Ministry of Water & Irrigation
وزارة المياه والري

Strengthening Public Sector Capacity to Mobilize Depollution Investment and Private Sector Participation –

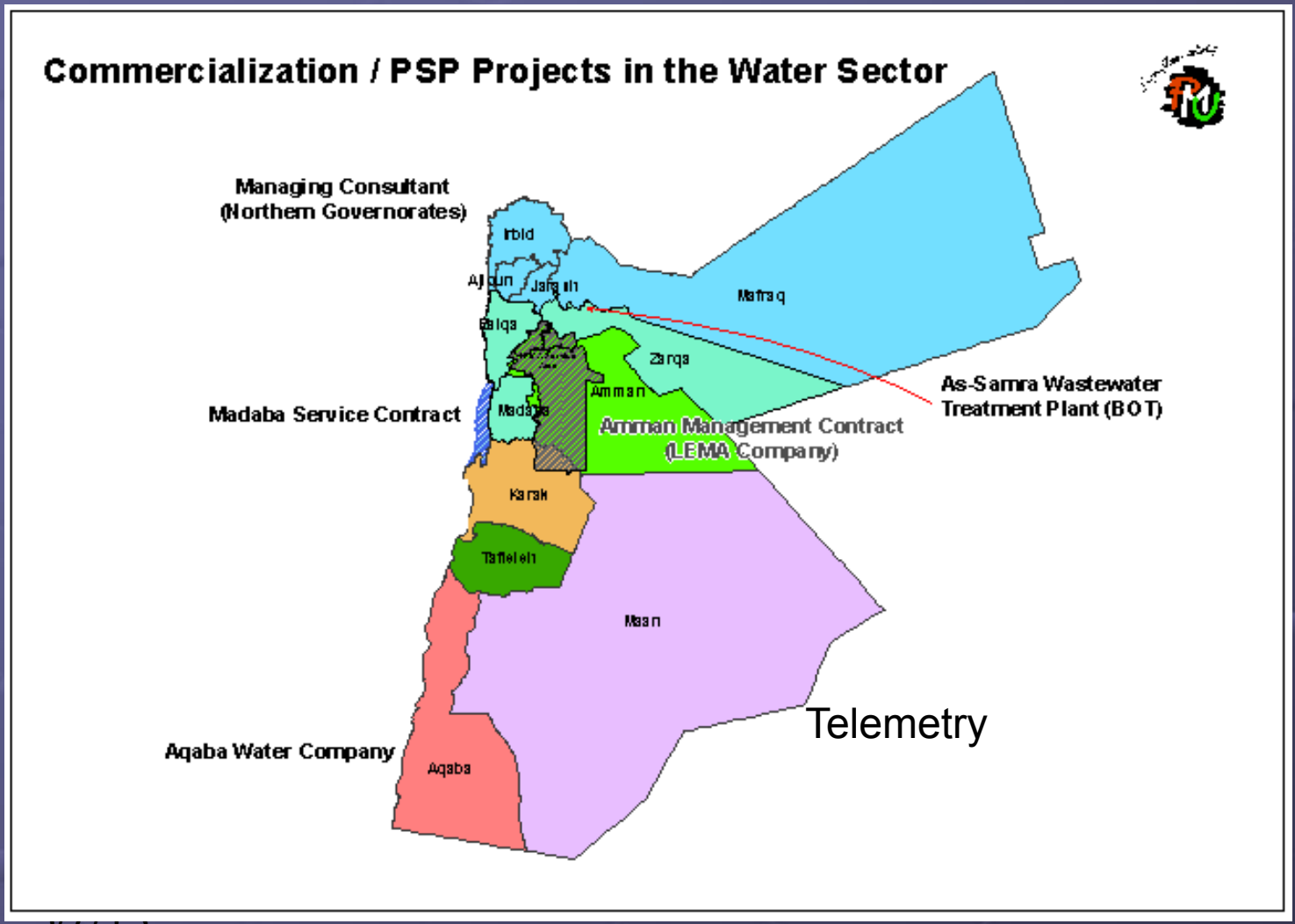
cases/Jordan

3-5 July 2013

European Investment Bank

Luxembourg

PSP in Jordan



General Outlook:

- Efficiency improvements are key: Phasing-in Approaches becoming increasingly important
  - more flexibility; trust-building; better information;
  - But: efficiency improvements depend more on the capability of public partner and willingness to co-operate → Delegation of Authority

  → Commercialisation, outsourcing, etc. required to create awareness and improve capacity before PSP approach

→ Improve efficiency and effectiveness

→ Create success stories: increase revenue, reduce costs and hence strengthen self-financing capacity

→ Create well-performing utilities which are able to attract private capital

Experiences and Trends in Jordan

1. Miyahona, public company, Management Contract
2. Aqaba, public company, Management Contract
3. Yarmouk, public company, Management Contract.
4. BOT WWTP As Samra, BOT Disi
   - → long preparation times
   - → do not solve efficiency and NRW problem in networks, but increase pressure due to increasing bulk water supply costs (Disi)
   - → strong need for urgent improvement in water distribution to customer
5. Micro-PSP in Madaba

DPPs – Examples and Achievements

- Water Loss Reduction through Pressure Management (VAG GmbH)*:* Reduced technical losses by approx. 10%in Ain Al Basha
- Water Loss Reduction through Leak Detection and Repair Management (Dorsch/ SEBA): Reduced technical losses by approx. 10% in Ain Al Basha.
- Energy Saving at Pumping Stations (WILO-EMU/engicon): Reduced energy consumption (30%) in Bakoria Pumping station, more water pumped: savings of approx. 100'000 Euro/a for WAJ
- Modern Greywater Re-use systems in Private Households and Hotels (hansgrohe/Pontos): Reduced freshwater consumption for hotel rooms by 38%; smaller WWTP needed
- Cost reduction at Madaba WWTP (Energy efficiency and sludge management): more than 150'000 JOD p.a.
- Telemetric Applications in Water Resources Management (seba)

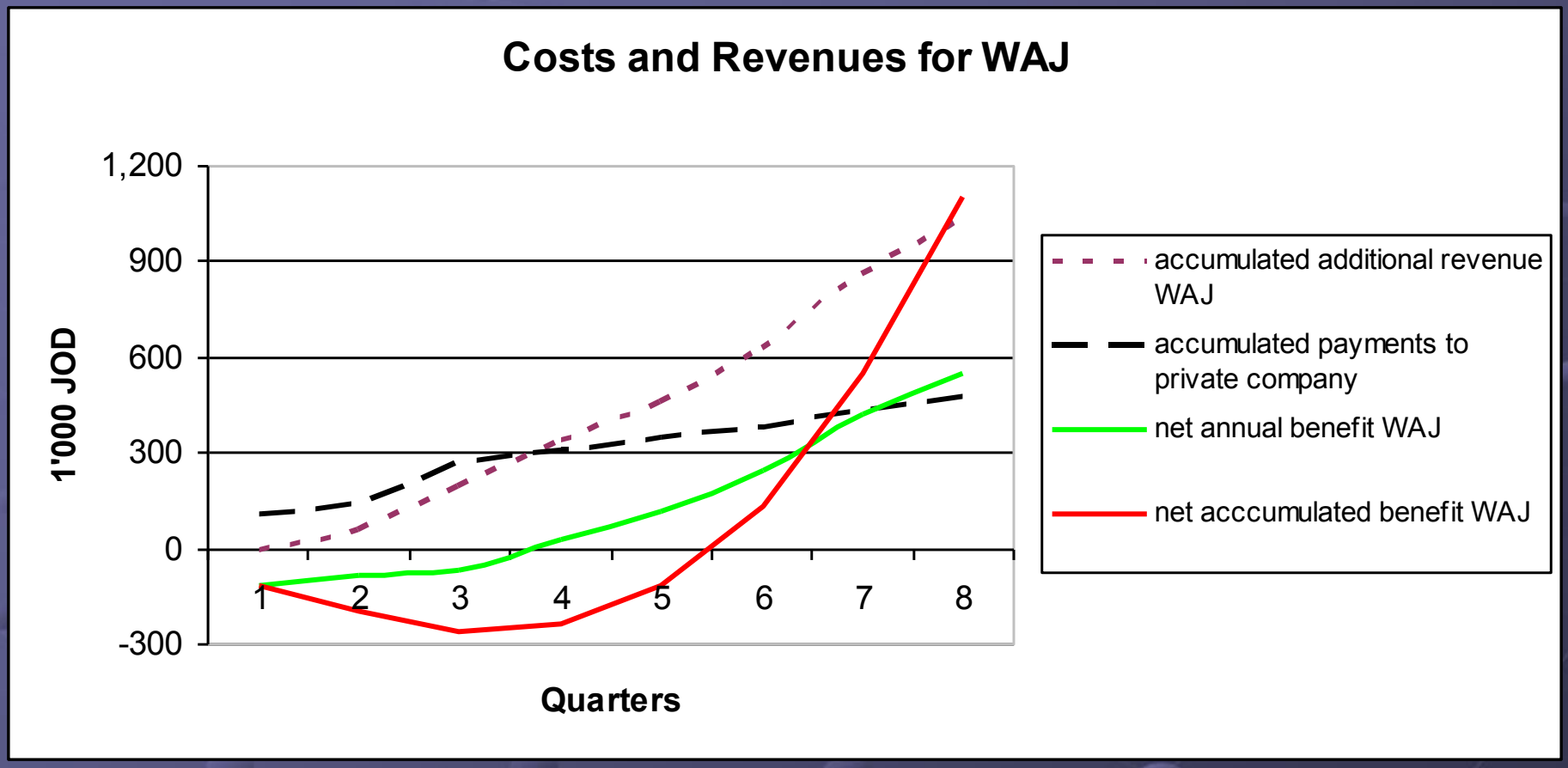
DPPs – Ongoing and planned projects

- Energy Saving and Sludge Dewatering at WWTP Madaba (engicon/Huber), since July 2011, until June 2013
- Solar Powered Treatment of Greywater and Brackish Water (Kinetics, FoEME): November 2011, until October 2013
- Tourism Sector Water and Energy Efficiency Fund (TWEEF): 2012 - 2014
- Microtuneling for Sewage Networks (Bohrtec, 2012- 2014)
- Performance Based Operations and Maintenance Contract Wala/Lib (t.b.c., StulzPlanaqua/WILO, 2013/2014)
- Solar Process Steam in Jordanian Pharmaceutical Industry (t.b.c., Industrial Solar / RAM Pharmaceutics)
- High-efficiency aeration for wastewater treatment plants (t.b.c.)
- Olive mill wastewater treatment (t.b.c.)

Madaba Micro PSP - Objectives

- Improve water and wastewater revenue;
- Reduce customer outstanding amounts;
- Improve customer management efficiency;
- Installation of IT-based customer management system;
- Technical and administrative development of Madaba customer management organisation.

Madaba Micro PSP Results – Benefit for WAJ?



Ministry of Water & Irrigation
وزارة المياه والري

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

DPP-Project
"Pilot Installation of a Telemetric Water Resources Observation Network"
Achievements & Lessons learnt

Ministry of Water & Irrigation
وزارة المياه والري

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

TeWaRON and NaWaROP

- *giz* has been approached by *MWI* 2009 on helping to develop a concept for an implementation of a National Water Resources Observation Programme (**NaWaROP**).

- As an important base element for future water sector management, *MWI* has decided to include a modern Telemetric Water Resources Observation Network facilitating sound data acquisition (**TeWaRON**)

Ministry of Water & Irrigation
وزارة المياه والري

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

DPP-Project

1. General Objective:

"Enhance the capacity of MWI as a superior planning authority in monitoring and managing the limited groundwater resources"

- *Installation of state-of-the-art telemetric monitoring network on pilot-sites*
- *Assess and proof technical applicability / functionality / options for future National Water Observation Programme (NaWaROP)*
- *Intensive capacity building program on hard-/software, O&M, SOP's for MWI-experts*
- *Workshops / Capacity Program shall support MWI to fulfill role as superior planning authority for future activities*

Ministry of Water & Irrigation
وزارة المياه والري

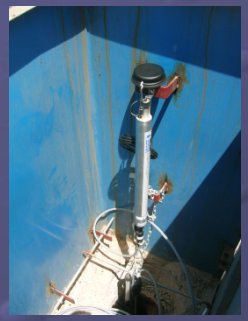
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

DPP-Project

Monitoring Network- 11 fully telemetric monitoring stations consisting of:

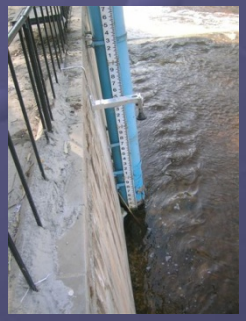
- 7 x Groundwater Monitoring Stations
AD 3014, AE 1003, AL1734, AL 2698, CF1074, F1280, G1346




(6 x water level and temperature, 1 x water level and quality: electrical conductivity, temperature)

- 1 x Wadi Stations (surface water level) AL0060



Ministry of Water & Irrigation
وزارة المياه والري

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

DPP-Project

Monitoring Network-

- 2 x Meteorological Stations (Azraq, Samar)

(wind speed/direction, atm. pressure, solar- radiation, temperature, humidity, precipitation)

- 1 x Rainfall Station (Rooftop of MWI, Amman)

Ministry of Water & Irrigation
وزارة المياه والري

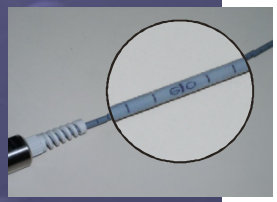
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

DPP-Project

Monitoring Network & Assessories- Mobile Monitoring Equipment:

- Electric Contact Meter (200m cable length)

- Water Quality Dipper KLL-Q2 (200m)



- Mobile Readout Device HDA

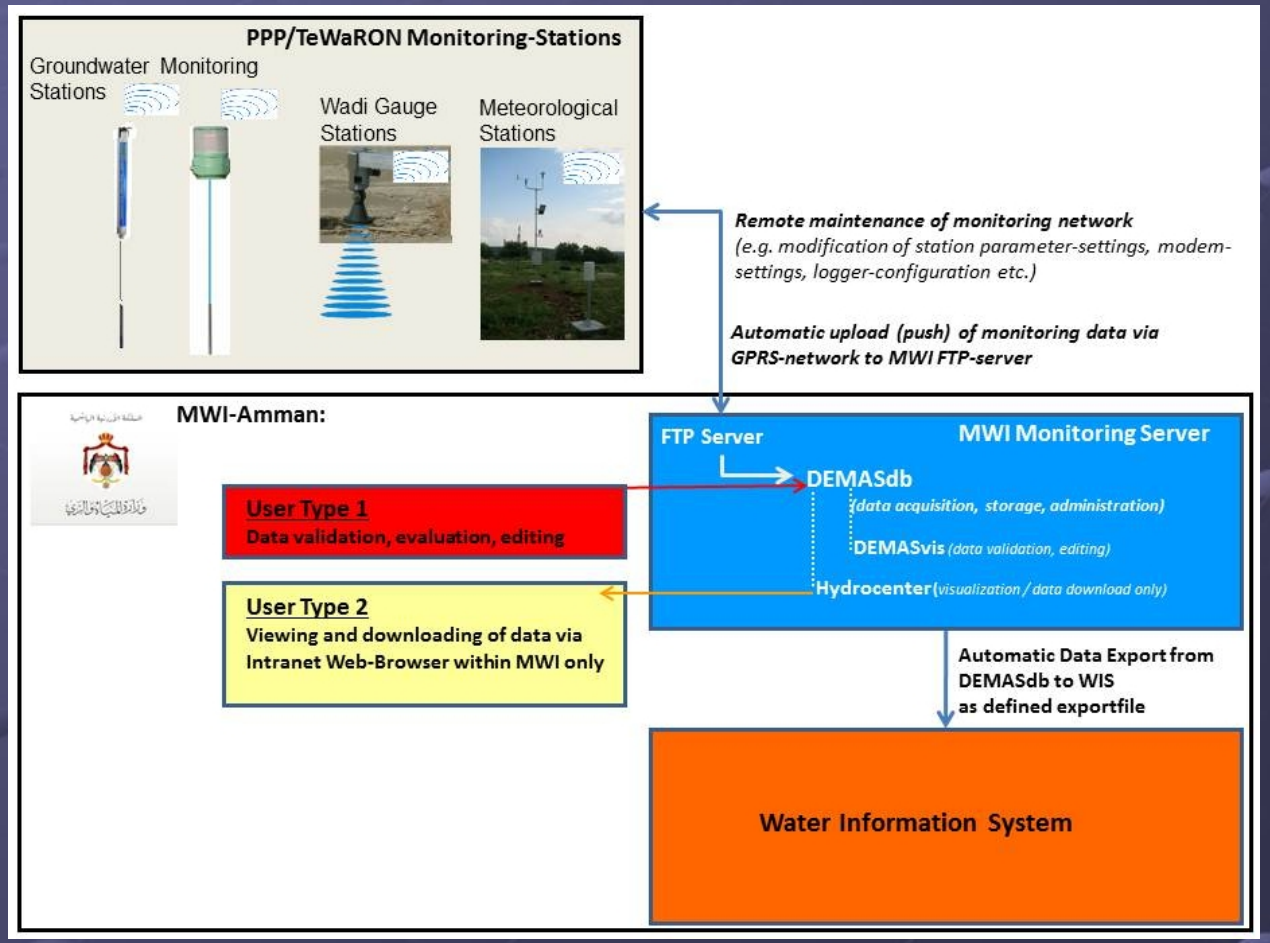
Ministry of Water & Irrigation
وزارة المياه والري

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

DPP-Project

Monitoring Data Management- Integration of DPP network to technically updated Monitoring Software on central MWI-server incl.

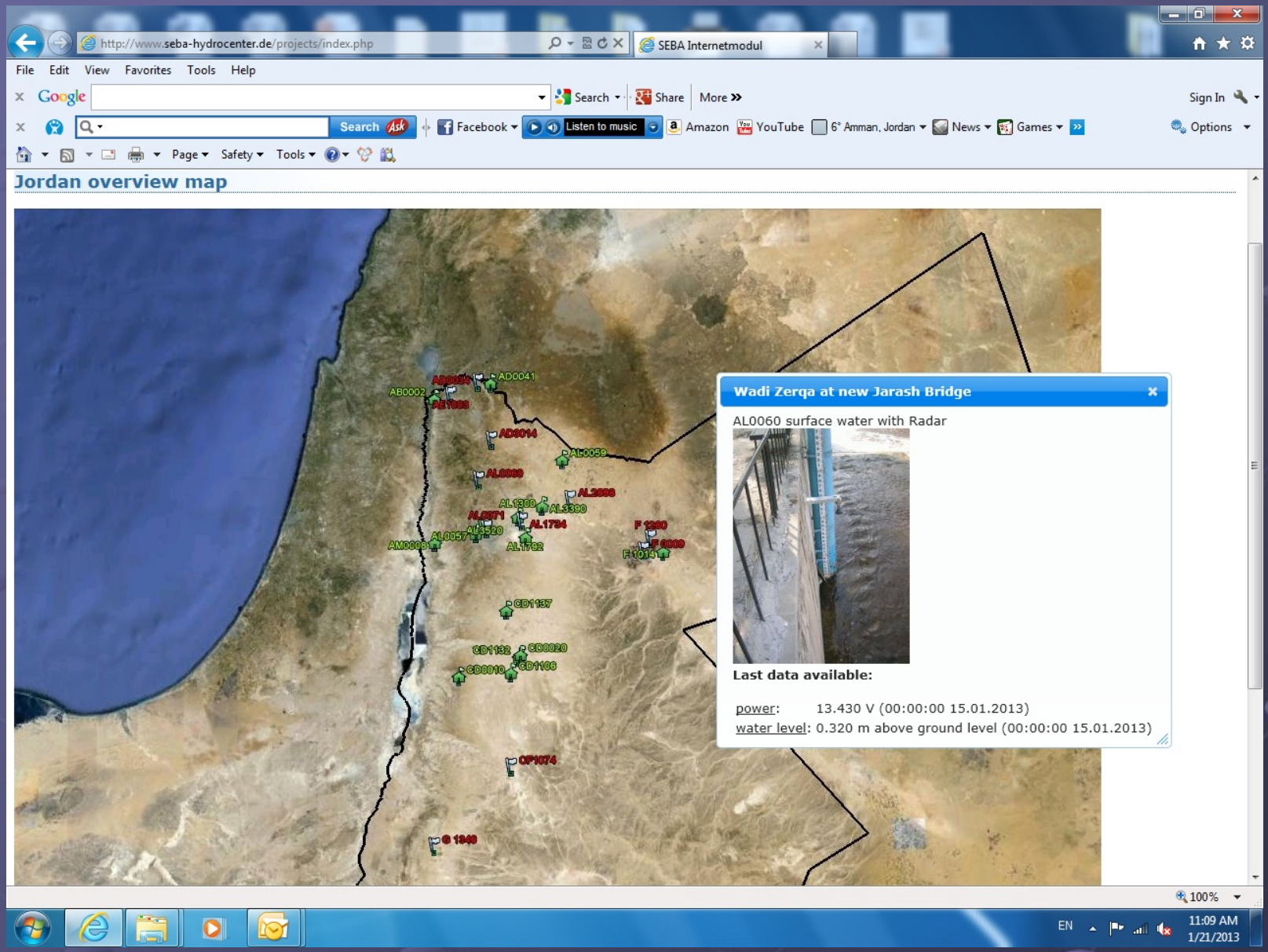
- FTP-server
- DEMASdb (Data Management)
- DEMASvis (Visualization)
- Hydrocenter (web-module)



Ministry of Water & Irrigation
وزارة المياه والري

Web Based Application

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH



Ministry of Water & Irrigation
وزارة المياه والري

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

DPP-Project

Results and Lessons learnt

- Protection-Concept of Monitoring Network
  - **Groundwater Monitoring Stations - no station loss**
    - minor damages at 2 stations by vandalism; antennas inserted into metal protection housing.
  - **Rainfall Station - no station loss**
  - **Meteorological Stations - no station loss**
  - **Wadi Gauge Station - no station loss**

- GPRS-Data-Transfer
  - **network very stable; good connectivity throughout the country**
    - change of providers within an area: from Orange to Zain (Station Awsa 2/Ballila 2)
  - **Groundwater Stations: 2 x data push per day**
  - **Meteorological- /Rainfall-/Wadi Gauge-Station: 12 x data push per day**
  - **No Data Loss – High Data Integrity**
  - **Low Running Costs for GPRS-Data transfer (< 3 JD / month / station)**

Ministry of Water & Irrigation
وزارة المياه والري

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

DPP-Project

Results and Lessons learnt

- Knowledge Transfer/Capacity Building
  - **Regular in-house (MWI) training for MWI-monitoring specialists** on installed monitoring systems incl. logger /modem programming, sensor calibration.
  - **Regular field trainings for standard SOP, O&M-procedures.**
  - **Intense knowledge transfer for MWI – IT section** on data management software DEMAS modules (**DEMASdb, DEMASvis, SEBA Config**) and intranet-web based **Hydrocenter**

Ministry of Water & Irrigation
وزارة المياه والري

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Ministry of Water & Irrigation
وزارة المياه والري

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

TeWaRON: what has been achieved since 2009?

DPP	***TeWaRON***	***BGR/ ESCWA***	***TeWaRON II***	***TeWaRON III***	***TeWaRON***
2010	2010	2011	2011/12	2012 (Tendering)	2012-2017
GIZ	MWI	BGR/ ESCWA	MWI	MWI	KFW
SEBA	SEBA	OTT	Campbell	-	?
7xGW 2xMet 1xRain 1x Discharge	8xGW 2xDischarge 6xMet	11xGW 1xMet	15xGW 5xMet 15xPrec	15xGW 5xMet 10xRain	?
11 stations	16 stations	12 stations	35 stations	30 stations	?
Total= 74				104	?

Ministry of Water & Irrigation
وزارة المياه والري

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Next Steps

August 2013 new project will start (6.4 million EURO)

Funded by KFW.

- Assessment of the program by MWI

-Proposal prepared by MWI to MoPIC

- MoPIC negotiated with German Side

-KFW discussed with MWI Technical Issues and Condensed

-Detailed Assessment Study by Dornier and Following up the implimentation

Ministry of Water & Irrigation
وزارة المياه والري

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

DPP-Project

شكراً لأنتباهكم

Thank you for your attention!