

Towards a new framework for Euro-Mediterranean STI partnership

Paving the way towards the creation of a Euro-Mediterranean Innovation Space

Introduction

The geo-political stability of Mediterranean region is of fundamental importance to Europe given the strategic position of the region. It is recognized that economic growth and prosperity is one of the key drivers which can secure this strategic political stability of Mediterranean countries and the promotion of innovation is crucial towards achieving this aim. In this regard, the development of an innovation capacity throughout the region becomes of vital importance to the Euro-Med region as whole. In this paper we argue that there is a need for concrete actions to stimulate a shift in the rationales and frameworks of STI collaboration between EU and Mediterranean countries. The creation of a Euro-Mediterranean Space could provide a framework to facilitate exchange. In explaining this rationale, this paper will firstly, I give a brief overview of the current Euro-Med STI cooperation and subsequently provide a literature review of the rationales for international S&T cooperation. In the third section the rationales are dealt with in further detail for Euro-Med STI cooperation. In conclusion, this paper provides some detailed insights on the way forward in this regard.

Background information: an overview about Euro-Med STI cooperation

Since the **Barcelona Declaration in 1995**, substantial effort has been made to support partnership at political, economical, social and cultural levels between the member states of the European Union (EU) and the **Mediterranean Partner Countries (MPCs)**. Following the Barcelona process, Euro-Mediterranean association agreements have been signed with the partner countries in the context of the **European Neighbourhood Policy (ENP)**. These agreements provide, among others, a framework for scientific, technical and technological cooperation. In this spirit, many activities have been accomplished in the EU to structure a Mediterranean policy on science and technology. New policy instruments have been designed: the creation of the **Monitoring Committee on S&T policy** (also known as **MoCo** or S&T Barcelona Committee), the introduction of science and technology in the **Association Agreements** between the EU and the MPCs, the consolidation of the International Cooperation division (**INCO**) in Brussels, the funding of policy-oriented projects, at the request of the MoCo, 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 like INNFORMED), and the creation of a network of National Contact Points for EU-MPC scientific collaboration in the partner countries (EUROMEDANET1&2). Other EU-MEDA funded initiatives such as ANIMA (Network of Euro-Mediterranean investment agencies), Invest in Med and Medibtikar (a project aiming at developing innovation in business firms and building innovation systems in MEDA countries). This clearly shows there is an ongoing process already which is rather fragmented. It urges the need to provide a mechanism for a more structured debate and trans-national learning on RTD and innovation policy.

The political coverage of all the aforementioned Euro-Mediterranean collaboration actions in science technology and innovation was provided by Barcelona process since 1995 and would move in the near future under the **Union for the Mediterranean(UfM) / l'Union pour le Méditerranée (UPM)** process.

MIRA project:

“The **Mediterranean Innovation and Research Coordination Action** (acronym: **MIRA**) is an FP7-funded INCO-Net coordination platform targeting MPCs. The project brings together 29 Euro-Mediterranean institutions that have worked in the last years in several actions aimed at analyzing and supporting the EU-MPC scientific, technological and innovation cooperation. It aims at developing the objectives of the INCO-Net Mediterranean Partner Countries (MPC) action by, among others : Creating a dialogue platform using the state of the art of the ICT technologies, which will enable the discussion between relevant stakeholders from both sides of the Mediterranean to improve the RTD & Innovation cooperation which includes, linking up and facilitating the interaction between the fragmented RTD & Innovation cooperation initiatives already existing supported by the Member States, the European Commission and other political bodies. In this regard, the MIRA consortium acted to appoint an EU-MPC task force to kick-start the process of creating a **Euro-Mediterranean Innovation Space (EMIS)**”.

Rationales for international collaboration in science technology and innovation:

Cooperation in science, technology and innovation (STI) used to be considered as national or regional phenomenon (Georghiou, 1998), but since the 1980's international cooperation in R&D witnessed a substantial growth across continents and especially among developed countries. This trend is more visible today with several Countries using different methods to collaborate internationally.

Boekholt et al. (2009) have come up with a number of determinants which trigger the policy debate on STI internationalization, these include :

- The emergence of BRIC countries as economical as well as STI power
- Increased pressure to address global challenges
- Globalisation of R&D in the private sector as multinationals become more and more global and researchers increasingly mobile
- Competition towards STI talents between countries and companies

Carlson (2006) while highlighting the growing literature body addressing internationalization of corporate R&D, he contends that so far too little attention has been paid to the internationalization of national innovation systems. However, he concludes that there is sufficient evidence to support the claim that national innovation systems are becoming more internationalized while admitting the existence of certain - “barriers to internationalization inherent in innovative activity in the form of spatial boundaries of knowledge spillovers as well as certain features such as national specificities of intellectual property rights”

International cooperation depends on a number of elements according to the nature of the actors involved, the characteristics of the scientific fields of activity, the level of funding and the nature of the collaboration process – bottom up (impetus of scientists) versus top down (driven by government and other policy makers)- Georghiou (1998) suggests four types of international collaborations in R&D:

1. Informal collaboration
2. Big science cooperation between nations
3. Formalized cooperation agreements
4. Global collaborative programmes

In order to analyze qualitatively and quantitatively international cooperation between ERA countries and BRICs Gnamus (2010) developed the following two fold assessment approach:

Model 1 - Index Degree of Networking" (Figure 1): this model builds upon policy instruments for international S&T cooperation implemented in ERA countries. According to this model S&T cooperation becomes more strategic and has more networking effect as we move from knowledge exchange schemes such as **Exchange of S&T Information, Mobility & Exchange of Scientists** to knowledge clustering schemes such as **Joint Infrastructure Investments and Innovation / Knowledge Clusters**.

Model 2 - Index Cooperation Status (Figure 2): “ a composite indicator summing up information on ERA countries' S&T cooperation policy , institutional capacity and related policy measures, and practical implementation of S&T cooperation policies together describing the overall S&T cooperation policy implementation framework for internationalisation of S&T with BRICS”.

Figure 1- Model1 ranking Development Phases of S&T Cooperation

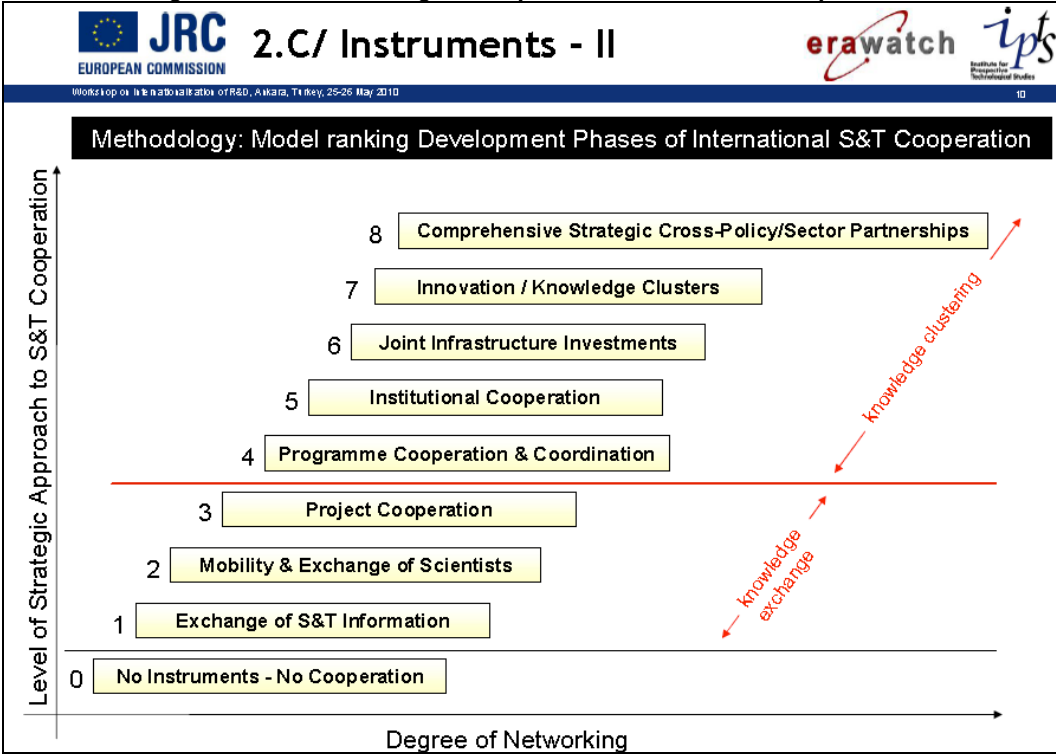
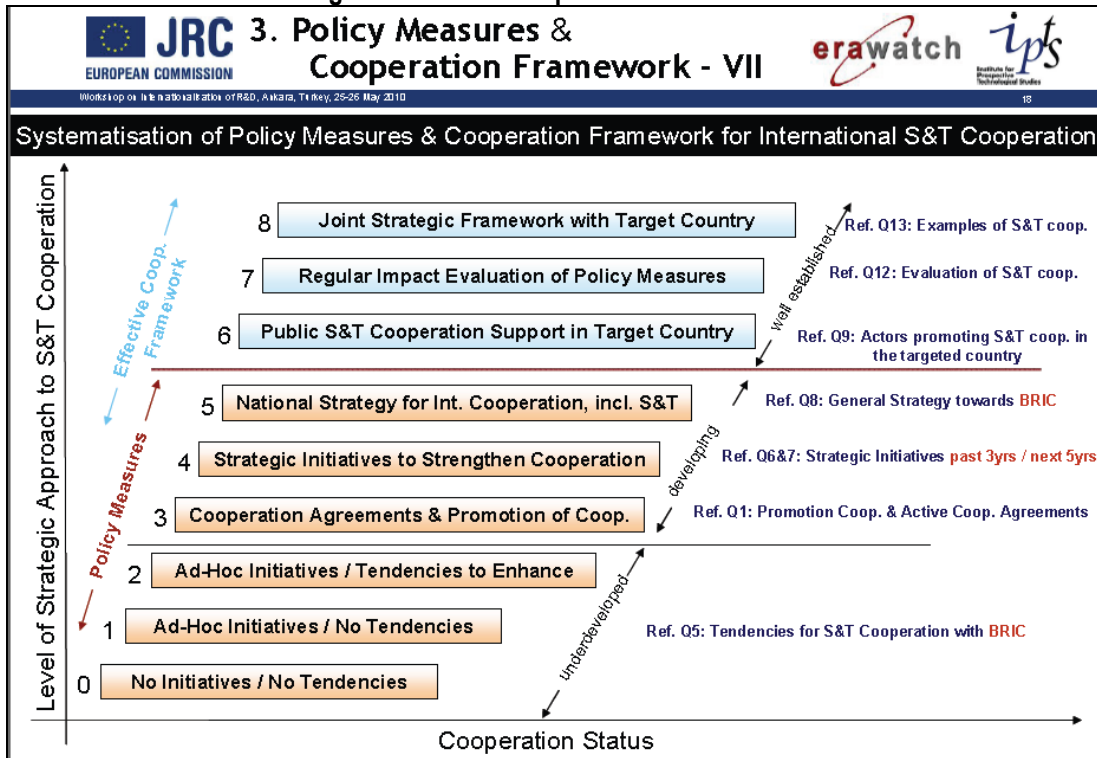


Figure 2- Model 2 cooperation status



source: 2 Gnamus (2010)

While analyzing the drivers for international cooperation in R&D, Boekholt et al. distinguished between two sets of rationales underpinning international collaboration in STI:

- The “**Narrow STI Paradigm**”: the drivers here take roots in the scientific community, and are **driven by scientific S&T objectives** then translated in science and policy instruments establishing linkages between national (material and human) resources and knowledge with resources and knowledge in foreign countries. Among the objectives we might find **access to complementary assets, scientific excellence, sharing costs and risks** (Georghiou, 1998).
- The “**Broad STI Paradigm**”: it describes a situation where international STI cooperation is driven by objectives (political, economical, cultural, historical) that are external to science and technology such as:
 - o Enhancing national economic **competitiveness**
 - o **Supporting developing countries to build their STI capabilities**
 - o **Addressing global challenges** (climate change, low carbon economy, migration, etc.)
 - o Building trust and **promoting political dialogue** between countries*

Rationales for Euro-Med STI cooperation

Innovation is a must....

First of all, it is widely acknowledged among scholars that innovation has become one of the pillars in modern economies and is ever more important in today's increasingly global, increasingly knowledge-based economy. Competitiveness depends, to a far larger extent today than in the past, on the ability of businesses to meet fast-changing market needs quickly and efficiently through the application of new technology. This, offers new opportunities and poses new challenges for both the EU and MPCs. While the northern bank of the Mediterranean Sea seems to have the knowledge, skills and resources to respond to such a great challenge, the southern one is moving at a slower pace in responding to such a challenge, thus placing the region at a competitiveness disadvantage. MPCs need equip themselves with the right tools to enable them to improve their innovation capacity to compete internationally. This needs to be done through the introduction of specific measures such as enhancement of resources in the field of education, science, research and technological

development; and the strengthening of institutions to ensure the right framework through which businesses can operate (creating the right conditions) . In a nutshell, their innovation systems have to be enhanced, improved, and created, where necessary (REF).

Worrying situation in the southern bank....

With the exception of Israel and to some extent Turkey (considered as an emerging economy or catch up country), the reality in the MPCs is rather bleak according to the findings of the project ESTIME (Evaluation of Scientific, Technology and Innovation capabilities in Mediterranean countries) (Arvanitis, 2007). The final report includes a list of areas where MPCs lag behind, these include innovation policies are modest, investment in R&D ranges from 0.3% to 1%, poor R&D infrastructure, low R&D performance in terms of the number of researchers, publications and patents, lack of coordination in policy making, difficult access to funding, poor innovation and entrepreneurship culture etc. The reports highlights the differences between countries, particularly the recognition that MPCs have varied profiles of governance in managing their S&T and innovation systems This situation casts serious doubts about the future of the whole **Euro-Mediterranean region as an area of sustainable development and shared prosperity** (as imagined in the Barcelona Declaration and wished for the **Union for the Mediterranean**).

Why EU-MPCs cooperation on innovation?

Science, technology and Innovation were not explicitly mentioned as an objective of the Barcelona Process which laid out objectives at three major levels :

1. Political and Security Dialogue
2. Economic and Financial Partnership
3. Social, Cultural and Human Partnership

Among the specific targets to be achieved by the process were:

- a. The creation of a zone of peace and stability based on shared fundamental values, particularly the respect of human rights and democracy
- b. The construction of a region shared prosperity through the gradual establishment of a free trade area by the target date of 2010

A programme called MEDA programme was put in place as a financial instrument to achieve the targets set in various economic, social and political fields where a **regional approach could have an added value** (.....). As regards to S&T, the main framework of collaboration was FP programmes and more specifically calls targeting the Mediterranean regions within FPs called SICAs. Here it is clear that the rationales for S&T collaboration belong mainly to the broad paradigm driven by security and political dialogue purposes from both sides in addition to capacity building purposes from the southern Mediterranean perspective. Although, it is widely recognized among scholars that innovation is the driver of growth and prosperity and consequently key to achieving Barcelona process targets, science, technology and innovation were not a priority at the time. By the end of the MEDA programme in 2006, the European Commission recognized the importance of regional programmes to promote innovation and it launched a three year pilot project for Euro-Med Innovation and Technology Programme (Medibtikar). The main aim of the programme was to understand the innovation situation in MPCs, however it became clear that the project was too small in scope and budget to face the enormous challenge and the diversity of situations in Mediterranean countries.

Bilateral association agreements (including S&T agreements) were signed between most of the Mediterranean countries and the European Union But the turning point in the policy context at regional level happened with the signature of the inter-ministerial agreement called Cairo Declaration between EU and MPCs **“Toward a Euro-Mediterranean Higher Education & Research Area”** (June 2007). At the same time , there was the announcement of the **Union for the Mediterranean (UfM)** which gathers 27 European Union member countries and all the countries from around the Mediterranean. This provided further momentum to the Euro-Med partnership at political level. The aim of the UfM is to develop a concrete approach to solidarity among all the relevant States around the following “core initiatives” :

1. **Depollution of the Mediterranean** (“Horizon 2020 Initiative”);
2. **Replacement energies** (Mediterranean Solar Plan);
3. Sea highways and road highways;
4. Business development (including vocational training) ;
5. Education and research, Euro-Mediterranean university;
6. Civil protection (fight against climate change...);
7. Sustainable water management in the Mediterranean;
8. Agriculture and food security;
9. Sustainable cities and urban transport.

Box 1 Objectives of the Cairo Declaration (June 2007)

A. In Higher Education:

Creating a Euromed Higher Education Area:

1. Approximating the Euromed Higher Education Systems;
2. Promotion of a Permanent Euromed University Forum;
3. Promoting Educational Innovation and Information and Communication Technologies (ICT);
4. Promoting *mobility* through exchanges of higher education students, teachers, researchers and administrators;
5. Enhancing participation in the *Erasmus Mundus External Cooperation Window*.

B. In Research and Innovation:

Towards the creation of a Euromed Research Area:

1. Modernizing Science and Technology, R&D policies in the Mediterranean Partner Countries;
2. Supporting Institutional Capacity Building, including human and research infrastructure development;
3. Enhancing the participation of the Mediterranean Partner Countries in the Framework Programmes while taking into account their particular needs, as well as areas of mutual interest and benefit between EU and Mediterranean Partner Countries;
4. Promoting innovation in the Mediterranean Partner Countries and enhancing exploitation of the RTD outputs by society and industry;
5. Favouring mobility of researchers;
6. Enhancing participation of the Mediterranean Partner Countries in the "People" Specific Programme of FP7.

These political-level evolutions clearly show there is the willingness to move towards having an effective framework to assist MPCs to respond actively to the global common challenges. (solar plan, depollution of the Mediterranean, etc.) Surely increased participation of MPC scientists in FP programs contribute towards capacity building of their research skills to produce knowledge in the frontier of science. However if MPC countries are to meet the challenges and objectives outlined in the Cairo declaration or the UfM there is a need to go further in developing complementary skills, competencies, institutions and structures to enable diffusion and use that knowledge in socio-economic sphere (Hall, 2005). As Georghiou (2001) said while making the case for a new framework for European collaboration in science and technology “**the fact that innovation policies are often better delivered locally does not mean that they would not benefit from co-ordination at a higher level**”. Arvanitis et al. (2009) contend that instead of calling for a specific policy oriented towards innovation it would be more appropriate to launch a strategy to create a Euro-Mediterranean Innovation Space (EMIS) to

support several of the broad objectives, such as harmonization of standards, facilitating the emergence of a knowledge based economy, develop technological and productive clusters which will ultimately help to develop the innovation capacity to meet these challenges. This strategy of a Euro-Mediterranean Innovation Space (EMIS) could be part of the policy of the EU in developing an Innovation Policy for Europe. Such a structure should be closely linked to the Union for the Mediterranean and in line with its priorities such as: Environment horizon 2020, renewable energies (solar project), etc. Pasemini et al. (2007) argued for “the creation of a Euro-Mediterranean Innovation Space (not a Mediterranean system of innovation) because international relations are still limited by frontiers and political criteria, but scientific relations, business links and technological cooperation and learning are less likely to be brindled by political constraints”. EMIS would bring Euro-Med innovation stakeholders in a common framework and will act as a mutually beneficial partnership to develop a more intelligent and competitive Euro-Med space.”

The way forward.....

Within this context, if we are to hope for a substantial change in the foreseeable future of the technological and innovation profile of MPCs in order to allow themselves to contribute with European countries to address those common trans-national challenges substance needs to be given to the Cairo Declaration and UfM declaration as well as their objectives. Opening a process of dialogue among Euro-Med STI stakeholders (Businesses, policy makers, researchers programs’ managers, financiers) through an EMIS discussion platform will be key to the identification, selection of relevant activities and collaboration opportunities to outline the best course of actions to meet EMIS objectives. Using the models Model 1 (Degree of Networking) and Model 2 (Cooperation Status) explained above in the literature review, the EMIS discussion platform should play a key role in:

- Upgrading the strategic level of cooperation from knowledge exchange schemes (Mobility & Exchange of Scientists, Project Cooperation towards knowledge clustering schemes (Institutional Cooperation, Joint Infrastructure Investments, Innovation / Knowledge Clusters, Comprehensive Strategic Cross Policy/Sector Partnerships).
- Moving the status of cooperation from the level of policy measures towards a framework of STI Euro-Med Cooperation
- Improving the communication channels among MPC
- Work towards the linking up of regional programming among MPC countries

Conclusion

Indeed, it must be recognized that the Mediterranean region has a long history of political turmoil . Economic difficulties faced by the populations have partly caused this situation. This process although fragile and lengthy is more likely to lead to more freedom and better governance, values that are common with the northern neighbors of these countries. However, to promote significantly the odds of success of this political transition the process needs consolidation to bring about the economic success expected but the population. The EU is a vital entity which could play an important role to provide the required support for this purpose. Supporting the innovation capacity of these countries through a commensurate framework namely the Euro-Mediterranean Innovation Space could provide the right conditions towards enhancing the STI capacity of the southern STI Countries to enable them to become more competitive. The Arab spring has brought about a wave of change in the region, with new people with fresh ideas at the helm of key countries such as Libya, Tunisia, and Egypt may provide an opportunity to develop academic and industrial partnerships that will enable these countries to create wealth, provide jobs and ensure stability . EMIs is trying to contribute in this sense in the fields of water and energy. Let's start.

CONCEPT NOTE

EMIS FORUM ON RENEWABLE ENERGY (SOLAR) TUNISIA, JUNE 2012

Why EU-MPC Cooperation on renewable energy (Solar)

The whole Mediterranean region and the European Union (EU) will both face major energy and climate challenges in the coming decades. Energy demand is projected to rise significantly, while fossil fuel prices will most likely continue to follow an unstable and rising trend. To address these challenges, the countries of the EU and the other member countries of the Union for the Mediterranean need to intensify their efforts to develop adequate policies in the field of energy efficiency and energy savings, renewable energies and reduction of greenhouse gas emissions (Solar Plan, 2010).

The neighboring Southern Mediterranean Partner Countries (MPCs) dispose of vast solar power resources which could tackle Europe's most pressing issues and can at the same time fix complementary issues in the Mediterranean region such as the energy poverty, socioeconomic development and efficiency. In the MED region the growth of population and economy will lead to a rising demand. The energy demand may increase by 65% before 2025, as a result of the influence of population growth and the increase in demand associated with economic development according to [Plan Bleu](#).

Against this background, several ambitious initiatives bringing together stakeholders around the Mediterranean have been launched such as the Mediterranean Solar Plan and Desertec. The challenge now is to establish a policy that encourages the rapid uptake and use of technology to avoid the catastrophic social, economical and environmental impacts at a global scale of the current non sustainable development model.

A policy approach that aims to promote renewable energy in the Euro-Med region is likely to be successful if tailored to respond simultaneously to the interests of developed EU Countries as well as developing Southern Mediterranean Countries. The EU has an interest in speeding up the uptake of sustainable technologies to mitigate the global environmental problems. European firms are expected to gain from new markets opportunities in MPCs. This might apply particularly where MPCs engagement at local level leads to adaptive innovations opening up new set of technologies which are specifically applicable within countries with similar context. MPCs incentives to promote renewable energies are twofold. Firstly, MPCs are expected to be one of the most vulnerable to the impacts of environmental problems. Secondly, and maybe most importantly in terms of immediate concerns with economic development, the prospects of revenues coming from export of clean energy to EU and access to new technologies are key determinants of the future socio-economic development level of MPCs. With regard to the later point, by accessing to new sustainable technologies MPCs open up the potential of technological change, the broadening of the industrial base with associated employment benefits, profits, and public income through taxes. Renewable energy is a key area where MPCs can access new technologies and build their indigenous innovation capabilities with the support of a targeted European Neighbourhood Policy.

Building Indigenous Innovation Capabilities in MPC : Relevant issues

(this section is by large an adaptation from “Enhancing Developing Country Access to Eco-Innovation” OECD, 2010)

So far, policy discussions addressing technology transfer at international level including our Euro-Med region have had a strong tendency to focus on providing developing countries with access to existing technology on the basis of consuming technological hardware (equipments) not producing it. This attitude fails to recognize the vital importance of building innovation capabilities (absorptive capacity) to promote **both the diffusion of innovation** within developing countries and **sustainable economical development** based on the adoption, adaptation and development of environmentally sound technologies that fit with the conditions faced by developing countries. This calls for a deeper analysis and understanding of: what should be the essence of a Euro-Med STI cooperation in the field of renewable energies that might allow knowledge and innovation clustering ? And what kind of knowledge flow would ease rapid and sustained uptake of innovations in renewable energies in Euro-Med region?

To answer this question it is important, particularly in the context of developing MPCs, to define clearly the concept of innovation.

The OECD Oslo Manual (OECD, 2005) defines innovation as the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organisation or external relation.

On the basis of this Manual (as cited by Bell, 2009) it can be characterised as including points 1, 2 and 3 in the following typology:

- I. **Innovations ‘new to the world’:** Where a firm is the first to introduce innovation for all markets & industries, domestic and international.
- II. **Innovations ‘new to the market’:** Where a firm is the first to introduce innovation in its particular market.
- III. **Innovations ‘new to the firm’:** Where a firm introduces a product, process or method new to that firm, or significantly improved by it, even if it has already been implemented by other firms.
- IV. .

Often, it is type I innovation that captures the focus of policy discussions within EU as well as at Euro-Med STI cooperation level. This type of innovation is more likely to be associated with more radical innovations that are the results of deliberate R&D and it requires the existence of a strong and knowledge base. However, in developing countries context (such as MPCs), where rapid adoption and diffusion is a central concern, incremental and adaptive innovations that are often underpinned by type II (new to the market) and type III (new to the firm) are often of more relevance and importance.

Incremental innovations are seen as occurring more or less continuously as economic agents strive to improve quality, design and performance. This emphasises the importance of learning by searching, using, doing and interaction between suppliers and users of technology (Lundvall, 1988; Freeman, 1992). Incremental innovation has often played a critical role in instances of assumed technology “leapfrogging” in developing countries, where countries have moved

towards, and then surpassed the international technological frontier. For example, the most successful latecomers to the wind energy market (e.g. Spain and China) took the first steps in developing their industry through joint partnerships technology transfer via licensing agreements and associated royalty fees with manufacturers in Germany and Denmark (MacLaglin et al., 2009). Gallager (2006) cites the case of the Korean steel industry which eventually emerged as international technology leaders as a result of the adoption of internationally established technology followed by a continuing process of incremental improvements. Walz (2010) finds that the relationship between scientific publications, patenting activities and trade share in sustainability related technologies is positive but not linear among Newly Industrializing Countries (NICs) such as Taiwan, Korea, Malaysia and BICS. Altogether, the NICs account for about 7% of worldwide patents, and around 20% of all exports of sustainability related technologies. Thus, in most NICs, the world trade shares are considerably higher than the patent shares. That shows that these countries are quite active in exporting sustainability relevant technologies, but based on a rather below average domestic knowledge base.

(Caraça et al., 2010) contend that it is tempting for policymakers to operate on the basis of a simple model of innovation and growth, where investment in science is seen not only as a necessary but also as a sufficient condition for innovation-based growth. It is characteristic that the most salient European innovation policy measure to implement the Lisbon Agenda has been the Barcelona 2%+1% objective for, respectively, private and public R&D to GDP ratios. There are inherent risks in exaggerating the expectations regarding the direct impact of science on innovation and underestimating other sources of innovation such as experienced-based learning within industry. Among policymakers it has resulted in disappointments and in references to what they see as 'paradoxes': domestic strength in science not being reflected in innovation-based economic growth. To overcome these paradoxes policymakers look for solutions that aim at a commercialisation of science. It may result in a transformation of universities into 'patent producers' and in a problematic neglect of its most fundamental role serving industry and society with well-trained and critically minded graduates.

Guiding Considerations and principles for EMIS Forum in Tunisia

Building on the analysis in previous sections, and particularly focusing on building indigenous innovation capabilities in MPCs, the EMIS Forum on Renewable energy can be articulated as follows:

OBJECTIVES

The Forum on Renewable Energies and Efficient use of Energy targets the key players for innovation: industry, academia and public sector in the Mediterranean and European countries in order to:

- ✓ Building up a dialogue between all participating parties on topics of mutual interest
- ✓ Create a mutual understanding of innovation processes and structures in the Euro-Med region, identifying intermediate structures and initiatives dealing with innovation, such as IPR experts, Technological Parks administrators, services providers, etc.,
- ✓ Identify cooperation opportunities in trans-national cooperation projects of research and innovation, taking advantage of the already existing multilateral and bilateral programmes

launched by the EU and the MPC, such as the EC's Seventh Framework Programme and suggesting new ones.

- ✓ Giving the opportunity of identifying possible partners for setting consortia addressing research and innovation topics of mutual interest covered by the funding instruments of research acting in the Euro-Mediterranean frame or the regional or bilateral frame
- ✓ Developing recommendations to policy makers to foster innovation in the field of Renewable Energy and Energy Efficiency in the Euro-Med region

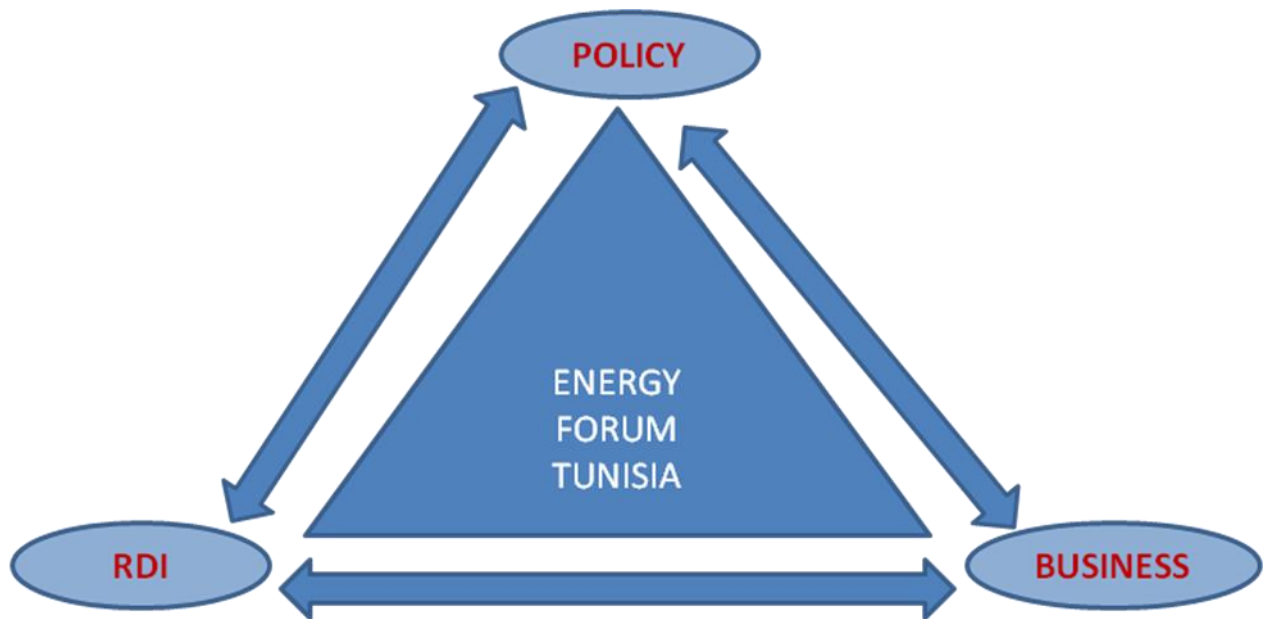
TOPICS & STRUCTURE:

Taking into consideration the results of previous activities of MIRA in this field the Forum will focus mainly on solar energy and energy efficiency in Euro-MED region.

During a thematic workshop in the field of energy research, the MIRA-project identified the following research priorities

- ✓ Photovoltaic
 - Advancement of PV system components including cells, storage devices, inverters, and
 - Controllers for micro grid applications
 - Integration of PV/CPV systems in industrial grid connected applications
 - Development of operation and maintenance training programs to support deployment of PV technology
 - Policy research and legislation development and awareness building for integration of PV technology application in energy management and resource planning
- ✓ Concentrating Solar Power
 - Local manufacturing of components
 - Advanced materials and surfaces
 - Improved weather forecasts models for direct normal Irradiation
 - New joint test facilities for CSP in the MENA region collocated to pilot power plants
 - CSP Dissemination and Education Program "Educate the Educators"
 - Evaluation of Hybrid Concepts
- ✓ Energy Efficiency
 - Energy Efficiency Road Map (Prospects and Challenges)
 - Develop optimized energy efficient buildings for the region
 - Increasing efficiency and reliability of the solar collectors through developing new materials, specific coating materials & cleaning techniques
 - Large energy intensive industries: Energy intensity improvements through Energy Efficiency

The forum will focus on these topics and will be structured around relevant cross cutting issues using the triple helix model bringing together: policymakers, academia and business.



Renewable Energy policies in Euro-Med Region:

Possible focal points: (to be confirmed through interviews with relevant potential participants)

- ✓ Domestic renewable energy policies in MPCs and EU (Regulatory environment, incentives, attracting FDI, human resources & skills, maximising the leverage of private finances,)
- ✓ International EU-MPC cooperation on Renewable energy (levels of cooperation, available schemes, gaps, knowledge and investments flow, etc)
- ✓ Maximising impacts of domestic policies and international cooperation on indigenous MPC innovation capabilities (e.g. schemes knowledge transfer and knowledge clustering, capacity building, IP, context specificity, lessons from successful latecomers countries, ..)

Potential Participants: Policy shapers, Energy policy experts, innovation & technology policy experts

Research

Possible focal points: (to be confirmed through interviews with relevant potential participants)

- ✓ Commons interests and priorities of EU-MPCs collaborations across the **research, development, demonstration and deployment spectrum (RDD&D)**
- ✓ Available opportunities at appropriate levels of the RDD&D
- ✓ Analysis of existing RDD&D capabilities in MPCs
- ✓ Analysis of EU-MPC international cooperation on Renewable energies (Using the results of the study presented by Rigas during the last management board)
- ✓ Building participation and searching of opportunities for joint projects (FP7 call on July 2012)

Potential Participants: Researchers from public and private sectors EU-MPC, DG research, research policy makers, Research analysts;

Suggestion: we can get in touch with DLR-participants of Desertec for keynote lecture

Business

Possible focal points: (to be confirmed through interviews with relevant potential participants)

- ✓ Market opportunities for Business in MPCs
- ✓ Potential of collaboration between multinational companies interested in MPC the RDI community in MPCs across the RDD&D spectrum (i.e. technology accelerators, designing and funding projects to evaluate technology performance e.g., field trials, cleaning mirrors after sandstorms,etc.)
- ✓ Entrepreneurship, business incubation, Venture capital, early stage funding

Potential Participants: Multinational companies operating in MPCs or interested in operating in MPCs, SMEs in EU-MED region, financiers, FDI experts and relevant organisations (ANIMA), Policymakers,

Suggestion: the forum could hold a show for innovative start-ups/SMEs in Euro-Med Region. we can get in touch with incubators/science parks networks across the region and invite their members to propose a list interested start-ups/SMEs.

EXPECTED OUTCOMES

- ✓ Dialogue between academia, business and policy makers of the Euro-Med region in the field of renewable energy
- ✓ Lessons learnt, recommendations and opportunities for building innovation capabilities in MPCs
- ✓ New partnerships and consortia for the cooperation between EU and MPCs
- ✓ Set of recommendations to policy makers to foster renewable energy through bioregional cooperation

DELIVERABLES

- ✓ Conference proceedings
- ✓ The Tunis-Roadmap

References (to be accomplished)

Arvanitis, R. (2009) White paper on strategic indicators for the measurement and impact of international scientific cooperation and collaborations in the Mediterranean region. Assessment of international scientific cooperation in the Mediterranean region An international challenge ahead. MIRA website: www.miraproject.eu

Boekholt, Patries, Jakob Edler, Paul Cunningham & Kieron Flanagan (eds) (2009) *Drivers of International collaboration in research. Final Report* (Luxembourg: European Commission, DG Research, International Cooperation (EUR 24195)).

Carlson, B. (2006). "Internationalisation of Innovation systems: A survey of literature". *Research Policy* 35, 56-67.

Gnamus, A. (2010). Evaluation and Impact Assessment of National Policies for Internationalisation of R&D in ERA countries with BRIC countries. IPTS Institute for Prospective Technological Studies Workshop on Internationalisation of R&D, Ankara, Turkey, 25-26 May 2010

Hall, A. (2005) Capacity development for agricultural biotechnology in developing countries: an innovation systems view of what it is and how to develop it. *Journal of International development. J. Int. Dev.* 17,611-630 (2005).

Georghiou, L. "Evolving framework for European collaboration in research and technology". *Research policy*. "à (2001) 891-903.

Georghiou, L. "Global cooperation in research". *Research policy* 27, 611-626.

Pasimeni, Paolo, Anne-Sophie Boisard, Rigas Arvanitis, Juan-Miguel Gonzalez & Rafael Rodriguez (2007) 'Towards a Euro-Mediterranean Innovation Space: Some lessons and policy queries', *The CONCORD seminar* (ITPS, Sevilla, octobre, 2007).