

# Benefit Sharing: A strong tool to motivate States to cooperate

Jordanian Transboundary Water Management  
the case of the Jordan River and Yarmouk River

Eng. Maysoon Zoubi

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Jordan is perceived as a focus of the Arab countries, a state of stability in the region of the Near and Middle East. It provides a secure basis for economic and human activities of industrialised westerly countries, as well as its Arab neighbours in Lebanon, or countries around the Gulf of Arabia.



## Water in Jordan

- Demand in Jordan outstrips freshwater availability by a sizeable quantity.
- Current demand exceeds freshwater supply by more than 1,000 MCM.
- In order to face this challenge, the Kingdom is actively pursuing innovative solutions such as wastewater treatment, brackish water desalination, tapping from new water sources (such as the Disi Aquifer), effective demand management, enhancement of water supply and reduction of NRW.

## Water in Jordan...*continued*

- Jordan is also embarking upon efforts to foster better relations with Saudi Arabia, Israel and Syria with which it shares common water sources.
- Optimized cooperation with these countries will ensure for just water allocations and also encourage more information exchanges so that neighbouring countries can learn from each others best practices.

## Transboundary (TB) Water Complexity

- Water flows do not respect geo-political delineations. The involvement of two or more states makes this issue highly political, especially if power relations are not equal.
- Water is indispensable for human and environmental health, as well as economic development. Almost every sector of human activity depends on water resources, from agriculture to industrial production and power generation.
- This makes TB management not only highly political but also categorizes it as an affair of national security.

# Transboundary water management in practice

- The following slides will review two case studies that showcase transboundary management of the Jordan River Basin and the Yarmouk River Basin.





## Transboundary water management in practice

- Shared quantities and allocation regimes are stipulated in agreements between Jordan and Israel and between Jordan and Syria. These quantities are not realized, for various reasons.
- Moreover, since these agreements were put in place, there have been significant advances in technology and changes in water and energy availability.



## Transboundary water management in practice

- However, efforts in the region show that water management can also provide potential for ENHANCED COOPERATION.
- It is important to not only focus bilateral negotiations on water sharing rights but to shift cooperation to a general policy making related to COMMON INTERESTS and needs in water resources management.

# The Jordan River Basin

- The Jordan River is a river 300 km in length and stems from three main sources in Israel, Lebanon and the Golan Heights.
- The Upper Jordan River then flows into the Sea of Galilee, the largest fresh water lake in the Near East. The watershed of the Lower Jordan River (excluding that of the Dead Sea) includes Lebanese, Syrian, Israeli, Jordanian and Palestinian areas.



# The Jordan River Basin



- Drainage area: 18,140Km<sup>2</sup>

	<b>Riparian</b>	<b>Contribution to the JR (Km<sup>2</sup>)</b>
1	<b>Jordan</b>	<b>7,216</b>
2	<b>Syria</b>	<b>6,445</b>
3	<b>Israel</b>	<b>1,925</b>
4	<b>West Bank</b>	<b>1,842</b>
5	<b>Lebanon</b>	<b>712</b>

- The upper Jordan River (6Km): consists of headwaters of the following rivers:
  - Dan**: the largest spring originates in Israel
  - Hasbani**: rises in Lebanon
  - Banias**: rises in Golan Heights, all to Lake Tiberius (210BSL)
- The lower Jordan River (320 Km): originates from Lake Tiberius, receives water from the Yarmouk River and continues to reach the Dead Sea (400BSL)

# Jordan River Status Quo



- Israel National Water Carrier ,1958
  - from Lake Tiberius to Naqab Desert. 390MCM/year is pumped up to 360m for 205Km to irrigate 215,000ha.
  - only 15mcm/year is used for drinking purposes
  - 1/7 of the total electricity generated in Israel is used for operating the pumping facilities along the carrier.
  - The annual cost of pumping water from the carrier and the wells in the west bank is US\$1.2-1.8 billion - the same cost of obtaining the same amount of water from sea water desalination
- Jordan East Ghor Canal, 1962
  - Carries the Jordanian water share of the Yarmouk River for 110Km to the Jordan Valley
- Syria, 42 dams on the YR and a minimum of 3000 wells were dug in the Yarmouk Basin Aquifer.

## Status Quo...*continued*

- The Jordan River once fed the Dead Sea with an average of 1.3 billion cubic meters of freshwater every year. Today this amount has been reduced to just 60 million cubic meters per year due to the diversion of 95 % of the River's flow by Israel, Jordan and Syria.
- Consequently, the water level of the Dead Sea, the unique salt-lake and lowest point on the surface of the planet, is dropping by one meter every year. The Jordan River, in turn, has been transformed into little more than an open channel of agricultural run-off, diverted saline waters and untreated sewage.

## Shared Benefits

- The Israeli-Jordanian Peace Treaty was signed in October 1994 and includes extensive water provisions, such as allocation of rights to water resources in the Jordan Basin, as well as joint projects to develop further water resources and prevent pollution.
- Resulting from the latter point, numerous trilateral initiatives have emerged:

## Shared Benefits...*continued*

- 1.) Red – Dead Conveyance Project, a joint Israeli-Palestinian-Jordanian initiative that aims to transfer ca 2 BCM of seawater. Half of which will be dedicated to saving the Dead Sea. The remaining amounts will be desalinated for usage in Israel, Palestine and Jordan.
- 2.) The Regional Water Data Banks Project (RWDBP) gathered decision-makers from all Israel, Palestine and Jordan to enhance water data availability.
- 3.) Initiatives have also emerged from civil society. Friends of the Middle East, for example, is working on rehabilitating the Jordan River Basin through a package of participatory and grass-roots measures.

## Shared Benefits...*continued*

- The aforementioned examples demonstrate that the will to act together for positive change is there.
- Unfortunately, all three projects face resistance, delays and other challenges.
- More needs to be done by each of the governments to remove barriers and to strengthen awareness of the benefits of cooperation.

# The Yarmouk River Basin

- The Yarmouk River is the biggest feeding tributary to the Jordan River.
- The Yarmouk River Basin is shared between Syria and Jordan with a total length of 57km, of which 10km run within Jordanian territory to while 47km run upstream within Syrian boundaries.
- Through the King Abdullah Canal, the Yarmouk River provides Jordan with water for drinking and irrigation purposes.



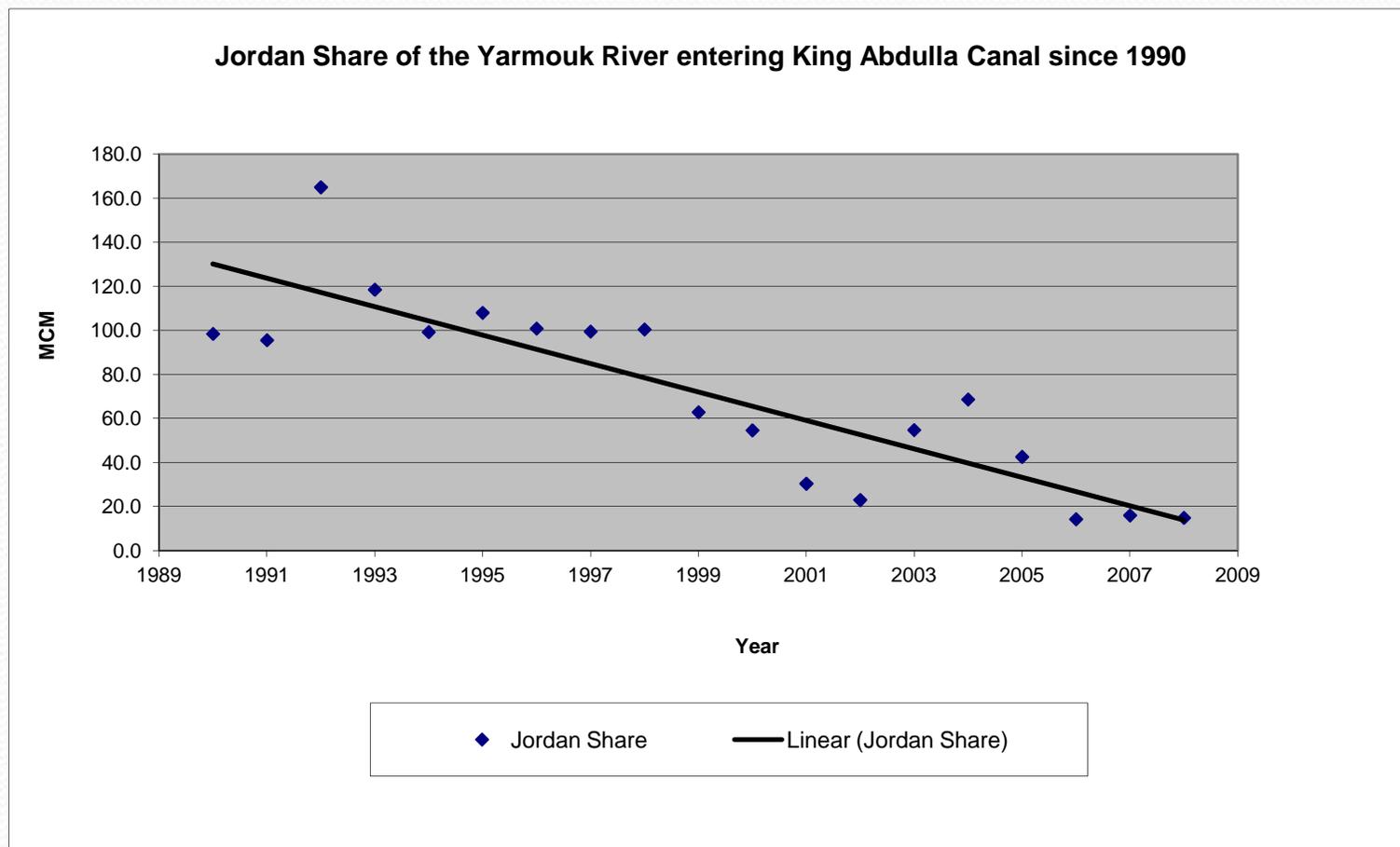
## History of cooperation

- In the framework of the Johnston Plan of 1955, Jordan, Lebanon, Syria and Egypt agreed to build a 300 MCM dam at Maqarin on the Yarmouk River and a diversion weir at Addasiya in order to convey water to Jordanian lands.
- In 1987, Syria and Jordan reaffirmed their mutual commitment to a dam at Maqarin whereby Jordan would receive 75% of the water stored in the proposed reservoir and Syria would receive all of the generated hydropower.
- In 1994, the Jordanian-Israeli Peace Treaty stipulated the following water distribution from the Yarmouk River: Israel 25MCM, Syria 90 MCM and Jordan with the rest of the annual discharge which averages at around 296 MCM.

## Status quo

- The average Syrian abstraction from the Yarmouk River lies between 247.6 MCM and 305.3 MCM.
- At Al-Adasiya, the discharge of the Yarmouk River designated for Jordan decreased from 468.5 in 1927-1947 to 61 MCM in 2008.
- The reason for this can be traced back to weak integrated water resources management of the River.
- Syria practices extensive agriculture upstream of the Yarmouk River.
- In fact, in 2000 42 dams were built on the Yarmouk River within Syrian territory adding to the 26 already existing ones.
- Both countries built 3000 wells to exploit the groundwater from a shared ground water basin between the two countries.

# Jordan's share of the Yarmouk River since 1990



## Shared benefits

- The Jordanian-Syrian relations have experienced some political tensions. However, this should not be jeopardizing efficient water management in both countries. It is important to shift the debate away from cross-boundary issues and to instead focus on mutual interests and shared benefits.



## Possible shared benefits

- Improve the public transportation infrastructure between the two countries in order to facilitate the tourism movement.
- Open new export windows for Syrian products through the Red Sea.
- Open new export windows for Jordanian products through the Mediterranean Sea.
- Support trade off strategies, for instance, Syria can improve the management of water upstream so Jordan can benefit of extra quantities of water to be stored in Wehdah dam and at the same time can generate electricity for Syria.

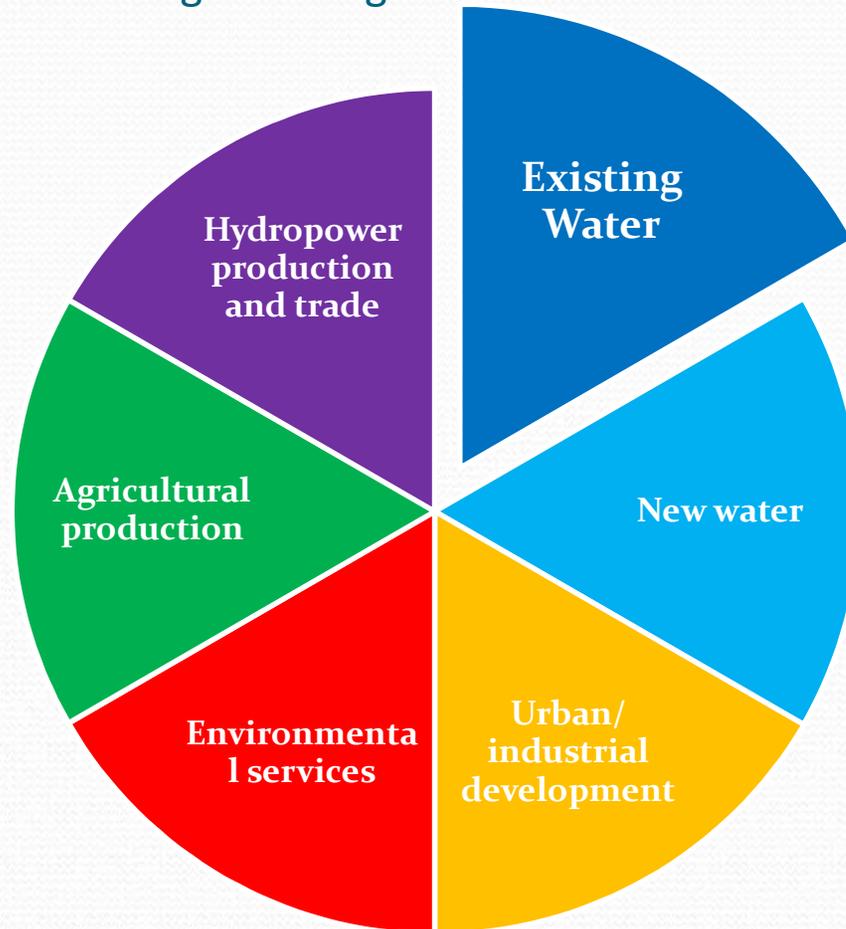


## **Transboundary water management as a means for peace and cooperation**

- Clever maneuvering can circumvent differences and instead lead to better cooperation which is the pathway for peace-building.
- Several regional efforts and numerous international initiatives (i.e. Rhine River Basin, Senegal Basin) have highlighted that it is important to focus on shared challenges and benefits rather than seeing water as a transboundary concern.

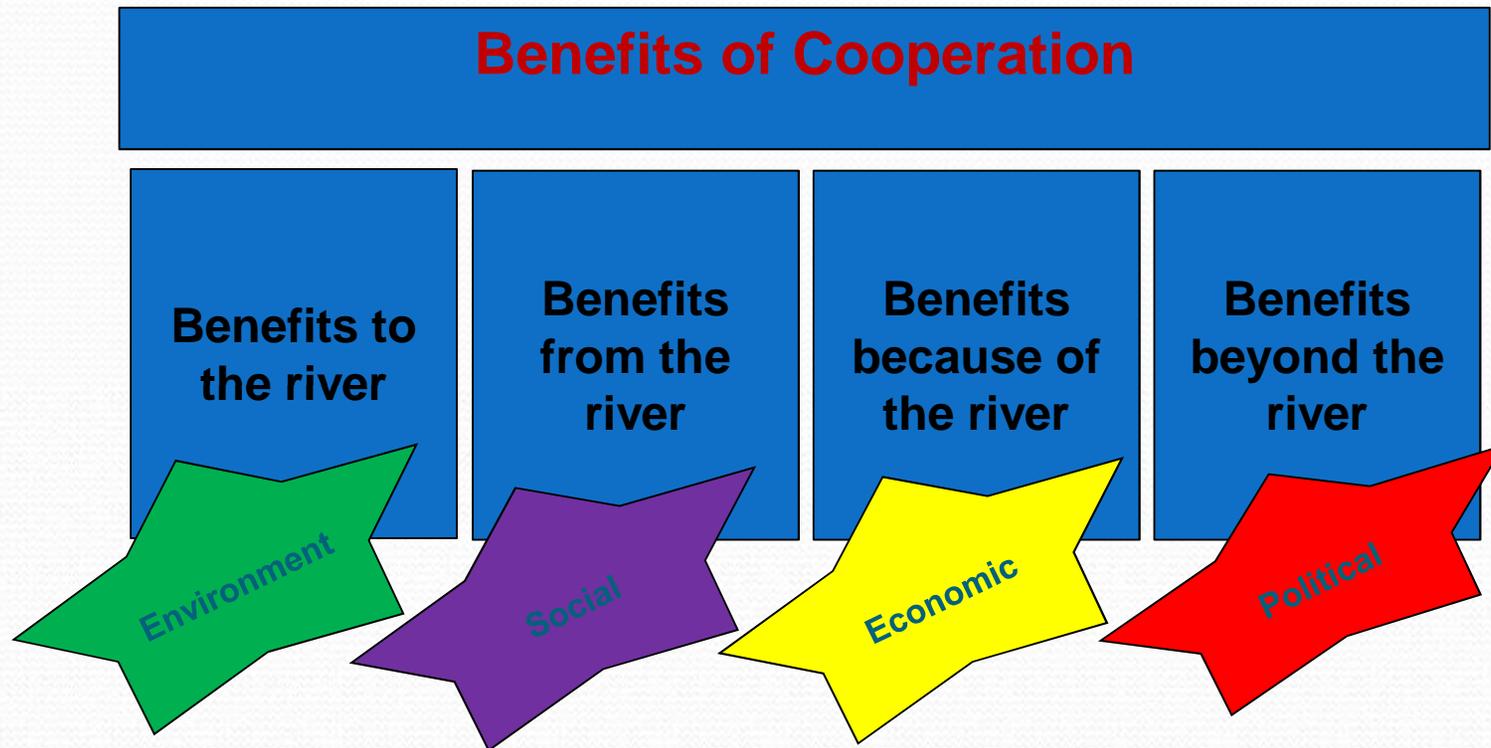
# How to focus on shared benefits

Benefit sharing: A strong tool to motivate states to cooperate



- To get out of the water box
- To identify cooperative joint projects
- To generate and share benefits
- To create positive-sum outcomes and make the pie bigger (encourage win-win solutions, benefit sharing, optimal use of water resources (hydro-electricity, etc,))
- To start with small steps...

# Benefit Sharing Approach



**“A focus on sharing the benefits derived from the use of water rather than the allocation of water itself, provides far greater scope for identifying mutually beneficial cooperative actions”.**

**Sadof and grey, 2005**

# Senegal Basin

Good example of transboundary water cooperation

- **Context:** 4 riparians: Senegal, Mali, Mauritania, Guinea
- Well-established Senegal River basin Organization (1972)
- **Goals:** shared development, joint governance and conflict management
- **Approach:** Jointly planning and owning infrastructure as well as sharing costs and benefits
- **Activities:** Water and socio-economic development through: food security, hydropower production, navigation)



## Manatali Dam

	Senegal	Mauritania	Mali
Energy production	33%	15%	52%
Irrigation and navigation	42%	34%	24%
Shared cost	42%	23%	35%

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