

Lessons Learned from Development Partnerships with the Private Sector (DPP) in the Water Sector of the MENA Region

on behalf of
Water Programme GIZ, Jordan
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1.) Introduction

The aim of the report is to describe and analyse the lesson learned from Development Partnerships with the Private Sector (DPPs) in the water sector of the MENA region.¹ DPP (formerly known as Public-Private Partnerships, PPPs) is a development cooperation measure, which complements Germany's strategy in tackling the challenges in one of the scarcest water regions in the world. Throughout the report the term DPPs will refer only to projects financed by the German government and implemented by GIZ.

All countries in the region (except Lebanon) have a per capita water availability of below 1,000 m³ per annum and are therefore classified as water scarce. As a consequence, many of these countries exploit their water resources beyond sustainability and hence consume resources at the expense of future generations. It is expected that climatic changes will further aggravate this situation. Scientific research predicts higher temperatures, increased precipitation variability, and higher evapotranspiration rates. High population growth rates will further increase the water scarcity especially in countries that are already the scarcest water regions today (Palestinian Territories, Jordan, Yemen). In addition, the region suffers from structural obstacles with regard to water governance. Virtually in all of the countries in the region, the water sector is highly political, which is the reason for maintaining highly inefficient and unsustainable water use patterns, especially in agricultural irrigation.

DPP is one possible instrument to introduce innovative technologies or management mechanisms to the MENA region that can contribute to meet its challenges. The German government aims to increase the share of DPPs in Development Cooperation, which in turn offers opportunities to the partner countries as well as to European companies.

The purpose of this report is to analyse DPPs from the perspectives of the three partners. The main focus is on success factors, such as certain attributes, characteristics, procedures and capacities, that, for instance, an international company should possess in order to successfully implement a DPP. Therefore, DPPs from the last five years were analysed. This included the examination of reports and interviews with responsible persons both from private companies (international and local) as well as from GIZ.²

2.) Goals of DPPs and roles of partners

DPPs are usually organised in a triangular structure, in which development cooperation, local partners and international companies join forces to achieve common objectives as well as partner specific objectives.

¹ MENA = Middle East and North Africa. Germany's partner countries in this region are Algeria, Egypt, Jordan, Lebanon, Morocco, the Palestinian Territories, Syria, Tunisia and Yemen.

² An anonymised list with the companies and GIZ-representatives that were interviewed can be found in Annex 2.

The main objectives for the country/the local partner are:

- Gain access to a certain technology
- Get trained in using, maintain and/or further develop these technologies
- Introduce new management mechanisms to the country
- Strengthen the local private sector by encouraging them to collaborate with European companies

The main goals for European companies:

- Demonstrate its technologies in a particular country in which they were not known before
- Gain experiences in applying its technologies under local conditions
- Build networks in a particular country
- Open new markets
- Get connected to local companies

The main goals for development cooperation:

- Introduce innovative technologies into the country that can contribute to the overall goals of development cooperation
- Ensuring the sustainability of projects by knowledge transfer
- Introduce new management mechanisms into the country
- Improve the human capacities of local partners (both public and private)
- Open up additional financial resources from the private sector

From these different goals it is obvious that the roles of the three partners in a DPP differ. The international company is supposed to provide:

- Technical equipment (if the DPP includes the installation of such)
- Training for maintenance and operation (e.g. materials, trainers, training devices, etc.)
- Technical know-how during installation phase
- Willingness to share knowledge with local partners

The local partner is supposed to provide:

- Legal framework in which the project can be implemented
- Land or suitable project location
- Suitable staff to be trained
- Supervision and/or construction works
- Financial contribution, if possible

Development cooperation is supposed to provide:

- Start-up by connecting local partners and the European company
- Funding
- Support to the company with application and reporting procedures
- Support during preparatory processes, e.g. finding suitable locations
- Process facilitation (communication, administrative etc.)

3.) Overview on DPPs

The most striking factor when analysing data on DPPs in the MENA region is the concentration on Jordan. Out of the 15 DPPs analysed, 11 took place in Jordan. Hence, this report deals indirectly in large part with the question of why Jordan is especially suitable for DPPs.

In terms of financial volume, most DPPs are rather small, with 14 out of 15 ranging between 190.000€ and 430.000€. The vast majority (12 out of 15) is close to being equally funded by public donors and the private company (both public and private share range between 45% and 55%). However, in 14 out of 15 cases, the private share is slightly higher than the public one. Only 4 out of 15 include some third party funding which ranges between 6% and 11%.

The projects are very consistent regarding their duration; 12 out of 15 of them took between 12 and 24 months.

The sectorial concentration is clearly focussed on wastewater treatment (eight DPPs) and water supply (six DPPs). In addition, there is one DPP in the field of water resources management. This project currently takes place in Jordan as well as all the DPPs in water supply were/are also located in Jordan. In the field of wastewater two projects are in Morocco, one in Algeria, one in Syria and four in Jordan. For a detailed overview on the DPPs, see Table 1 as well as Annex 1.

The analyses have shown that none of the DPPs is a replication of a former one. However, technical experiences that were made within DPPs found access into other projects in the countries, e.g. constructed wetlands in Syria.

Table 1: Overview on DPPs

Distribution by countries:

- 11 out of 15 in Jordan
- 2 in Morocco, 1 in Algeria, 1 in Syria

Financial aspects:

- 14 out of 15 between 190.000€ and 430.000€ total volume
- 12 out of 15 public and private share is between 45% and 55%
- 14 out of 15 private share is bigger than public one
- 4 out of 15 contain third party funding (between 6% and 11%)

Duration:

- 12 out of 15 take between 12 and 24 months

Sectoral concentration:

- 8 in waste water treatment
- 6 in water supply
- 1 in water resources management

When focussing on the companies involved in the DPPs, one can consider that the majority falls into the category of big companies³ without being really big corporations in that category. Eight of the 11 companies, which were analysed have more than 250 employees and/or a turnover of more than 50 Mio. €. Out of these eight, five employ more than 750 people and have a turnover of more than 100 Mio. €.

There were three small and medium-sized companies involved in DPPs in the last five years that range between 30 and 70 employees and had a turnover of less than 50 Mio. € (see Table 2).

The experience with DPPs was mixed: Half of the companies interviewed did not have experience with this measure before. However, all of them stated that they are willing to further invest in this type of project. Half of the companies were able to get new projects started that built on the experiences and personal network established within the framework of DPPs. In addition, the DPP can be used as a reference project in tendering processes for other international projects, e.g., at the Gulf.

³ According to the ranges used by the European Commission small and medium size companies have less than 250 employees and a turnover of less than 50 Mio. €.

Table 2: Overview on companies

- 3 small and medium-sized companies
- 8 big companies of which 5 have more than 750 employees and more than 100 Mio. € turnover
- 4 of 8 companies were not involved in DPPs before
- all companies interviewed aim at being part of further DPPs (if they are not already)
- 4 of 8 companies were part of later projects as a result of the DPP

4.) Success factors for DPPs

In the following section success factors for DPPs, i.e. certain characteristics of a project or the partners involved that make it more likely to succeed, will be elaborated. Still, one must bear in mind that the three partners might assess the success of a DPP differently as they might follow different objectives. Therefore, success factors will be discussed separately; according to the perspectives of the three partners.

4.1) Success factors at the country level

The geographical distribution of DPPs in the MENA region has shown a strong concentration in Jordan. When digging for the reasons of this concentration, certain structural features of Jordan come into mind. The political culture of the country is generally quite open towards the participation of the private sector. In particular, the water sector has had vast experiences with private companies taking over certain functions that are reserved for public organisations in other countries. This opens up opportunities for innovative mechanisms in the framework of development cooperation. The success of already implemented DPPs built up trust among decision makers and act as a showcase. In Jordan, the rule of law is fully established, which provides the necessary security for economic activities. This goes hand in hand with a relatively low level of corruption,⁴ which has proven to be a key factor when it comes to facilitating business. It is obvious that these structural factors are difficult – if not impossible – to influence by development cooperation. Still they are key in order to explain Jordan's success in the field of private sector participation. One could presume that the revolutions in the Arab world might lead to strengthening these factors in other countries as well, at least in the long run. For DPPs it is relevant that structural factors correspond with other success factors discussed further below in the way that the weaker the

⁴ Jordan is ranked 50th in Transparency International's 2010 Corruption Perception Index which classifies it as the least corrupt of all MENA-countries.

structural factors are, the more important other factors (e.g. a good process facilitation by development cooperation) will become.

Due to the general openness towards the private sector, innovative management mechanisms, e.g. in the field of human resources, are possible to be implemented in Jordan. One installation in the framework of a DPP was operated and maintained by public servants under the supervision of a local private company. This arrangement made it possible for the employees to get performance based incentives. These payments constituted an addition to their salary without losing the social security benefits of public service.

By now, Jordan officials have had good experiences with DPPs and are actively promoting this instrument. Starting from certain specific challenges, they address GIZ to find out if there are German companies that can deal with the task. This active demand from the partner's side is certainly a success factor for any DPP and indicates that DPPs are considered fruitful for the country. Jordanian experts have a say in regional forums and the country is able to make its voice heard when it comes e.g. to regional standards. DPPs provide the country with pilot projects that have a lighthouse character and play a role in the regional perception of Jordan's water sector as being innovative.

The good experiences with DPPs are also the reason why the Jordanian administration has given the responsibilities for DPPs to a particular unit at the Water Authority of Jordan (WAJ). The Performance Monitoring Unit (PMU) is in charge of all DPPs and has a wider perspective on the projects than only the technical side. As one GIZ-official put it: "They see DPPs as learning instruments, not only as technical instruments."

Financial contribution from the partner's side has also proven to be an important success factor. Just like in other development projects, a substantial contribution from the partner emphasises the partner's demand and creates ownership. This participation can materialise, for instance, in the provision of land for the project and/or in construction works.

A further characteristic that makes Jordan especially suitable for private sector participation is its reputation as a stepping-stone for the markets of the Gulf countries. German companies assessed their involvement in DPPs in Jordan as being very valuable references and decisive for getting into business in the Gulf.

Table 3: Success factors on country level

- Structural features
 - Rule of law
 - Low corruption
 - General openness towards private sector participation
- Innovative management instruments can be used
- Local partners perceive DPPs as learning instruments
- Active demand for DPPs
- Financial contribution of the local partners
- Reputation of the country as a stepping-stone for further markets

4.2) Success factors at the company level

In contrast to the structural factors outlined above, choosing a company that fits into the following system of characteristics can influence success factors at the company level. However, it is not the aim of this study to argue for an exclusion of companies that do not fit into that pattern. Rather this study aims at raising awareness for the relevance of proved success factors.

When looking at the description of the companies involved in DPPs, one clearly realises that big companies outshine small and medium-sized enterprises (SMEs). At the same time, these big companies are mainly not big corporations, but former SMEs that grew over the last decades. Hence, they are big enough to operate worldwide but still small enough to care about small projects. That is probably what a GIZ-official referred to when he used the German term *guter Mittelständler* as preferred size for a partner company. This does not mean that SMEs are not suitable partners for DPPs, but it is obvious that a certain size makes it easier for the company to handle the particular requirements of DPPs, e.g. the application and reporting procedures. At the same time, size often goes hand in hand with experience in foreign countries. This is certainly very valuable, as it involves language skills as well as the capacity to conduct business in different cultures. If SMEs are chosen for DPPs, they will need more support by development cooperation, which means more effort for the team. But such additional effort might be a meaningful investment, as SMEs often have specialised know-how and innovative technologies, which make them a valuable partner in DPPs.

One success factor for DPPs is the presence of the company in the country. Intermittent supervision might be an option if the project implemented is a standard one and local staff possesses a certain level of skills. Very often, however, intermittent supervision seems not to be feasible. This is especially the case when the partner country is characterised by difficult structural conditions and the project's challenge is not only technical, but also political. A company's ability to

maintain a permanent facility is an important asset, as experience has shown. Such permanent representation of the company is also valuable, as it eases networking. Given that the main objective for companies to engage in DPPs is to open up new markets, networking is crucial. However, permanent representation and intense networking are not free, but must be seen by the company as investments. Also, DPPs as such do not offer direct economic benefits for the company involved; it pays the direct costs at best. But to really open up a new market in developing countries, further investment might be needed, and the company should be prepared to bear these costs.

From the experiences of DPPs over the last five years, one can state that most of them have a strong technological component. Companies that were partners in successful DPPs are often characterised by their high level of technical know-how and the innovative potential of their products. That does not mean that, for example, consulting companies cannot successfully implement DPPs, but it is certainly more difficult to create projects around “invisible contents” like management procedures. Therefore, a combination of innovative technologies with new management tools might be promising.

Table 4: Success factors at the company level
<ul style="list-style-type: none"> • Size of the company: big enough to deliver, small enough to care • Experience in foreign countries • Permanent presence in the country • Willingness and ability to further invest in the new market • Strong technological know-how

4.3) Success factors at the level of Development Cooperation

Development Cooperation plays a crucial role in DPPs, not only as a funding agency, but also as a communication and organisational hub between private and local partners. Their main role can be described as process facilitation. The level of effort put into that task is decisive for the success of a DPP. In order to fulfil this task as good as possible, it is necessary to emphasise that DPPs are no minor activity that can be managed along the way. DPPs are projects themselves that need particular capacities. In Jordan there is one person in the water programme responsible for the cooperation with the private sector. This channelling of human resources has proven to be a success factor for DPPs.

Process facilitation by Development Cooperation is especially important when other success factors are lacking. The above-discussed structural factors in a country might not be favourable for DPPs, but experienced development specialists could overcome them through intensive

networking. In the same way a company might not have extensive experience in developing countries, Development Cooperation can enable younger or smaller companies to participate in DPPs with permanent communication channels.

GIZ has a vast volume of knowledge about the partner countries. This knowledge enables the organisation to develop ideas for DPPs much better than individual companies could. Therefore, a strategy of actively approaching companies and discussing particular challenges with them is highly advisable. Trade fairs and the like might be appropriate forums for getting in contact with companies.

When a decision for DPPs in general is taken within a country programme, it has proven to be successful to highlight the importance by including DPPs in the programme goals.

GIZ's headquarters creates an additional success factor. The office for cooperation with the private sector is an important hub that can be addressed by German companies as well as by GIZ programmes in developing countries. Most companies interviewed were happy with the level of support they received both from GIZ's headquarters and from the country programmes. Still, it must be considered that only companies were interviewed that were already part of a DPP. This study cannot estimate whether companies did not apply for DPPs because they were feeling lost in the Development Cooperation's particular procedures.

Table 5: Success factors at the level of Development Cooperation

- DPPs must be acknowledged as full-fledged projects, sufficient human resources must be allocated
- DPPs should be part of the programme goals to emphasise their importance
- Process facilitation must respond to the local situation as well as to the needs of the company
- DC should actively address European companies and discuss ideas for DPPs, instruments like trade fairs can be used
- GIZ's headquarters as well as the country programmes provide valuable support to companies in order to deal with application and reporting procedures

5.) Recommendations for Development Cooperation

The analyses have shown that the success of DPPs depend both on structural factors in the partner country as well as certain attributes and behaviours of the involved company and the country programme. These latter can and should be influenced by development cooperation. It is important to emphasise that this study does not aim at defining success factors as knockout criteria. The aim is rather to raise awareness on the relevance of these factors and encourage the partners, especially Development Cooperation, to actively work on them.

- DPPs cannot be implemented along the way. If a decision is taken to make DPPs part of a development programme, it is advisable to include them in the programme goals.
- Sufficient human resources should be allocated to private sector cooperation
- Process facilitation is a permanent task. The more difficult the structural conditions in the country are, the more important process facilitation becomes.
- Financial contribution from the partner organisation emphasises their demand and creates ownership throughout the project cycle.
- Development cooperation is well informed about the challenges in the partner countries. Companies need to be addressed actively.
- If companies are small and/or inexperienced in international work, they need additional support both from Development Cooperation in the partner country as well as from headquarters.
- Companies should be encouraged to invest in market opening, e.g. by delegating staff for longer periods in the partner country.

Annex 1: Data on DPPs

#	GIZ ID number	DPP Number	Short Title	Partner	Duration	Financial volume	Contact GIZ
Algeria							
1	04.1003.5-302.14	2005-044	Humification, use and marketing of sludge	IPP Consult Ingenieurgesellschaft mbH, Barienroder Str. 23, 31139 Hildesheim Mr. Pabsch, Tel. +49-(0)5121-2094-0	01.12.2005-28.02.2009	128392,96 (public); 144.545,00 (private)	Breyer, Charlotte/ Sorg, Friederike
Jordan							
1	04.1003.5-302.16	2005-129	Improvement O+M water, wastewater network	S & P Consult GmbH, Konrad-Zuse-Str. 6, 44801 Bochum Mr. Robert Stein, +49-(0)234-5167113	15.12.2005-31.07.2007	175426 (public); 186.021,00 (privat); 40.000,00 (third)	DPP Office Eschborn/Dieter Rothenberger
2			Maintenance and repair of submersible pumps at the central workshop (WAJ)	WILO EMU GmbH, Heimgarten-str. 1- 3, Hof D-95030 Mr. Amer Mokbel, Tel: +4923141026162, email: amer.mokbel@wilo.com	01/2006 - 05/2007	221,104 € (Private: 50%, Public: 50%)	Uwe Stoll/Dieter Rothenberger
3	2006.2017.9		Effective pressure management for water loss reduction in water networks	VAG Armaturen GmbH, Carl-Reuther-Str. 1, 68305 Mannheim, Mr. Lutz Happich +496217491240, l.happich@vag-group.com	15.11.2006 – 31.05.2008	288,059 € (Private: 50%, Public: 50%)	Uwe Stoll/Dieter Rothenberger

4	04.1003.5-302.32		Sustainable solid waste and recycling for the production of organic fertilizer	Kommunalservice Schramm GmbH (KMS), Dierkower Damm 29, 18146 Rostock Mr. Ingo Schramm, Tel. +49 (0)381-609150	09/2007 - 07/2009	374,000 (Private: 51%, Public: 49%)	DPP Office Eschborn/Dieter Rothenberger
5			Water loss reduction by improving operation and maintenance	Dorsch International Consultants, P.O. Box 941308, Al Kaown Street, 11194 Amman Stephan Kugler, Phone: +962-79-5616114, Stephan_Kugler@dorsch.com.jo	09/2007-09/2009	330, 668 € (Private: 50%, Public:50%)	Guy Honore/Dieter Rothenberger
6	04.1003.5-501.02	2007-073	Modern technologies for grey water reuse in Amman and at the Dead Sea	PONTOS GmbH/Hansgrohe, Auestr. 5-9 D-77761 Schiltach Mr. Michael Bunkus, Tel.: +49 (0)7836 51-1932, e-mail: Michael.Bunkus@hansgrohe.de	10/2008 - 10/2010	366,500 € (private: 55%, public: 45%)	DPP Office Eschborn/Dieter Rothenberger
7			Optimization of pumping station operations, repair and management	WILO EMU GmbH, Heimgartenstr. 1- 3, Hof D-95030 Mr. Amer Mokbel, Tel: +4923141026162, email: amer.mokbel@wilo.com	10/2009 - 01/2011	299,100 € (private:50%, public: 50%)	Dieter Rothenberger
8	04.1003.5		Pilot Installation of a Telemetric Water Resources Observation Network	SEBA Hydrometrie, Gewerbestr. 61a, 87600 Kaufbeuren Mr. Wolfgang Zasche, +49 (0) 8341-96480	01.10.2010 - 30.09.2012	217,000 € (53% private, 47% public contribution)	DPP Office Eschborn/Dieter Rothenberger
9			Capacity development for sustainable use of solar-powered water treatment	Kinetics Germany GmbH, Am Dillhof 5, 63863 Eschau-Hobbach	31.12.2010 – 31.12.2012	191,800 € (49% private, 45% public,	DPP Office Eschborn/Dieter Rothenberger

				Mr. T.Burger +49 (0)160-98937396		6% third party	
10	2010.224 2.5		Management of Water Resources Programme - Improving operations of wastewater treatment plants	<ul style="list-style-type: none"> Engicon, 128 Ahmad Bin Hanbal Street P. O. Box 926963 Amman, 11190 Mr. Tarek Zuriekat, Tel: +962 64602120 Fax: +962 646021130 Mobile: +962 796302345 E-mail: tzuriekat@engicon.com Huber SE Industriepark Erasbach A1 D-92334 Berching 	01.06.2011 - 31.05.2013	385,127 € (50% private, 50% public)	DPP Office Eschborn/Dieter Rothenberger
11			Optimised operation of pumping stations	<ul style="list-style-type: none"> Stulz-Planaqua GmbH Hemelinger Hafendamm 18 28309 Bremen Wilo-EMU GmbH, Heimgartenstr. 1- 3, Hof D-95030 Mr. Amer Mokbel, Tel: +4923141026162, email: amer.mokbel@wilo.com VAG Armaturen GmbH Carl-Reuther-Str. 1, 68305 Mannheim Mr. Lutz Happich +496217491240, l.happich@vag-group.com 	Planned	750.640,00 € (74,25% Private, 25,75% Public)	DPP Office Eschborn (Ernst Sykora)/Dieter Rothenberger
Morocco							
1	04.1003. 5-302.45	2007 - 109	Establishment of a training and qualification	TÜV Rheinland Bildung und Consulting GmbH,	15.12.2007 – 15.02.2010		Sorg, Friederike, PPP-Office

			programme in the field of solid waste management and recycling	Rhinstrasse 46, 12681 Berlin Mr. Carlo Humberg, +49 (0) 221 - 8063096			
2	01.1003.1-402.06	2004-055	Improvement of communal solid waste management	ICP - Ingenieurbüro Prof. Czurda und Partner GmbH, 76229 Karlsruhe	01.08.2004-31.05.2006	104450 (public); 123.800,00 (private); 200.000,00 (third)	Nadja Broich, PPP-Office
Syria							
1	04.1003.5		Biological/mechanical wastewater treatment	W. L. Gore & Associates GmbH, 85640 Putzbronn	01.12.2001-31.08.2007	151444 (public); 327.227,00 (privat); 51.129,00 (third)	Dirk Schäfer

Annex 2: Short Descriptions of DPPs

#	Description
Algeria	
1	The aim of the common DPP is the improvement of agricultural soils in selected regions of Algeria by the application of humified sewage sludge as fertilizer.
Jordan	
1	The aim of the DPP-project is to introduce a demand-oriented and cost-optimised strategic planning tool into O&M, reconstruction and

	extension of the pipeline network of the public water authority (WAJ). The experiences from the pilot project will be the basis therefore.
2	Improvement of the quality and speed of workshop's repairs and maintenance activities. Development and implementation of modern processes and integration into an approach for a Micro-PSP
3	Implementation of a state-of-the art IT-based pressure management system in Ain Al Basha. Data collection and processing in regard to pressure reduction and water saving. Training of local staff for pressure management and maintenance and repair of valves and fittings in supply networks
4	The aim of the project is to introduce a solid waste management concept which allows for the re-use of organic waste as organic fertilizer. This is accompanied by awareness-raising and training that includes techniques of composting, differences in quality of composts and different fields of usage. One treatment plant will be set up for demonstration purposes in order to produce compost and fertilizer under local conditions. The final products shall be applied on nearby agricultural areas on a pilot scale. The whole process will be accompanied by a local university to ensure a profound data basis for further guidelines on treatment of organic waste. These guidelines will be the basis for later regulations by the responsible ministries. Furthermore an economically viable operation model for such treatment plants will be developed and presented.
5	Issuing of water balance (half-yearly basis) to quantify water losses. Assistance in repairs of water networks, implementation of new management processes, implementation of improved repair material, development of performance-based Micro-PSP approach for water loss reduction
6	Promotion of new water saving technologies, namely in-house reuse of grey water, instalment of two pilot treatment plants in Jordan, support and establishment of a national guideline for reusing grey water, revision of the building and plumbing codes, training of local staff, awareness-raising, integration and grey water reuse in the curriculum of local universities
7	Part of the IEEE project funded by BMU. Testing of an outsourcing model for pumping stations in order to improve energy efficiency and operation of pumping stations in Jordan. Pilot project was established at Ebqureh pumping station. Instalment of new pumping equipment, monitoring and documentation of results, training of WAJ staff in operation and maintenance, implementation of optimization processes for pumping stations, development of a Micro-PSP concept for pumping stations
8	The aim of the project is to enhance the capacity of the Jordan Ministry for Water and Irrigation (MWI) as a superior planning authority, monitoring and managing the limited groundwater resources of the country. Therefore a telemetric water resource observation network will be installed on a selected pilot site. Standard operation procedures for the continuous running of the network will be defined. Local commercial service providers and MWI employees will be trained on the installation, operation, maintenance, and data management of the network. Project results and experiences will be documented in a manual for decision makers as a concept for future outsourcing of the installation, operation and maintenance of a national telemetric water resource observation network.

9	Capacity development in the field of solar-powered water treatment plants. Pilot plant is established at the King's Academy in Amman, training of operation and maintenance staff, development of operation manuals and lecture material, documentation of experiences and data for the pilot plant for future up-scaling, close cooperation between local engineers and universities
10	Aim of the DPP is to establish know-how in the optimization of wastewater treatment plants with regard to electricity consumption, sludge dewatering and composting
11	By introducing a Micro-BOT approach in the pilot area Wala/Lib, investments and trainings can result in significant increases of energy efficiency during the operation of pumping stations. Additionally, the concept of Energy Contracting will be introduced which will be crucial for the local water authority (Water Authority of Jordan, WAJ) to provide further pumping stations with energy-efficient technology and to run these stations together with the private sector.
Morocco	
1	Aim of the project is to improve the level of knowledge of relevant stakeholders about solid waste management and recycling. Therefore, the current level of professional training will be assessed and a demand-oriented training programme will be developed. Trainings materials will be drafted and translated into French. Trainings shall be conducted in the beginning via the local branches of TÜV Rheinland. Representatives of local associations and lecturers of Moroccan training institutes will be trained as trainers first. This should enable them to provide training on their own later on. To generate a demand for the courses, a locally adapted information and marketing campaign will be developed and implemented.
2	The DPP-project is planned to take 17 months. Its aim is to set up an economically viable development concept for the communities involved on the basis of a pilot trial in the city of Larache. The activities in the framework of this pilot trial include know-how transfer on adapted procedures for the treatment of biological waste, recycling of resources, training of local staff in these areas, sharing knowledge about appropriate technologies and their criteria of use as well as consulting on proper separation of different types of waste. Furthermore, trainings for identification of appropriate procedures for organic waste as well as resources (paper, plastic, glass, metal) will be conducted. These trainings shall also enable the trainees to take decisions about the re-use potentials (e.g. biogas or use as fertilizer) of different types of waste. GIZ is involved in financing and implementing training courses for the different target groups as well as in the development of training and information materials. The company is responsible for project coordination, implementation of training courses, analysing different types of waste and the implementation of trials. The city of Larache contributes by providing the necessary staff with a lorry. The communities involved will provide the necessary locations for composting.
Syria	
1	The aim of this 24-month DPP-project is the introduction of an economically viable waste management system in the village of Al-Salamieh which aims at reducing environmental hazards. Al-Salamieh will be equipped with a mechanic-biological waste treatment plant

that can transform 15.000t of domestic waste per annum into marketable compost. Training and qualification for communal decision makers and local staff are foreseen to ensure the technical and political viability of the plant in the long run. Furthermore, broad information and awareness-raising campaigns for private households are planned as well as for farmers (use of compost). GIZ is involved in financing and implementing the training and qualification activities for the different groups of stakeholders, in the development of training and information materials, in awareness-raising and in supporting the project with contacts in Syria. The company Gore, division solid waste treatment is responsible for setting up the treatment plant, for coordinating the different system components and for adapting it to the local conditions.

Annex 3: List of Organisations consulted

Companies:

- Engicon
- SEBA
- VAG
- S&P Consult
- IPP Consult
- Kinetics
- TÜV Rheinland
- WILO

GIZ:

- Official water programme Jordan
- Official environmental programme Morocco
- Former official water programme Syria
- Official water programme Syria