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1. Summary

S&T Agreements are today the frame under which the bilateral cooperation on research and innovation is mostly developed by the EU and its partners. They constitute a "fil-rouge" among the different Framework Programmes and ensure a periodical high-level policy dialogue between the actors involved.

In the Mediterranean region, the EU has concluded **Bilateral S&T Agreements** with five MPCs: **Algeria** (2013), **Egypt** (2008), **Jordan** (2011), **Morocco** (2005), **Tunisia** (2004)[1]. These Agreements constitute an important framework and a **privileged forum** to identify common interest, priorities, policy dialogue, and tools for S&T collaboration.

Bilateral S&T Agreements contribute to the international cooperation of the EU with Third Countries, identified since 1986 as a **key activity** of the Union's research policy. The importance of these Agreements in the transition from FP7 to H2020 is also deductible from the interim evaluation report of FP7[2], which concluded that international cooperation needs to be further strengthened 'engaging with partners on **equal terms** and activities of **high mutual interest**'.

In the near future, the EU will focus cooperation with the Mediterranean region on increasing involvement of the Mediterranean Partner Countries into the European Research Area, including possible association to H2020. Within this framework, S&T Agreements will be important vehicles for **defining and implementing** the multi-annual roadmaps[3]. Such Agreements should thus be developed into strategic **long-term partnerships**, with a similar approach to be followed on a regional basis.

To this end, an **assessment** of progress of S&T bilateral cooperation with MPCs might contribute to the identification of strengths and weaknesses in the EU S&T relations with single partner countries and, at the same time, to the building of a coherent **regional strategy**.

2. Assessment Frame for cooperation under S&T Agreements

2.1 Main objective

The main aim of this report is to support the EU-MPCs **bilateral dialogue** under the current S&T Cooperation Agreements (in particular with: Algeria, Morocco, Jordan, Egypt, Tunisia), mainly through the identification of **common indicators** for the assessment of the progress and impact of the S&T Agreements. The definition of a common assessment frame might be helpful in strengthening the bilateral cooperation and evaluating its main achievements through the **harmonization of different indicators**. Such harmonization allows the framing of the periodical S&T Agreements evaluations in the regional context and facilitates the comparison of strengths and weaknesses of each bilateral cooperation relationship. In addition, this work could also be useful to develop a frame of common evaluation in the prospect of exploring the possibility to establish a regional agreement.

[1] The texts of all the S&T Agreements are available at this link: http://ec.europa.eu/research/iscp/index.cfm?pg=countries.

[2] Interim Evaluation of the Seventh Framework Programme, Report of the Expert Group, 12 november 2010. (http://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/fp7_interim_evaluation_expert_group_report.pdf#view=fit&pagemode=none).

[3] As stated by the Communication "Enhancing and focusing EU International cooperation in research and innovation: a strategic approach" (COM(2012) 497). http://ec.europa.eu/research/iscp/pdf/com_2012_497_communication_from_commission_to_inst_en.pdf

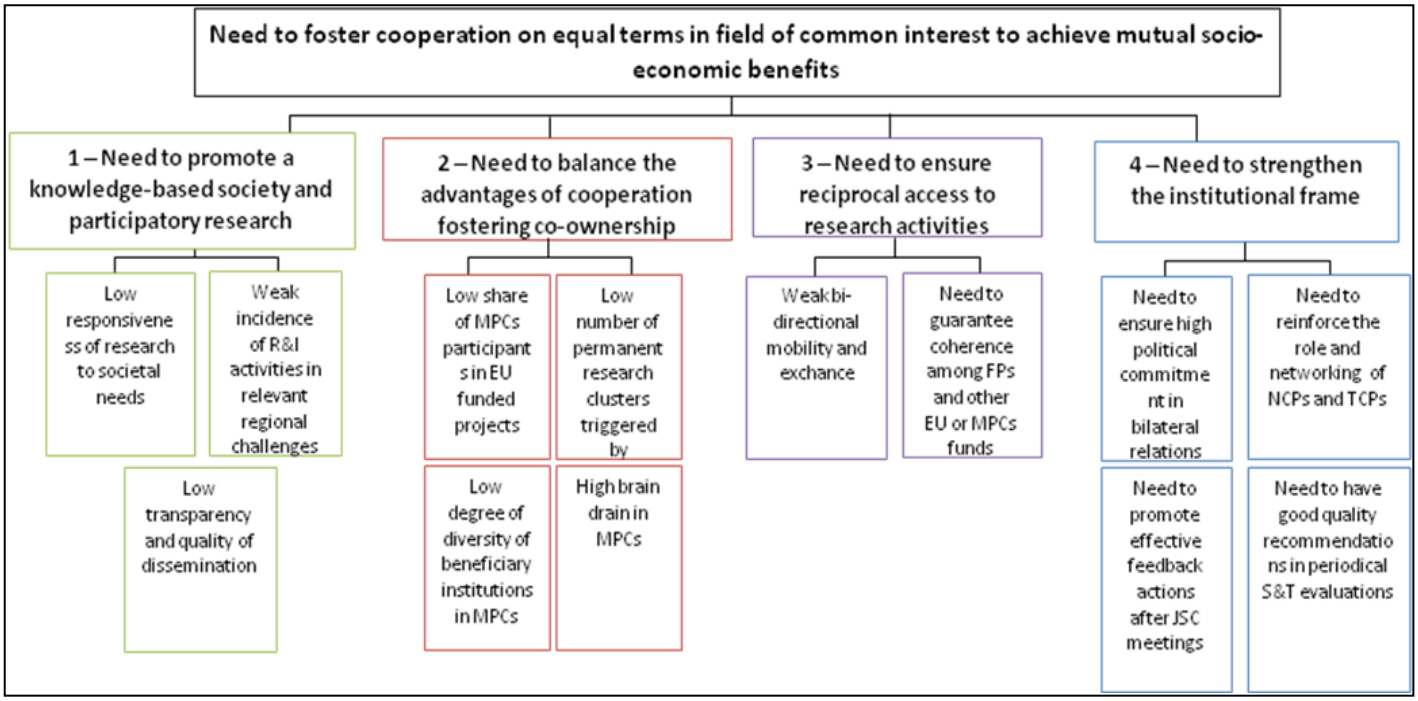
2.2 Methodological outline

The present report is mainly based on an **analysis** of the current activities and achievements of bilateral S&T agreements, and in particular on:

- Text of S&T Cooperation Agreements
- Evaluation Reports of S&T Agreements (available today for the S&T agreements EU Morocco, EU-Tunisia and EU-Egypt)
- Main achievements of BILAT projects
- Existing literature on bilateral S&T cooperation in the Mediterranean region
- Other informal documents

The documents and agreements analyzed revealed several **common objectives** in the bilateral R&I cooperation between the EU and the MPCs concerned (such as: promoting knowledge based society, building co-ownership, strengthening mutual benefits). Also, the main obstacles for reaching those objectives and the main problems impacting bilateral cooperation have **similar causes** (e.g. low dissemination, low share of MPCs participants in EU projects, partial involvement of national research institutions). Building on those common elements, a diagram of problems has been identified (Figure 1). The first two levels of problems derive from a matching of the **main objectives** as spelled out in Article 1 of S&T bilateral Agreements with the main issues at stake emerging by the existing literature. The third level of problems is based on some critical aspects highlighted in the periodical S&T evaluation reports, integrated with the results of the overall analysis. Therefore, this diagram of problems could be
an useful instrument for a critical assessment of Euro-Mediterranean bilateral S&T Cooperation.

Figure 1 – Diagram of Problems



Following the identification of the hierarchy of problems, a possible **intervention logic** for Euro-Mediterranean bilateral S&T Cooperation has been drafted (Annex I), in order to outline the objectives, results and means of such cooperation.

For the purpose of this report, in carrying out the above described analysis, particular attention has been devoted to existing **indicators and criteria** identified within the periodical evaluations of S&T Agreements. This has been done in view of building a common assessment frame which might

systematize the different analyses conducted so far and which could be used as a base for future evaluations. An harmonized set of indicators has then been drafted through a **comprehensive approach**, using four categories pertaining to different dimensions of sustainability[4]:

- Social dimension
- Economic dimension
- Institutional dimension
- Environmental and thematic dimension[5]

This approach has been used to ensure that the indicators identified might be useful to assess the **long-term** sustainability of the Euro-Mediterranean cooperation.

2.3 Proposed indicators for a common assessment frame

On the basis of the analysis outlined above, and according to the categories mentioned, **four groups of indicators** have been identified. The following table shows the results of the work done. The table should be read bearing in mind that the overall intention was to merge the **quantitative** aspects and **qualitative** impact of cooperation triggered by S&T Agreements, in order to produce an effective and critical long-term evaluation, comparing – when possible – the different Framework Programmes since the entry into force of the Agreements.

Table 1 – Harmonized indicators

Social Dimension	**Economic Dimension**	**Institutional Dimension**	**Environmental and Thematic Dimension**
Improved two-ways mobility and exchange Reduced brain drain Degree of transparency and quality of dissemination***** Degree of research system responsiveness to societal needs*****	Mobilization of overall EU-MPCs joint funds N. of EU-MPCs permanent research partnership/clusters triggered Reinforcement of public/private sector relations Real engagement of MPCs in EU funded projects Global share of MPCs national participants in EU funded projects MPCs participation in EU FP (index) Degree of diversity of beneficiary institutions in MPCs N. of patents	Real political willingness Quality of recommendations in periodical evaluation of S&T Agreements***** Policy coherence and synergies with other EU and MPCs funds***** NFP and National Thematic Contact Points: staff, activities, strategy and monitoring Feedback actions after JSC meetings*****	Projects in each theme/topic Budget in each theme/topic Projects in relevant challenges/themes for the Region***** New policies triggered by research cooperation*****

[4] For a comprehensive illustration of the dimensions of sustainability: Bogliotti C. and Spangerberg J. H., 2005. A conceptual device for framing sustainability in project development and evaluation. In: *Sustainable Development and Planning II*, vol. 1, pp. 347-357.

[5] In Bogliotti and Spangerberg (2005), this last dimension is referred to as "environmental". Here the expression has been slightly modified to ensure that it might include the broader area of scientific collaboration in different topics, necessary for the scope of the present analysis.

***** The indicators marked with an asterisk have not been used by the evaluation reports analyzed.

Here follows a short description of each of the indicators identified. For each of them the data needed for measurement and timing are indicated.

2.3.1 Social dimension

1. Improved two ways mobility and exchange
This indicator is aimed at assessing the **positive impact** of S&T Agreements and related actions on North-South and South-North mobility in order to evaluate the exchange of human resources on both sides of the Mediterranean.
Data to be used: Participation in Marie Curie Actions, Success of EU researchers in MPCs national calls
Timing: FP duration

2. Reduced brain drain
Since some periodical evaluation reports of S&T Agreements highlight the problem of **brain drain** from South to North, partly due to the participation of Southern researchers to EU FP, the aim of this indicator is to monitor if and how the different cooperation schemes support the return of researchers, to ensure that countries of origin might really benefit from such cooperation.
Data to be used: Non-return ratio of researchers
Timing: FP duration

3. Degree of transparency and quality of dissemination
This indicator should be used to assess the quality of dissemination actions related both to S&T Agreements activities and to the national research system at large. The assessment should be done through a **socio-statistic process** including, where possible, a survey on a champion base.
Data to be used: degree of differentiation of instruments used for dissemination, ratio between number of dissemination action and country population, diversity of target people of dissemination actions, geographic concentration of target groups, results of the survey on the quality of dissemination.
Timing: FP duration

4. Degree of research system responsiveness to societal needs
Participative research and a civil-society based approach is one of the key challenges for the future of Euro-Mediterranean cooperation. Therefore, this indicator is aimed at assessing to what extent the national research systems, enhanced by S&T Agreements cooperation and JSC meetings, are able to address the needs of the society which are perceived to be crucial for a better life.
Data to be used: A national open consultation on civil society needs that research might address is highly recommended to measure this indicator. The outcomes of the open consultation should be matched (e.g. using a correlation matrix), with the topics addressed by periodical JSC meetings, which constitute the highest level of policy dialogue under S&T Agreements.
Timing: FP duration

2.3.2 Economic dimension

1. Mobilization of overall EU-MPCs joint funds
This indicator is aimed at assessing the overall mobilization of economic resources of the joint EU-MPCs cooperation. Such indicator is useful to compare the mobilization of funds between different FPs, in order to evaluate positive or negative trends.
Data to be used: Amount (in EUR) of joint funds

Timing: FP duration

2. N. of EU-MPCs permanent research partnership/clusters triggered
This indicator will estimate the long-term impact of EU-MPCs cooperation in terms of partnerships/clusters set up within funded projects, whose activities continue even after the end of the project.
Data to be used: N. of partnership/clusters per country
Timing: Two years

3. Reinforcement of public/private sector relations
The main objective of this indicator is to assess to what extent the EU-MPCs joint cooperation supports the dialogue and the partnership between the public and the private sector.
Data to be used: N. of public/private research partnerships
Timing: FP duration

4. Real engagement of MPCs in EU funded projects
This indicator will evaluate the engagement of MPCs in EU funded project, based on their efforts in the implementation phase of the projects.
Data to be used: Ratio of men/months of EU funded projects for MPCs
Timing: FP duration

5. Global share of MPCs national participants in EU funded projects
The aim of this indicator (complementary to the previous one) is to estimate the amount of resources allocated to MPCs national participants.
Data to be used: Total amount (in EUR) of resources allocated to MPCs beneficiaries in all funded projects.
Timing: FP duration

6. MPCs participation in EU Framework Programme
This is an index to measure the average economic value per single MPC – weighted according to the total number of projects per country – within the total funds allocated for all MPCs in each Framework Programme. This index (whose value is between 0 and 1) can be used to compare the performance of each MPCs in a given period. The same index might be used to compare the performance of a single MPC in different FPs.
Data to be used:Total of EU funds for MPCs, total of EU funds per single MPC, number of projects per single MPCs.
Timing: FP duration

7. Degree of diversity of beneficiary institutions in MPCs
This indicator is essential to evaluate the capillarity of the distribution of funds deriving from FPs within MPCs countries, in order to assess how many entities really benefit from EU-MPCs cooperation.
Data to be used: Country-specific data on number, type and name of beneficiaries per each funded project might be elaborated using the Simpson Index.
Timing: FP duration

8. N. of patents
This is one of the most traditional indicators, useful to assess the innovation potential of joint EU-MPCs cooperation.
Data to be used: N. of patents deriving from funded projects.
Timing: Yearly

2.3.3 Institutional dimension

1. Real political willingness
This indicator will evaluate the high-level commitment at the country level to the joint EU-MPCs cooperation, using as reference the instruments foreseen by S&T Agreements for policy dialogue.
Data to be used: N. of Joint Scientific and Technological Cooperation Committee meetings (ordinary/extraordinary), Type and number of Executive Agents.
Timing: FP duration

2. Quality of recommendations in periodical evaluation of S&T Agreements
This indicator is conceived to "monitor the evaluators" of S&T Agreements. All evaluation reports should be carefully reviewed, compared and evaluated by an independent expert (or a group of experts), using an ad-hoc scale (ex. 4 = Very high; 3= High; 2= Fair; 1= Low). The same scale could be used to evaluate the degree of appreciation by the civil society of the periodical reports recommendations.
Data to be used: S&T Agreements periodical evaluation reports.
Timing: the timing should be harmonized with the release of the periodical evaluations.

3. Policy coherence and synergies with other EU and MPCs funds
The aim of this indicator is to evaluate to what extent FP projects are in line with other EU policies and funding instruments addressed to the Mediterranean (ex. ENPI, ERASMUS) and with MPCs national policies and funds. This could be expressed with a matrix combining the themes/topic of each fund or initiative with the ones of FP projects. The coherence could measured by using a qualitative indicator (e.g. Likert scale).
Data to be used: Information sheets on EU and MPCs relevant policies and funding instruments.
Timing: FP Programme duration

4. National Focal Points and National Thematic Contact Points: staff, activities, strategy and monitoring
This indicator is aimed at assessing the activities of NFPs and TCPs, trying to highlight eventual strengths and weaknesses. As for staff and activities, the indicator could be expressed with the average number of people targeted per each event or activity organized weighted according to the resources (human and budget) allocated to each NFP/TCP. Turnover, gender of staff members and man/months could also be used. As for strategy and monitoring, their presence/absence should be highlighted. A qualitative assessment of strategy and monitoring plans and documents might also be carried out.
Data to be used: relevant documents on NFP and TCP activities, staff employed and resources allocated.
Timing: Yearly

5. Feedback actions after Joint Scientific and Technological Cooperation Committee meetings
This indicator is aimed at assessing the degree of responsiveness of the main research actors and institutions to the recommendations of JSC meetings, in order to evaluate the flexibility of the cooperation promoted by the bilateral agreements to adapt to a changing reality and societal needs.
Data to be used: N./Type of feedback actions (these data could be collected by NFPs)
Timing: the timing should be harmonized with the JSC meetings (ex: 12 months after the meeting)

2.3.4 Environmental/Thematic dimension

1. Projects in each theme/topic
This indicator shall be used to assess the thematic orientation of MPCs participation in EU Framework Programmes.

Data to be used: N. of funded projects
Timing: FP duration

2. Budget in each theme/topic
This indicator will be used to assess the economic "weight" of each theme and topic, by comparing all the funded projects, in order to investigate the importance given by consortia to each theme/topic.
Data to be used: Budget for each funded project
Timing: FP duration

3. Projects in relevant challenges/themes for the region
This indicator can be used to measure to what extent the EU programming and the cooperation triggered by the bilateral S&T Agreements is in line with the relevant challenges of the region and in particular of MPCs. This indicator could be expressed through the ratio between the number of projects/funds in each relevant topic, comparing both different MPCs or different topics in the same period.
Data to be used: N. and themes/topic of funded projects; national S&T programmes in MPCs[6].
Timing: FP duration

4. New policies triggered by research cooperation
The purpose of this indicator is to evaluate the impact of cooperation under S&T agreements in terms of new policies and schemes developed at the national level in MPCs.
Data to be used: N. of new relevant policies and schemes adopted after the entry into force of the S&T Agreement.
Timing: Every 2 years

[6] To this regard, the analysis to be carried out under MED-SPRING WP6 (Task 6.1, responsible DLR, delivery date: February 2014), focused on S&T Programmes of MPCs might be used as a source of data.

3. Conclusions

- S&T Agreements are an instrument of utmost importance for the EU international cooperation with Third Countries, and in particular in the transition from FP7 to H2020.
- A systematized assessment of progress of S&T bilateral cooperation in the Euro-Mediterranean region is necessary to identify strengths and weaknesses and to build up a coherent regional strategy.
- To this end, the identification of a common frame for the assessment of EU-MPCs cooperation under S&T Agreements is of significant importance. This implies the definition of a set of harmonized indicators, which has been done in the present report.
- To ensure that the indicators identified can contribute to a qualitative and quantitative assessment of the long-term sustainability of the Euro-Mediterranean S&T cooperation, they have been divided into four categories pertaining to socio-economic, institutional, and thematic dimensions.
- The social dimension indicators might contribute to identify the social impact of cooperation triggered by S&T Agreements and the quality of the dialogue between research and civil society.
- The economic dimension indicators focus both on the degree of participation of MPCs to the FPs and on the economic impact and weight of such participation (e.g. distribution of man/months or budget allocated to MPCs as a whole), including the innovation potential of funded projects (patents).
- The institutional dimension indicators are aimed at assessing the commitment of the parties involved and the smooth functioning of the governance both of the S&T Agreements and of the national system of Focal and Thematic Contact Points.
- The environmental and thematic dimension indicators intend to evaluate which are the main topics of current S&T cooperation and to combine these topics with the research priorities outlined in MPCs national programmes.
- The indicators proposed might be the subject of a specific joint initiative EU-MPCs, and used for a common evaluation which might be relevant both for re-orienting cooperation under existing Agreements and paving the way for a possible regional agreement.
- In this context, the role of NFPs could be reinforced as pivotal actors of bilateral cooperation.
- To ensure the success of cooperation under S&T Agreements, it is crucial recognizing the central role played by the civil society. The involvement of the society should be guaranteed by: transparency, high quality dissemination, participation in the definition of themes/topic to be included in the research cooperation agenda.

4. References

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ANNEX I – Logical Framework of Euro-Mediterranean cooperation under S&T Agreements

	INTERVENTION LOGIC	OBJECTIVELY VERIFIABLE INDICATORS	SOURCES OF VERIFICATION	ASSUMPTIONS
Overall Objective	Encourage, develop and facilitate cooperation on equal terms in fields of common interest to achieve mutual socio-economic benefits	Degree of satisfaction by society	Survey	Full involvement of civil society Political commitment and willingness Political stability
Specific Objectives	**1**. Promotion of a knowledge-based society and participatory research to foster the social and economic development **2**. Mutual benefit based on an overall balance of advantages and co-ownership **3**. Reciprocal access to the activities of research programmes and projects **4**. Strengthening the institutional frame	**1.1a** Rate of investment in research **1.1b** Share of research in national media **2.1** % of financial share between North and South in projects and programmes **4.1a** Quality of research strategy **4.1.b** Degree / quality of participation	Media Ministry annual reports	
Results	**1.1** Improved degree of responsiveness of the research system to societal needs **1.2** Improved incidence of R&I activities fostered by S&T Agreements in relevant societal challenges **1.3** Improved transparency and quality of dissemination **2.1** Increased share of MPCs participants in EU funded projects **2.2** Increased N. of permanent research clusters triggered by research projects **2.3** Increased degree of diversity of beneficiary institutions in MPCs **2.4** Reduced brain drain **3.1** Improved two-ways mobility and exchange **3.2** Increased coherence and synergies among FPs and other EU or MPCs funds **4.1** Improved political willingness **4.2** Strengthened NCPs and TCPs role and networking **4.3** Good quality feedback actions after JSC meetings **4.4** Improved quality of recommendations in S&T Agreements periodical evaluations	**1.1** N. of topics/themes in the national research agenda corresponding to societal needs **1.2** N. of projects in relevant challenges/themes outlined in MPCs national programmes **1.3a**Diversity of dissemination tools **1.3b** N. and type of target people and dissemination actions **1.3c** Survey **2.1**Statistics on MPCs participants in EU Projects **2.2** N. of research EU MS-MPCs clusters in place after the end of projects **2.3** Diversity rate (using Simpson index) based on N., type and name of beneficiaries per country **2.4** Non-return ratio of researchers **3.1a** Participation rate in Marie Curie Actions **3.1b** Success of EU researchers in MPCs national programmes **3.2** Low, Medium or High level of coherence (Likert Scale) **4.1a** N. of Joint Scientific and Technological Cooperation Committee meetings (ordinary/extraordinary), **4.1b** Type and number of Executive Agents. **4.2a** Report on NCPs and TCP activities **4.2b** National/regional strategy for NCPs and TCPs activities **4.2c** Monitoring reports **4.3** N. and Type of feedback actions **4.4a** Independent experts report **4.4b** Survey to civil society	National Research Ministries, EU DG Research, NFPs	