

HARMONIZATION OF THE TRANSBOUNDARY GROUNDWATER BODIES IN SOUTH MEDITERRANEAN; CASE STUDY OF EGYPT



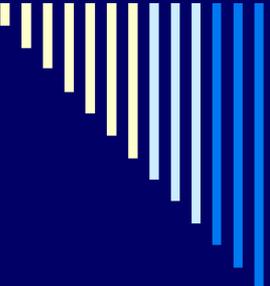
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Presentation Structure

- 1. South Mediterranean Common Characteristics**
 - **Physical Setting**
 - **Geologic and Tectonic Factors**
 - **Hydrogeological Characteristics**
 - **Groundwater Utilizations**
 - 2. European Groundwater Directives**
 - 3. Delineation of GW Bodies in Egypt**
 - 4. Conclusion and Recommendations**
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Conclusion

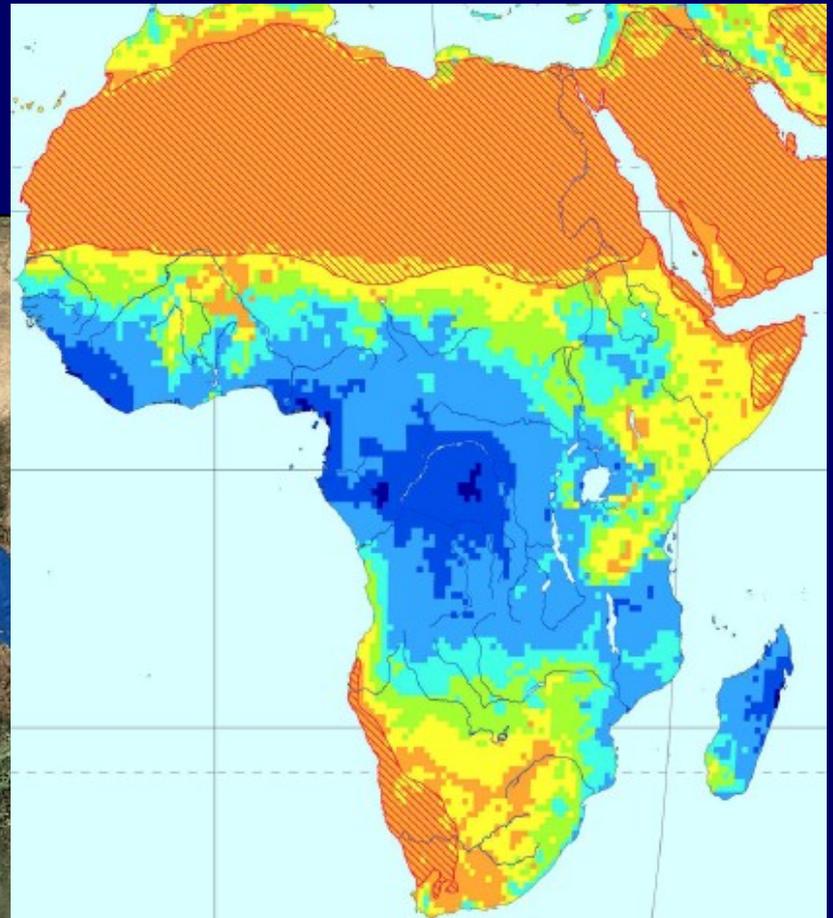
- Based on the climatologically, geomorphologic, geological, Hydrogeological conditions of North Africa all South Mediterranean Countries differentiate to two systems; Local Coastal system (~10% of the area) and Desert (Sahara) table land (~ 90 % of the area)
 - The key aspect of the groundwater body concept is that the groundwater body is the management unit under the WFD that is necessary to help in refining GW modeling simulation and efficiently manage the shared water resources
 - The approach followed in delineation, characterization of the groundwater bodies in Egypt can be applied at any other country particularly that located in South Mediterranean region.
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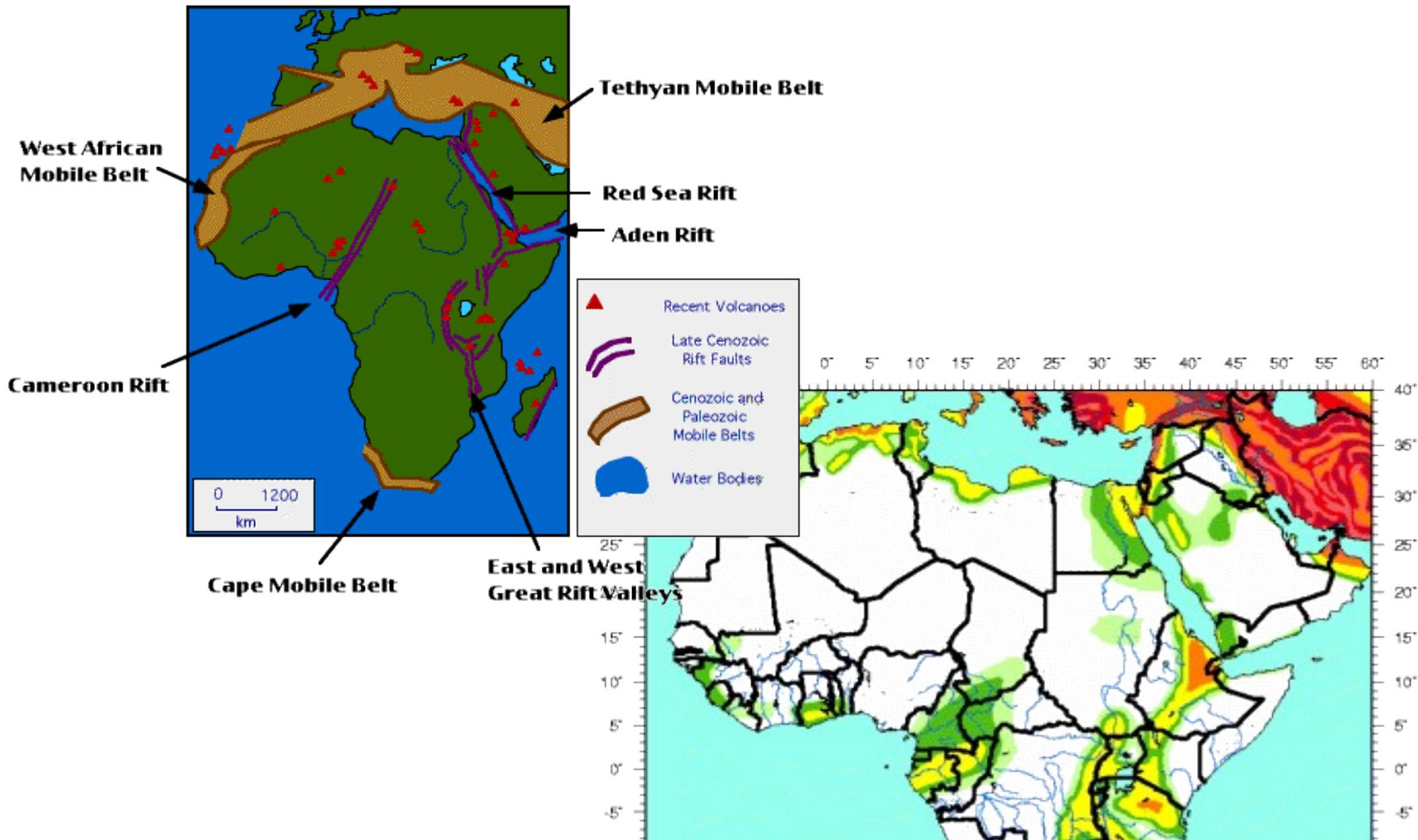
Recommendations

- To formulate a specific GW expert group under the UNESCO Regional Centre for Shared Aquifer Resources Management in Tripoli and hopefully to be supported by UNESCO, AMCOW, GEF-UNDP and MED EUWI.
 - To delineate, characterize and map of the shared groundwater bodies in South Mediterranean according to the EU WFD Guidance documents and groundwater directive. be supported.
 - Analysis the technical gaps for each TBGW system
 - Transboundary nature;
 - Monitoring status (quantity and quality)
 - Availability of database systems;
 - Level of pressure on the aquifers (pollution, over-exploitation,.);
 - Modeling pollution Vulnerability
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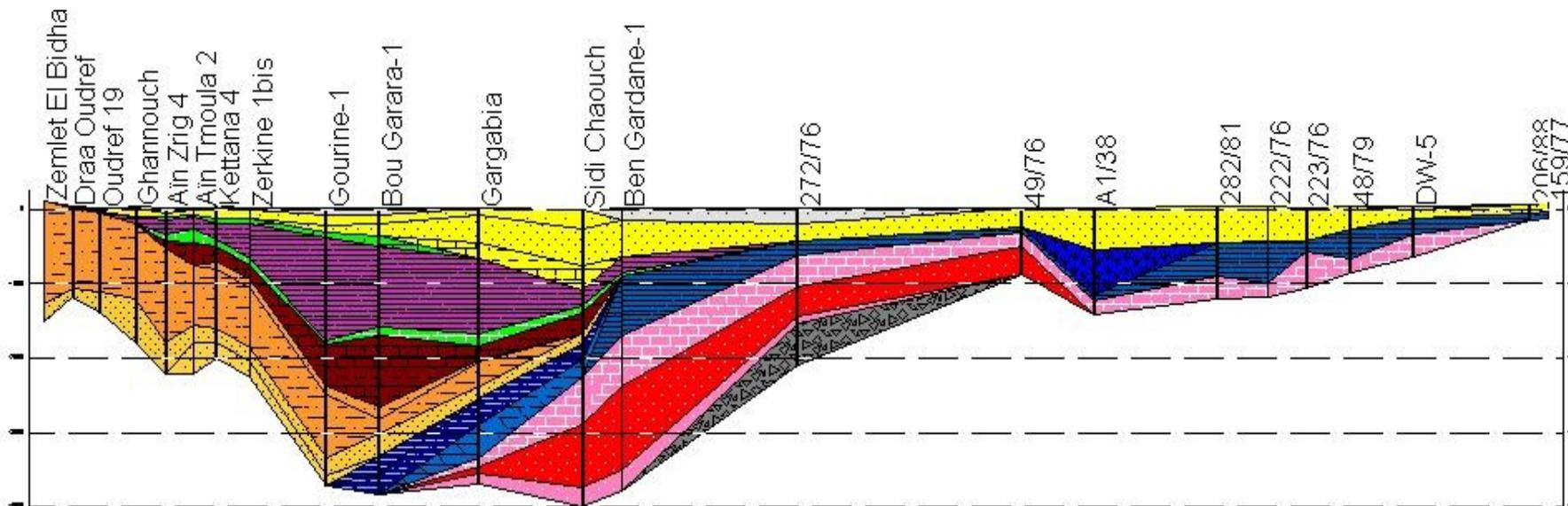
Physical Setting



Geologic and Tectonic Factors

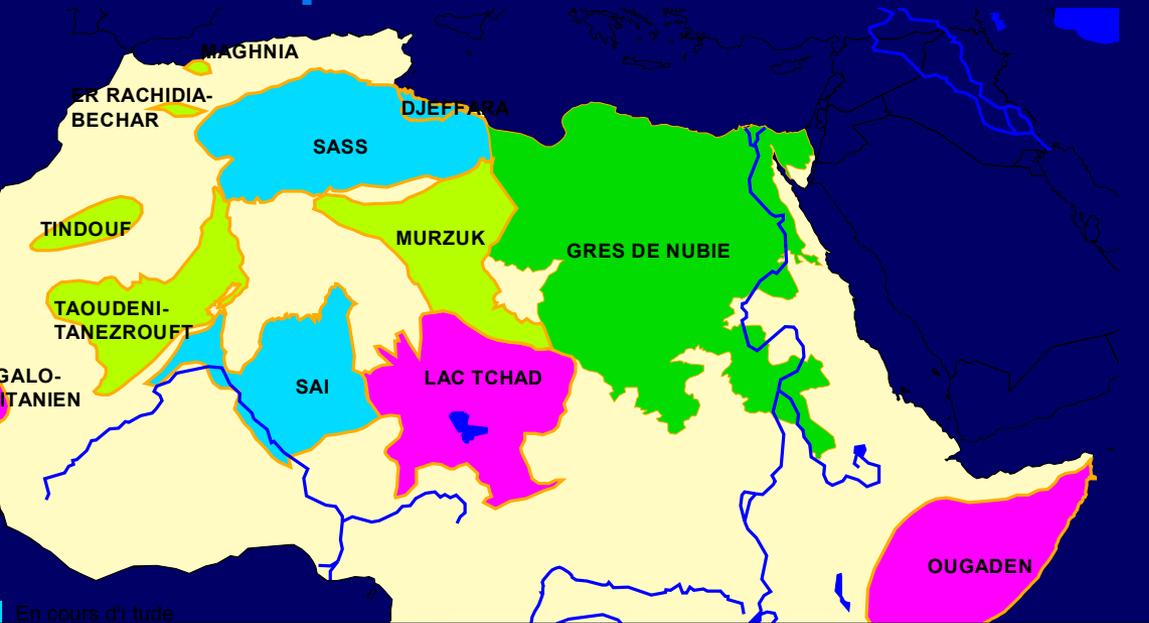


Geologic and Tectonic Factors

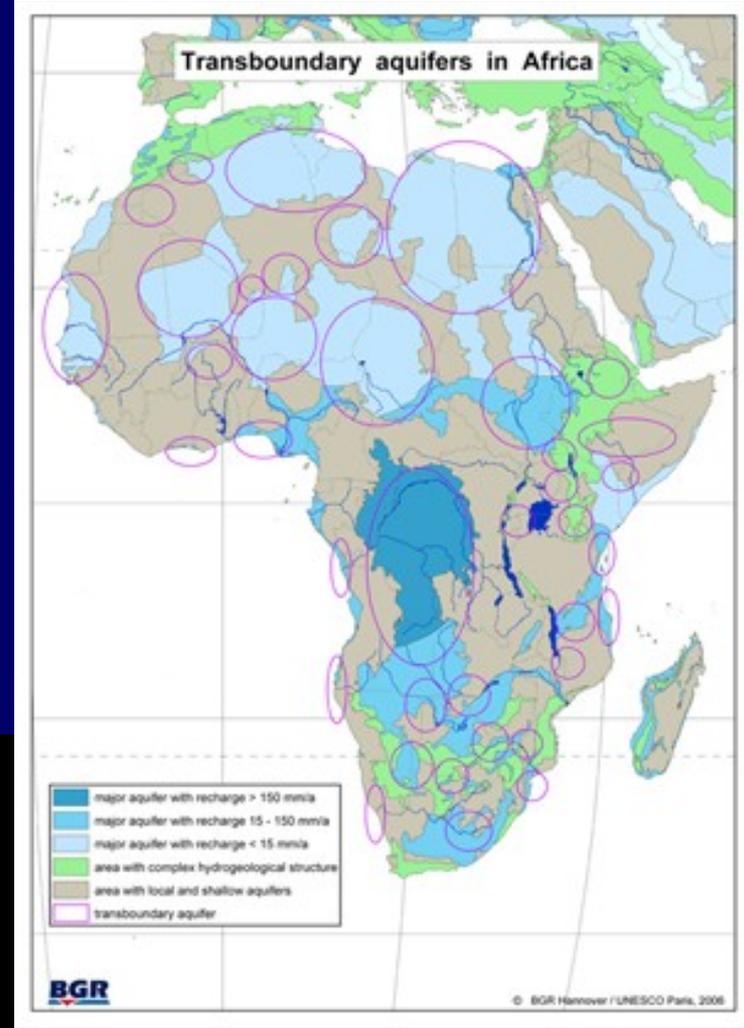
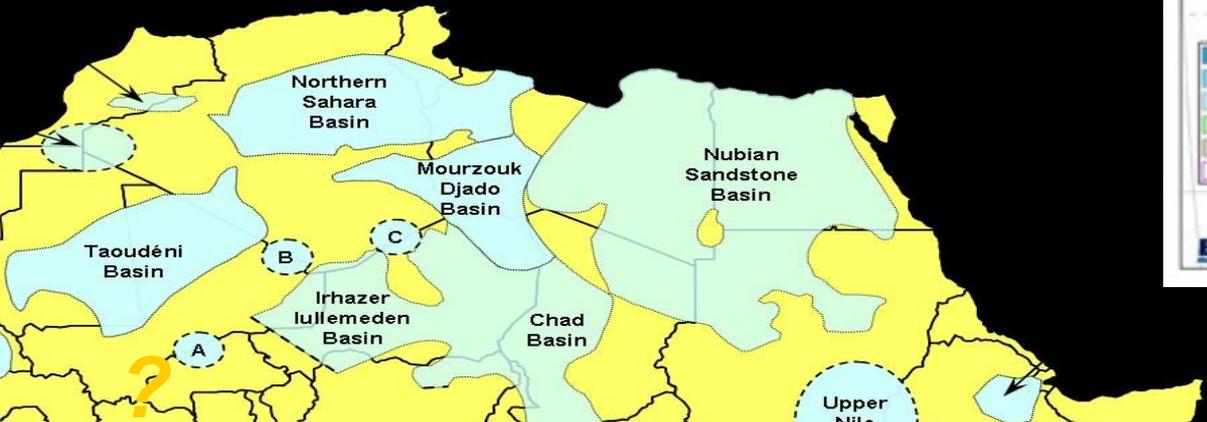


Hydrogeological Characteristics

Groundwater Utilizations



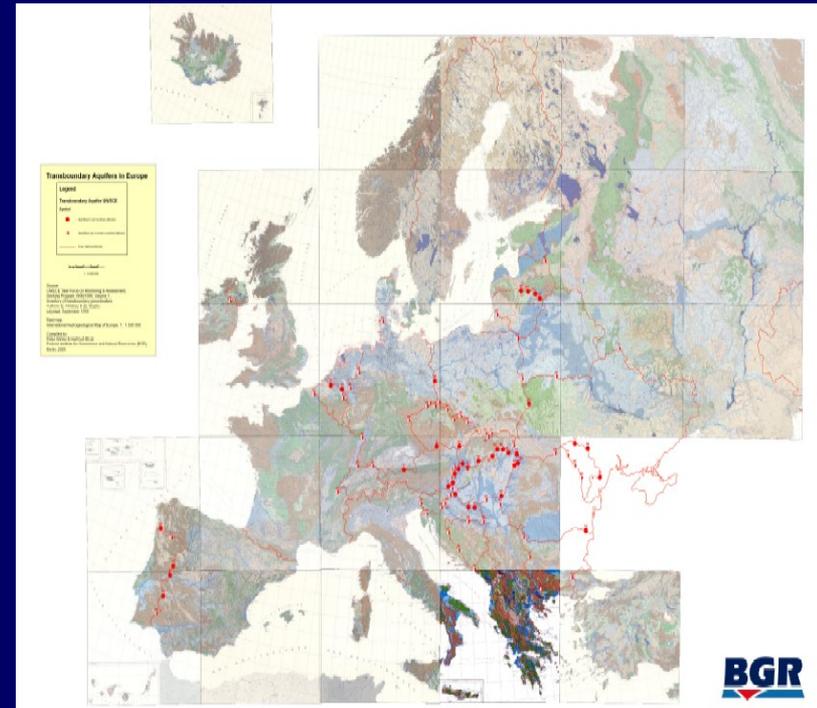
En cours d'étude



The European experience in Shared Aquifer management

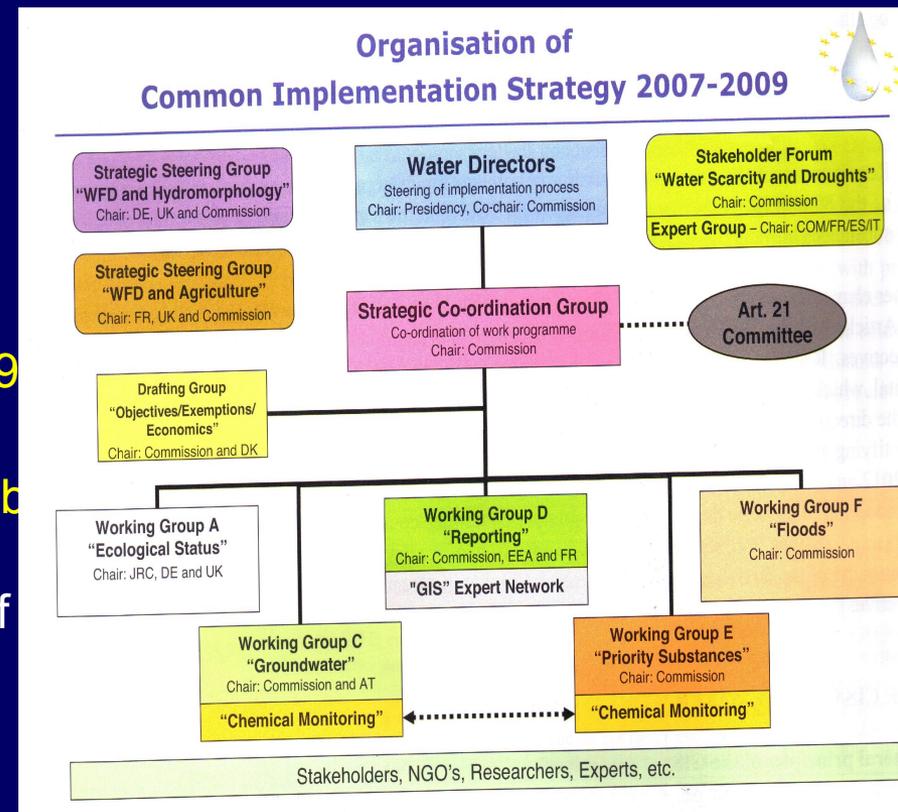
In 2000 EU established

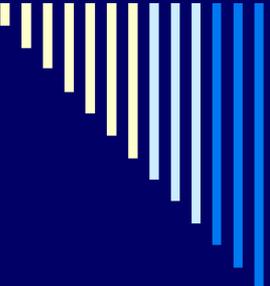
- **Water Framework Directive (WFD 2000/60/EC)**, includes a comprehensive regulatory framework for the protection of groundwater, which follows the same stepwise approach as for surface waters, namely characterization phase, monitoring programs, design programs of measures in the context of the Transboundary river basin management planning and aim to good chemical and quantitative water status objectives by the end of 2015.
- **Common Implementation Strategy (CIS)**
- **Stepwise action plan for the member states to protect all GW Bodies & good water Statuses by 2017**



EU Groundwater Directive

- Delineation of GW bodies (2004-2007), National reports, risk assessment, protection zones.
- Gw Quality Directive (1998)
- Operational Monitoring program (2006)
- CIS groundwater WG (2007 -2009)
- Set RBMP
- Coast recovery of water services by 2010
- Establish program of measures of achieving WFD 2009, operational 2012 and updated 2015(good quality, Quantity ,sustainability





Delineation of GW Bodies in Egypt

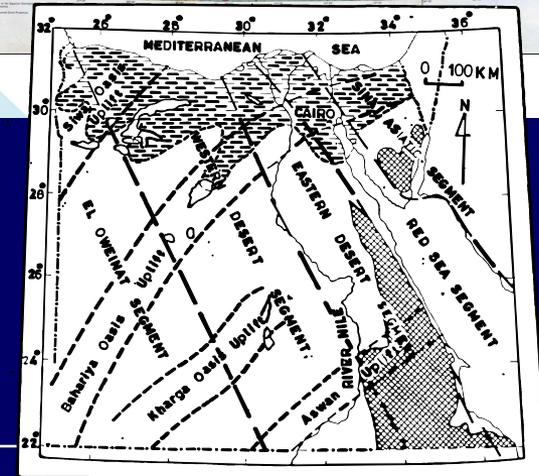
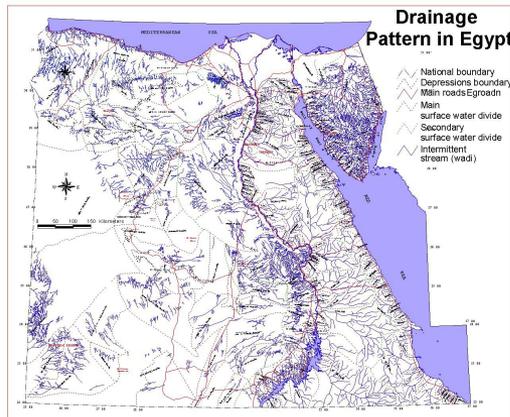
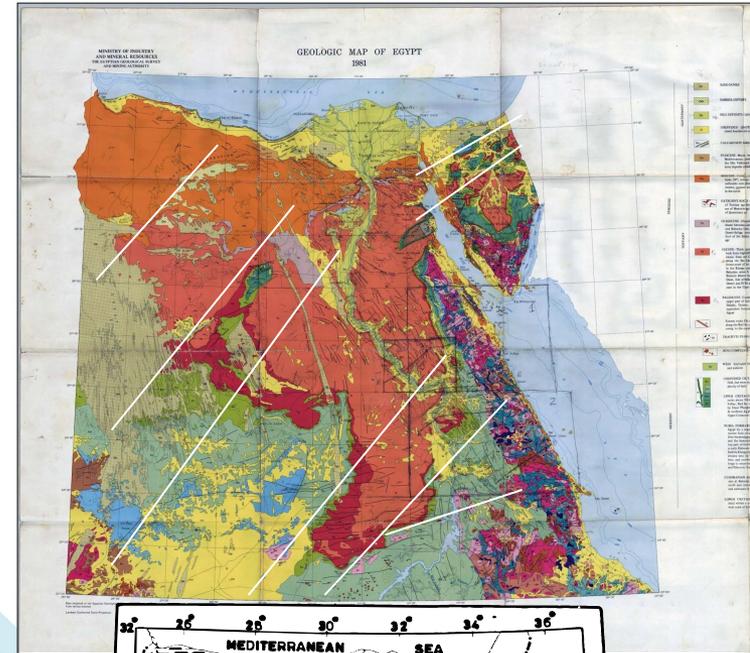
- The key aspect of the groundwater body concept is the management unit under the WFD that is necessary for the subdivision of large geographical areas of aquifer in order for them to be effectively managed. The concept of groundwater bodies embraces:
 3. Groundwater that can provide for the abstraction of significant quantities of water (i. e. the groundwater which can and should be managed to ensure sustainable, balanced and equitable water use); and
 5. Groundwater which is in continuity with ecosystems and can place them at risk, either through the transmission of pollution or by unsustainable abstraction that reduces base flows (i.e. the groundwater which can and should be managed to prevent environmental impacts on surface ecosystems).
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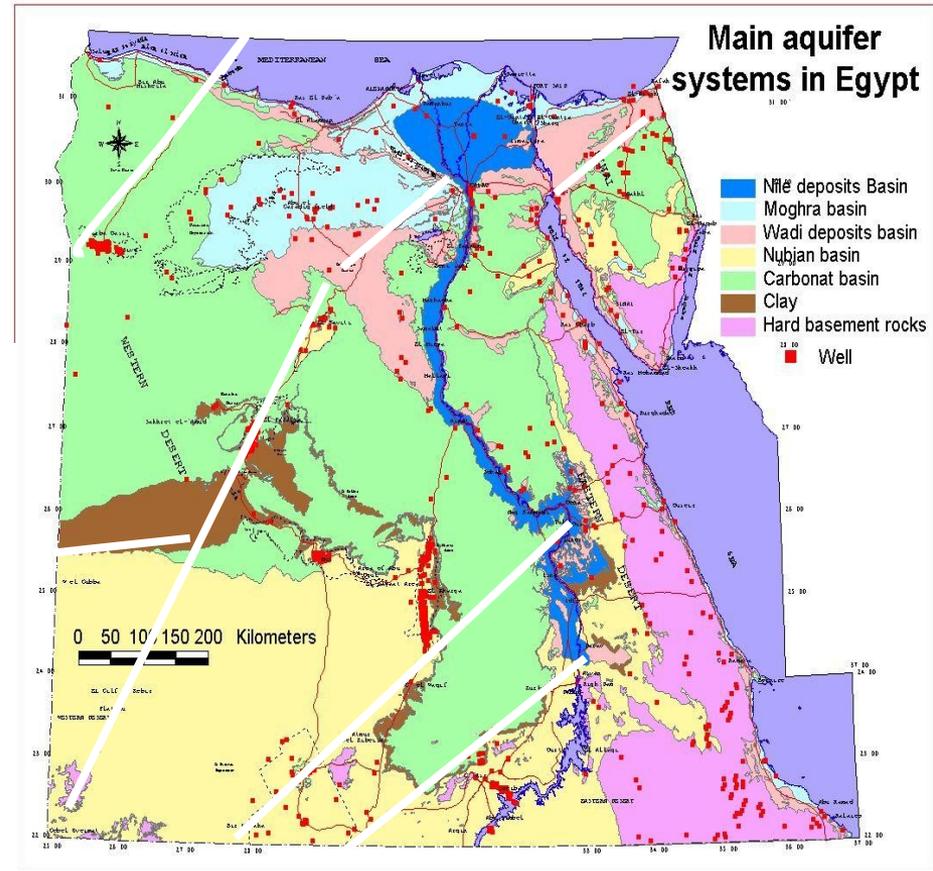
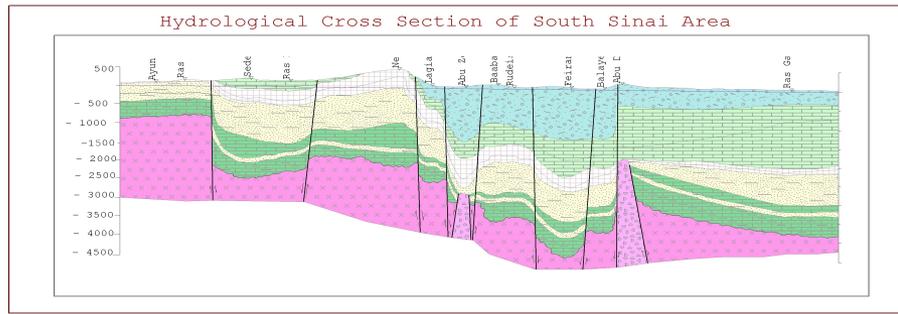
Groundwater Body Delineation Methodology

- **Aquifer Delineation and Description**
 - Preliminary groundwater body delineation and description
 - **completion of initial characterization**
 - Decide on new monitoring points, install them where necessary and start monitoring
 - **undertake further characterizations**
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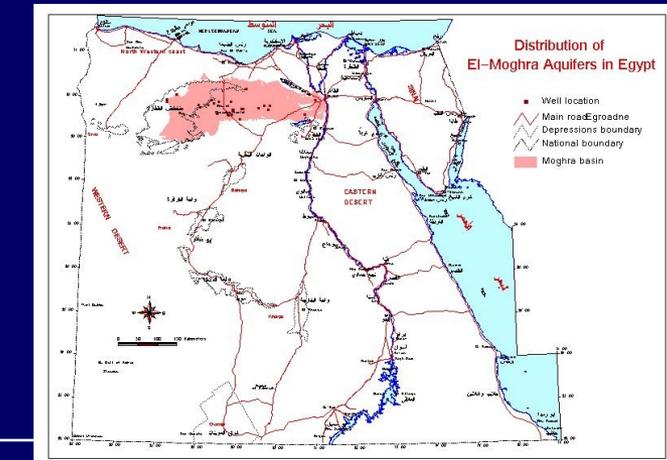
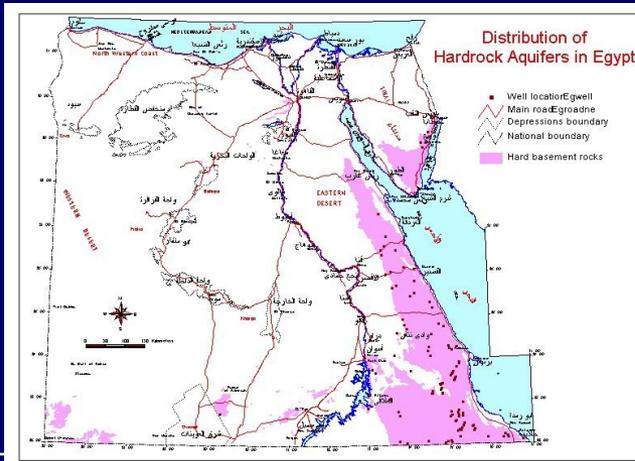
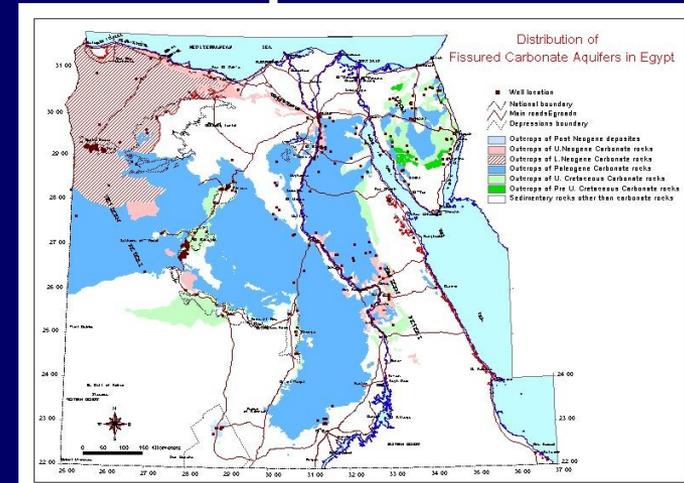
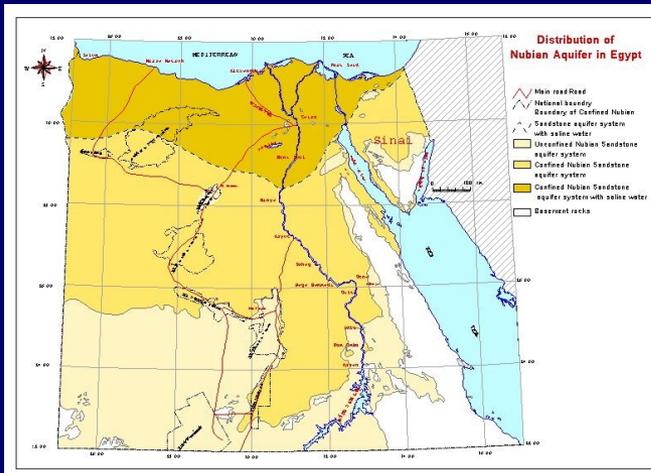
-1 Aquifer Delineation and Description ((lithostratigraphic units



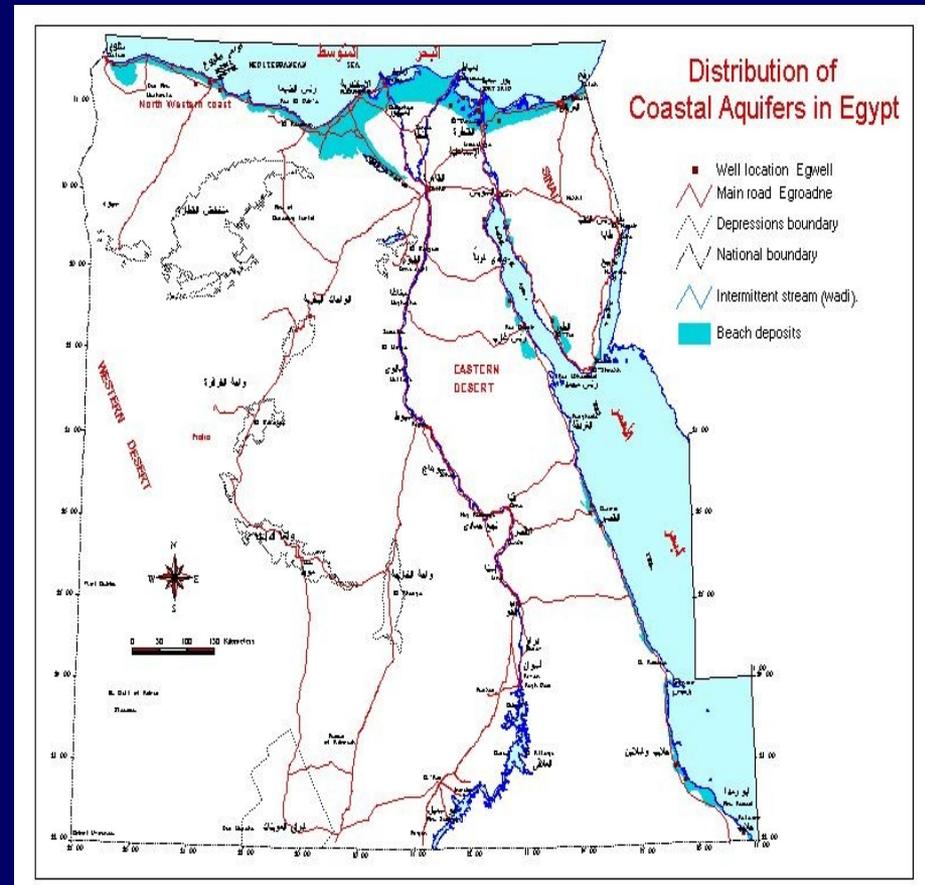
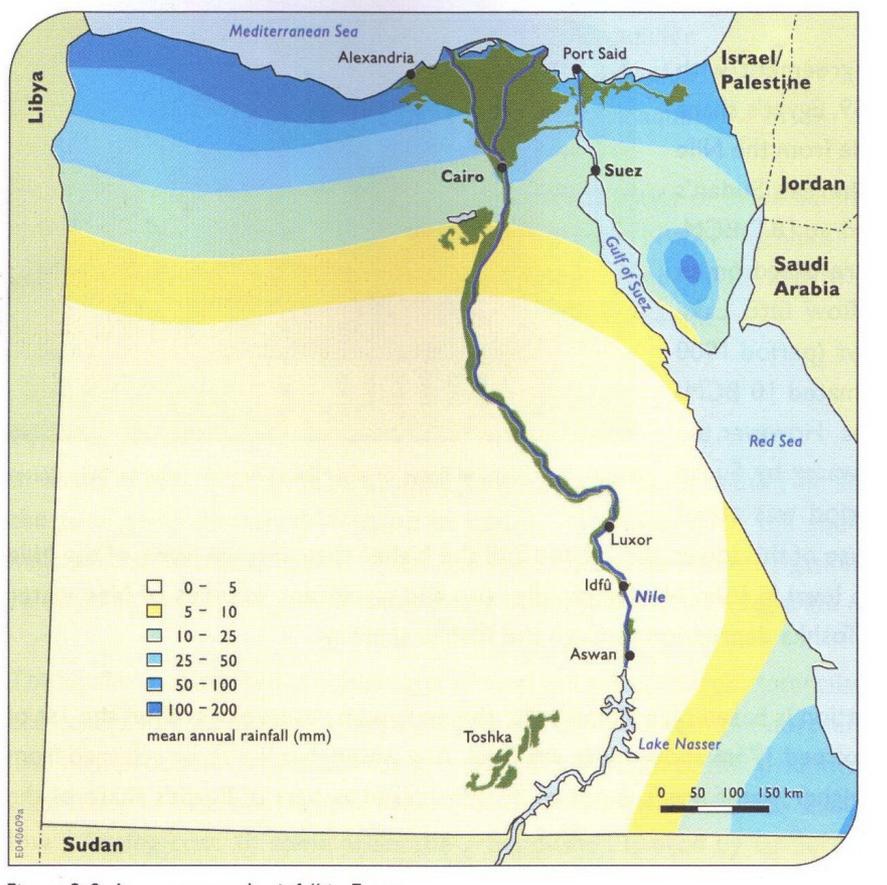
Hydrogeological data for the rock Units



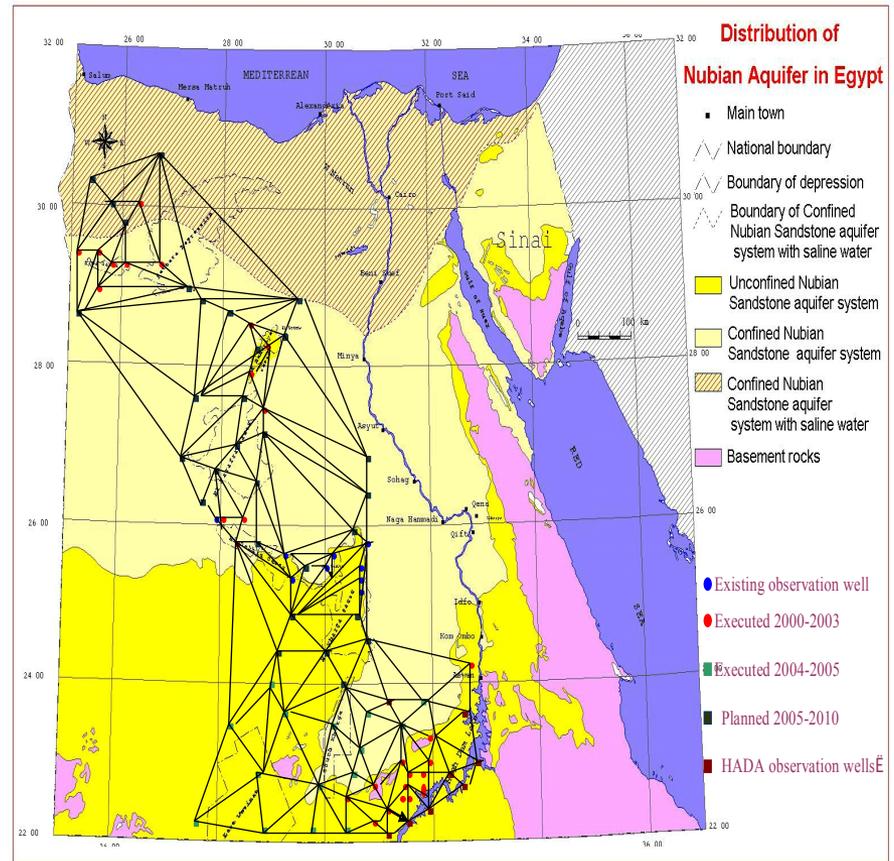
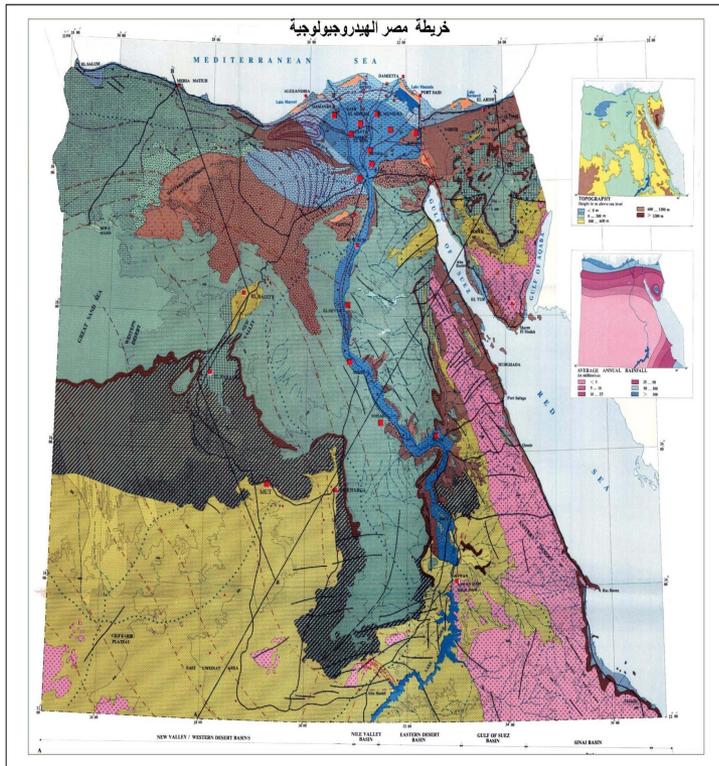
Preliminary groundwater body 2 delineation and description



Completion of Initial -3 Condition



Decide on new monitoring -5 points



undertake further characterizations -5

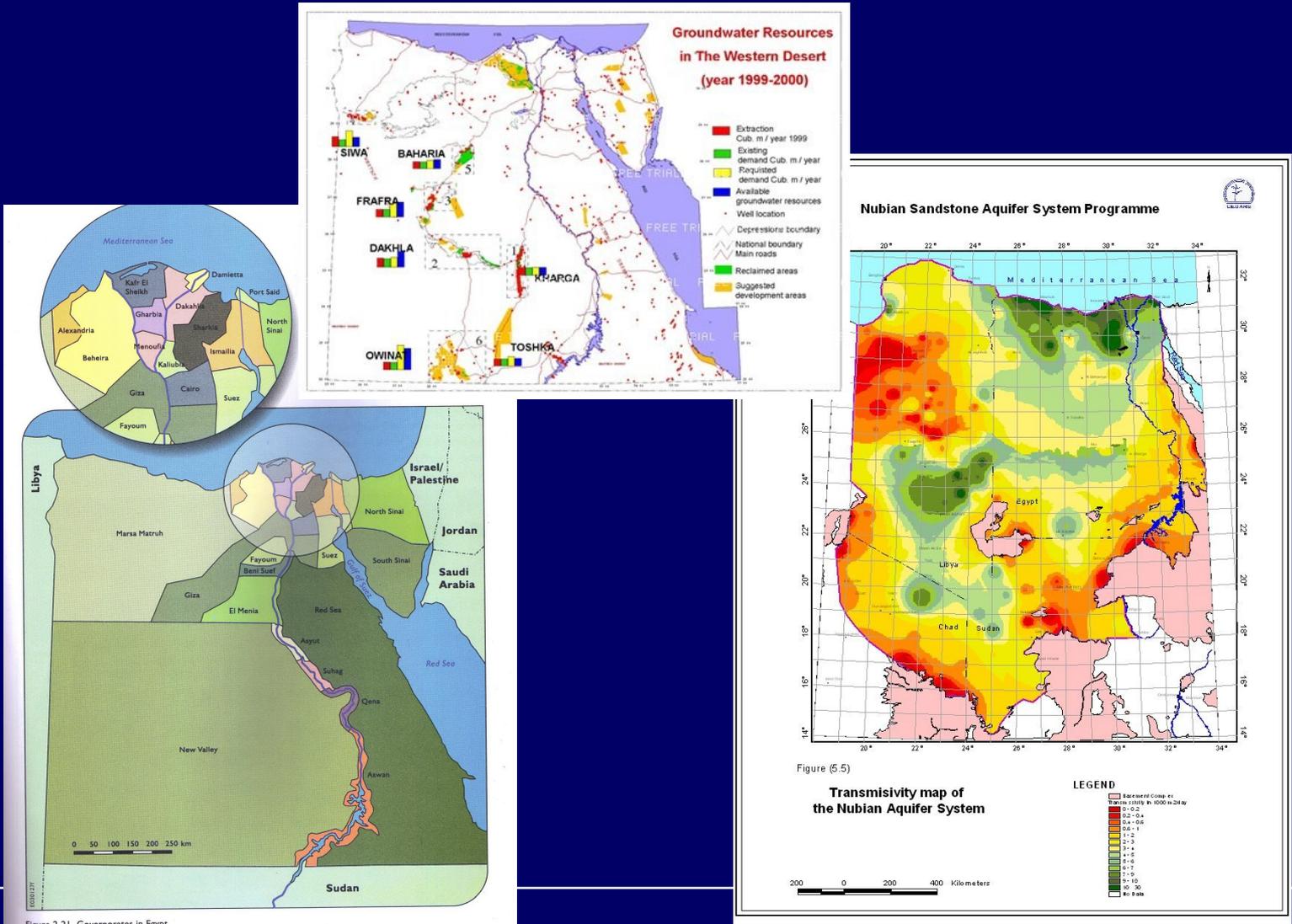
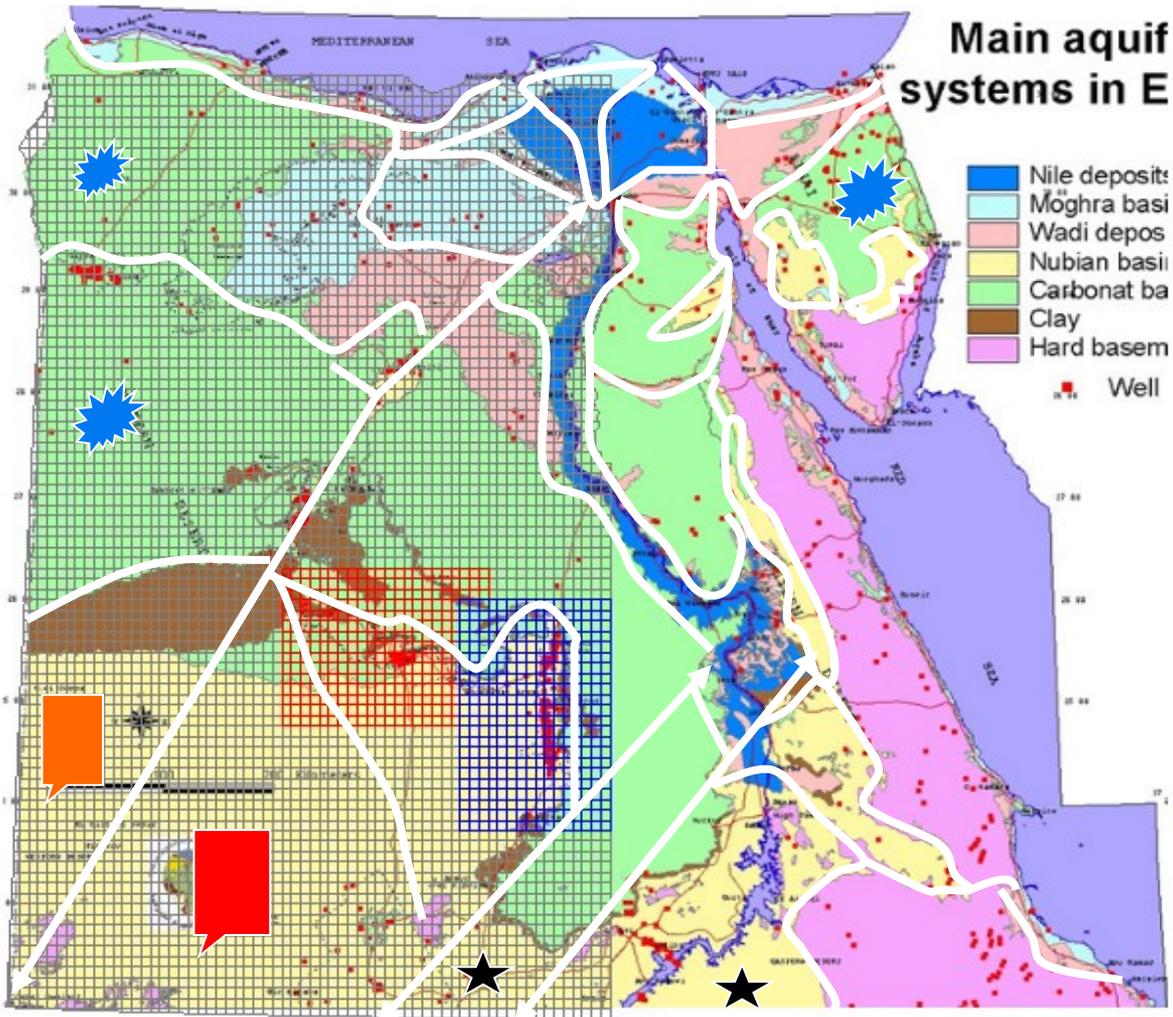


Figure 2-21. Governorates in Egypt

GW Bodies draft map in Egypt





Delineated Gw Bodies in Egypt

Aquifer System \ Geographic regions	Nile	Moghra	Nubian	Carbonate	Costal	F. Basemen t	total
Nile Delta	3	-	-	-	1	-	4
Nile Valley	3	-	-	-	-	-	3
Western Desert	-	2	7	5	1	1	16
Eastern Desert	-	-	3	3	2	2	10
Sinai	-	-	2	1	3	1	7
Total	6	2	12	9	7	4	40



**THANK YOU
FOR
ATTENTION**

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