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**Presentation on
Land Degradation in Lebanon**



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Land Degradation in Lebanon

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United Nations
Development Programme



Republic of Lebanon
Ministry of Agriculture

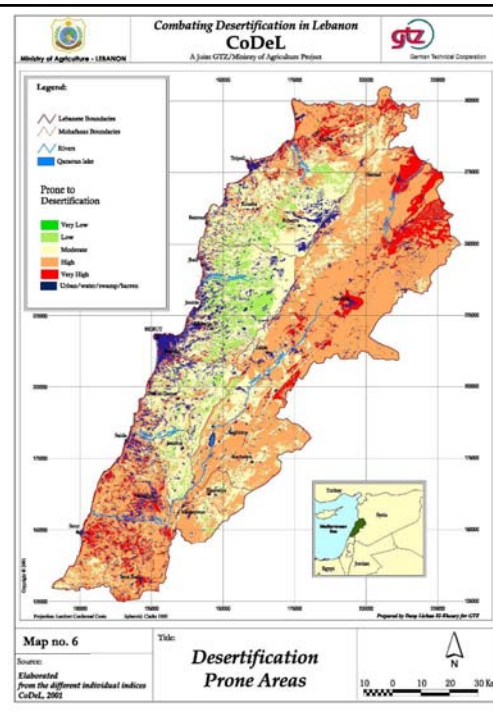
Since the **ratification** of **UNCCD** by the Lebanese Parliament, the **Ministry of Agriculture** in its capacity as the **focal institution** has prepared, in collaboration with the UNDP & GTZ:

- the **NAP** (*June 2003*)
 - **3 National Reports** (*2000, 2002 & 2006*) on the progress of Convention implementation.
 - and a map on **Desertification Prone Area** (*2001*)
-

DPA Map

60% of the Lebanese territory are under threat of **land degradation**, mainly in

- Bekaa Valley
- Akkar /North Lebanon
- South Lebanon



Recently with the support of **GTZ** and **National Center for Remote Sensing (NCRS)**, a regional programme for **monitoring** and **evaluation** is on-going Lebanon, Syria and Jordan.

Benchmarks and **Indicators** were identified as priority areas for NAP => a **monitoring system of land degradation** "MoDEL has been created by MoA/GTZ/ACSAD.

Lebanon

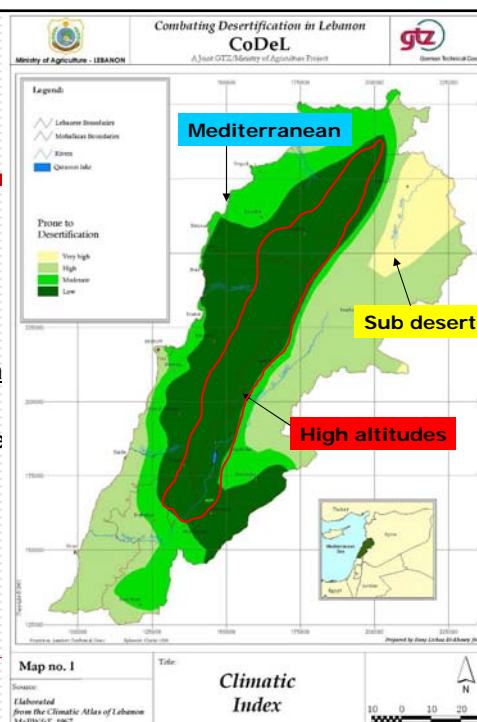
- Total area: 10452 Km²
- Lebanon is situated East of the Mediterranean Sea, with 225 Km of coastline between:
 - Latitudes 33° N - 35° N
 - Longitudes 35° E - 37° E
- Total population estimated: 3.77 million in 2004

Biophysical Conditions (1):

Mediterranean climate along the coastal plain & in the middle mountain range

Sub-desertic climate in North Bekaa

	Mean annual T°	Range
Coast	20°C	13°C - 27°C
Bekaa	16°C	5°C - 26°C
High altitudes	10°C	0°C - 18°C

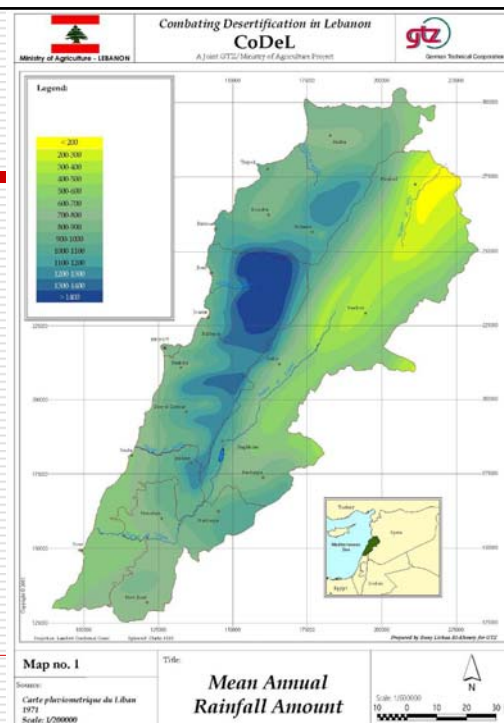


Biophysical Conditions (2):

Rainfall occurs between **November** and **March**, in form of heavy rain shower.

The average rainfall (mm/year)

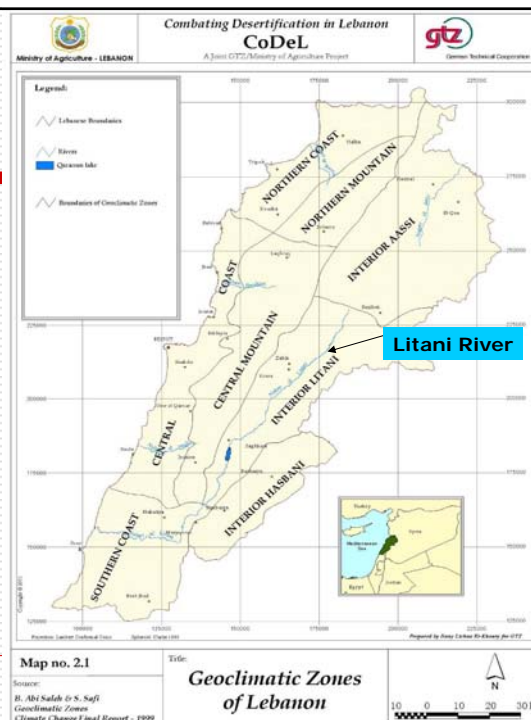
Coast	600
Leb Mount	600 - 1400
Anti-Leb	500 - 1000
Bekaa	150 - 800
North Bekaa	<200



Biophysical Conditions (3):

Being at a higher elevation than its neighbors, Lebanon has practically **no incoming surface water flow**.

There are about 40 major streams, including **Litani River**: the only major river in the Near East **not crossing an international boundary**.



Biophysical Conditions (4):

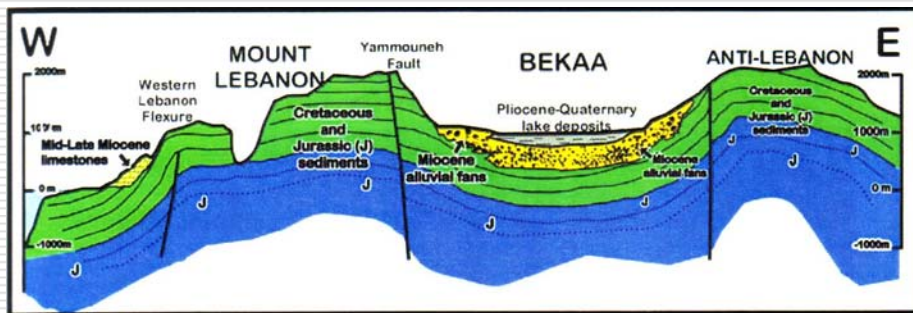
Constraints facing water development:

- **Inconsistency** of water supply during **summer dry months**
 - **Groundwater** flow to the **sea**
 - **geological conditions** for viable sites for storage dams
-

Biophysical Conditions (5):

Topographically:

- narrow **coastal plain** parallel to the sea
- Lebanon **mountain chain** rising to 3,088 m
- **Bekaa valley** at 900 m altitude
- **Anti-Lebanon mountain chain** up to 2,800 m high



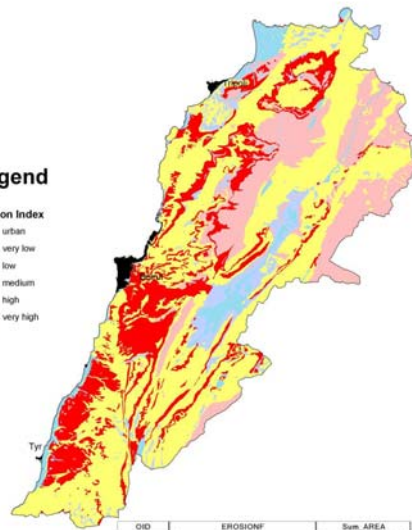
Biophysical Conditions (6):

Lebanon's **Soils** are typically less developed, young, poorly structured, shallow and **susceptible to erosion** by **water** and **wind**, resulting in some areas of bare rock

Erosion Risk Map

Legend

Erosion Index
 urban
 very low
 low
 medium
 high
 very high



OID	EROSIONF	Sum AREA
0	high	1817888393 3887
1	low	639507681 0938
2	medium	8165516438 6348
3	urban	93830972 3839
4	very high	1843438156 6543
5	very low	486249932 582

Biophysical Conditions (7):

Forest

13% of total land

Cultivated area

24% of total land

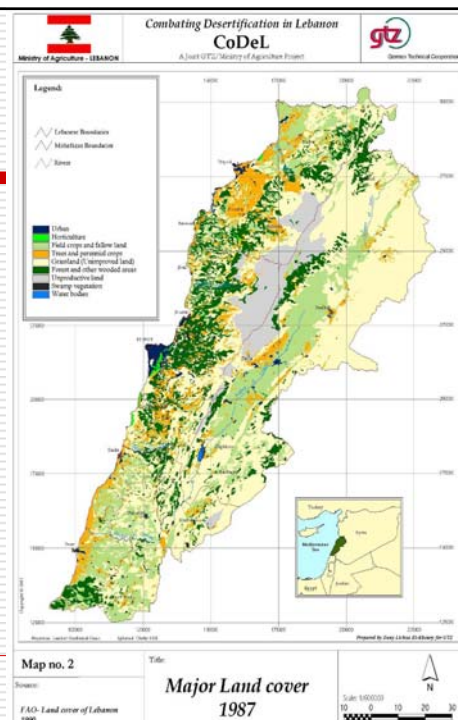
of which

42% irrigated area

And of which

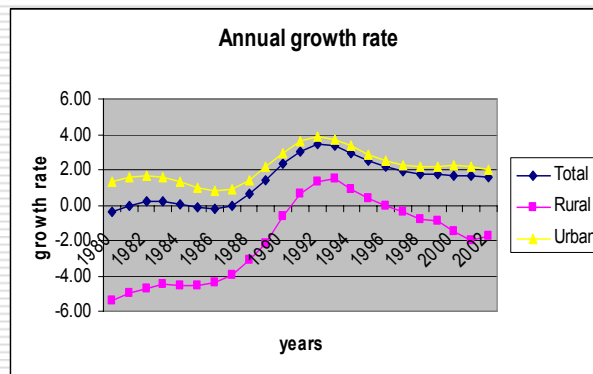
47% perennial crops

49% annual crops



Demography:

Population
growing rate
is 1.3%



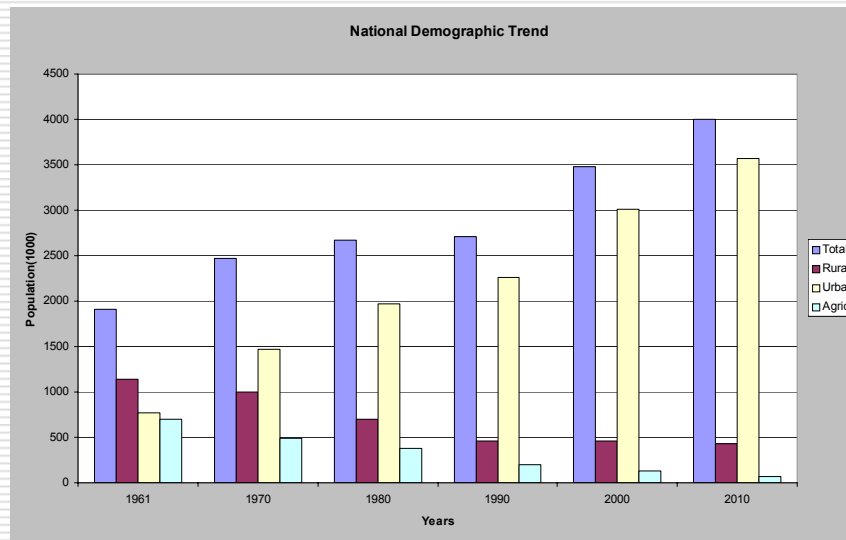
Demography:

Population **density** is 400 people/Km²

88% of the population in urban areas

It is estimated by 2010, rural and agricultural population will decrease to represent **1.85%** of the total population

National demographic trends 1961-2010



Institutional & Legislative environment:

The main problems:

- Unclear **definition of roles** of various ministries & government institutions
 - Lack of **coordination** between public and private sectors
 - Lack of clarity and internal **inconsistencies** in **legal** and **regulatory texts**
-

Economic Setting:

The recurrent **war** damaged the Lebanese **economy**
=► damaged infrastructure and low national outputs
=► migration (mainly men aging 20 to 25 years)

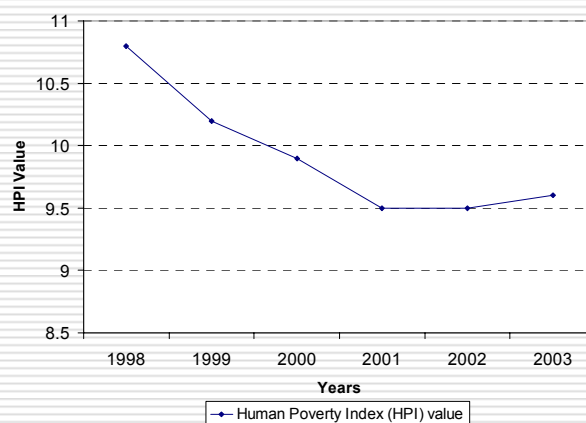
Agriculture labor force declined from **25%** in 1967
to less than **9%** in 1990.

Great disparity is noted between **regions** in terms of
poverty levels and infrastructure and services
available

Economic Setting:

HPI value trend 1998-2003

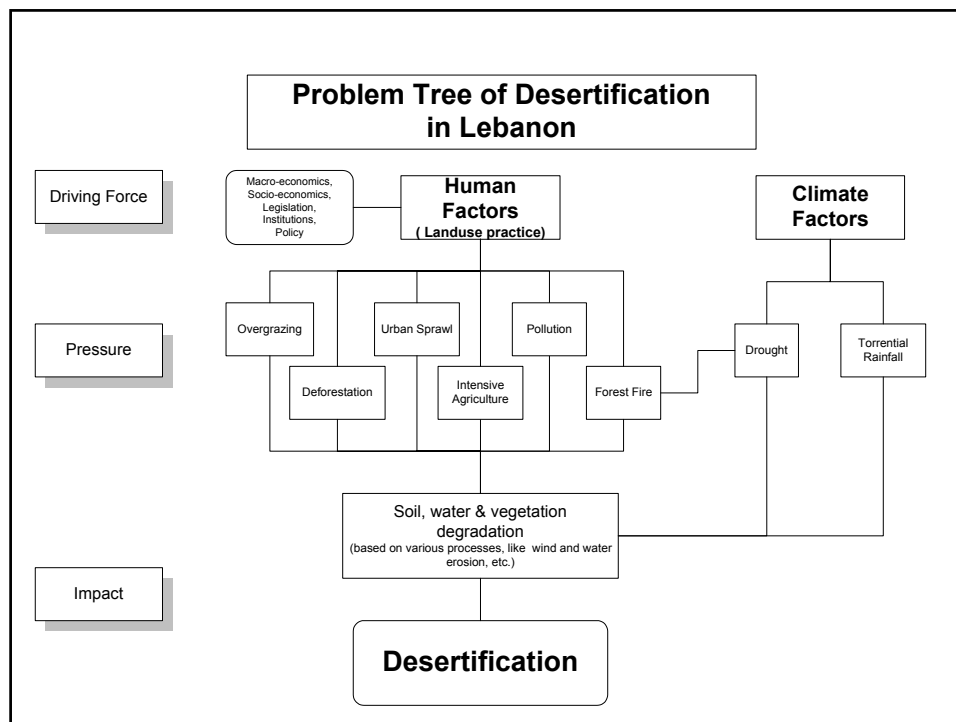
Lebanon **HPI**
decreased from
10.2 in 2001
to be
9.5 in 2003



Land degradation in Lebanon results mainly from:

- **Drought** and **torrential rainfall** are part of the climatic pressures.
 - **Human driving forces** stem out from macro-economics, socio-economics, legislation, institutions and policy.
 - The resulting pressures on land include **overgrazing**, **urban sprawl**, **pollution**, **deforestation** and **intensive agriculture**.
-

This **Figure** shows the problem tree of desertification in Lebanon based on the driving force, pressure, and impact framework:



Pilot Projects

Integrated Natural Resources
Management to Combat Desertification
in West Asia

UNCCD/SRAP-WA

Construction of Hill Lake in Yammouneh – East Lebanon

Yammouneh

Sub-humid
650 mm & 1360 m alt
24°C in Summer
-15°C in Winter
Steep slopes
Fragile soil

It suffers:

- *Soil erosion by water*
- *Overgrazing*
- *Lack of water resources*
- *Poverty & migration*



Excavation works

Construction of Hill Lake in Yammouneh – East Lebanon

Micro-catchment

Capacity 5000
m³



Snow melt water harvesting

Construction of Stone Walls in Yammouneh– East Lebanon



Construction of Stone Walls in Yammouneh– East Lebanon



Construction of Stone Walls in Yammouneh– East Lebanon



Construction of Stone Walls in Yammouneh– East Lebanon



Construction of Stone Walls in Yammouneh– East Lebanon



Aromatic endogenous plantations: Sage

Flood Risk Mananagement in the Area of North Bekaa (gtz_ ACSAD)

Satellite
imagery for al
Qaa watershed
showing the
flood area and
the damage of
the agricultural
and urban areas



Flood Risk Mananagement in the Area of North Bekaa



Flood Risk Mananagement in the Area of North Bekaa



Lessons learnt

- It is very crucial to strength work with local municipalities
 - Public lands are the most vulnerable to desertification => should be protected through raising the **awareness** of local population on the importance to **conserve** these lands at economic and environmental level
 - Farmers look for interventions that affect the economic benefits rapidly
-

More capacity building is needed in order to improve on **cooperation** implementation, **monitoring** and **evaluation** of programmes and projects on combating desertification



Thank you