

An aerial photograph of a large dam and reservoir. The dam is a long, concrete structure extending from the left side of the frame towards the center. The reservoir is a large body of water behind the dam. In the background, there are rugged, mountainous hills with some sparse vegetation. A small boat is visible in the water near the dam. The overall scene is a natural landscape with a significant engineering project.

# **SWIM-SM Project**

**REGIONAL EXPERTS GROUP MEETING  
DEVELOPMENT OF A COMPREHENSIVE M&E  
SYSTEM FOR PIM & IMT**

*ATHENS – GREECE (2-4 September)*

*Mohamad Younes / Mahmoud Baroud*

**LEBANON**

# GEOGRAPHY

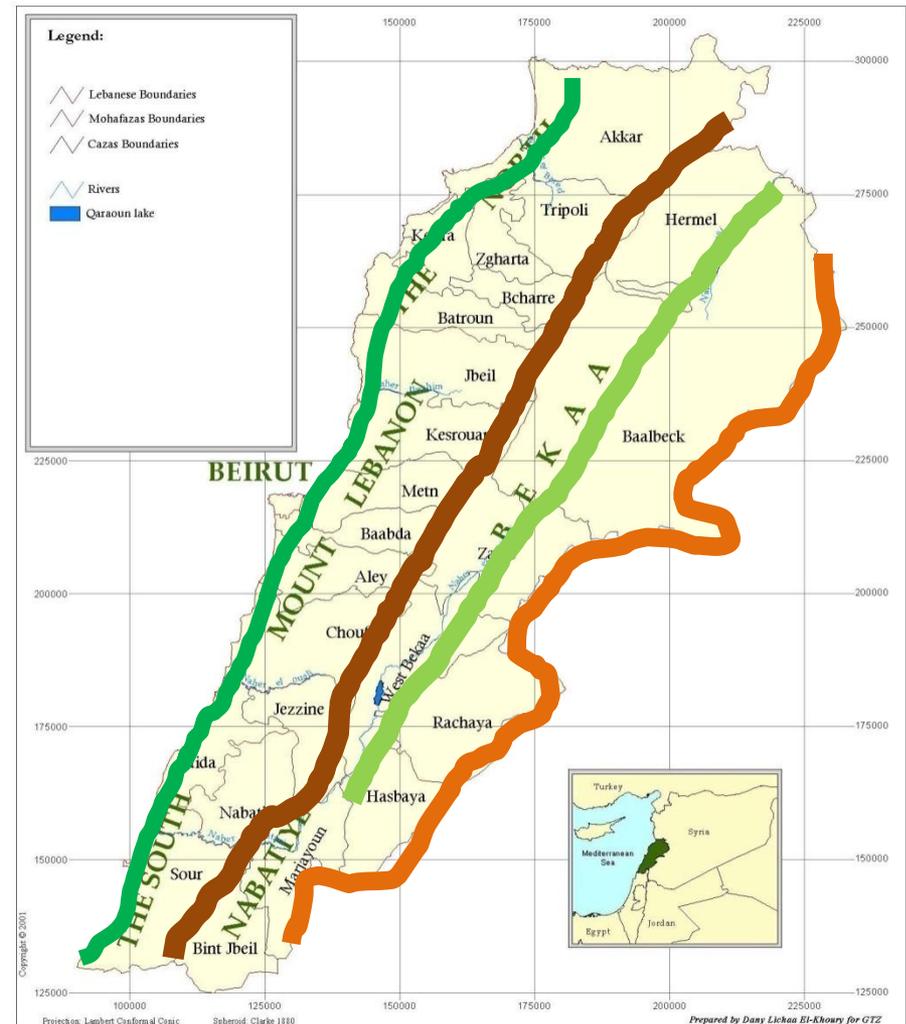
Lebanon can be divided from west to east into 4 parallel parts

1- Flat narrow coastal strip parallel to the sea

2- The Leb. Mountains chain

3- The Bekaa Valley

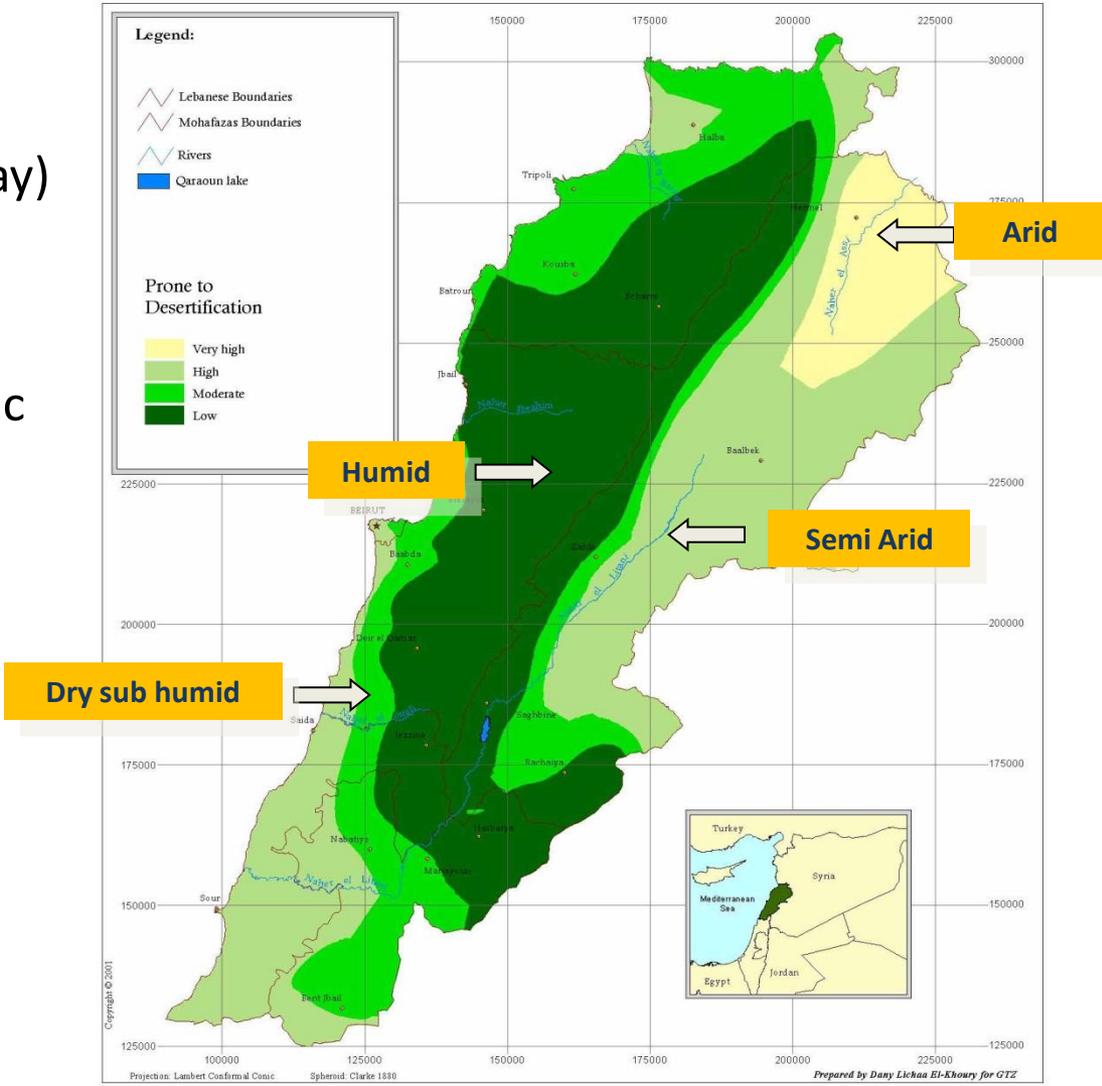
4- The Anti-Leb. Mountains Chain



# CLIMATE

- Is typically **Mediterranean**, heavy rains in winter (Jan.-may) and dry in the remaining 7 months of the year.
- There are mainly **four** climatic zones :

- 1- Humid
- 2- Dry sub humid
- 3- Semi arid
- 4- Arid



# BASIC STATIC AND POPULATION

## •Physical Areas:

Area of the country	1 040 000 Ha
Cultivable area	360 000 Ha (36%)
Cultivated Area	277 000 Ha (27 %)

## •Population:

Total population	4 194 000 inhabitants
Density	400 inhabit./km <sup>2</sup>
Rural population	13 %

# IRRIGATION AREAS

<b>Region</b>	<b>Schemed Irrigation (&gt;100 ha)</b>	<b>Small Scale Irrigation (&lt;100 ha)</b>	<b>Total (ha)</b>
<b>North Lebanon</b>	21 500	2 500	24 000
<b>Beirut &amp; Mount Lebanon</b>	6 500	2 500	9 000
<b>South Lebanon</b>	7 000	5 000	12 000
<b>Bekaa</b>	31 000	14 000	45 000
<b>Total</b>	<b>66 000</b>	<b>24 000</b>	<b>90 000</b>

*Source: FAO, 2000*

According to the Ministry of Energy and Water, this area is expected to increase until reaching **150 000 ha by 2035**

# Water Management in Lebanon overview

- The Ministry of Energy and Water (MoEW) has the main responsibility of Water Policy in Lebanon.
- The **law 221** issued in 2000 has replaced the 21 small water authorities into four Regional Water Authorities in addition to the Litani River Authority (LRA) .
- The **law 377** in 2001 define the National Integrated Resource Management, it adds the sewage water management to the 4 water authorities
- All water authorities are under the patronage of M.E.W.

# Water Management in Lebanon

- **Water Authorities:** Main Responsibilities are:
  - Integrated water Management: Domestic, irrigation and waste water.
  - Water tariff policy.
  - Monitoring water quality.
  - Execution of hydraulic networks , geological studies and data collection.

Span of responsibility: Geo-administrative regional basis (Mount Lebanon and Greater Beirut; South Lebanon; North Lebanon and Bekaa valley).

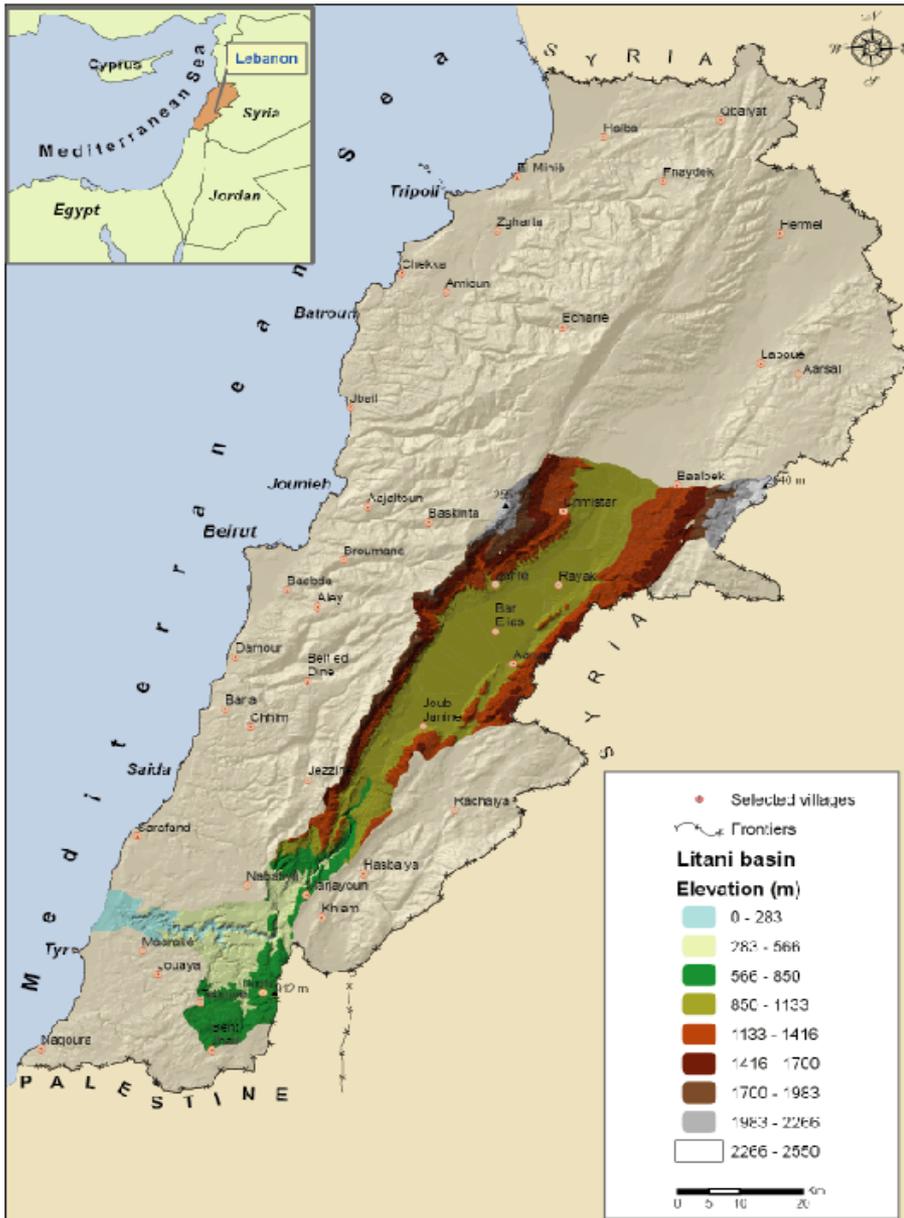
# Litani River Authority

- Created by a Law dated on 14 August 1954 and rectified later on 30 December 1955:
  - Execute the Litani River Master Plan for irrigation, drainage and domestic water.
  - Execute the hydraulic electrical power generation and electrical networks between powerhouse and electrical distribution networks in all Lebanese regions.

# Litani River Authority

- By different decrees, the government of Lebanon adds the following tasks:
  - Hydraulic measurements on all Lebanese rivers.
  - Technical land survey and studies irrigation schemes
  - Provider of domestic water for south Lebanon
  - Responsible of irrigation schemes in southern Bekaa and south Lebanon (Action Domain of two others water authorities).
  - Study and supervision of Water Dams and Ponds
- A new Environmental department was created in 2006 to assess the water quality of Litani River & tributaries

# Control domain over the Litani River Basin in Bekaa Valley, and South of Lebanon



## Main features

- Is the Largest 2088 Km<sup>2</sup> representing 20% of Lebanon area
- It extends 118 km from north to south, and spans 32 km from east to west at its widest point, and 6 km at its narrowest one
- The highest peak (2551 m) lies in Jabal kesrouan located in the Western flank of Mount Lebanon,
- The highest peak in Anti Lebanon is at (2462 m) in Jourd baalbeck,
- In the south the highest 920 m to the east of Houla
- Major part in Bekaa Valley between 850 and 1100

<b>Litani River Authority Irrigation Schemes</b>					
<b>Region</b>	<b>Project</b>	<b>Area in Ha</b>			
		<b>Irrigated</b>	<b>Ongoing</b>	<b>Proposed</b>	<b>Total</b>
<b>South Bekaa</b>	South Bekaa	2000	6700	14800	23500
	South Qaraoun Dam		980		980
	Small and medium Schemes	8090			8090
	<b>Total</b>	<b>10090</b>	<b>7680</b>	<b>14800</b>	<b>32570</b>
<b>South Lebanon</b>	South Lebanon		15000	20000	35000
	Qasmieh	4000		2000	6000
	Pilot Sector	350	850		1200
	Small and medium Schemes	2090			2090
	<b>Total</b>	<b>6440</b>	<b>15850</b>	<b>22000</b>	<b>44290</b>
<b>Total</b>		<b>16530</b>	<b>23530</b>	<b>36800</b>	<b>76860</b>

# Activities related to PIM/IMT

- The LRA has recently begun to encourage farmers to aggregate in WUAs.
- *The aims are:*
  - Better interaction and involvement in water management issues between farmers themselves and farmers with LRA.
  - The perspective to transfer network irrigation management to WUAs.

# Participatory Irrigation Management

## Creation of water users Associations:

- 1 WUA was created in 2004 in South Bekaa Canal 900 scheme (2000 ha), under the law of May 26, 1926
- 4 WUAs under formation since 2011, are in the area of South Lebanon Canal 800 scheme, the file still at MoEW
- Recently, a new version **draft law for WUA** was prepared in collaboration between LRA, UNDP and AFFIAL NGO in Sep 2012, submitted to the MoEW for review to be later approved by the Lebanese Parliament. It has the purpose of **Organizing and regulating the Use of any water source in Lebanon.**

# WUAs' expected Tasks

- Guarantee Equity in Water Allocation
- Protection of irrigation structure and network against vandalism
- Collection of water fees & reimbursement to water authority
- Assistance in Conception and Execution of new irrigation projects
- Achieve and consolidate Agreements of Access rights (for farmers to outlets)

# Irrigation Management Transfer

- **As per the draft law:**
  - the major hydraulic structures remain the responsibility of water authority
  - **Management, Operation & maintenance**, of irrigation networks at **tertiary level** are to be transferred to WUA

# Conclusion

- MoEW has to accelerate the legislation of the new law related to WUAs creation.
- Existence of many irrigation schemes where we could start the application of PIM and IMT under the SWIM project framework.
- Possible study case at 2000 ha irrigation schemes in Bekaa valley.



***THANK YOU***