

# Hydro-diplomacy and the Nexus: Climate Change Adaptation in the Middle-East



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18-19 may 2018, Nicosia, Cyprus

# The Geopolitics of “water, energy and food ”

-the most important strategic issues for the security and social stability of the Arab region.

-National, Arab and international dimensions

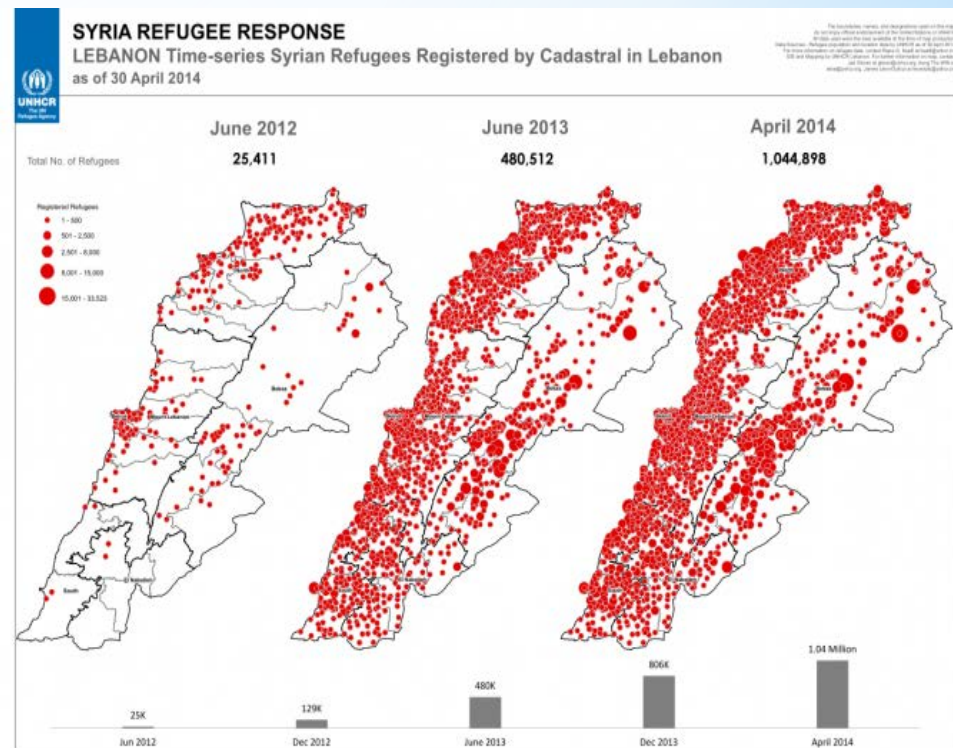
-Interdependence of water and energy and their vital, economic and thus political importance for all the states





The Arab world is already under pressure:

- Political and military conflicts generating mass population transfer.
- Displaced communities (one and a half million Syrian refugees in Lebanon and two millions Syrian refugees in Jordan).
- The growing demand on water and the unsustainable management of this sector.



Those factors  
might cause:

-the depletion of  
renewable and  
non-renewable  
natural resources  
(groundwater,  
fossil water).

-The  
deterioration  
of water  
quality in this  
region.

-Conflicts over  
natural  
resources  
influenced by  
the global  
changes

Thus it is necessary to emphasize the Water-Energy- Food  
Nexus.



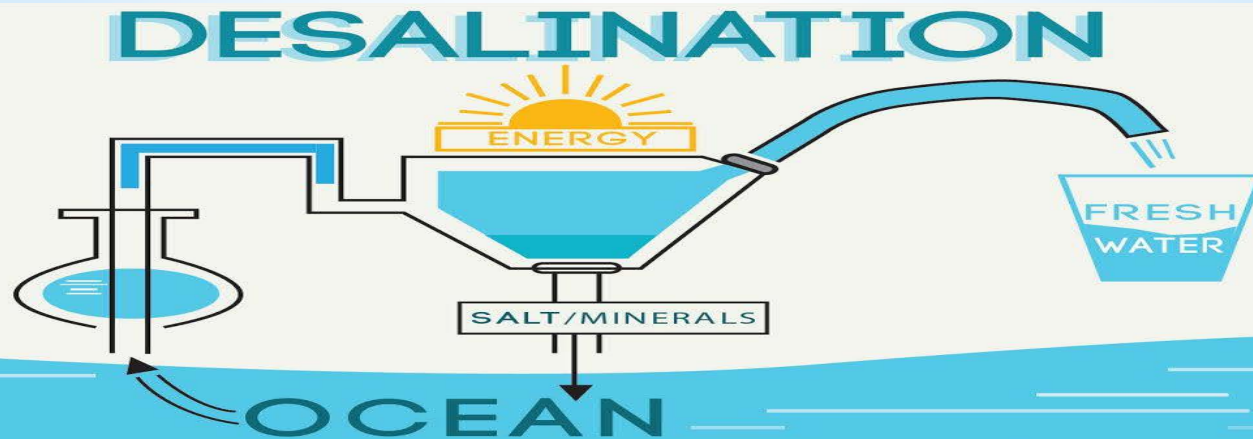
- In the Arab region; the total volume of available surface water resources in the Arab countries is estimated at 277 billion m<sup>3</sup> per year, of which only 43% originates from Arab countries and 57% coming from outside the region.
- The first challenge for policy makers in different countries: difficulty of satisfying the growing demand on water.
- The second challenge: the availability and the access to fresh water.



The Arab region suffers from water depletion and exhaustion:

Need to resort to non-traditional(non-conventional)means in order to produce fresh water suitable for consumption and irrigation, in particular:

- The desalination of seawater requiring a high energy consumption( Arab states of the Gulf devote about 30% of their energy production to the desalination of water).
- Drilling deep wells in non-renewable underground reservoirs (fossil aquifers)
- pumping water to feed the Arab cities with drinking water . This is what exposes underground reservoirs linked to food safety to exhaustion and to future conflicts over shared aquifers.





## The irrigation sector in the Arab region:

- Uses around 80 % of the renewable fresh water; this large percentage is due to the use of old irrigation methods instead of modern ones such as the drip irrigation which consumes 6000 m<sup>3</sup> of water per hectare instead of 10000 m<sup>3</sup> / hectare.
- The absence of consumption of non-conventional waters (reused waste water) of the North Mediterranean area.





The third challenge:

Time factor



climate change



A huge influence on the amount of available water in the rivers and aquifers.





## How will the situation in the Arab region be?

-A semi-arid climate that is turning into a completely dry climate because of the unsustainable Water management and energy sources; a management that is not based on integrated resource management (IWRM).

This reality turns the attention of states to the water of their neighbors ignoring international laws.



**The United Nations has addressed this:**

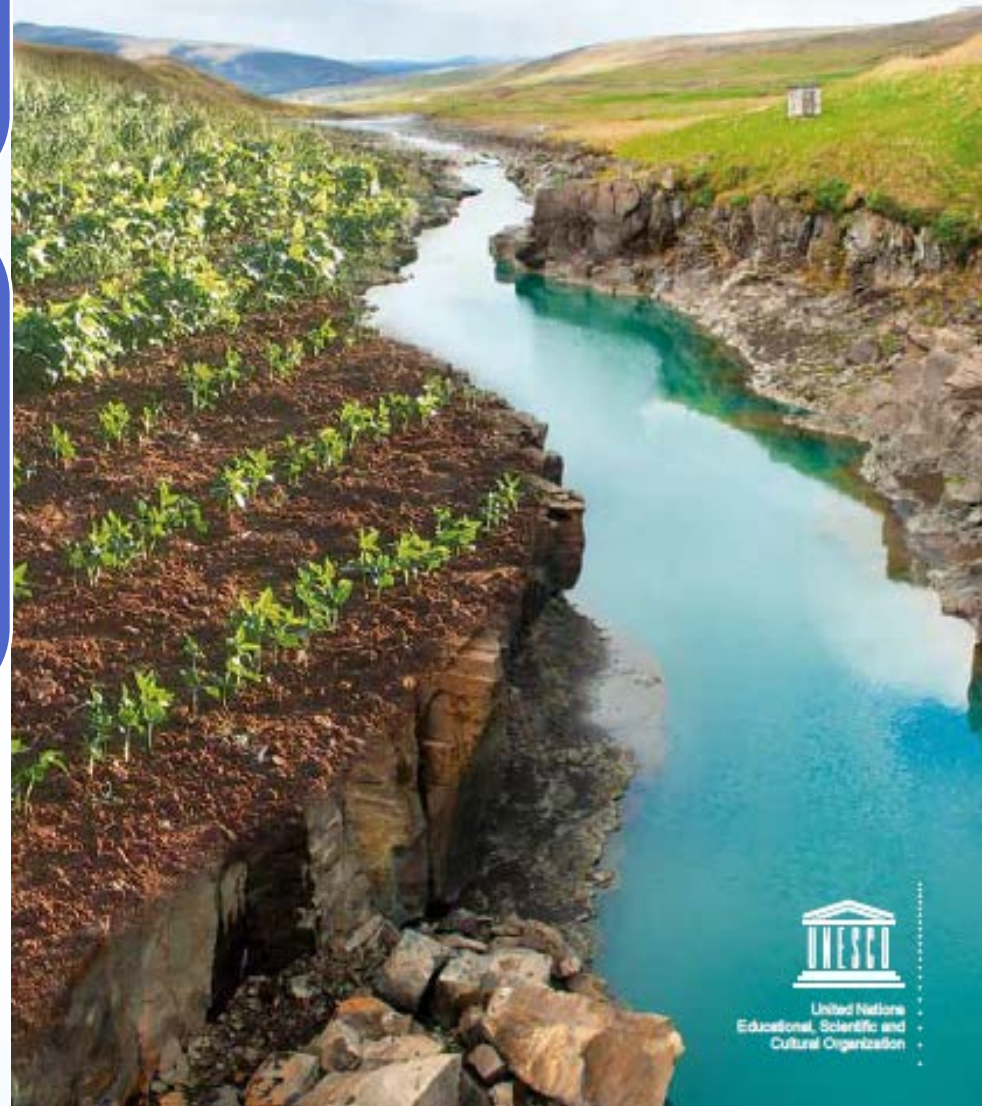
- to avoid conflicts, wars and damages
- to achieve an optimal, and equitable utilization of shared water sources based on the 1997 United Nations Convention .
- to establish the concept of cooperation rather than the military hegemonic management of shared river basins, which represents the fourth challenge.



Lebanon established a new concept: the “Hydro diplomacy” .

The concept of hydro diplomacy was addressed by UNESCO in 2015 in a book entitled “Science diplomacy and transboundary water management : The Orontes river Case.”

Science diplomacy  
and transboundary water management  
The Orontes River case



United Nations  
Educational, Scientific and  
Cultural Organization

Lebanon proposed the concept of  
Hydro diplomacy

-The creation of regional and international organizations for Management of shared basins so all riparian states would be presented and could be under the auspices of the United Nations as the following basins: The Jordan, the Nile river, the Tigris-Euphrates and the common groundwater basins, which also applies to the Gulf and Maghreb countries.





# Hydro-hegemony burden vs hydro-diplomacy

The Oslo accords :

-bilateral cooperation between these countries and Israel.

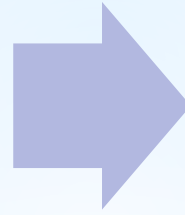
-Jordan, located at the bottom of the basin, is working with Israel to develop the Red Sea - Dead Sea Canal Project, which provides for more than one billion cubic meters of non-conventional water to meet their needs. This project has been estimated at 10 billion U.S. dollars by the World Bank and brings together all the riparian countries with the exception of Lebanon and Syria.

-Recently, Palestine seeks to participate in this project, which should include all the opponent countries: Lebanon, Syria, Jordan and occupied Palestine.

-Due to the pressure on all Arab countries, this project was limited to two involved parties: Israel and Jordan.

Eau conventionnelle	
Bassin du Jourdain	1.8 Milliards m <sup>3</sup> /an
Eau non conventionnelle	
Canal (mer Rouge-Morte/mer Med-Morte)	1.0 Milliards m <sup>3</sup> /an
Eaux usées traitées	0.5 Milliards m <sup>3</sup> /an
Dessalement	0.3 Milliards m <sup>3</sup> /an
Sources d'eau marine	0.2 Milliards m <sup>3</sup> /an
Apport mobilisé	4.0 Milliards m <sup>3</sup> /an

As for the Nile River:



-Egypt headed by the President Abdel Fattah Sissi has been working hard since 2015 with the states of Sudan and Ethiopia to transform the Nile River into a center of cooperation and prosperity for the three countries mentioned above and all the concerned states.





The construction of the Renaissance dam by Ethiopia was at the origin of potential conflict in the basin in the past few years because the needs of hydraulic energy of the riparian States upstream have been considered as a serious threat to water security and power supply in the downstream states, namely Egypt and Sudan.

The Renaissance dam presents a potential capacity that can generate more than 5000 MW that Ethiopia is considering to use at a national level and to sell it to other riparian States and neighboring countries.



The Nile Basin Initiative (NBI) was subsequently launched in 1999 by the riparian States with the support of the international community. Its objective was to "achieve a socio-economic development through the exploitation of water resources in the Nile basin".

-The NBI is a body of transition which encourages cooperation between the Nile basin States in order to establish a permanent commission based on the -co-operative framework agreement of the Nile.

-The NBI has succeeded to a certain extent to promote dialog, sharing of information and the development of a co-operative project; but has always needed to reach a consensus on a new agreement with respect to the Nile.

-Among the projects facilitated by the NBI, we include projects in the sectors of water, energy and food necessary to achieve an improvement of water networks and a better interconnection of electric power networks.





The conflicts settlement in the Nile Basin can be achieved by a comprehensive management approach which uses the analytical framework of the Nexus while focusing on the shared benefits of the basin's management through entry keys points, as the trade of hydraulic energy and connectivity of regional networks, a better agricultural performance through rain fed agriculture water management, greater efficiency of existing irrigation systems and the establishment of institutions on the whole basin for the sharing of information and dialog.



The Euphrates basin could be considered as a reference watershed so that the analysis of the nexus would be made in the analytical framework of water, energy and food safety.

Currently turkey irrigates 230,000 hectares in this basin, in the framework of the Gap project (Southeast Anatolia) and plans to increase this surface to 1.8 million hectares in exploiting waters of the Tigris and Euphrates rivers.

On its side, Iraq has developed thanks to the Euphrates an agricultural partnership estimated between 1.2 and 1.5 million hectares and plans an extension of up to 2 million hectares of irrigated perimeter.

It is estimated that the irrigated area in this basin is approximately 2.3 million hectares; the share of agriculture in the consumption of water is estimated to be approximately 70%.

In 2010 and well before, the conflicts which have erupted in Syria, this country exploited 325000 hectares of agricultural perimeters. This surface was reduced up to 270,000 hectares at the beginning of the war and now these perimeters have been put out of use and require rehabilitation and a agricultural equipment.

This highlights the importance of the Euphrates basin to the food security of the riparian States, including Syria and Iraq and the effect of recent armed conflicts on the basin.



The conflictual situation in Syria and in Iraq has disturbed the security of water, energy and food of the basin.

Several cities in Syria as Aleppo which depend on the Euphrates river in their use of domestic water are currently subject to water stress and hydraulic production has been severely affected.

It is certain that the shortage of water, the drought and the insecurity of water and food products as well as climate change could have contributed to the instability of the region.

The Nexus provides a future incentive for better collaboration and sharing, knowing that a water based approach does not provide an Agreement for the whole basin due to the mistrust between the riparian States caused by a series of unilateral hydraulic projects, the lack of motivation to reach an agreement on the common water resources and the river flow generated by a single country.



we propose the establishment of a high authority for water, energy and food:

-To identify all the needs of the Arab countries

-To develop a general guideline and a comprehensive road map that should be adopted by Arab governments at very high level to face all risks and rush to solve the problems of water, energy and food in the Arab world, while relying on the concept of integrated management to maintain social security for future generations.





**\*Climate Change Assessments are important in this context**

**\*ESCWA recently launched the Arab Climate Change Assessment Report as part of the RICCAR (Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region) in cooperation with more than 10 specialized organizations, and the support of the Cyprus Institute.**

**\*More research needs to be done in the Arab region to be used for informed decisions on climate change and adaptation**

# THANK YOU

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Honorary President of MENBO  
President of MEDURABLE