

"Development of a Modern Higher Education System for Water Engineering in Syria"

TEMPUS Project

Ref Nr. 511251-TEMPUS-1-2010-1-DE-TEMPUS-SMHES

Duration: Oct 15 2010 – Oct 14 2013

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Tradition in Cooperation

Syria – TU Dresden

= Foundation for a good cooperation

- in the eighties of the last century a lot of students make the PhD degree in the TU Dresden, also in the field of hydro sciences and engineering
- Today we have cooperation agreements with universities in Damascus, Homs, Lattakia and Aleppo
- a lot of Syrian scientist and engineers have a big interest for further education in the field of environmental and water

Activities between Syria and TU Dresden

- Training Course „Pumping well construction and redevelopment “ Homs 2007
- German-Syria-Congress of Science and Technology, Damascus 2007,
- Alumni-Program of the DAAD- Dr. Izzeddin Hassan 2007, in Dresden
- Workshop of Exploitation and Development of Water Resources, Lattakia , October 2009
- 4. German Syria Environmental Week, Aleppo, December 2009
- Supervising of PhD student „Multiple using of water in Syria“ in Dresden
- Consultation and supervising of Syrian master students in the field of water engineering in Dresden
- TEMPUS IV-Project – 3rd call
“Development of Modern Higher Educations System for Water Engineers in Syria” (EDUWAT)

Additional Activities

- German-Syrian Environmental centre in Aleppo,
M & S Environmental office Plauen
- Environmental Centre Homs,
University of Applied Sciences Dresden
- Cooperation with University Rostock
- Cooperation with other universities in Germany and Europe

TEMPUS IV 3rd Call

**Reform of Higher Education
through
International University Cooperation
By Development of
Modern Higher Educations System
for Water Engineers in Syria
(EDUWAT)**

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Objectives

Creation of master and PhD study courses in water engineering for all public universities in Syria under using of the existing study courses of the faculty civil engineering and/or agriculture to overcome the fragmentation.

The quality and competence of the Syrian graduates are enhanced by introduction of the Bologna system, e.g. module and ECTS.

By the inter-disciplinarity and trans-disciplinarity of natural sciences and engineering new education and research fields can be created e.g. eco-technology.

The universities and enterprises from Syria as well as from the EU countries establish a better cooperation in the project.

During and after the life of the project the joint working in the WP enhances sustainable the networking by the partner for research and training projects.

The goal is an education of highly motivated scientists on the water sector as one of the priority sectors of Syrian economic system who correspond to the requirements of the modern working market.



PART E. Project implementation / Award criteria

Narrative description of the project. Please describe the project in detail, clearly linking to the problems identified and ensuring consistency with the award criteria defined in the call for proposals.

E.1 The project rationale*

Please outline the motivation behind your project, clearly identifying the specific problem/s which it intends to solve. Explain why this/these problem/s were selected over others, and how the project proposal fits within the development strategies of the partners involved. Define the wider and specific objectives as well as target group(s)/ target sector(s) that will be addressed and/or benefit from your project. (Max. 6000 characters)

Syria is undergoing a period of political, economic and social changes. The reform of the economy in Syria is a challenge not only for economic enterprise, but also for universities which have to train the professional forces, oriented practically. The national priorities for Syria are given by two main focuses. The first is the focus of Ministry of Higher Education for modernizing of higher education in Syria in cooperation with national and international partners. In the field of higher education the ministry has to set priorities for modernization of higher education. It means to promote the advancement of academic research through the creation of the environments and the provision of the assets that ensure its success.

The water sector is the second priority that require fundamental reforms at the national level. Water resources in Syria are limited. Nevertheless, there has been a gradual increase in water use over the years as a result of subsidies to households as well as increasing living standards, cheap water for industries and water use within the agricultural sector. The careful use of water and water resources is politically, economically and socially important.

These two national priorities, water and education, combined with the long-term economic support from the EU form the background for the Tempus Structural Measure "Development of a Modern Water Engineering System for Higher Education in Syria" with realisation of the triangular Education- Research – Innovation.

The project was inspired by the Syrian state universities. With the realization of the action to contribute to the strengthening of the Syrian economy is to be done.

The project is consistent with national priorities in the Syrian higher education:

- Establishment of new institutions, faculties and programmes within the existing institutions
- New admissions policy congruent with academic standards, potential students need, and national development needs
- Developing existing curriculum and implementing dynamic flexible rules for their continuous revision in response to social and market needs
- Continuing the process of the establishment of Quality Assurance and Accreditation System
- Revamping academic research and graduate studies programmes

Objectives:

- Linking universities and companies to their mutual benefit by strengthening university research and development of Triangel „Education – Research – Innovation“
- Creation of master-programmes in water engineering restructuring and adapting the existing study-programmes civil engineering and/or agriculture according to the model of universities in the EU and the Bologna process and ECTS
- Implementation on all public universities of Syria
- Connection with scientific research as a mayor part of the higher education
- State or private companies, engineering companies and authorities are potential clients. Technical innovations in water engineering are the basic for new education knowledges

Advantages of triangle for universities

- better adapt education and research to the actual needs of the society;
- increase students' practical understanding of enterprises and educate them for professional practice



outsides of Germany.

In Syria it has established a German-Syrian environmental excellence center in Aleppo with a modern environmental laboratory.

SMUL is the Saxon State Ministry for environment and agriculture

It has experience in developing and institutionalizing the Environmental Administration as well as of manuals for risk assessment in hazardous waste management and water / groundwater; authority in European Environmental Protection Law. SMUL gives training in European Environmental Protection Law.

Partners from Syria

The partners from universities ALBA, DUS, AU, TIU and HIWM work as well in the departments of Rural Engineering as of Civil Engineering. They are the problem owners and the target group. All have already experiences in TEMPUS-Projects. ALBA is the body responsible of the SAXENSHOMS-Environmental Centre. DUS has a international training program in border crossing water management. The AU has the agricultural view point of water resources management. HIWM is an institute for a special higher education and research for water engineering.

ACSAD is a specialized Arab organization working within the framework of the League of Arab States with the objective of unifying the Arab efforts which aim to develop the scientific agricultural research in the arid and semi-arid areas, help in the exchange of information and experiences and make use of the scientific progress and the modern agricultural techniques in order to increase the agricultural production.

ACSAD organize trainings courses and is important for the consortium to realize the research cooperation to the universities

GCEC works as a public enterprise for the private and public sector with the topic of water and wastewater engineering. It is the target group for the research results. At the same time GCEC order research from the universities.

MHE promotes the advancement of academic research through the creation of the environments and the provision of the assets that ensure its success. It control the progress of project

E.3 The project*

Having identified the problems and needs under point E.1, please describe the project as a whole, addressing as appropriate the following points:

- *academic content*
- *pedagogical approach*
- *involvement of academics, students and stakeholders at large*
- *activities leading to the expected outcomes, being consistent with the wider and specific objectives*
- *quality assurance processes*

The description must clearly indicate the working methodologies and processes to be used.

Make sure that the information in this section is consistent with the project Logical Framework Matrix. (Max. 12000 characters)

Academic Content

To reach this goal the existing study courses in water engineering in the faculties of civil engineering, agriculture and/or environmental sciences are reformed and modernized according to the Bologna process (three level education Bachelor-Master-PhD, modularisation, credit point system).

The academic content of the project is the water engineering and the water resources management. This one includes

Participating Institutions from Syria

- Ministry of Higher Education
- Damascus University
- Al-Baath University
- Tishreen University
- Aleppo University
- Higher Institute of Water Management
- General Company for Engineering Studies and Consulting
- Arab Center for the Studies of Arid Zones & Dry Lands

Participating Institutions from EU

- Technische Universität Dresden (DE)
- Universität für Bodenkultur (AT)
- Universität Rostock (DE)
- Hochschule für Technik und Wirtschaft Dresden (DE)
- Czech University of Life Sciences Prague (CZ)
- University of Opole (PL)
- Ministerium für Umwelt und Landwirtschaft Sachsen (DE)
- Stadtentwässerung Dresden – Gelsenwasser (DE)
- M&S Umweltprojekt GmbH (DE)

Objective of Project

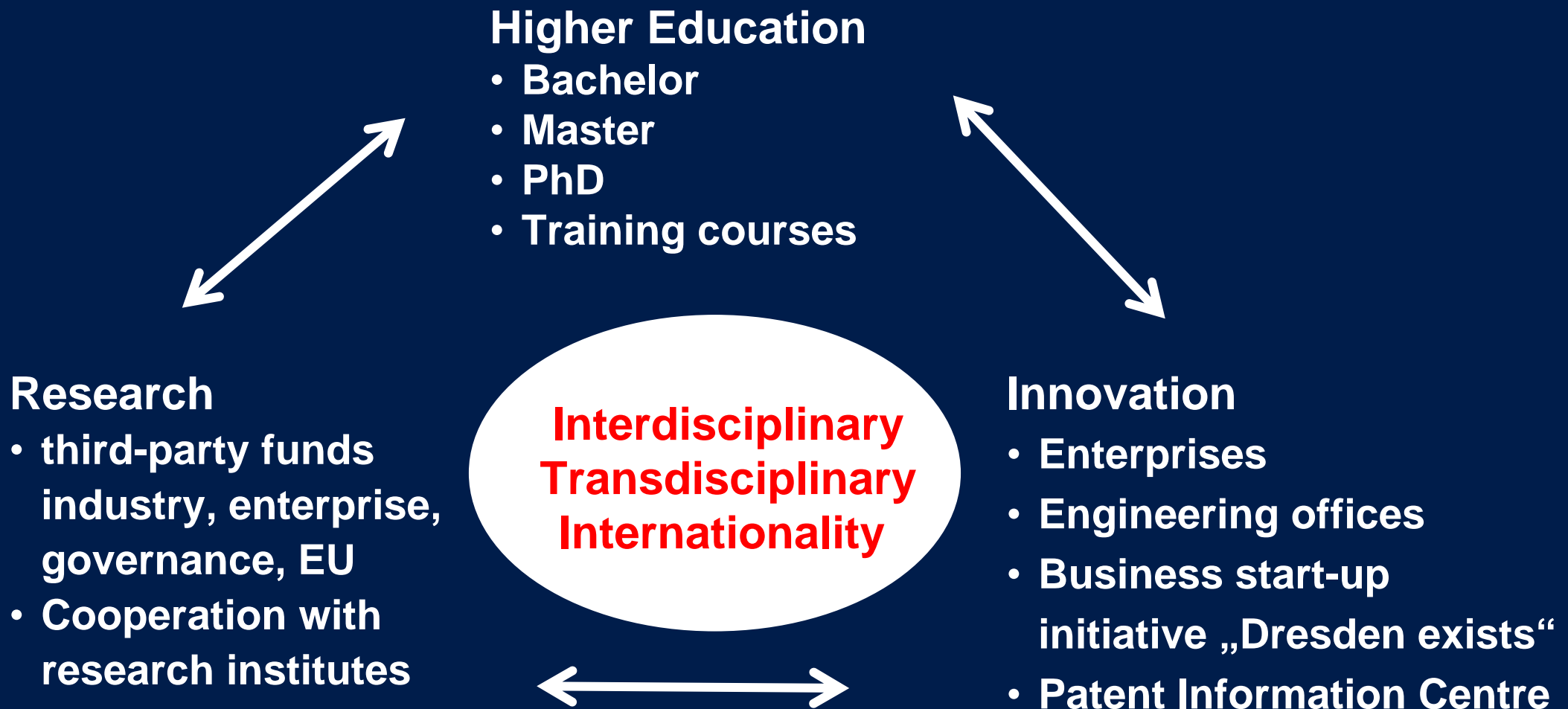
- Education of highly motivated scientists on the water sector as one of the priority sectors of Syrian economic system
- Corresponding to the requirements of the modern labour market
- New master and PhD study courses in water engineering using existing study courses of the faculty civil engineering and/or agriculture to overcome the fragmentation
- Introduction of the Bologna system, e.g. module and ECTS.
- Inter-disciplinarity and trans-disciplinarity of natural sciences, engineering, economics and social sciences
- New education and research fields can be created

TEMPUS Objectives

1. Development of partnerships with enterprises
- 2. Knowledge triangle education-research-innovation**
3. Training courses for public services (ministries, regional/local authorities)

Knowledge triangle

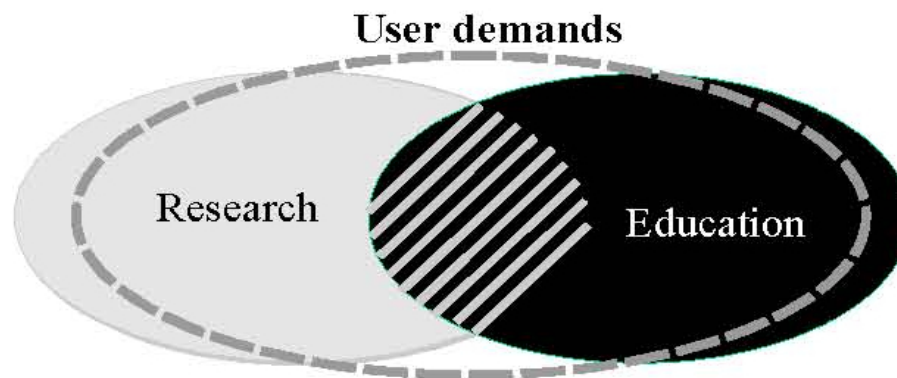
Research – Education - Innovation



Education - Research

Research at the university

Scientific research is a mayor part of the higher education system.



- Expectations
- Market conformity

- * Graduates
- * Employers
- * Research
- * Education

- Quality assessment
- Needs for improvement
- Adequate training facilities
- New means of teaching

Source: Loiskandl et al. 2003

Work Packages

WP	Type	Lead Partner/Collaboration	Title of WP	Start	End	Duration
WP.1	Development	TUD MHE, BOKU, URO, HTWD, CULS, UO, DAM, ALBA, TIU, AU, HIWM, SMUL, SEED, MUS, GCEC, ACSAD,	Higher education in the field of water engineering	1	25	25
WP2	Development	BOKU TUD, MHE, URO, HTWD, CULS, UO, DAM, ALBA, TIU, AU, HIWM, SMUL, SEED, MUS, GCEC, ACSAD,	Research at the universities	6	21	16
WP.3	Development	HTWD TUD, MHE, BOKU, URO, CULS, UO, DAM, ALBA, TIU, AU, HIWM, SMUL, SEED, MUS, GCEC, ACSAD,	Innovation	26	32	7
WP.4	Development	ALBA TUD, MHE, BOKU, URO, HTWD, CULS, UO, DAM, TIU, AU, HIWM, SMUL, SEED, MUS, GCEC, ACSAD,	Triangle of education, research and innovation	5	36	32
WP.5	Dissemination	AU TUD, MHE, BOKU, URO, HTWD, CULS, UO, DAM, ALBA, TIU, HIWM, ACSAD,	Dissemination, Capacity building	25	36	12
WP.6	Exploitation	DAM TUD, MHE, BOKU, URO, HTWD, CULS, UO, ALBA, TIU, AU, HIWM, SMUL, SEED, MUS, GCEC, ACSAD,	Sustainability	1	36	36
WP.7	Quality plan	TUD	Quality protection	1	36	36
WP.8	Management	TUD DAM	Consortium Management	1	36	36

WP 1 - Content

<i>Lead Partner: TUD</i>		<i>Type of work package</i>	<i>Tit/e of work package</i>	<i>Start</i>	<i>End</i>
WP.1		Development	Higher education in the field of water engineering	1	25
1.1	Kick-off Workshop (with 1.3)	Events: Conferences and Seminars	DAM/MHE	2011-01-17	
1.2	Comparison of higher education systems	Report		2011-01-17	
1.3	Workshop	Events: Conferences and Seminars	DAM/MHE	2011-01-17	
1.4	Development of hi. education structure for Syria	Report		2011-05-16	
1.5	Workshop	Events: Conferences and Seminars	TUD	2011-05-16	
1.6	Definition of the modules for the new education	Report		2011-12-15	
1.7	Developing of teaching materials	Report		2011-12-15	
1.8	Quality Management and Accreditation	Report		2011-12-15	
1.9	Workshop	Events: Conferences and Seminars	ALBA/MHE	2012-01-31	
1.10	Developing of professional training courses	Report		2012-10-31	
1.11	Workshop (with WP 3.2)	Events: Conferences and Seminars	AU	2013-01-31	

WP 2 - Content

Lead Partner: BOKU	<i>Type of work package</i>	<i>Title of work package</i>	<i>Start</i>	<i>End</i>
WP.2	Development	Research at the universities	06	21

2.1	Comparison of research to quality and quantity	Report		2011-05-16
2.2	Workshop	Events: Conferences and Seminars	BOKU	2011-09-15
2.3	Developing of research structure in SY universities	Report		2012-10-31
2.4	Workshop	Events: Conferences and Seminars	TiU	2012-06-16

WP 3, 4 - Content

<i>Lead Partner: HTWD</i>	<i>Type of work package</i>	<i>Tit/e of work package</i>	<i>Start</i>	<i>End</i>
WP.3	Development	Innovation	26	32

3.1	Comparison of innovation	Report		2013-01-31
3.2	Workshop	Events: Conferences and Seminars	AU	2013-01-31
3.3	Developing of innovation transfer system	Report		2013-05-31
3.4	Workshop	Events: Conferences and Seminars	CULS	2013-05-31

<i>Lead Partner: ALBA</i>	<i>Type of work package</i>	<i>Tit/e of work package</i>	<i>Start</i>	<i>End</i>
WP.4	Development	Triangle of education, research and innovation	5	36

4.1	Development of the triangle system	Report		2013-09-30	International level
4.2	Workshop	Events: Conferences and Seminars	TiU	2012-04-30	International level

Workplan

Deliverable N°	Activities	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
1.1	Kick-off Workshop				DAM																																
1.2	Comparison of higher education systems	XO	XO	XO																																	
1.3	Workshop				DAM																																
1.4	Development of higher education structur for Syria				XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO																				
1.5	Workshop								TUD																												
1.6	Definition of the modules for the new education				XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO																				
1.7	Developing of teaching materials				XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO																				
1.8	Quality Management and Accreditation				XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO																				
1.9	Workshop															ALBA																					
1.10	Developing of professiopnal training course																XO	XO	XO	XO	XO	XO	XO	XO	XO	XO											
1.11	Workshop																											AU									
2.1	Comparison of research to quality and quantity						XO	XO	XO	XO	XO	XO	XO																								
2.2	Workshop												BOKU																								
2.3	Developing of research struktur in the univeristies													XO	XO	XO	XO	XO	XO	XO	XO	XO															
2.4	Workshop																					TIU															
3.1	Comparison of innovation																									XO	XO	XO	XO								
3.2	Workshop																											AU									
3.3	Developing of innovation transfer system																												XO	XO	XO	XO	XO				
3.4	Workshop																																CULS				
4.1	Development of the triangle system					XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO
4.2	Workshop																					TIU															
5	Internal and external Dissiminationdissemination																									XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO
6	Realization and Validation of new structures	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO
6.3	End Meeting																																			DAM	
7	Monitoring	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO	XO
8	Project Coordination	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O

Travel Activities

Deliverable	from	to	Month	Reason
1.1 + 1.3	EU	DAM	4	Kick-Off workshop + 2 nd workshop
1.4	SY	URO	4-16	Site visit & symposium
1.5	EU/SY	TUD	8	3 rd Workshop
1.6	EU	MHE	4-16	Coordination & symposium
1.9	EU	ALBA	16	4 th Workshop
1.11 + 3.2	EU	AU/MHE	28	5 th Workshop + 8 th workshop
2.2 + 2.3	EU/SY	BOKU	12	6 th Workshop + symposium
2.4 + 4.2	EU	TiU	22	7 th Workshop + triangle symposium
3.4	SY	CULS	32	9 th Workshop
6.1	SY/EU	EU	1-36	Implementation roundtrip site visits
6.3	EU	DAM	36	Final meeting symposium
8.1	TUD	DAM, ALBA, UA, TiU, BOKU, CULS, UO, URO	1-36	Coordination meetings

Deliverables 1-2

<i>Deliverable N°</i>	<i>Title</i>	<i>Type or nature of deliverable</i>	<i>Language</i>	<i>Delivery Date</i>	<i>Dissemination level</i>
1.1	Kick-off Workshop	Events: Conferences and Seminars	AR, EN,	2011-01-17	International level
1.2	Comparison of higher education systems	Report	EN,AR,	2011-01-17	International level
1.3	Workshop	Events: Conferences and Seminars	EN,AR,	2011-01-17	International level
1.4	Development of hi. education structure for Syria	Report	EN,AR,	2011-05-16	International level
1.5	Workshop	Events: Conferences and Seminars	EN,AR,	2011-05-16	International level
1.6	Definition of the modules for the new education	Report	EN,AR,	2011-12-15	International level
1.7	Developing of teaching materials	Report	EN,AR,	2011-12-15	International level
1.8	Quality Management and Accreditation	Report	EN,AR,	2011-12-15	International level
1.9	Workshop	Events: Conferences and Seminars	EN,AR,	2012-01-31	International level
1.10	Developing of professional training courses	Report	EN,AR,	2012-10-31	International level
1.11	Workshop	Events: Conferences and Seminars	EN,AR,	2012-10-31	International level
2.1	Comparison of research to quality and quantity	Report	EN,AR,	2011-05-16	International level
2.2	Workshop	Events: Conferences and Seminars	EN,AR,	2011-09-15	International level
2.3	Developing of research structure in SY universities	Report	EN,AR,	2012-10-31	International level
2.4	Workshop	Events: Conferences and Seminars	EN,AR,	2012-06-16	International level

Deliverables 3-8

<i>Deliverable N°</i>	<i>Title</i>	<i>Type or nature of deliverable</i>	<i>Language</i>	<i>Delivery Date</i>	<i>Dissemination level</i>
3.1	Comparison of innovation	Report	EN,AR,	2013-01-31	International level
3.2	Workshop	Events: Conferences and Seminars	EN,AR,	2013-01-31	International level
3.3	Developing of innovation transfer system	Report	EN,AR,	2013-05-31	International level
3.4	Workshop	Events: Conferences and Seminars	EN,AR,	2013-05-31	International level
4.1	Development of the triangle system	Report	EN,AR,	2013-09-30	International level
4.2	Workshop	Events: Conferences and Seminars	EN,AR,	2012-04-30	International level
5.1	Internal dissemination	Other products	EN,AR,	2013-03-31	National level
5.2	External dissemination	Other products	EN,AR,	2013-09-30	International level
6.1	Realisation of new structure	Methodology	EN,AR,	2013-09-30	National level
6.2	Validation of new structures	Methodology	EN,AR,	2013-09-30	International level
6.3	End meeting	Events: Conferences and Seminars	EN,AR,	2013-09-30	International level
7.1	Internal and external monitoring	Methodology	EN,AR,	2013-09-30	International level
7.2	Inter project coaching	Events: Conferences and Seminars	EN,AR,	2013-09-30	International level
8.1	Project Coordination	Other products	EN,AR,	2013-10-14	Institution level

Vielen Dank für Ihre Aufmerksamkeit

Many thanks for your attention

شكراً جزيلاً لحسن إصغائكم