

Chromo-hydropolitics in the Eastern Mediterranean

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A, B, C

- The Middle East region is recognized as the driest and most water scarce region in the world.
- While representing **5% of the total world population**, the Middle East region contains less than **1% of the global renewable water resources**.
- Water resources have been exploited at a much higher rate than can be replenished naturally.
- Most countries in the region are heading towards a **severe water crisis**.
- Water resources have been exploited at a much higher rate than can be replenished naturally.
- Water depletion has been compounded by a **high growth of population** and the expanding needs in agriculture and industry.
- Pollution has contributed to the deterioration of the usable resources and a general decline in **water quality**.

- While the water crisis itself in the region is a consequence of natural scarcity and growing demand, water disputes emerge from the **lack of binding legal agreements regulating the use of the shared water bodies.**
- Most of the water resources in the Middle East region are transboundary and stem from two major waterways: **the Tigris-Euphrates and Jordan River systems.**
- Competition over the utilization of these shared resources has made **water a catalyst for conflict.**
- **The current allocations of the shared water resources among the riparians in the region are not the outcome of agreements, negotiations or equitable principles.**

Water Colors

- Blue (physical)
- Green (in food)



- Grey cell (Science and Technology)
- Gold (money)
- Yellow – Red (conflict)

YELLOW WATER in EAST MED

- Israel - Palestine: West bank aquifers, Jordan River.
- Israel – Syria: Yarmouk, Tiberias.
- Israel- Jordan: 50 MCM.
- Israel- Lebanon: Hasbani, Litani.
- Syria- Jordan: Yarmouk.
- Turkey- Syria: Euphrates.
- Turkey- Iraq: Euphrates- Tigris.
- Palestine- Jordan: Jordan River.
- Syria- Iraq: Euphrates.
- Jordan- Saudi Arabia: Dissi fossil aquifer.

Syria-Turkey

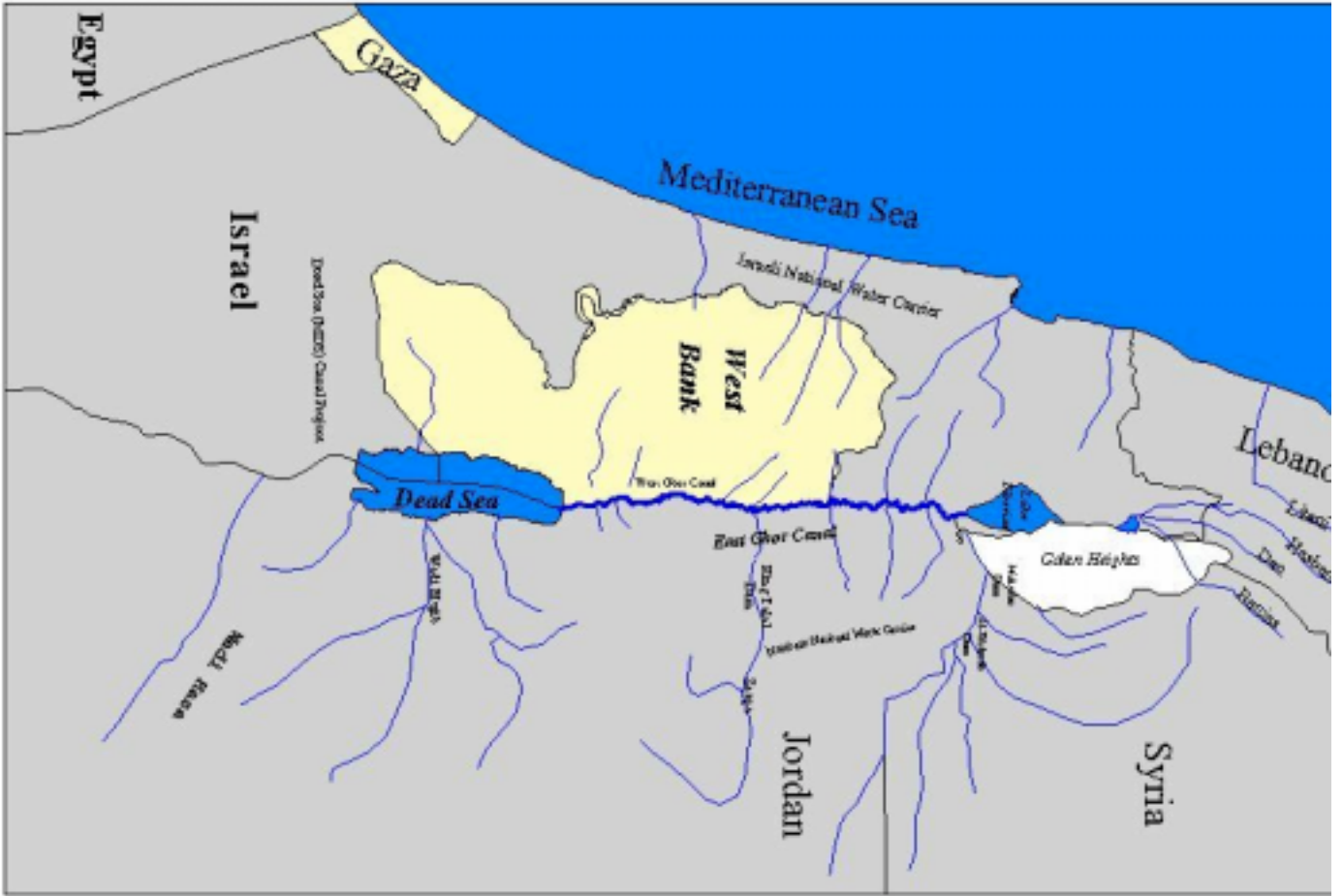
- The Euphrates River flows from its origins in Turkey through Syria and Iraq.
- In the early 1990's, the water flows from Turkey to Syria were decreased stopping **seven of the ten turbines** at the hydroelectric plant at Tabaqah which led to severe power cuts throughout the country.
- In 1997, Turkey launched the **GAP** project which affected the flow of water downstream to Syria and Iraq. Syria considers the Euphrates River to be its principal source of water and wants to maintain the flow of the river downstream to **500 MCM** annually.

Syria-Iraq

- In 1974, Syria inaugurated Al-Thawrah Dam on the Euphrates. When the Syrians began to fill the reservoir at Lake Asad, the flow of the river to Iraq dropped from the normal **920 cubic** meters per second to an "intolerable" **197 cubic** meters per second. Troops were redeployed but the intervention of the Soviet Union and Saudi Arabia diffused the tension.
- Iraq is concerned that water reaching its borders is decreasing in both quantity and quality.

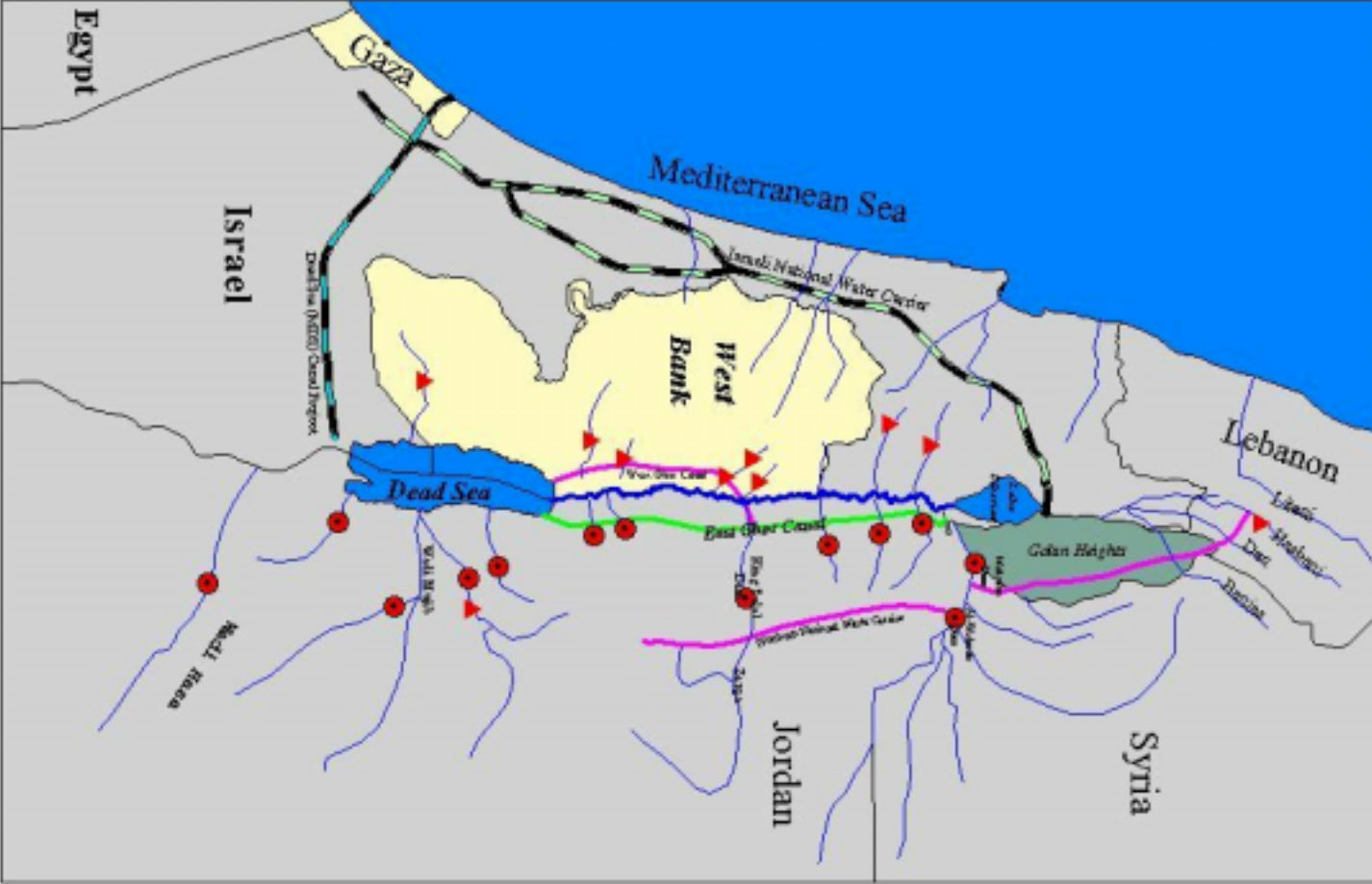
Turkey-Iraq

- In their first meeting after the war, Turkish, Syrian, and Iraqi water officials convened in Damascus in September 1992, but broke up after Turkey rejected an Iraqi request that flow crossing the Turkish border be increased from 500 cubic meters per second to 700 cubic meters per second (Gruen 1993).
- Water reaching Iraq is decreasing in both quantity and quality. There is considerable evidence that at Basra much of the irrigated land are lost due to excessive salinity.

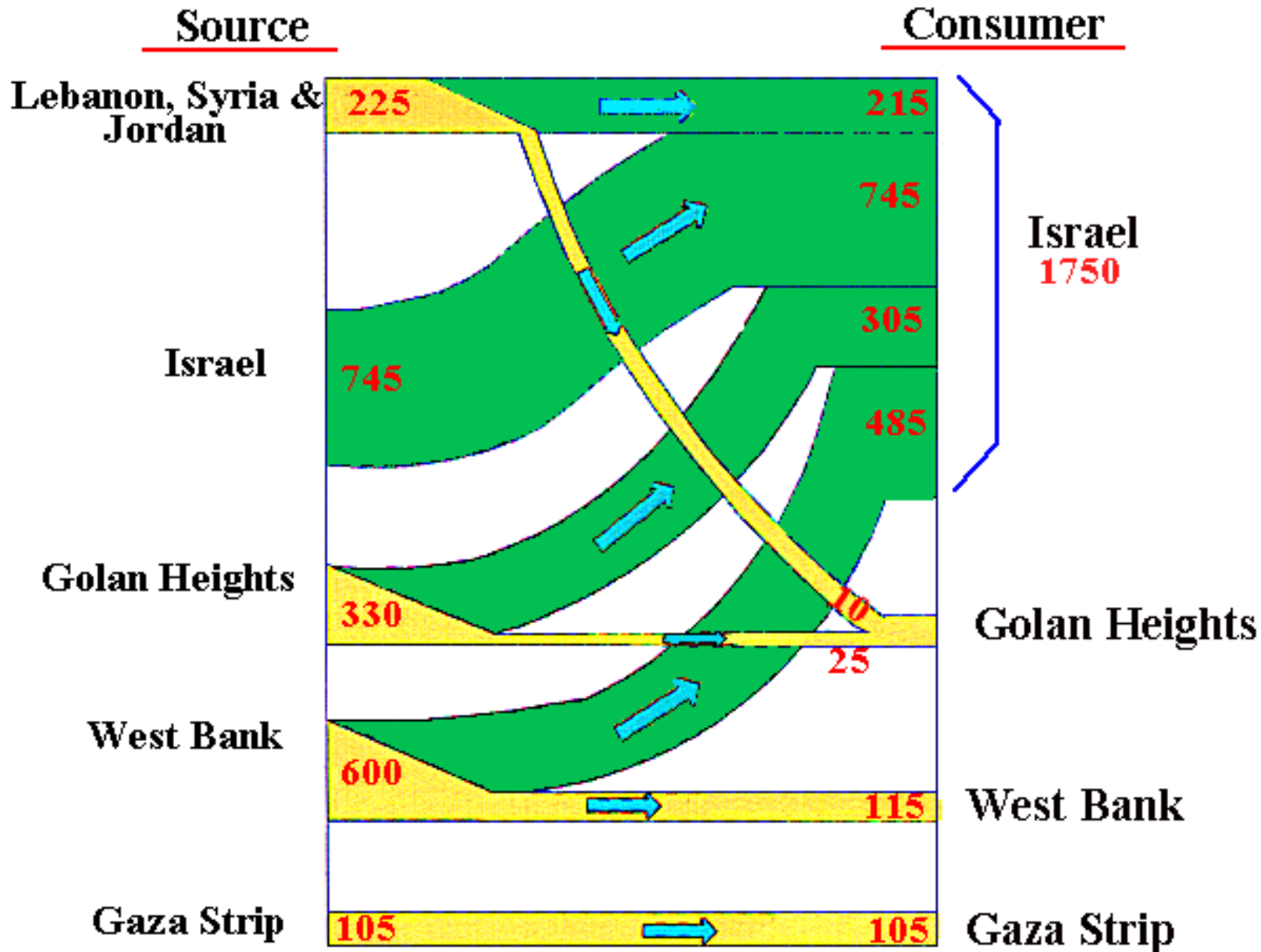


Jordan River Water Allocations in MCM

Country	Johnston R	Current	Change
Syria	132	153	+ 21
Lebanon	35	7	- 28
Jordan	720	480	- 240
Israel	400	647	+ 247
Total	1287		



Causes of yellow water



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Voice of the River

- I am one body of different organs but there are those who are dividing me
- I lost one organ “Huleh”.
- My historic flow of 1250 MCM annually has been reduced to 200 MCM of BAD Water.
- I am no longer fit for baptism.
- Mines are scattered at my flanks & people rarely come to visit.
- I lost a number of plant & animal species.
- SOS.

Water in the Middle East Peace Process

- The peace process was divided into two tracks namely the bilateral negotiations and the multilateral talks.
- The bilaterals were intended to lead to peace treaties between Israel on one hand and each of the regional parties, namely Jordan, Lebanon, Palestine and Syria on the other.
- The multilateral track was intended to complement and support the bilateral track by promoting regional cooperation.
- **Water is a hot issue in the Middle East peace negotiations**
- A special working group was established for water resources in the multilateral negotiations.

Israel-Jordan

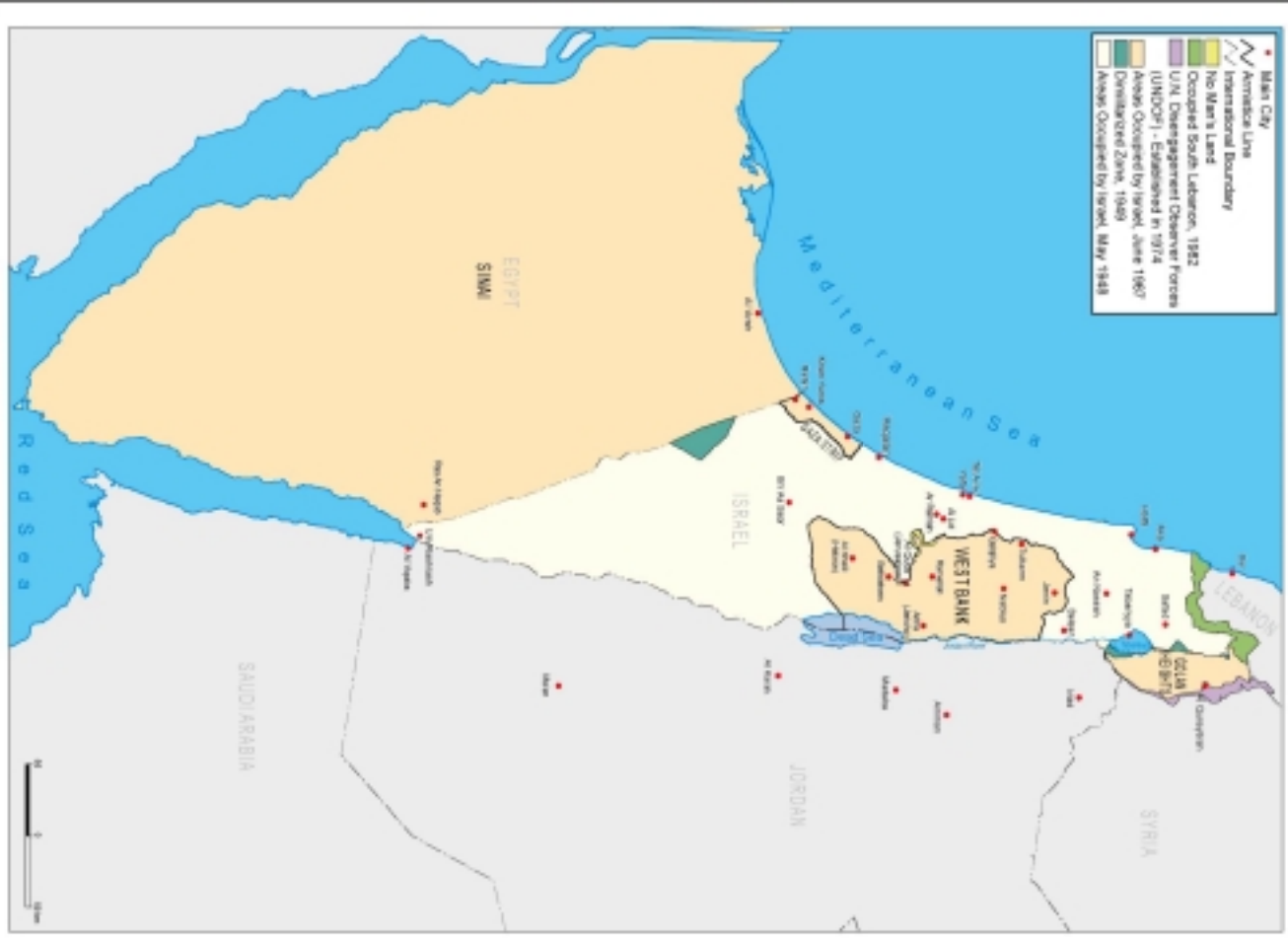
- The peace treaty resolved the water dispute between the two states based on mutual recognition of the **“rightful allocations”** of both parties to the Jordan and Yarmouk Rivers.
- The agreement allows for the use of Lake Tiberias for storing Jordanian surplus rain flows from the Yarmouk and to be redrawn during the summer.
- It also maintained the right of Israeli farmers to draw water from the Nubian sandstone aquifers from the Jordanian territory in the Araba.
- Jordan and Israel will “cooperate in finding sources for the supply to Jordan of an additional **50 MCM/year of water of drinkable standard**.”
- Israel and Jordan have agreed to the construction of a diversion dam at Adasiya.
- In the summer of 1999, Israel wanted to rescind from its obligations to provide Jordan with water during the summer claiming that it was facing a water crisis because of the drought conditions. This event led to a political crisis that was finally resolved by the leaders of Israel and Jordan but not without scars.

Jordan-Syria

- **Jordan and Syria finalized an agreement to start the controversial Al Wihdah (Unity) dam on the Yarmouk.**
- **Like all other Middle East countries, Jordan faced severe water crisis during the past two years of drought. Syria came to the rescue by providing Jordan with an average of 8 MCM annually.**

Israel-Syria

- **In 1958, Israel initiated the National Water Carrier project.**
- **The Arab reaction was to build dams on tributaries of the Jordan and Yarmouk Rivers, thus reducing the water flow to Israel.**
- **In 1965, Syria began building dams to divert water from the Baniyas and Dan Rivers in the Golan Heights.**
- **Israel sent its fighter planes to destroy the work sites.**
- **In 1967, Israel occupied the Golan Heights with its 330 MCM of water annually.**
- **Lake Tiberias**
- **Jordan River allocations**



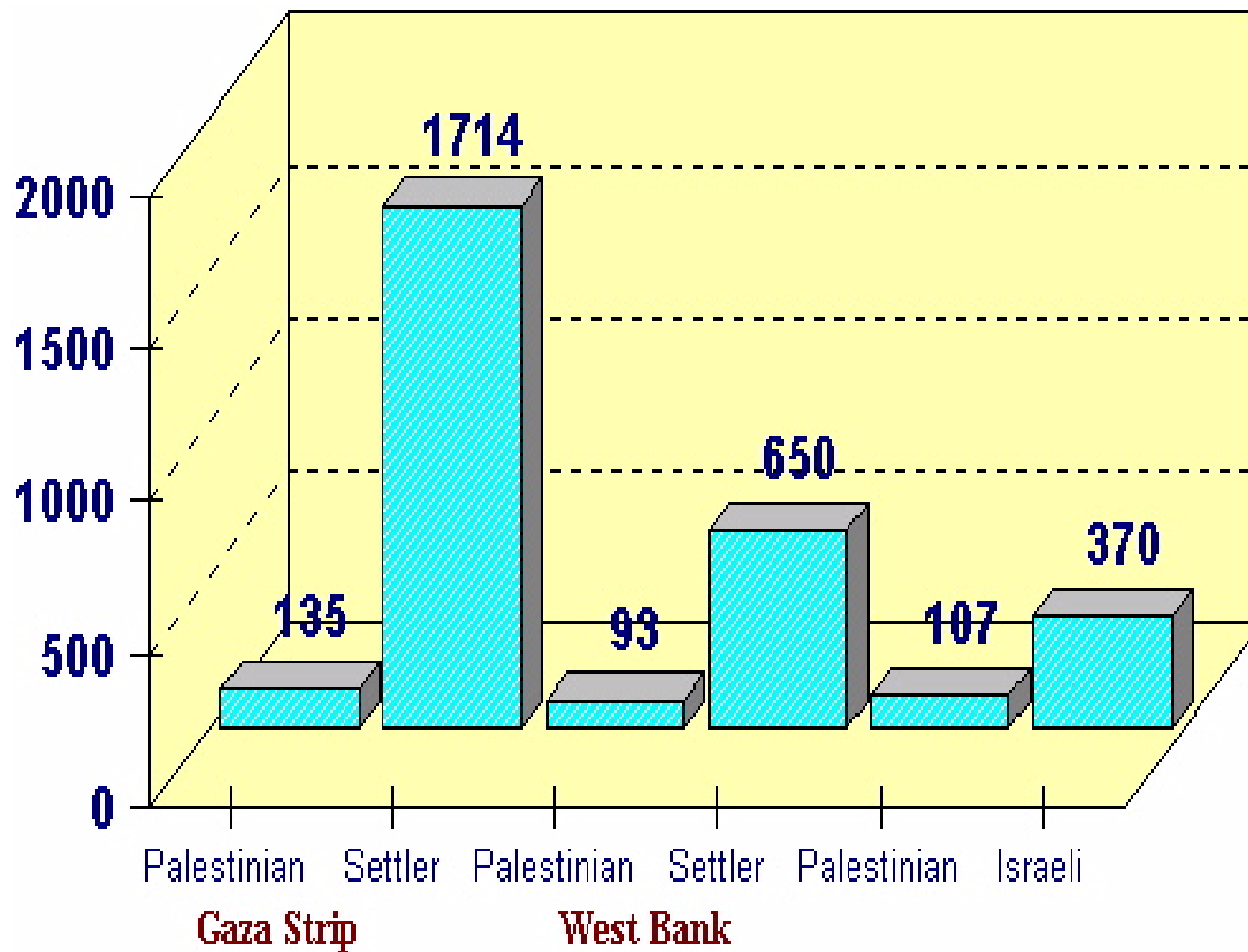
Israel-Lebanon

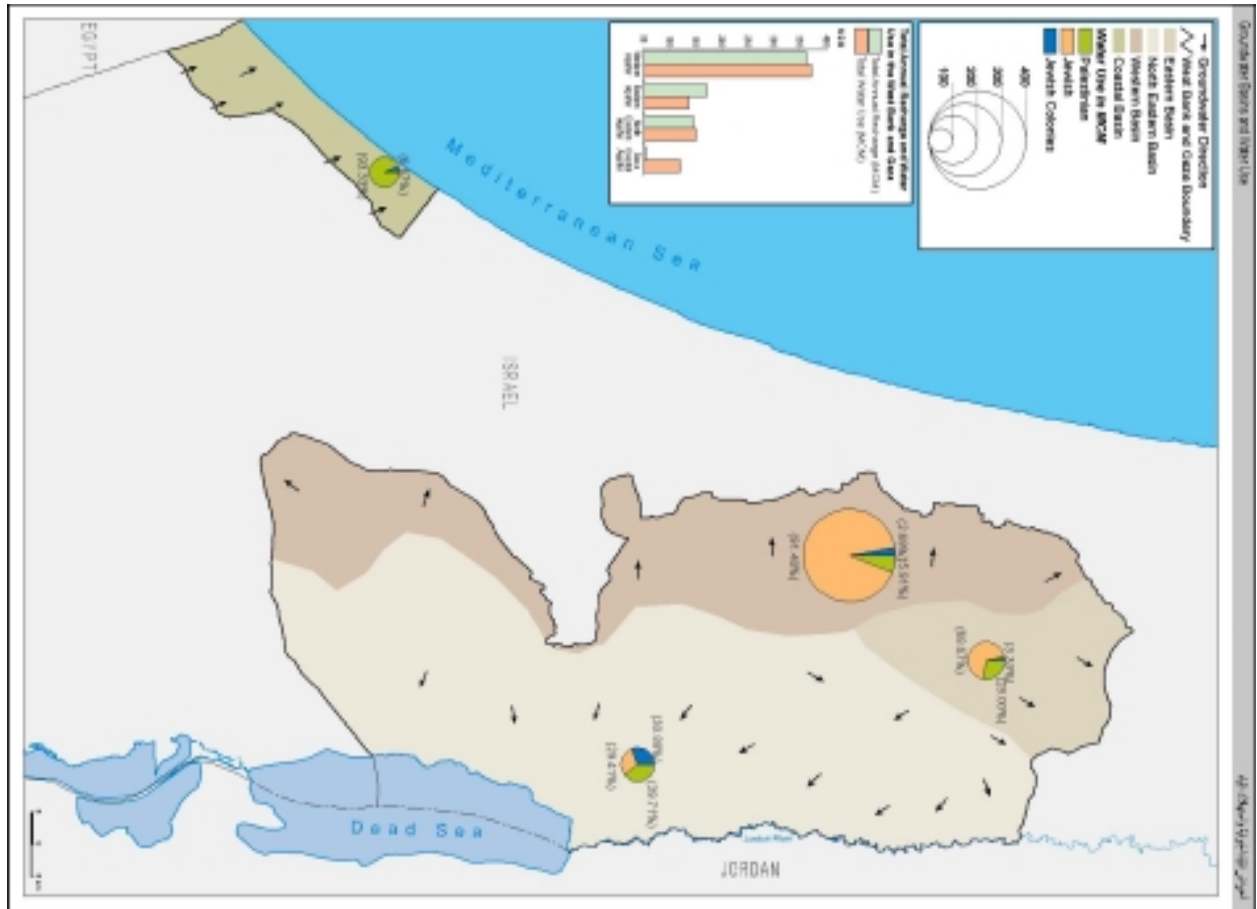
- The average flow of Hasbani is 157 MCM annually.
- Lebanon is entitled to 35 MCM of the Hasbani according to the Johnston plan.
- Lebanon believes that it is entitled to 70 MCM.
- Lebanon has been utilizing only 7 MCM of the Hasbani annually.
- Lebanon wanted to utilize an additional 2-3 MCM of the Hasbani for domestic purposes.
- Israel is beating the drums of war !!!!

Israel-Palestine

- Jordan River
- According to the Johnston plan, a West Ghor canal was included in his plan to provide Palestinians with Jordan River water that translates into 250 MCM per year. This project was never implemented..
- Palestinians are full riparians in the Jordan River basin and have historically used its water for irrigation in the Jordan Valley. Prior to the 1967 war, the Palestinians' use of the Jordan River was through 140 pumping units.
- Following the 1967 war, Israel prevented Palestinian farmers from utilizing the water resource of the Jordan River by closing large areas of Palestinian farm land in the area and imposing a number of military orders to control Palestinian water resources

Inequitable allocation





“Equitable utilization ! ! ”

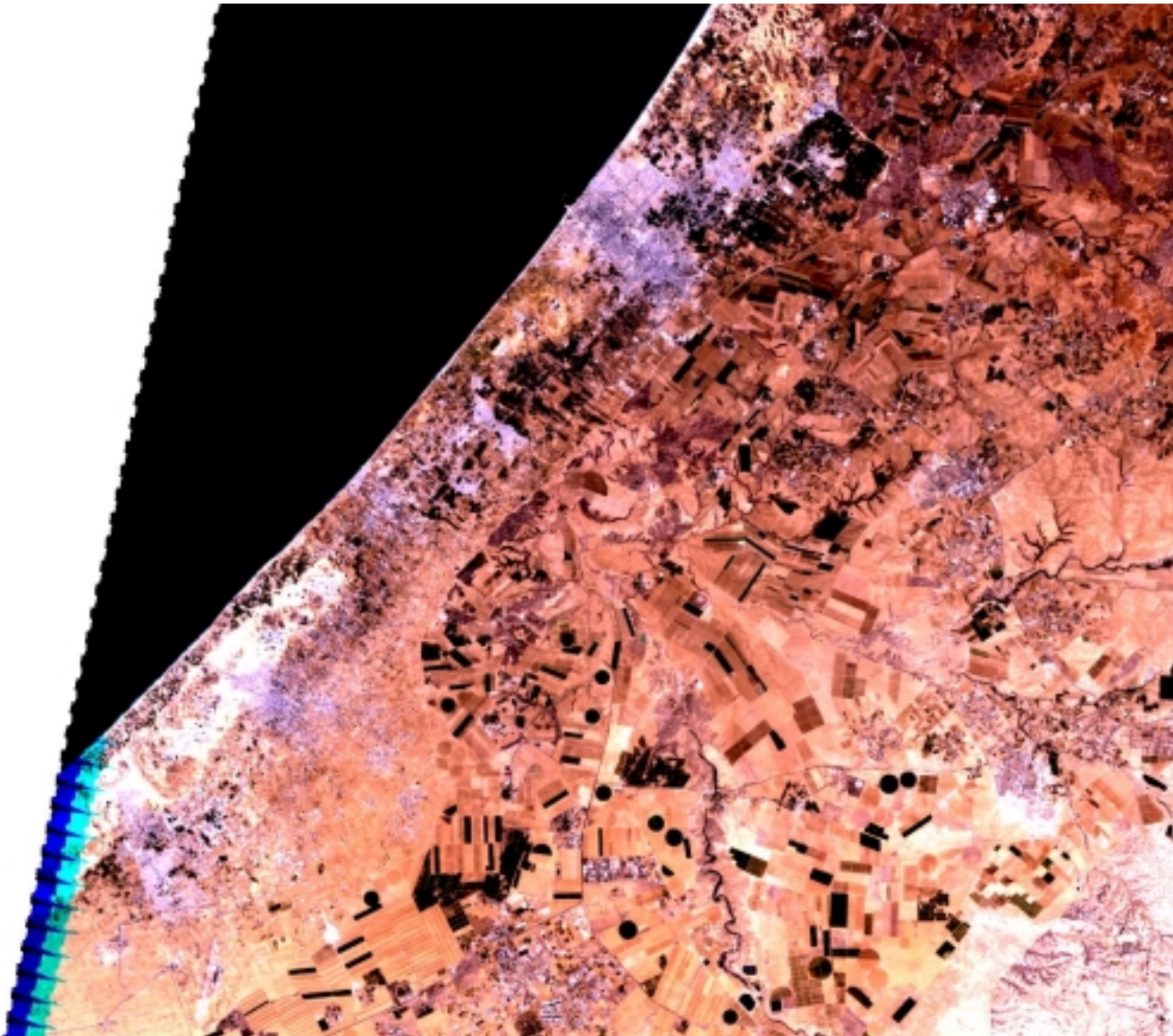
The *Western Basin* is the largest among the three basins and has an annual safe yield of 362 MCM. Palestinians consume only about **7.5% of its safe yield.**

The *Northeastern Basin* has an annual safe yield of 145 MCM. Palestinians consume about **18% of its safe yield.**

The *Eastern Basin* has an annual safe yield of 172 MCM. Palestinians are utilizing **50% of the waters of this basin.**

Gaza Coastal Aquifer is a continuation of the shallow sandy/sandstone coastal aquifer. Its annual safe yield is 55 MCM but the aquifer had been over-pumped at the rate of 110 MCM resulting in a lowering of the groundwater table below sea level and saline water intrusion in many areas.

Water resources know no boundaries



Israeli Colonies in the Southern Part of Gaza



Comparison between NRM indicators in Israel and Palestine

<u>Indicator</u>	<u>Israel</u>	<u>Palestine</u>	<u>Ratio</u>
Population (millions)	6	3	2:1
Total area (million dunum)	21	6	3.5 : 1
Accessible area (m dunum)	21	2.4	8.8:1
Irrigated area(m dunums)	2.18	0.2	10.9 : 1
Contribution of Ag. to GDP	1.8 %	7 %	1: 3.9
Water consumption(MCM)	1960	286	6.9:1
Agr. Water (MCM)	1252	174	7.2:1
Domestic Water/capita(CM)	>100	30	3.3:1
Agr. Water per capita(CM)	220	58	3.8:1
Irrig. area/capita (dunum)	36.3	8	4.5:1
Pop. Density	285	1210	1:4.2

Israeli Palestinian Water Agreement (Oslo II)

- **Israel recognizes the Palestinian water rights in the West Bank. These rights will be negotiated in the permanent status negotiations and settled in the Permanent Status Agreement relating to the various water resources.**
- **The Israelis shall transfer authority to the Palestinians to assume powers and responsibilities in the sphere of water and sewage in the West Bank related solely to Palestinians, that are currently held by the military government and its Civil Administration, except for the issues that will be negotiated in the permanent status negotiations.**

- **The future needs of the Palestinians in the West Bank are estimated to be between 70 – 80 MCM/Yr.**
- **Israel offered the Palestinians 28.6 mcm/year to meet their immediate needs during the interim period to be extracted mostly from the Eastern aquifer.**

Palestinians fear of a dry peace

- Palestinians have not seen the translation of the agreement to water in their taps, but are witnessing severe water shortages. Palestinians are still under **suppressed water demand**.
- The Joint water committee has approved less than **one fourth of the water projects submitted by the Palestinians**.
- **25 % of the Palestinian communities are still without public water networks.**

Dry peace

- Out of the **28.6 MCM** of additional water committed by Israel in OSLO II to be provided to the Palestinian as immediate needs, Palestinians and after 76 years since the agreement was signed, got only **13 MCM**.
- There are serious doubts that Palestinians can extract the water quantities specified in the agreement from the Eastern aquifer. There is an average annual drop of more than **15 meters** in the water table level that is raising alarm about the sustainable yield of this aquifer. It is believed that the maximum amount that could be extracted is **13 MCM**.
- In the preparatory talks about the final status negotiations, Israel is refusing to discuss Palestinian water rights and is taking about some additional water quantities that may be granted to Palestinians.
- The Israeli negotiators are adamant in rejecting Palestinian demands of their water rights in the Jordan River.

Palestinian water rights

- **Equitable water rights in the eastern, western and northeastern aquifers, as these aquifers are recharged almost entirely from the West Bank;**
- **Equitable water rights in the Jordan River System: as a downstream riparian nation to the Jordan River System, Palestine is legally entitled an equitable share of the system's water resources.**
- **Water and fishing rights in the Lake Tiberias since this natural reservoir is an integral part of the Jordan River System, in which Palestine is a legally riparian nation.**
- **Full compensation for damages to Palestine's water resources and environment caused by Israel and reimbursement for water that has been utilized by Israel for years.**

Long term tasks of the Israeli water sector
Office of the water commissioner
Ministry of national infrastructures-water commission
The State of Israel, August 2000

- The population of **Israel by 2020 will be 8.6 million people**. The population of Palestinian in the **West Bank will be 3 million people**.
- Domestic water consumption per capita in 1998 was **128 m³ per annum for the Jewish sector and 47 m³ for the non-Jewish sector. In the PA, average per capita consumption is 35 m³**.
- Water supply in the Gaza strip will not be based on the Israeli system.
- **By 2020, domestic water consumption in the Jewish sector will be 130 m³ .**
- **By 2020, domestic water consumption for the Palestinians in the West Bank is estimated to be 70 m³ .**

Enlarging the Pie

- Large-scale desalinization projects, often linked with hydro-electric power generation:
 - Red Sea-Dead Sea conduit
 - Mediterranean-Dead Sea conduit
- Water diversion projects:
 - from Lebanon's Litani River to the Jordan headwaters.
 - from the Nile to Israel or Gaza, with a pipeline going underneath the Suez Canal
 - From Turkey
- Water conveyance projects:
 - oil tanker conveyance of Turkish or Yugoslavian waters
 - Conveyance of Turkish or Norwegian waters in enormous balloon-like "medusa bags"
 - Tugging of icebergs

Looking ahead

- **Most water resources in the world are shared and the Middle East is no exception. Managing shared water resources should be integrated and involve all the parties involved.**
- **Management does not only include allocation of water quantities, but most importantly, it involves the protection and sustainable utilization of the resource.**
- **Bilateral agreements can not be a substitute for an integrated and comprehensive one that should include all riparians to the Jordan River basin.**
- **In recent years, the world has been moving from hydrosovereignty to hydrosolidarity. The Middle East should start such an approach.**

- While in principle, the resolution of the Middle East water allocations and disputes (hydrosovereignty) will be based on the principles of international law, there is no mechanism for this issue to be institutionalized under the current circumstances.
- A comprehensive and sustainable peace should be based on justice and fairness.
- All parties agree on the principle of “equitable utilization” of the resources, but quantifying this term is the real problem.



From the Mid West to the East Med

Issue	Mid West	East Med
Population Growth	Low	High
Dominant Agriculture	Dryland	Rainfed
Rainfall	All Year	Seasonal
Contribution of agriculture to GNP	Low	High
Water Infrastructure	Developed	Developing
Domestic consumption	High	Low
Environmental Awareness	High	Low
Water Rights	Well defined	Historic
Water Pricing	Fair	Under priced
Legal Framework	Established	Underway
Instituted Structure	Established	Developing
Social Pressure	Water as a commodity	Common good
Yellow Water (Conflict)	Low	High

What needs to be done ?

I- Basin wide Management

- **Effective water resource management needs to transcend national boundaries and it becomes imperative for riparian countries to collaborate in matters of mutual interest**
-
- **In a shared river basin, each riparian country is entitled, within its territory, to a reasonable and equitable share of the water and is obliged not to develop projects that would not cause harm to other riparian country.**
-
- **The Jordan River Basin may be an ideal candidate for promoting a “**basin wide regional institution**” in which all riparian countries need to be involved.**

Merits

- **It will allow for efficient utilization of current water networks and conveyance systems between riparians.**
- **It addresses the issue of demographic and climatic changes.**
- **It allows for potential water trades between districts and regions.**
- **It provides a basic tool for environmental protection of the water resources.**
- **It will catalyze regional cooperation in the field of water and other areas**

II- At the Israeli Palestinian track

- It is proposed here that “equity” be used as a simple and straight forward interpretation and quantification for the term “equitable utilization”.
- In other words, the distribution of water in Israel and Palestine be shared equally between Palestinians and Israelis based on the population figures.

What does this mean ?

- Accordingly, the 2086 MCM of water available within mandate Palestine would be shared so that **Palestinians get 698 MCM instead of 238 MCM** which is currently used. **The Israeli share should be 1388 MCM instead of 1959** which is currently consumed by the Israelis. The above distribution of water rights between the two sides is built on the population figures. The per capita consumption for both the Palestinians and Israelis will be 241 m³/a. **A joint management structure** will have to be agreed upon to address the monitoring and compliance with these quotas to ensure the protection of the aquifers as well as the periodic reallocation based on climatic and demographic changes.

MERITS

- **It is based on the values of equity and justice, which are essentials for sustaining peace.**
- **It provides a quick and simple way for resolving the water rights issue that otherwise, will drag the final status negotiations.**
- **It introduces for the first time in the region, an integrated water management scheme which will certainly be of great value for resolving the water conflicts between Syria, Lebanon, Israel, Jordan and Palestine.**
- **It demonstrates to the opponents of the peace process that Israel is genuine in its peace aspirations and that negotiations are the ultimate means for resolving conflicts.**

Other actions

- Enhancement of water supply locally through water harvesting .
- Promotion of rainfed farming and reducing its vulnerability by supplementary irrigation.
- Irrigation efficiency.
- Reduce network losses.
- Promoting saline agriculture.
- Utilizing treated waste water in agriculture.
- Grey cell water.
- IWRM

- It is realized that such an approach will not happen overnight.
- It needs good relations between riparian countries, mutual trust, spirit of cooperation and various regional projects.
- Certainly, this seems to be still far away, but preparations for such an approach need to be started now.
- **Someone** should immediately approach all the riparians of the Jordan river basin to start preparing for a negotiated basin wide management approach.