, there is a perception that the opportunities offered to the MPCs by the European Programmes for ST cooperation are much more difficult to handle than the Chinese, American,

Brazilian or Russian programmes, and there is a net transfer of partnership from the traditional European partners to those coming from other countries.

The obstacles to mobility represent an important hurdle for cooperation. We cannot talk of a Euro-Mediterranean Research and Innovation Space, with the actual system of Visa delivery to the scientific partners from the MPCs. The real implementation of the Scientist VISA Directive is a must. It is simply unacceptable that scientists participating in cooperation projects that must often travel to Europe, request several visas within a single year, and suffer the time delays and bureaucratic barriers. Similarly the students visas are still difficult to obtain. These asymmetries in the cooperation, together with the inappropriate travel allowances to Europe for the MPC participants, further add to the hurdles of this cooperation.

2. Linking research to innovation

A recurring demand is to link research to the problems and challenges of the industry, usually SMEs in the MPCs, or even, the acquisition of emerging new knowledge by these companies can be addressed by the research system. This is a fundamental question because, typically, the intellectual interest of the Higher Education and the Research organizations should be directed toward identified global challenges to be studied by the scientific community. The point here is how common interests between the industrial sector and the scientific community can be created or developed. There are two key issues: the conceptual and 'language' barriers between the two sectors and the shared benefits for both of them. The first issue must be addressed by considering the chain of stakeholders in the knowledge transfer process; technical sectorial laboratories are very useful in interpreting the needs of the industry, particularly the SMEs, in terms understandable by the scientific community. The other point is that the expected benefits have to be shared. Universities and research institutes should take profit, including economic profit, from this interaction. The advantages must be at the individual level, for faculty members of the Universities and need to be included in the "curricula" of the Academia. Many times the interesting product is not just a patent, difficult to produce and to defend, but also the "know-how", the knowledge necessary for the productive process and more largely to the business sector, and the possibility to rely on scientific support. The setting-up of this cooperative frame and the building of trust between the actors are fundamental steps in the creation of a national innovation system. They are a strategic need and also a difficult endeavour.

There is no simple solution for the setting-up of an innovation system since it does not depend upon the sole commitment of the public sector, or the willingness of some companies and faculty members or research centers. Incentives need to be constructed, the actions have to be minimally monitored. The scientific community engagement is not sufficient. Nor is it possible to generate a demand based solely on the national authorities' action: this has posed analytical challenges to the economic analysis of economic development.[6]

There has been relatively little analytical effort on the measures needed to promote innovation in the region either through EU support (for example in the form of up-grading programmes) or through national authorities. No real effort has ever been made to measure the impact of the quite numerous schemes of support to innovation and technological development. A few countries have performed innovation surveys and even less have identified specific studies that could explain the relative disdain on the side of enterprises (or bad knowledge) of the current support schemes. In great part this analytical gap is ascribable to the fact that innovation usually depends upon the ministries of industry and telecommunications rather than on the ministries of research and higher education. MIRA has made a serious effort in order to open a debate on these aspects by promoting the Euro-Mediterranean Innovation Space (EMIS) (See last section of this collection of articles).

The effort of linking research (funded through competitive grants) and innovation-oriented actions, although it is an objective of EU Mediterranean policy and EU research policy as expressed in "Europe 2020" flagship has been practically lacking in the last years, despite a real willingness of the EU and national authorities of MPCs.

The EU has recently emphasized the importance of innovation in tackling contemporary societal challenges. Innovation is essential for the transition of economies towards resource-efficient and competitive knowledge-based societies that ensure sustainable and inclusive growth and jobs. The Council's conclusions underline the need to stimulate the culture of creativity, science and entrepreneurship, particularly among young people. It also recognizes the multidisciplinary nature of innovation and the potential of social and public-sector innovation to improve services and engage a wider and more inclusive community. The MPCs, with their recently empowered populations demanding to explore their potential, aim to share this vision of a common innovation space with the EU.[7] However, for this vision to thrive, it should be constructed on the basis of mutual interest and shared benefit. The question of how research can support innovation in the MPC productive sectors is still open. ESTIME, MEDIBTIKAR and MIRA projects addressed this issue. Some organizations exist around the Mediterranean basin. The Euro-Mediterranean charter for enterprise is designed to make the Euro-Mediterranean region a vast area of free trade and economic prosperity, with strong development perspectives for entrepreneurs in order to play the globalization card and make the most of the opportunities offered by the opening up of the Euro-Mediterranean economic area in 2010. The questions of how to remain competitive and create a sufficient number of jobs for newcomers on the labour market, and to define strategies to create value and achieve complementary economic development are central to the research and innovation chain.

3. Coordination between EU-funded programmes

The Strategy EUROPE 2020 states the need of streamlining the different EU instruments to tackle the societal challenges that Europe is facing. A number of actions are underway to support the EU-MPC scientific cooperation, including the full participation of the MPCs in the European Framework Programmes. The development of the Association Agreements between the EU and the Mediterranean countries (see Table 1) has provided the legal and political framework to discuss the common interest at a bilateral level between the EU and the MPC. Since then, various bilateral programmes (BILAT) have been developed and implemented, from which lessons have to be learnt in terms of coordination and synergies. The European institutions are quite aware of the possibilities that could be offered by using more intensely the 'instruments' that we mention here. The "Strategic Forum for International ST Cooperation" (SFIC) created by the European Council in 2008, mandated to drive forward the European partnership for international ST cooperation recommended (among other issues) after a review of cooperation policies of the EU, to strengthen the networking of Member States Science Counsellors in the MPCs in a systematic way. More can be done along this way, as for example sharing bilateral programmes for scholarships or grants for research that are provided by the EU member states: we saw above that these bilateral schemes are quite numerous and effective. This pooling of resources could make a big difference. Political decisions are needed to go along this direction.

All the current European facilities and initiatives should find a common place to interact and generate synergies. Similarly, the MPCs should establish their own coordination mechanism to develop a common perspective towards the EU. This would ensure a sustainable and balanced approach based on a common vision and shared responsibility. We believe that it is not a question of funding but rather a matter of political willingness.

The EU is promoting the full participation of MPC partners in already existing instruments. A number of experiences already exist in at least two ERA-Net initiatives such as Forest Research

in the Mediterranean Region (FP7-ERANET-2011-RTD/KBBE) and Coordination of Agricultural Research in the Mediterranean Area (ARIMNET, FP7-ERANET-2007-RTD/KBBE).

The Research Development and Innovation (RDI) Programmes, financed by DG DEVCO (through the ENPI funding) have been launched in Egypt, Tunisia and Jordan. The RDI programmes aim at linking the academic and industrial communities to embark on a fruitful cooperation, translating the research results into innovation by the industry.

With the INCO-Net MIRA, synergies and coordination have been facilitated between these bilateral platforms and similar objectives and difficulties have been identified at a bi-regional level so as to be able to speak "one voice". Also under the FP7 Capacities programme, another type of project (ERA-WIDE) directed to the MPCs was launched aiming, among others, to build the capacities of the research institutes to develop their competitive strategies based on their comparative advantage/disadvantage in the region (see article in this collection).

The various initiatives need some coordination, including some synergy between the RDI programmes themselves. Much could be done in this sense, including initiating a certain "smart" specialization of the capacity building at national level that could aim at establishing a regional leadership in the Mediterranean open to participation of all the countries. Synergizing the RDI programmes could address this challenge. RDI-Egypt and the Tunisian RDI program have had actions in line with the thematic regional recommendations of cooperation defined by MIRA. However, both programmes are yet to establish bilateral coordination and synergies.

Similarly, valuable lessons could, and should be drawn from the ongoing BILAT and ERA-Wide projects. Clustering these BILAT and ERA-WIDE projects could provide best practices and define common experience on sharing platform for the MPCs.

4. Creating a permanent space for coordination of EU-MPC cooperation

The Work Programme of the Barcelona Process, approved in the Euro-Med Summit of 2005 for the period 2005-2010, identified eight thematic priorities for cooperation, including the environment, the Millennium Development Goals, South-South regional integration and several other social and political objectives, such as mitigating the illegal immigration. Some of these priorities are implemented by means of Calls for Tenders such as the EUROMESCO Network that gathers foreign policy institutes and produces reports on policy issues. Other similar networks are supported by the ENPI, such as FEMISE (network of Economic Sciences Institutes). No such network of research institutes was created in the fields of scientific research, in spite of the formal engagement of ENPI to support the participation of the MPC in the 7th FP. Part of the issue is also related to the lack of coordination between non-EU Mediterranean countries.

5. Defining common research agendas

The identification of common priorities in regional cooperation must start with the analysis of the national research programmes of the different countries, and the finding of the common areas of interest and their similarity with European priorities. Only by this means can the sustainability and long-term maintenance of research programme be guaranteed.

Another important factor, particularly emerging with the recent changes in governance in the Mediterranean, is that international cooperation with southern Mediterranean countries should be impact-driven and demand-driven. The fact that the results of this cooperation should be addressed to and perceived by the MPCs' societies should not be overlooked. It should be noted that it is the people and not the rulers, like before, who are currently driving the political and socio-economic agendas in the MPCs.

V – Toward a regional programme for research and innovation

The previous description of the state of play and issues to be tackled shows a diversity of actions pointing to the same direction but ruled by different instruments, mechanisms and decision-making fora. A possible way to go beyond the scattered situation we face today is to engage in a global strategy. The new landscape in the southern Mediterranean offers a unique possibility to unlock the potential of research being a leading instrument for development in a democratic environment.

In effect, the EU-MPC cooperation in research and innovation is not fully satisfactory at this moment. Research is not a priority yet for most MPCs as well as for the European Union countries. As the ESTIME project found, most research teams, with the notable exceptions of Tunisia, Turkey and Israel, have a hard time obtaining the necessary legitimacy in their institutions, usually universities, which are devoted to training rather than to research. In the MIRA survey, through which we got data on the time devoted to both research and teaching (see chapter on the MIRA survey), the comparison between European researchers and Mediterranean countries is quite illuminating. In Europe, we find more researchers totally devoted to research and, among university researchers, we find more persons spending time on research. On the contrary, researchers from South and East Mediterranean countries spend more time on average than they do on teaching, administrative tasks and clinical practice.

This lack of recognition of research is translated in an insufficient level of capabilities, not so much in human resources as in research environment. Moreover, as the deceiving results of the Union for the Mediterranean have shown, research is probably one of the very few areas in which one finds actual and effective linkages and real cooperation between the “North” and the “South” shores of the Mediterranean.

As far as the EU-Med research cooperation is concerned, everything shows the necessity to design a *regional programme for science, technology and innovation* where the different components could be fitted in a global strategy. Building on the successful experience of some EU-sponsored bilateral programmes, a dedicated regional initiative that would aim at developing the collective capacity to address socioeconomic challenges would significantly contribute to the achievement of a shared vision. To the benefit of the EU, it is necessary to stress that the Commission is actively seeking a way to implement such a regional programme today as reported in the Conclusions of the last Euromed Conference on Research and Innovation, which took place in April 2012 in Barcelona. Moreover, a clear need was expressed in various political arenas (interministerial meetings, MoCo, bilateral programmes, etc…) in finding a bridging mechanism between the needs of South and East Mediterranean countries and EU countries concerning innovation.

The overall objective of the regional programme would be to support the MPCs STI policy formulation and their RDI performance. This could be implemented through a cooperative scheme for granting innovative, economically feasible, demand-driven projects bridging the gap between applied research and real regional industrial and economic development needs. Another component would be to provide technological assessment for restructuring the governance of research and innovation programmes and formulating policies, which, together with funding cooperative innovation projects, would act as a catalyst to boost the EU-MPC STI eco-system.

The experience of scientific and business cooperation and the evolution of the economic systems along these years (Arvanitis and M’Henni, 2010; MEDIBTIKAR, 2010) also provide arguments for the need of a deep analysis of the actual frame of relations, and the search for a new one based on a clear perception of where the benefits are and where the political, social and administrative hurdles create dis-functionalities and impede benefiting from the opportunities offered by the proximity and cultural similarities on both sides of the Mediterranean.

The experience of the last 20 years clearly shows that the Agenda defined in Barcelona in 1995, for the Euro-Mediterranean partnership, cannot be attained due to the huge political and social constraints (EUROMED Expert Group, 2010). On the contrary, scientific cooperation, driven by curiosity and sharing a common language and long-term interests, has always been maintained, even between hostile countries, and has considerably improved along these years reaching a stage where further developments are blocked mainly by procedural obstacles.

EU common actions are subject to the legal imperatives shared by the member states; building a shared vision for partnership needs to tackle the even more difficult issue of including the non-EU member states into common decision-making and management facilities. It is necessary to identify a legal structure where common priorities and funding mechanisms can find a practical expression, independent of the national frames but respecting the national legislation in international cooperation mechanisms, the expenses control, and the auditing requirements. Proposals were made in Barcelona in April 2012 as well as within the MoCo (the same year).

Integrating European partners and MPCs in a common research and innovation strategy could also aim at creating a Euro-Mediterranean Innovation Space. It would be in line with the commercial activities between both sides of the Mediterranean: more than 50% of the trade of the MPCs is with the EU, and for some countries the EU represents the destination of more than 70% of their exports. Europe is the largest direct foreign investor (36% of total foreign direct investment) and the EU is the region's largest provider of financial assistance and funding, with nearly € 3 billion per year in loans and grants. Moreover, recent surveys on industrial innovation in Morocco and Tunisia show that industry is knowledgeable about innovation and sustainability issues. More generally, Maghreb countries have been very actively involved in testing these policy measures that support networking of competences. But the most important reason why research and innovation should be jointly developed in a long-term strategy relies on the specialization pattern of MPCs which is very much oriented toward engineering and applied sciences. A regional strategy needs to build on these capabilities and not only on those developed by European countries.

This Euro-Mediterranean research and innovation space should thus create shared research-oriented activities on both sides of the basin. Whatever its actual name, or political backing are, hope should be instilled in creating such a regional initiative that could play an important role in addressing the urgent demands of the population, of the youth and the aspirations for more democratic societies on all sides of the Basin.

Notes

[1] This article draws heavily on two previous documents : an article by Rigas Arvanitis (2012. Euro-Med cooperation on research and innovation, *Mediterranean Yearbook,* Barcelona IEMED, pp. 259-68), and a background document to Euro-Med Conference in Barcelona where the two main authors were Rafael Rodríguez and Hamid Zoheiry.

[2] An analysis of the MEDA programmes funding is made by Pasimeni *et al*., 2007.

[3] Barcelona declaration, p. 5.

[4] The countries involved are Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Syria, Tunisia, Palestine and Turkey.

[5] Survey on Euro-Mediterranean Science and Technology Collaborations (tentative title to be changed) by R. Arvanitis, A-A Canesse, A-M Gaillard and J. Gaillard. Complete results of the Survey will be available on the MIRA website.

[6] For an introduction to these matters applied to the case of Tunisia see M'henni and Arvanitis (forthcoming). La résilience des systèmes d'innovation en période de transition: la Tunisie après le 14 Janvier 2011. In: *Revue Tiers Monde,* Hiver 2012.

[7] See the example of Tunisia in M'Henni and Arvanitis , op.cit., forthcoming.

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ANNEX: Overview of major programmes, projects or actions of the European Union relevant for the Mediterranean

The fields of cooperation targeting research, development and innovation, are covered by numerous instruments among which we can highlight:

- The **7th Framework Programme**, managed by DGs RTD and INFOSOC, is open to participation to partners from all the MPCs in most of its actions, with special targeted Calls for Proposal addressing "Specific International Cooperation Actions" (SICA) covering topic of mutual interest EU-MPC. There is not a specific budget for this activity, as it is described in each specific yearly Work Programme of the Thematic Priorities. Other actions such as International Cooperation of "Marie Curie" grants are also open for MPC participation.
- The **Euro-Mediterranean Industrial Cooperation Programme**, managed by DG Enterprise in consultation with the Working Party on Euro-Mediterranean Industrial Cooperation, is an instrument created in the Barcelona Process and it is financed by the provisions of the Bilateral Association Agreements and the ENPI.
- The **Competiveness and Innovation Framework Programme (CIP)** is open to the participation of MPCs through the Entrepreneurship and Innovation Programme (EIP)
- The **EUREKA** Intergovernmental Programme is also open to MPCs.
- The **ENPI Regional** Indicative **Programme for Euro-Mediterranean Partnership** is the most important instrument for regional cooperation. It is supported by a scheduled total funding of 343,3 M€ for the period 2007-2010, following the priorities defined in the Barcelona Process, later redefined in the Union for the Mediterranean in the Marseille summit of November 2008. Here, again, research is a high priority in several actions, notably the Mediterranean Strategy for Sustainable Development, including the Horizon 2020 programme aimed at decontamination of the Mediterranean Sea, the integration of the energy, transport, ICT and research markets. The funding earmarked for the activities of sustainable development for the year 2009 is 69 M€, and 47 M€ for 2010. ENPI is the most important financial instrument for the EU-MPC regional cooperation. The funding of "RDI programmes" by ENPI provides a substantial input to the capacity building in several MPCs.
- **ENPI Cross-Border Cooperation.** Based on earlier experiences under Tacis, MEDA, PHARE and INTERREG, a new policy called "Cross-border cooperation (CBC)" on the external borders of the EU is defined as a key priority for the European Neighbourhood Policy (covering the countries of Eastern Europe, the Southern Caucasus, and the Southern Mediterranean) and in relation to the EU's Strategic Partnership with Russia. It aims at having agreements of association similar to those under the Euro-Mediterranean Partnership (Barcelona Process and the Northern Dimension). The adoption of the European Neighbourhood and Partnership Instrument (ENPI) has considerably enhanced the scope for cross-border cooperation, both qualitatively and quantitatively. The core policy objectives of CBC on the external borders of the Union are to support sustainable development on both sides of the EU's external borders, to help ameliorate differences in living standards across these borders, and to address the challenges and opportunities following EU enlargement or otherwise arising from the proximity between regions across our land and sea borders. Two main categories of programmes will be established under ENPI-CBC: programmes covering a common land border or short sea crossing, and programmes covering a sea basin (notably the Baltic and the Mediterranean). The programmes are principally defined based on the eligibility as reported in the ENPI regulation, while taking account also of the need to maintain continuity from previous programming periods, and facilitation of programme management. The Sea-Basin Mediterranean programme will be financed with 90,539 M€ for the period 2007-2010, 83,068 M€ for the period 2010-2013, a total of 173,607 M€ for the period 2007-2013.

- The **Facility for Euro-Mediterranean Investment and Partnership (FEMIP)** was created in 2002 and provides funding for private sector development in the Mediterranean region aimed at sustainable economic growth. Tentatively, a capital of about 32 M€/year is allocated to FEMIP for technical assistance and risk capital. However, in the 2005 summit of Barcelona, a Neighbourhood Investment Fund, built on the FEMIP, was scheduled, 700 M€ (roughly 100 M€/year) to be used to support lending in ENP partner countries, including the MPCs, and acting as a leverage to multiply the financial engagement by other actors, notably the MS.
- In the field of **ICT,** the **EUROMEDCONNET** Project, financed by the programme EUMEDIS of the MEDA Programme, was aimed at connecting the scientific networks of the MPCs with those of the EU member states. In the coming years, emphasis will be put on developing networks of **e-learnin**g, **e-health** and **e-culture** using the ENPI facilities at the bilateral and regional priorities.
- **Technical Assistance and Information Exchange (TAIEX).** It provides short-term technical assistance and advice on convergence with EU legislation, best practices and standards and on related administrative capacity needs, technical training and peer assistance, as well as a database and information network that facilitates the monitoring of approximation measures. MPCs took up this demand-driven instrument, which is key in supporting the transition and reform processes (http://taiex.ec.europa.eu).
- **Twinning Instruments** (http://ec.europa.eu/europeaid/index_en.htm). In recent years, the twinning instrument was expanded to benefit ENP partner countries. Twinning allows the EC to agree with a partner country on the placement of an experienced EU Member State official (long-term expert) into a ministry or public institution of an ENP partner country, to support legislative reform or administrative adjustments through the transfer of experience gained within the EC. A good example of this action is the Twinning Project to support the inclusion of Morocco into the ERA. The Commission can draw on a wide range of twinning experts through the network it has established with EU Member States. Again, after an introductory phase, partner countries increasingly made use of this instrument. By the end of 2007, 65 twinning covenants had been established with nine ENP partner countries, whilst 81 covenants were still being prepared and under negotiation with ten ENP partner countries. These 146 twinning projects are well spread between ENP partner countries and across a wide range of sector policies. The introduction of the ENPI instrument also saw the extension of sectoral budgetary support to all ENP partners.