

Yarmouk Infrastructure and Treaties: querying the past for a better future



SIWI WWW panel 31 August 2017

Diplomacy on the Yarmouk, the Jordan River's forgotten tributary

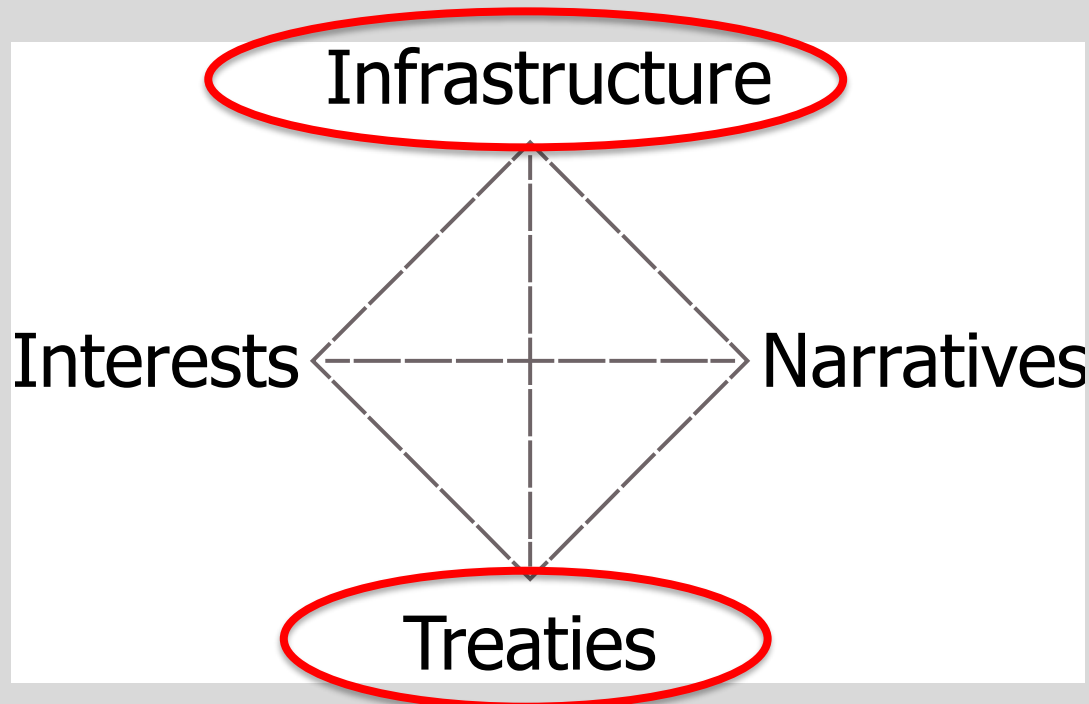
draft findings of the Yarmouk Hydropolitical Baseline project

co-sponsored by SDC and UEA

Mark Zeitoun

UEA **Water
Security**

Our baseline study examines how the interplay of...

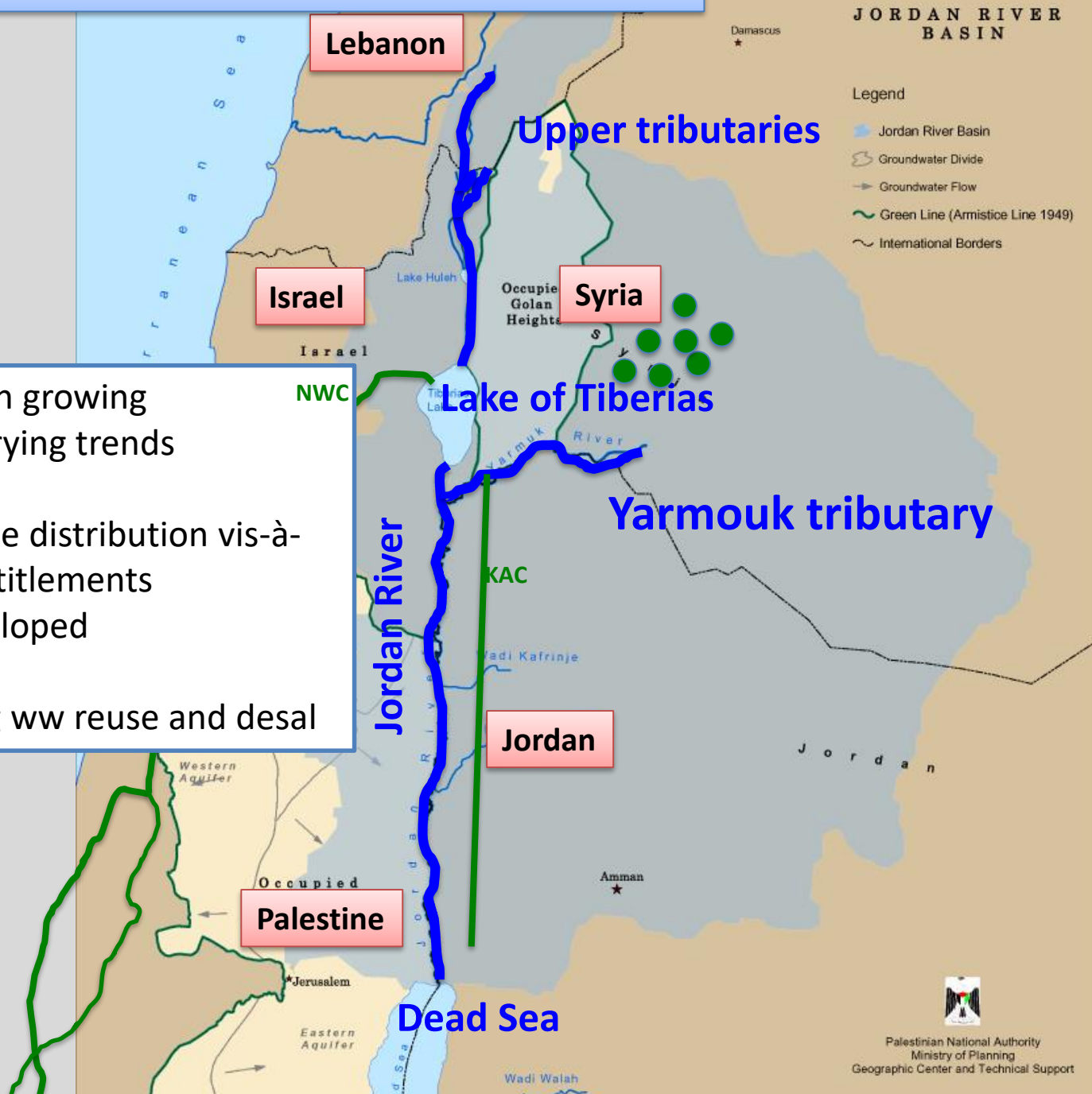


...leads to **inequitable and unsustainable use** of the Yarmouk tributary of the Jordan River

MAIN MESSAGES

1. The infrastructure is sub-optimal
2. The treaties are inadequate
3. The future is challenging
4. An equitable and sustainable arrangement is possible

Context: Yarmouk is part of the Jordan River basin



- population growing
- general drying trends
- inequitable distribution vis-à-vis legal entitlements
- over-developed
- increasing ww reuse and desal

JORDAN RIVER BASIN

- Legend
- Jordan River Basin
 - Groundwater Divide
 - Groundwater Flow
 - Green Line (Armistice Line 1949)
 - International Borders

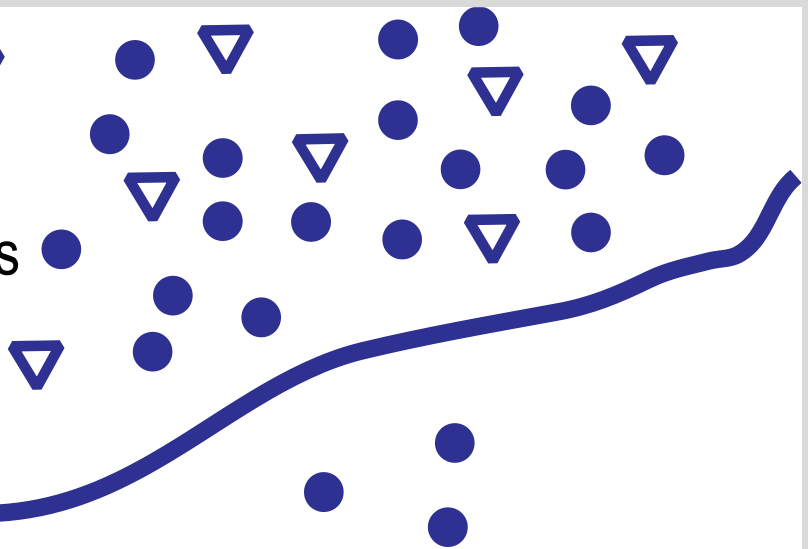


infrastructure and treaties



Dams on wadis ▽

Groundwater wells ●

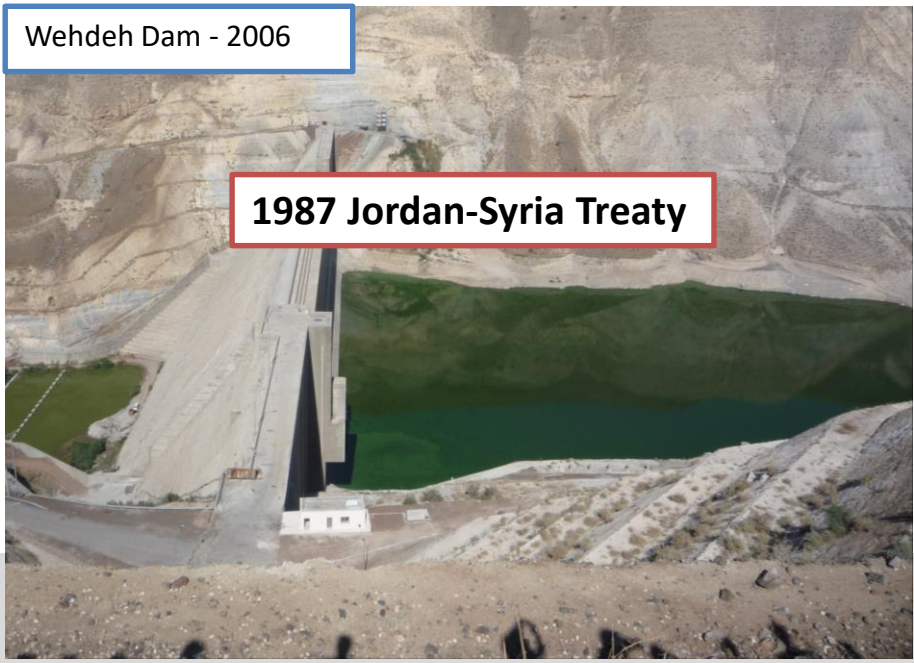


Wehdeh dam

Adassiyeh diversion weir

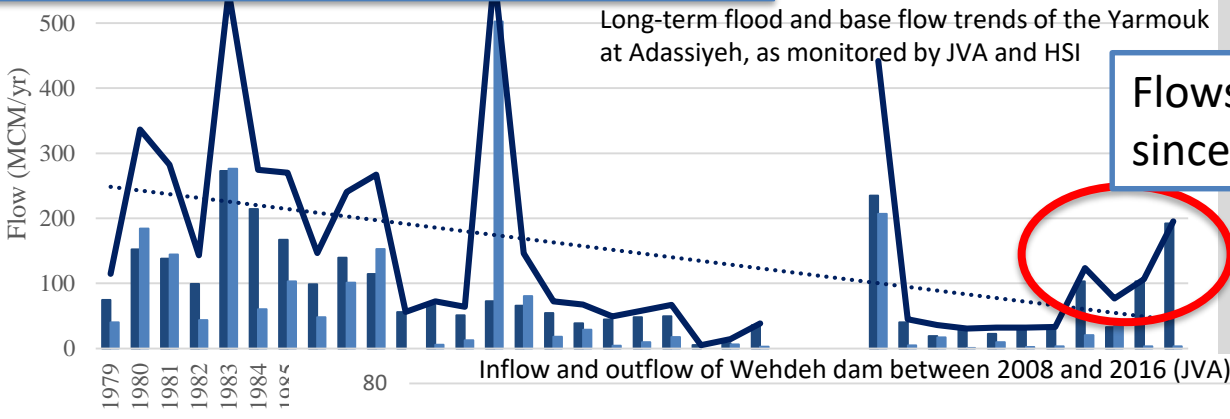
Yarmouk tributary

King Abdallah Canal

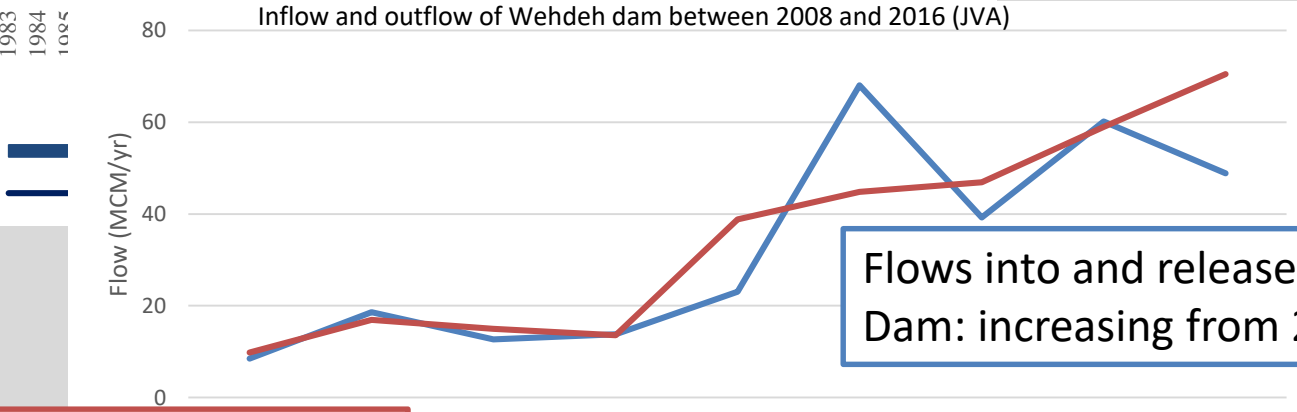


1. The infrastructure is sub-optimal

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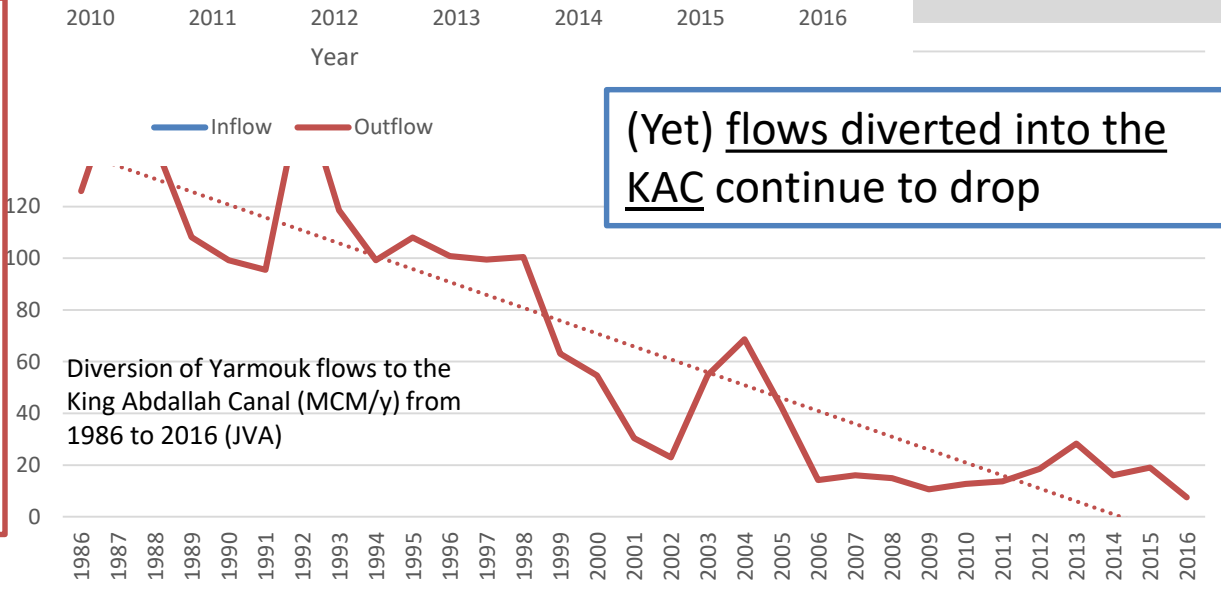


Flows of Yarmouk: dropping steadily since 1979, increasing from 2011



Flows into and released from Wehdeh Dam: increasing from 2011

→ Can the dam and the weir be co-managed?
 → can better use be made of gravity?
 → where are the *excess flows* going?



(Yet) flows diverted into the KAC continue to drop

2. The treaties are inadequate

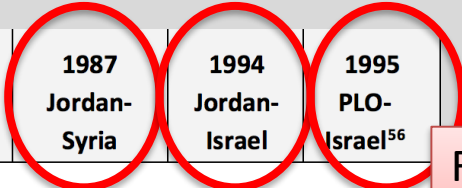
2. The treaties are inadequate

Features of a Model TRANSBOUNDARY WATER Treaty		
<i>Allocative mechanisms</i>		
Based on 'equitable and reasonable use'	Fairness/ IWL	
Specific, rather than ambiguous		
Flexible, rather than rigid		
<i>Technical mechanisms related to conjunctive groundwater and surface water^</i>		
Acknowledgement of surface water and groundwater as part of the same transboundary watercourse	Conjunctive use (ground + surface water)	
Account for use, amount and quality of groundwater in reserve, and rate of its replenishment		
Common identification, delineation and characterization of their transboundary groundwater		
take appropriate measures to prevent, control and reduce the pollution of transboundary groundwater		
Consideration of soil water		
<i>Uncertainty Mechanisms</i>		
Revisiting clauses	Ability to deal with uncertainty	
Escape clauses		
<i>Institutional mechanisms</i>		
'prior notification'	Good institutions	
'no significant harm'		
Enforcement clauses		
Monitoring provisions		
Dispute resolution mechanisms		
Self-enforcement mechanisms		
Creation of multi-lateral bodies for information exchange or joint management	Environmental protection	
<i>Environmental and health concerns</i>		
Water quality provisions		
Biodiversity, river base flows, etc.		

Based on Hayton and Utton 1989, UNECE 1992, Fischhendler 2008, Rieu-Clarke, et al. 2012, Zentner 2012, UNECE 2013, Dinar, et al. 2015.

2. The treaties are inadequate

Features of a Model TRANSBOUNDARY WATER Treaty	1987 Jordan- Syria	1994 Jordan- Israel	1995 PLO- Israel ⁵⁶
<i>Allocative mechanisms</i>			
Based on 'equitable and reasonable use'	No	No	No
Specific, rather than ambiguous	Yes	No	Yes
Flexible, rather than rigid	No	No	No
<i>Technical mechanisms related to conjunctive groundwater and surface water[^]</i>			
Acknowledgement of surface water and groundwater as part of the same transboundary watercourse	No	No	No
Account for use, amount and quality of groundwater in reserve, and rate of its replenishment	No	No	No
Common identification, delineation and characterization of their transboundary groundwater	No	No	No
take appropriate measures to prevent, control and reduce the pollution of transboundary groundwater	No	No	No
Consideration of soil water	No	No	No
<i>Uncertainty Mechanisms (related to changes in needs, climate, etc)</i>			
Revisiting clauses	No	No	No
Escape clauses	No	No	No*
<i>Institutional mechanisms</i>			
'prior notification'	No	Yes	No
'no significant harm'	No	No	No
Enforcement clauses	No	No	No
Monitoring provisions	No	No	No
Dispute resolution mechanisms	No	No	No
Self-enforcement mechanisms	No	No	No
Creation of multi-lateral bodies for information exchange or joint management	Yes	Yes	Yes
<i>Environmental and health concerns</i>			
Water quality provisions	No	Yes	No
Biodiversity, river base flows, etc.	No	No	No



Fairness/
IWL

Conjunctive use
(ground + surface water)

Ability to deal
with uncertainty

Good
institutions

Environmental
protection

2. The **treaties** are inadequate

1987 Jordan-Syria Treaty:

- major gaps (**groundwater**)
- inflexible
- peculiar allocative mechanism
- violations? - debatable
- redundant
- etc

1994 Jordan-Israel annex:

- major gaps (**groundwater**)
- inflexible
- ambiguous allocative mechanism (e.g. “excess flood water”)
- violations? - debatable
- etc

→ How/ can the **treaties be revisited**, to:

- **reflect changing circumstances?**
- **to incorporate groundwater (and soil water)?**
- **to be more equitable / based in law?**

3. The future is challenging

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2017:

- sub-optimal infrastructure
- 3 inadequate treaties
- out of basin transfer (NWC) continues
- increasing desal *into* basin
- within-basin swaps (unnecessary)

2070 BAU:

- out of basin transfer > 1 century
- ever-more desal into basin
- within-basin swaps (unnecessary)
- 5 poor treaties
- ever-increasing tensions (!)

2070 Equitable and sustainable:

- no out of basin transfers
- 2025 levels of desal
- one within-basin swap (WGC)
- more ww reuse/ demand management
- one good treaty (or none)

4. An equitable and sustainable arrangement is possible

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- employ known tools and techniques of diplomacy (multiple tracks, quantifying benefits, etc)
- scan for windows of opportunity (e.g. Baqoura negotiations, Syria ebbs)
- challenge established narratives and interests
- investigate **optimal infrastructure configuration** (and taking advantage of new technology e.g. desal, ww reuse)
- **revisiting or reinterpretation of the treaties**, in light of changed circumstances

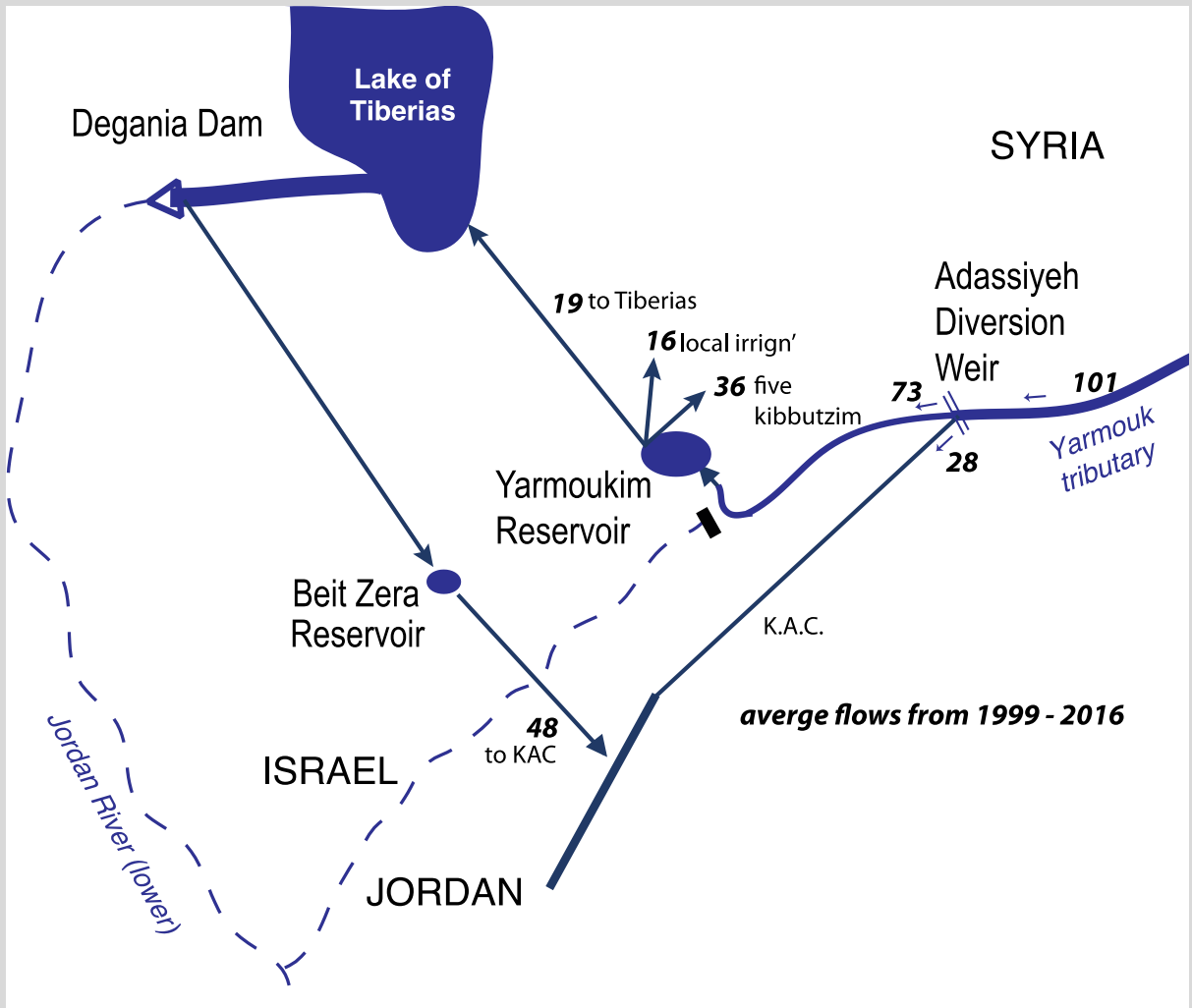
Your thoughts appreciated !

Thank –you

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References

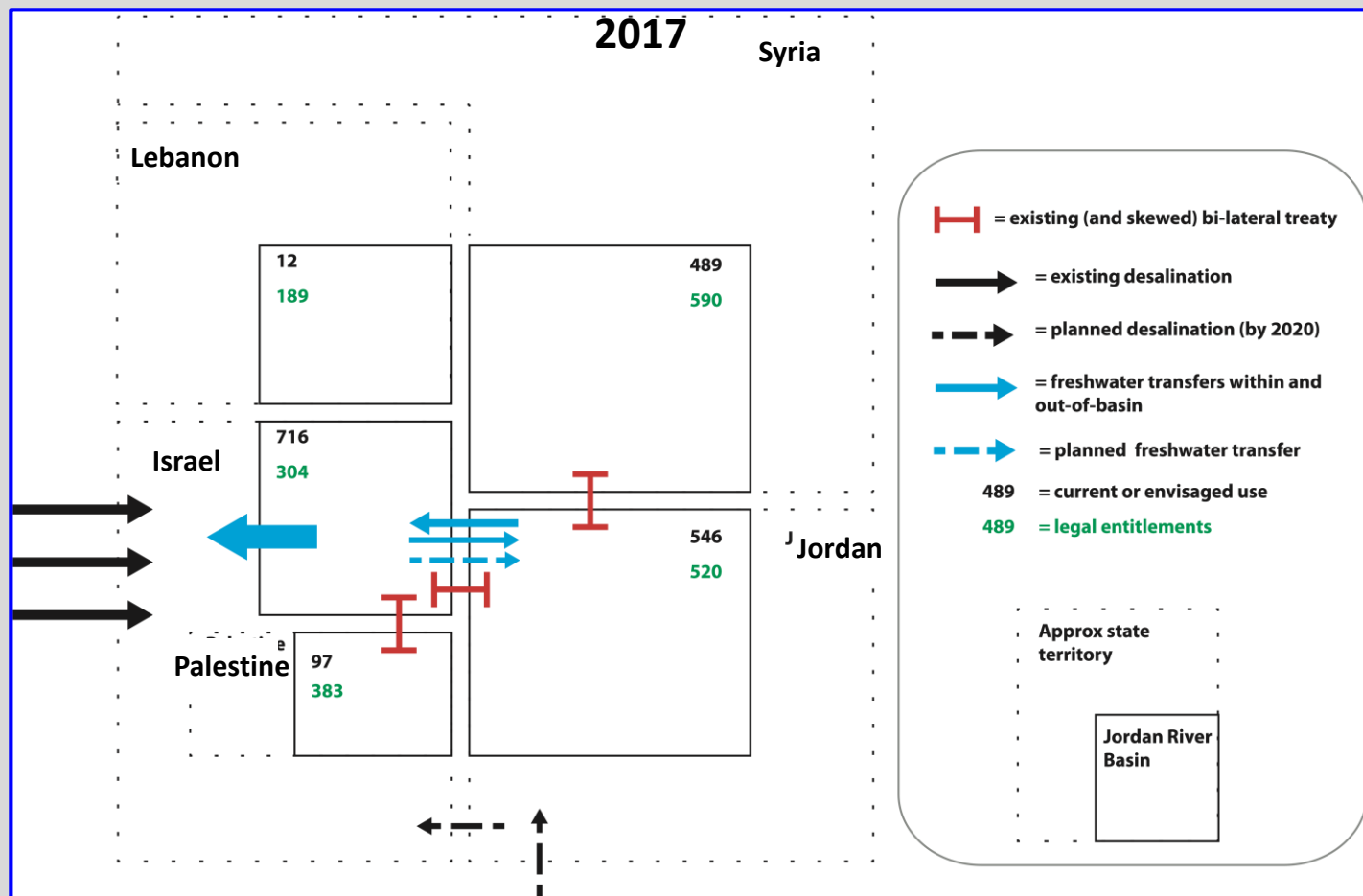
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3. The future is challenging

Present:

- out of basin transfer (NWC)
- desal *into* basin (and increasing)
- within-basin swaps (unnecessary)
- stitched together by 3 poor treaties

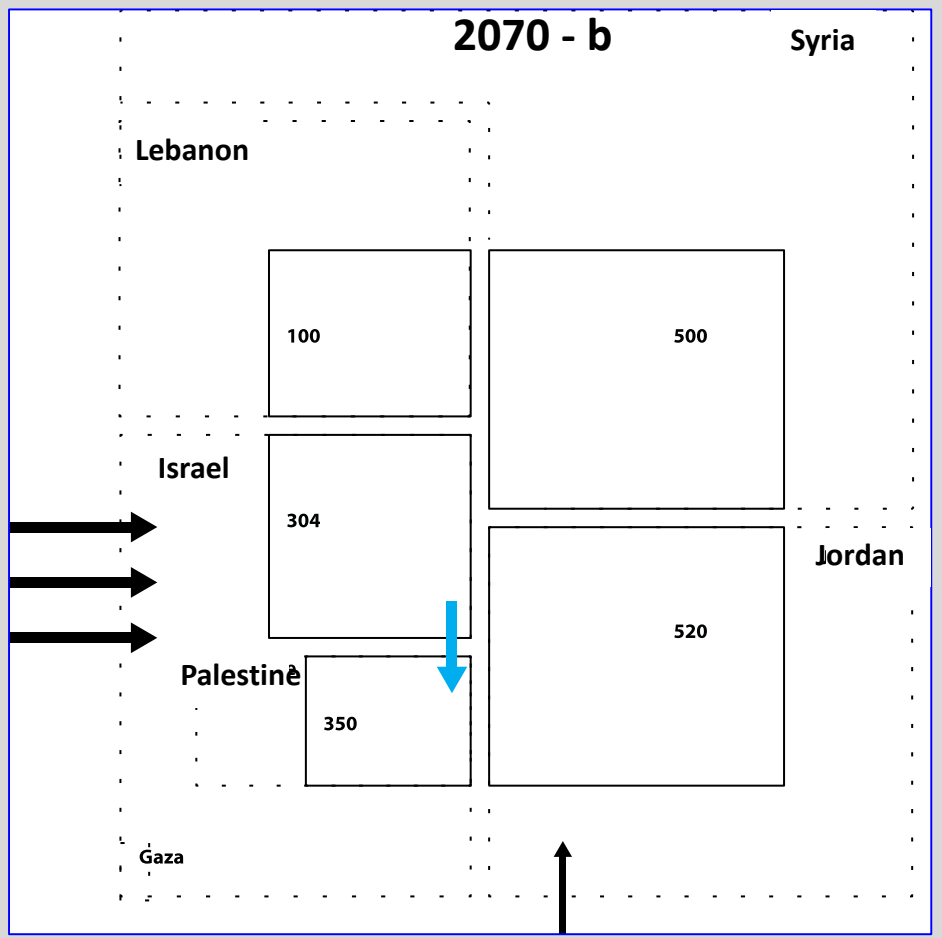
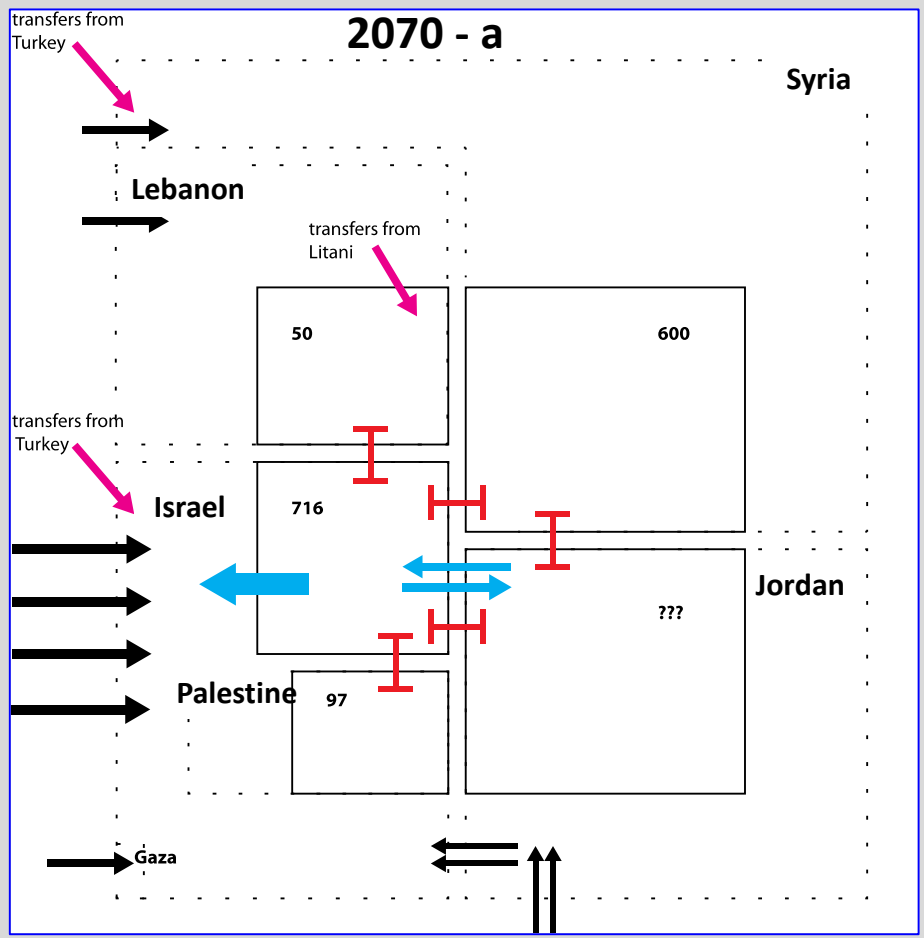


(all figures inaccurate and should be ignored)

3. The **future** is challenging

- out of basin transfer > 1 century
- more desal into basin
- transfers from Turkey
- within-basin swaps (unnecessary)
- 5 poor treaties
- ever-more tensions

- Equitable and sustainable:**
- no out of basin transfers
 - more desal into basin
 - one within-basin swap (WGC)
 - more ww reuse/ demand management
 - one good or no treaties



(all figures inaccurate and should be ignored)