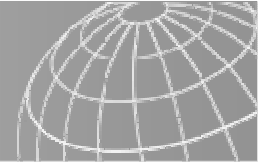


**Sustain Water MED: Network of demonstration activities for sustainable integrated wastewater treatment and reuse in the Mediterranean**

**Dr. Ismail Al Baz**

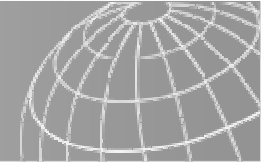
**Deutsche Gesellschaft für Internationale  
Zusammenarbeit (GIZ) GmbH**

**Mediterranean Region and Middle East Division**



## Agenda

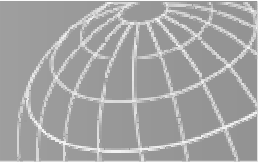
- **GIZ Profile**
- **Objectives of Sustain Water MED**
- **The Consortium Partners**
- **Work Packages of Sustain Water MED**
- **Organisation Structure of Sustain MED**
- **The Pilot Activities**
- **Conclusions**



## The "Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH"

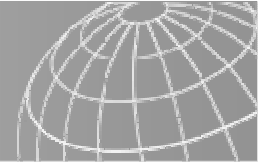
- Since January 1, 2011 **GIZ**, merger out of **DED**, **GTZ** and **InWEnt**.
- **GIZ's purpose** is to **promote international cooperation for sustainable development and international education**.
- **GIZ** is 100% federally owned, public-benefit enterprise, we support the **German Government** to achieve its objectives in the field of **international cooperation**.
- **GIZ** operates in more than **130 countries**, employs more than **17,000 staff** members worldwide.





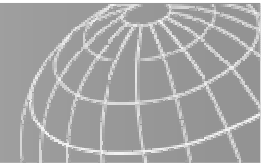
## **Objectives of Sustain Water MED**

- **To promote sustainable water policies and practises**
- **To support integrated approach of sustainable water resources management based on WDM and sustainable use of non conventional water resources**
- **To support adequate and low cost technologies**
- **To develop skills in planning and management at local and national level**

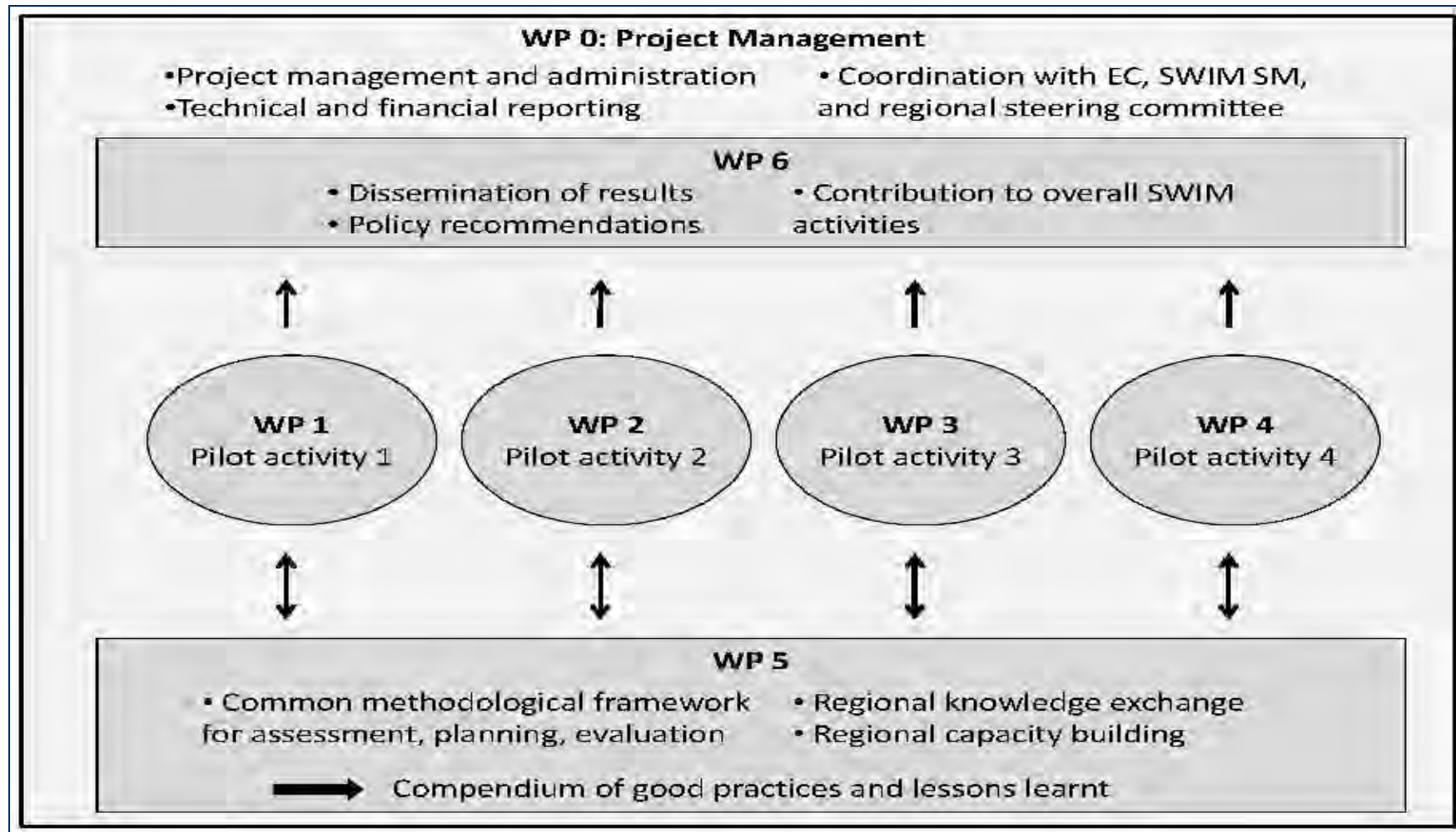


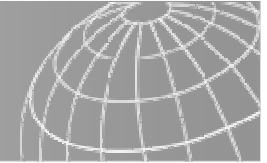
## Partners of Sustain Water MED

1. **GIZ:** *Germany, Lead*
2. **Adelphi Research:** *Berlin, Germany*
3. **ENEA:** *Bologna, Italy*
4. **IUCN:** *International Union for Conservation of Nature, Belgium*
5. **BAU:** *Al Balga Applied University, Jordan*
6. **NRC:** *National Research Centre, Egypt*
7. **ONAS:** *Office National de l Assainissement, Tunisia*
8. **ABH-SMD:** *Agence du Bassin Hydraulique du Souss-Massa et Draa, (State Secretary of Water and Environment, Morocco)*

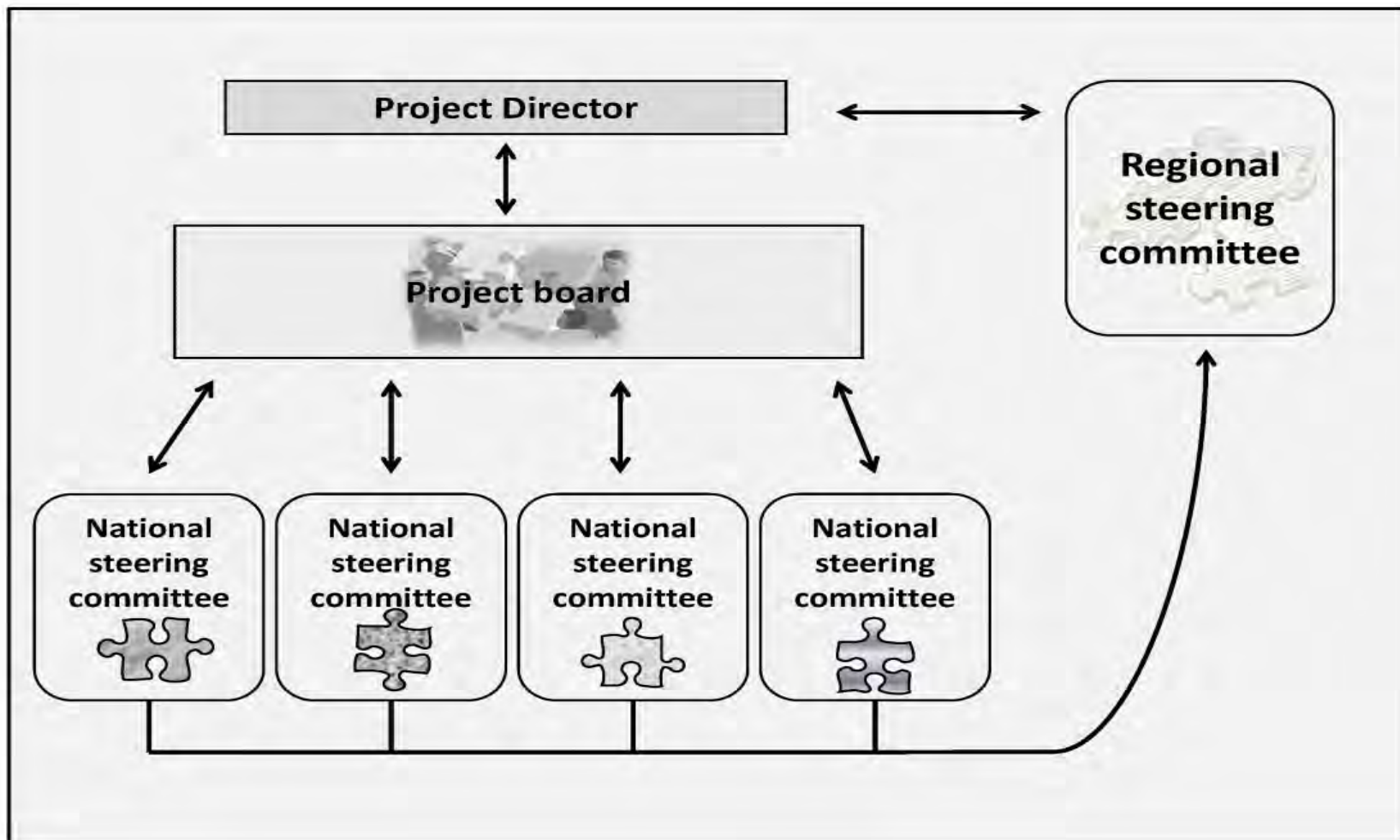


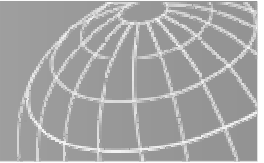
# Overview of Work Packages of Sustain Water MED





## Organisational structure of the Sustain Water MED

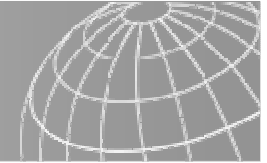




## Common approach of pilot activities

- **Establishment of a national steering committee** that will advise on all steps of the pilot activity and include relevant stakeholders from different interest groups and levels of administration
- **Baseline assessment and final adjustment of pilot activity** incl. detailed analyses of stakeholders, social acceptance, legal frameworks, environmental conditions, env. and health risks
- **Implementation of pilot activity together with local stakeholders**
- **Action oriented capacity development and awareness raising** incl. on-the-job-training, establishing information center at pilot site
- **Accompanying study of social, environmental and economic effects** of pilot activities according to a common framework

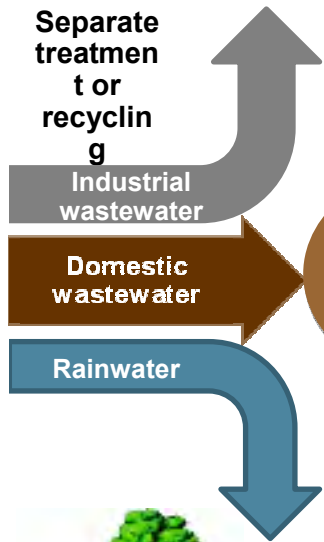




Biomass production, e.g. bamboo

Irrigation (cereals, fruits and vegetables for further processing)

Irrigation (parks and golf courses, food for direct consumption...)



Primary treatment: mechanical

Energy production (CH<sub>4</sub>)

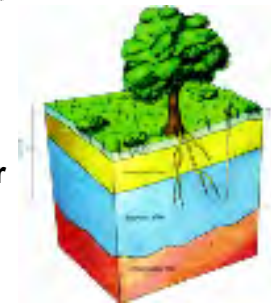
Secondary treatment: biological-anaerobic

Tertiary treatment: disinfection

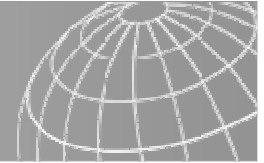
Refined treatment: elimination of N and P



Direct use and/or groundwater recharge



Groundwater recharge



## Pilot activity Morocco

**Objective:** a sustainable concept of locally adapted wastewater /human excreta management

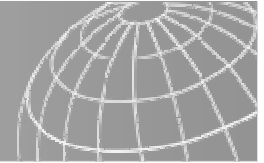
**Location:** rural oasis community in Dades Valley (Tanghir Province Southern Morocco)

**Treatment approaches:** Source separation and reuse-oriented decentralised treatment

**Innovative aspect:** ecosan concept, incl. energy generation from biogas, combination with rainwater harvesting and production of artificial soil

**Expected out come:**

- improvment of ground water quality
- improvment of sanitation infrastructure and life conditions of local population.
- contribution to the resilience measures against climate change impact



## Pilot activity Jordan

**Objective:** Demonstrate potential for agricultural irrigation of wastewater effluents from different treatment technologies

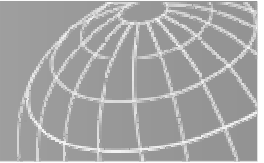
**Location:** Zarqa River Basin

**Treatment approaches:** Central conventional treatment and decentralised alternative technologies like constructed wetlands , grey water recycling and modified septic tanks

**Innovative aspect:** Proven applicability of decentralised alternative wastewater treatment for reuse in agriculture

**Expected out come:**

- improvement of sanitation infrastructure of rural population
- support the decentralised approach of WWT in Jordan
- improvement of safe irrigation



## Pilot activity Egypt

**Objective:** economic benefits of secondary WWT through selection of (1) optimal crops, (2) appropriate agricultural practices and irrigation techniques.

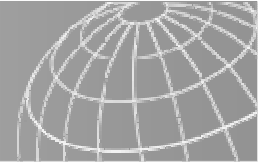
**Location:** Abu Rawash Village ( Giza Governorate)

**Treatment approaches:** Decentralised secondary treatment of primary effluents (Abu Rawash WWTP)

**Innovative aspect:** Additional secondary treatment and innovative agricultural practices

**Expected out come:**

- improvement of safe irrigation
- improvement of farmers income
- encourage the reuse of treated secondary effluents



## Pilot activity Tunisia

**Objective:** Demonstrate a system of water quality monitoring, control and early warning for water supply to enhance acceptance and security of reuse

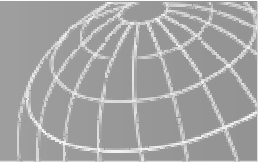
**Location:** Oueljet El Khodher in the province Medenine

**Treatment approaches:** Conventional tertiary treatment

**Innovative aspect:** Joint monitoring through water provider and end-user, quality based effluent supply contracts

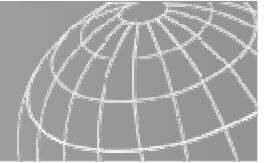
**Expected out come:**

- set up an efficient and applicable water quality monitoring system (WQMS)
- increase capacity of regional partner (CRDA) to run WQMS
- increase acceptance of reuse of non conventional water resources.



## Conclusions

- the actions of Sustain Water MED will strongly contribute to the objectives of SWIM-Programme
- demonstrate solutions for local problems which are applicable in the region
- continuous base line assessment and evaluation
- improvement of sanitation and safe irrigation
- stakeholders involvement
- decentralised, low cost, low maintenance
- support existing national plans/programmes for sustainable sanitation
- build up on existing and successfully conducted programmes (EMPOWER, EMWATER, Zero M, SMART)



**Thank you for your attention**