SWIM and Horizon 2020 Support Mechanism

Working for a Sustainable Mediterranean, Caring for our Future

Peer-to-peer process:

Topic, Experience and outlook

Presented by:

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SWIM-H2020 SM REG-5: 2nd Regional on-site training on Decentralized Water Management

17th – 18th April 2018, Vienna, Austria

This Project is funded by the European Union

P2P objectives and outcomes:

Objective:

(1) Groundwater issues *(Development of groundwater protection zones and groundwater delineation)*

(2) Water Information Systems: management/ linking of various systems at the local scale, information flow, exchange and sharing towards informed decision-making at the local level

(3) Flood risk management and flood protection, including early warning systems.

Outcome: Improved knowledge on selected issues related to the DcWM, capacity building among the PCs, establishment of cooperation and alliances among the PCs
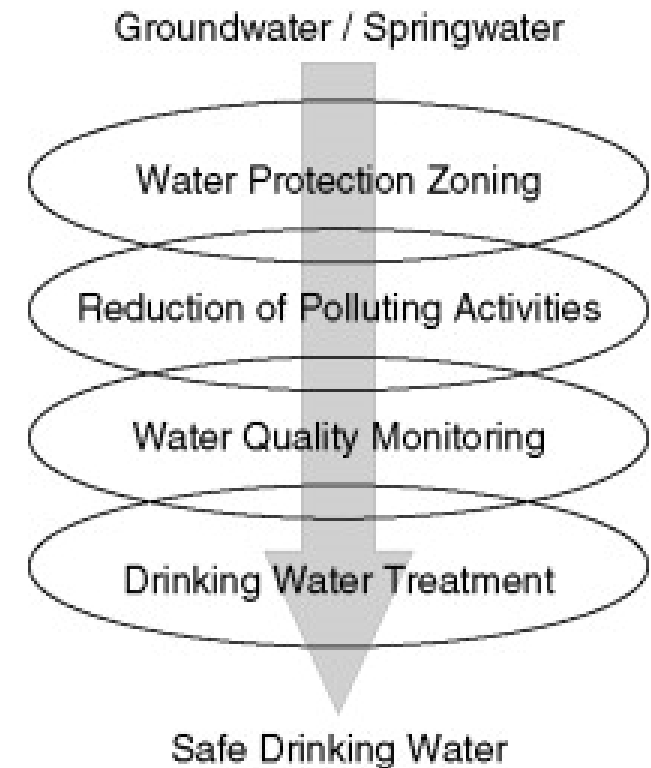
	Receiving Expertise		Offering Expertise
P2P-7 Priority Theme: Decentralised water management			
Focus Group: Groundwater zone protection and groundwater delineation	**Palestine**	**Egypt**	**Austria**
P2P-8 Priority Theme: Decentralised water management			
A) Focus Group: Water Information Systems	**Lebanon**		**Austria**
B) Focus Group: Flood risk management at the local level, flood protection	**Israel**		**Malta**

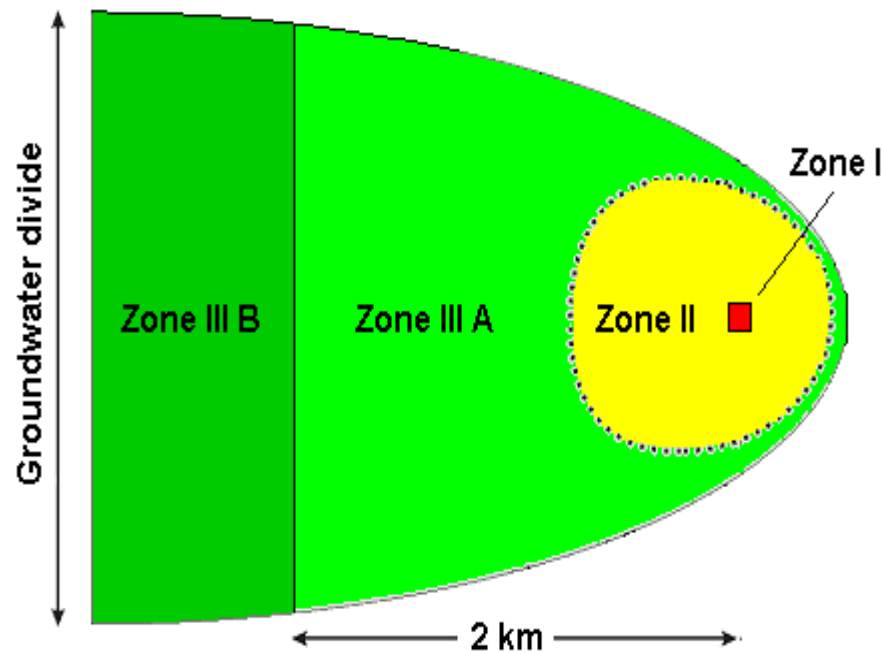# P2P-7 Priority Theme: Decentralized water management : Groundwater protection zone and groundwater delineation

(Palestine – Egypt) - Austria

Solid waste dumbing near drinking water production well, Palestine (PWA)

Groundwater / Springwater

Water Protection Zoning

Reduction of Polluting Activities

Water Quality Monitoring

Drinking Water Treatment

Safe Drinking Water

Definition of zones:

Zone I:

Immediate protection of the well/spring against direct pollution

Zone II:

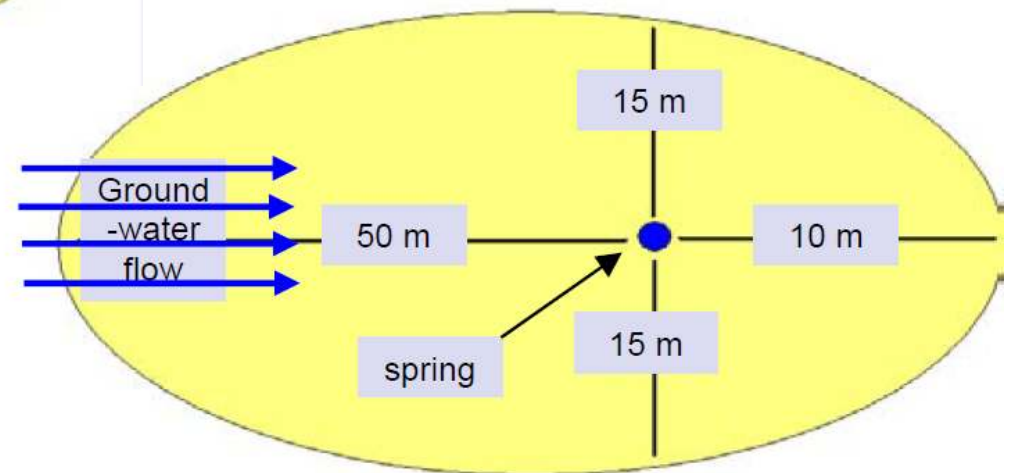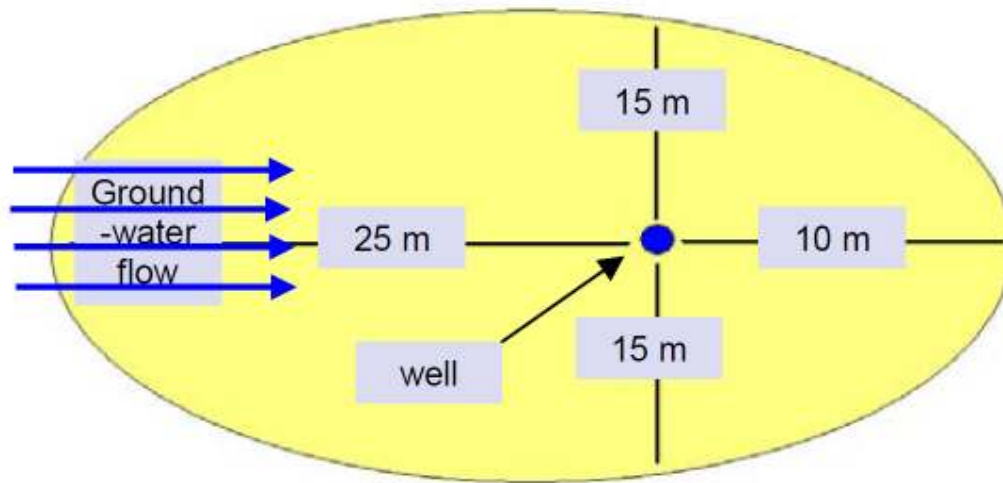Protection against bacteriological pollution (50 days isochrone)

Zone III:

Protection of the entire catchment area.

Zone I (example)

-no activities allowed other than those needed for water abstraction

Demand of Egypt

Question	Theme
1. What are the most polluting groundwater activities?	**Define GW contamination sources**
2. How can well drilling method cause groundwater pollution?	
3. How can groundwater pollution be measured quantitatively and qualitatively?	**Monitoring strategy and network design**
4. What are the procedures used to contain and treat different contaminants of groundwater?	
5. What are the procedures for protecting the single well, well fields, and groundwater aquifer?	**Principles outlined in the framework water directive for GW protection. 5 6 and 8**
6. Is it possible to protect the groundwater reservoir from pollution from any contaminant in the source of recharge (river, lake, or any water body)?	
8. Is it possible to protect groundwater from increased recharge due to dams and arches?	
7. What are the procedures for protecting groundwater from deterioration of quality and increase of dissolved salts as a result of pumping?	
9. Are there any previous feasibility studies that can be used to evaluate the effect of groundwater protection on sustainable development?	**Jordanian experience** https://www.bgr.bund.de/EN/Themen/Wasser/Veranstaltungen/symp_sanitat-gwprotect/present_subah-borgstedt_pdf.pdf?__blob=publicationFile&v=2
10. How to develop formal mechanisms to ensure public participation in the management of well fields and protection of aquifers?	**Guideline GWP zoning**

Out put:
- A document briefing the measures for GWP zoning.
- Chemically monitoring strategy and monitoring network design.

Demand of Palestine

The By – Law defined the groundwater protection zones into 3 zones:

1- The first zone (inner zone,) this zone has a minimum radius of 30 meters in direction of aquifer feeding and minimum radius of 15 meters in other direction

2-The second zone (intermediate zone,) is defined as the 50-day travel time from any point below the water table to the source.

3- The third zone (outer zone) is defined according to the main areas of groundwater recharge area

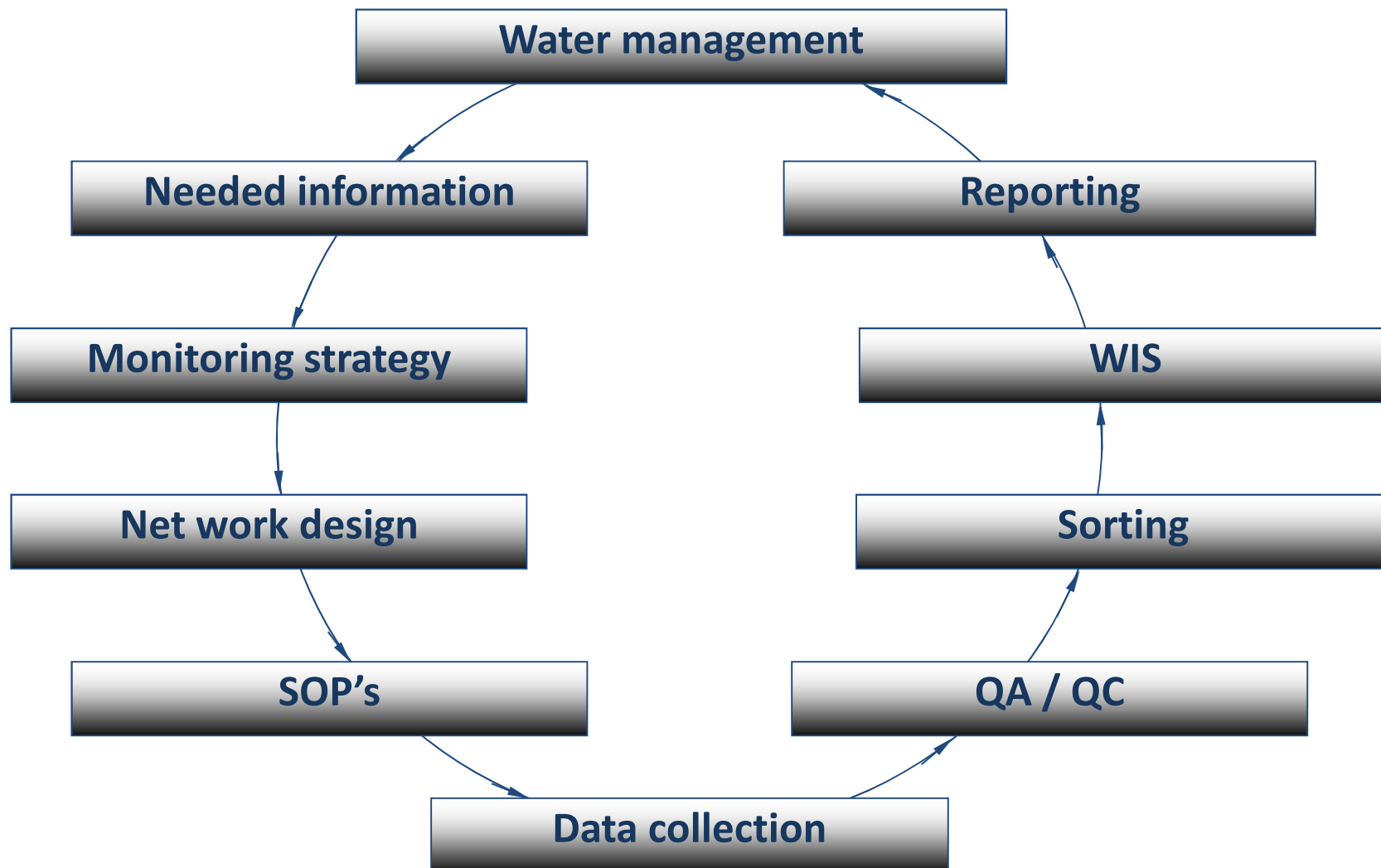| Question	Theme
11. What is the best and simplest mean to delineation protection zone 2?	Guideline GWP zoning for Zone no. II
12. How to detect pollutant track	

Out put:
- A document briefing the measures for GWP zoning.
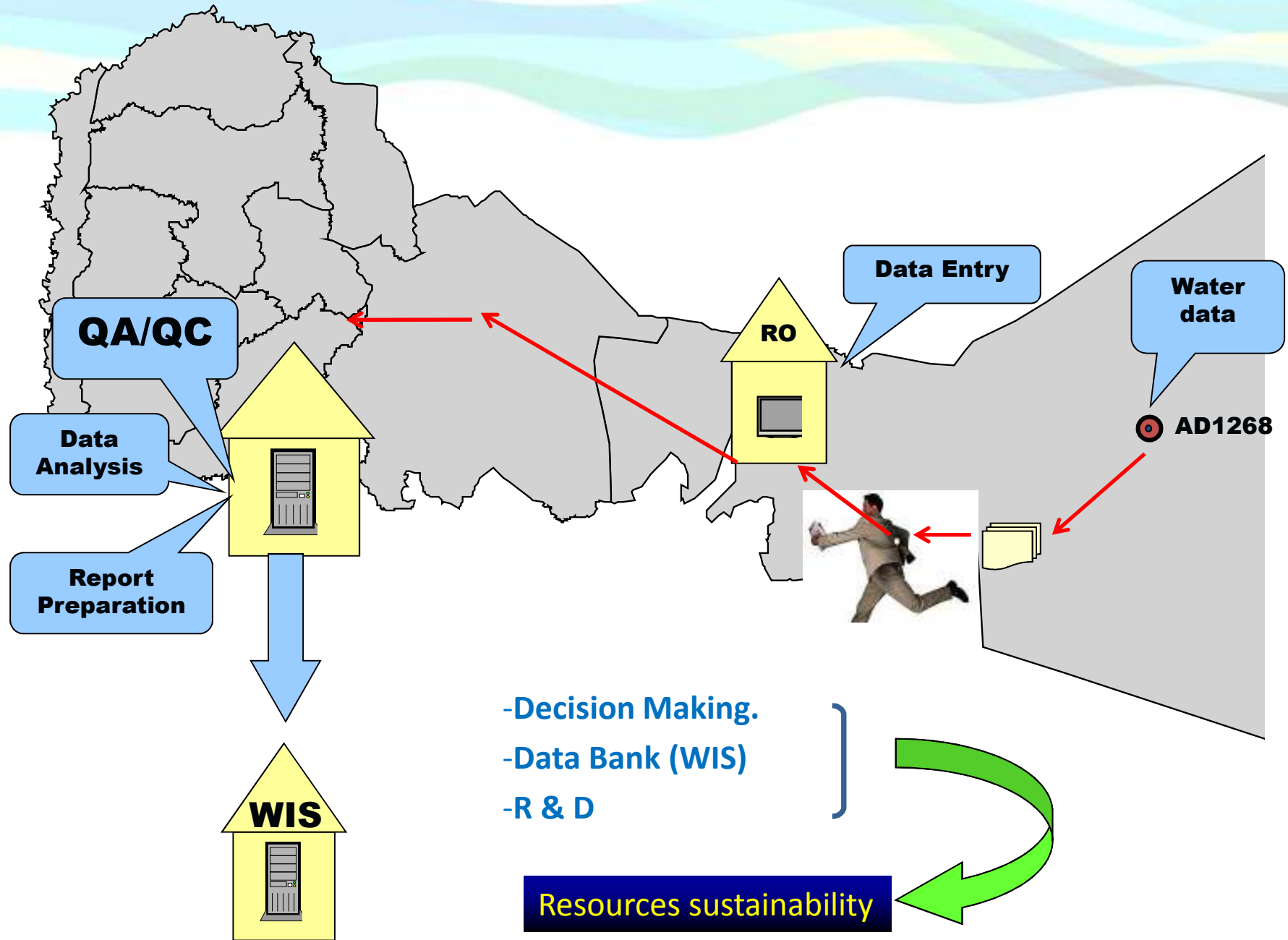- Chemically monitoring strategy and monitoring network design.

In Palestine this aspect is covered by the expert facility activity in Palestine by SWIM 2020.

Lebanon - Austria

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                    │  Water management   │
                    └─────────────────────┘
        ↙                                       ↖
┌──────────────────────┐              ┌──────────────────────┐
│ Needed information   │              │     Reporting        │
└──────────────────────┘              └──────────────────────┘
        ↓                                       ↑
┌──────────────────────┐              ┌──────────────────────┐
│ Monitoring strategy  │              │        WIS           │
└──────────────────────┘              └──────────────────────┘
        ↓                                       ↑
┌──────────────────────┐              ┌──────────────────────┐
│  Net work design     │              │      Sorting         │
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┌──────────────────────┐              ┌──────────────────────┐
│      SOP's           │              │      QA / QC         │
└──────────────────────┘              └──────────────────────┘
        ↘                                       ↗
                    ┌─────────────────────┐
                    │   Data collection   │
                    └─────────────────────┘
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Water data flow to WIS

Water data in Lebanon (examples)
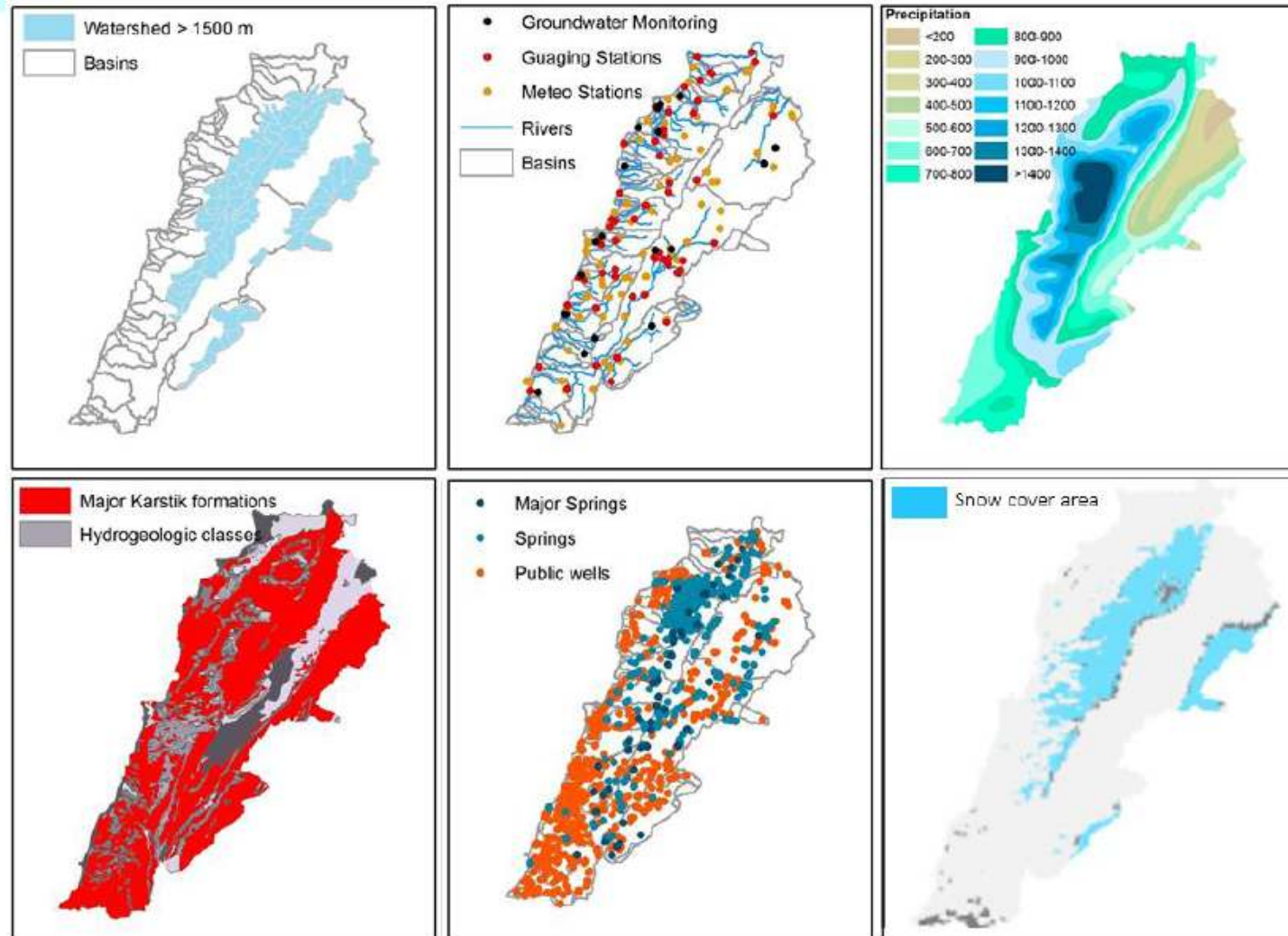
Demand of Lebanon:

Question	Theme	Output
How can a Water Information System(WIS) help in the issue of data sharing?	Data Sharing	**WIS under DCWM (The case of Austria.:**
Who will be responsible of controlling this system (one authority or each organization is responsible of its part)?	WIS governance	
Is all data shared free? Is it possible to have an online payment system?	Data sharing	1.Institutional responsibility for Data management: Generation, Processing and , Provision
What should be the geographical unit for this management, knowing that in some cases the same basin follows two different districts, and we have many inter basins transfer?	Management in shared basins	
What legislative amendment should be made to make this decentralization achievable?	Legislative amendments	
How to insure the quality of data shared on the system?	QAQC	
How to manage multiplicity of data produced by different organizations especially that they come in different formats and quality?	QAQC and data protocols	2. Technical solutions: QAQC / Data quality and validation
How to display all data that are originally in different forms and formats in a proper and understandable manner?	Information products	
How to manage sharing this data to public not just between organizations?	Data sharing	
~~What are the hardware and software requirements for this system, and what volume of servers if the server is to be hosted in Lebanon?~~		
~~How can Groundwater be managed in a decentralized system?~~		

Israel - Malta

Stress

70 mm of rain fell in one hour (Haartz 2016)

Need

P2P-8 Priority Theme: Decentralized water management : Flood protection

Proposed Theme	Proposed Specific Topic
1. Flood Modelling	a. Raingauge data network and data management (design, transfer, storage, process, archive). Focus is on data management
	a. Types of early warning systems as available in Malta (radar networks, satellite imagery, real time flood forecasting, metamodels). Comparative advantages and disadvantages based on the Maltese experience.
	a. Flood modelling methodologies (rainfall – runoff simulation, flood routing with 1D or/and 2D models in urban areas).
	a. Flood Hazard Mapping: The importance of digital terrain models.
	a. Origin of Floods and Generation Mechanism according to catchment geomorphology (flash floods, river floods, urban floods, tidal floods, etc.). This topic depends on the type of floods flows prevailing in Malta.
2. Institutional Issues of Flood Risk Management	a. Assessing flood vulnerability and flood risk.
	b. Flood Risk Management Plans: Prevention, Protection & Mitigation - Who is doing what, especially when flooding occurs (emergency issues).
3. Flood Risk Management in the European Union according to the Directive 2007/60/EC on the Assessment and Management of Flood Risks: The pace so far and the way forward.	
Engineering design under flood threat.	a. The concept of return period in different storm drainage projects.
	b. "Event-based Flood Design" according to the Intensity – Duration – Frequency Curves vs "Continuous time flood modelling"
	c. Engineering design under climate change

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Thank you for your attention.