

EcoPeace

Friends of the Earth Middle East

ENVIRONMENTAL & SOCIAL BENEFITS OF TRANSBOUNDARY WATER COOPERATION

LESSONS FROM THE LOWER JORDAN RIVER BASIN

MAY 23, 2014
UNECE, GENEVA

Transboundary River System

Lower part of Jordan River divides into three political areas:

Israeli:

Sea of Galilee to Yarmouk River

Jordanian-Israeli:

Yarmouk River to Bezek Stream

Palestinian-Jordanian:

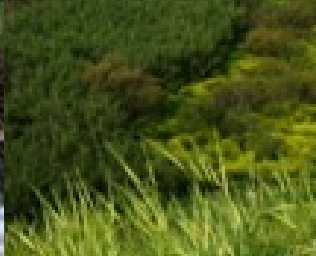
Bezek Stream to Dead Sea



The Mighty River Jordan

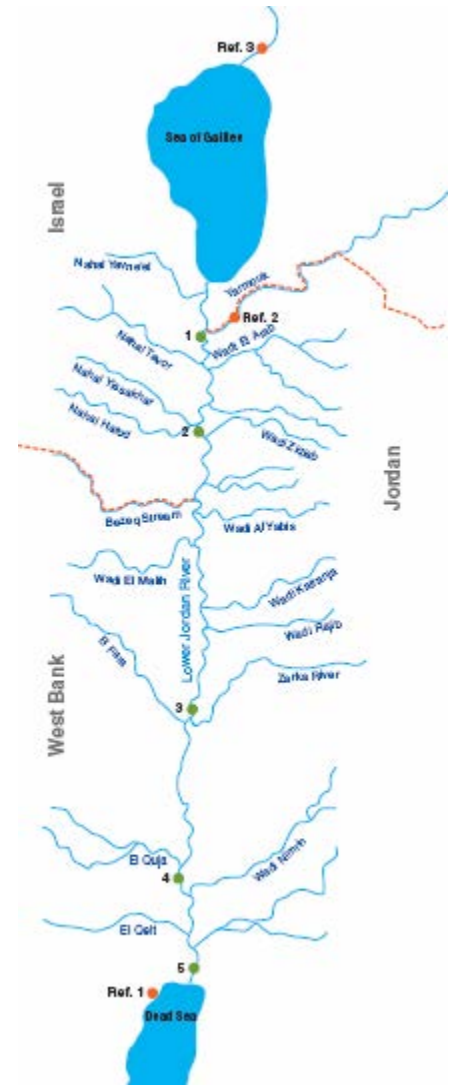


Back Door Dump / Conflict Mindset



Environmental Flow Study Methodology

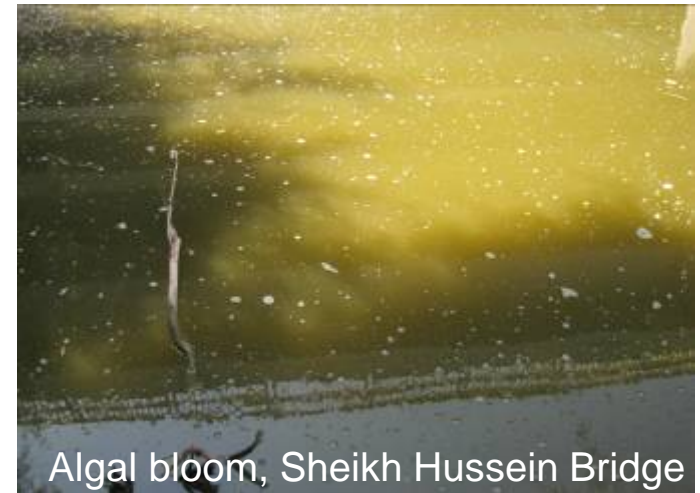
- Regional team of experts sampled the LJR twice during 2009
- **Morphological and hydrological** variables including cross sections, velocity, discharge
- **Water Quality:** temperature, transparency, Electric Conductivity, salinity, Dissolved Oxygen, % oxygen saturation etc.
- **Macroinvertebrates**
- **Botanical Survey**
- **Constraints** in sampling: access, mines, budget, historical references



Key Findings:

- Macroinvertebrate taxa richness is **at least 50% lower than in the reference sites**
- Fast flow habitats have completely vanished and with them all species adapted to fast flow conditions
- Plant species diversity decreases from N-S; primarily saline tolerant plants; reduction of flow and flood frequency

Stations	1	2	3	4	5
Plant Species Richness	82	69	50	50	29



Algal bloom, Sheikh Hussein Bridge



Possible Rehabilitation Scenarios

Scenario	Required Flow	Required Quality
Take No Action	50-100 X 10 ⁶ m ³ /Y	Salinity: 3000-4000 ppm Mostly effluents, agricultural and fishpond runoff
Full Restoration	900 – 1,400 X 10 ⁶ m ³ /Y 3 minor flood/Y	Salinity: 250-350 ppm No effluents, agricultural or fishpond runoff
Partial Restoration	600 – 800X10 ⁶ m ³ /Y 1 minor flood/Y	Salinity: 500-750 ppm No effluents, agricultural or fishpond runoff
River Rehabilitation	300 – 400X10 ⁶ m ³ /Y 1 minor flood/2Y	Salinity: 1000-1500 ppm High quality effluents, agricultural and fishpond runoff up to 25% of baseflow
Flow Enhancement	300 – 400X10 ⁶ m ³ /Y 1 minor flood/2Y	Salinity: 3000-4000 ppm Mostly effluents, agricultural and fishpond runoff

Set NGO Targets: Regional Rehabilitation Goal

- 400-600 mcm annually, one minor flood
- Salinity level less than 750 ppm; primarily fresh water with only the highest quality of effluents allowed up to 25% of the LJR's base flow
- This strategy would remove most of the disturbances, restore the river's structure and function, allow biodiversity to recover and achieve a fair to high ecosystem integrity and health.
- Would allow broad tourism activities, baptism, recreation and fishing.



Set NGO Targets: Amounts required by each country to meet annual rehabilitation goal

To implement a rehabilitation strategy requiring at least 400 mcm per year, the following quantities would be needed annually:

Israel – 220 mcm (54%)

Syria – 100 mcm (24%)

Jordan – 90 mcm (22%)

Palestine would not be asked to contribute water rather it needs to receive riparian share of Jordan River waters.

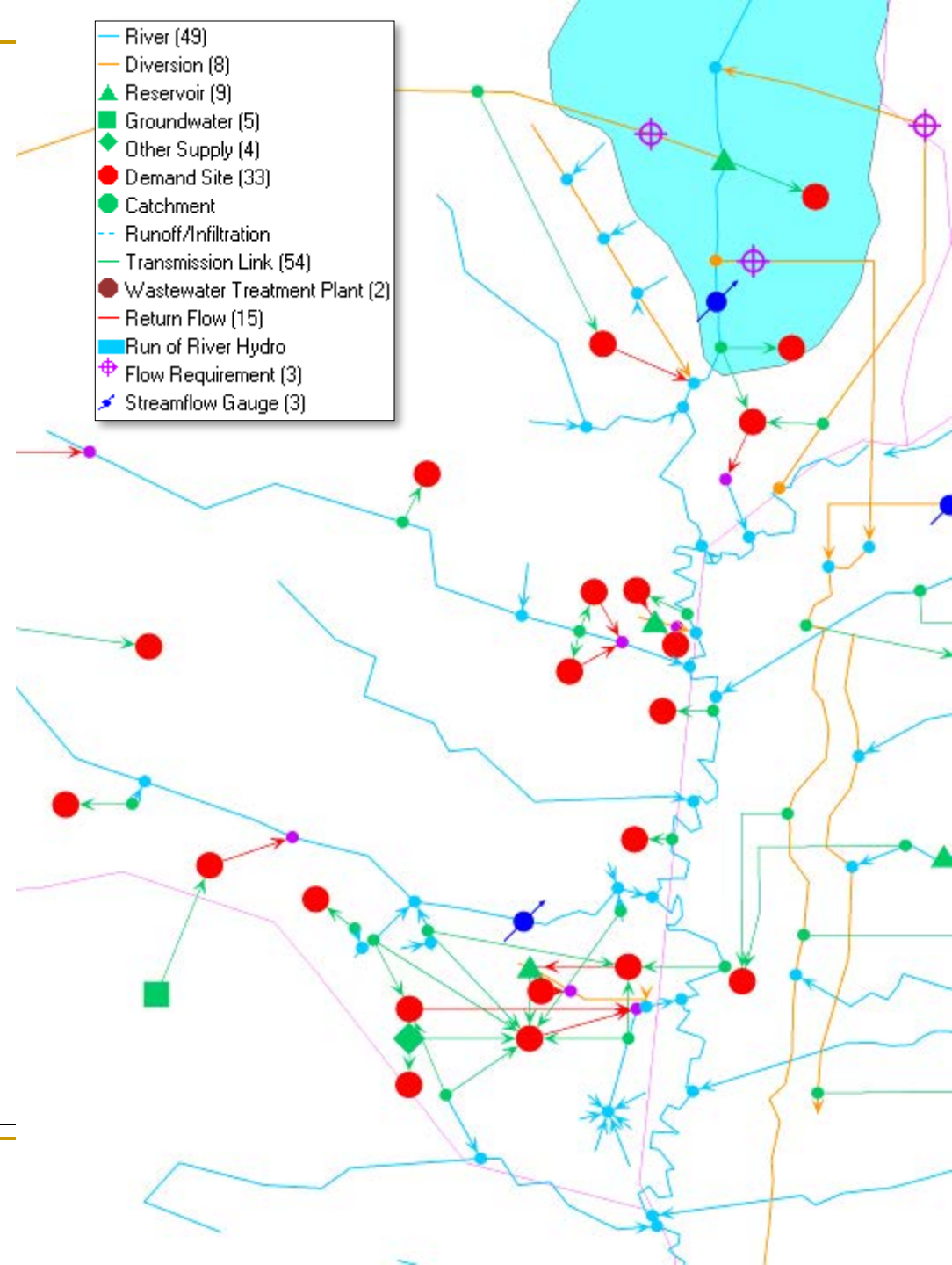


DHV MED Road Map on How To Meet the Environmental Flow Needs

Used WEAP Model

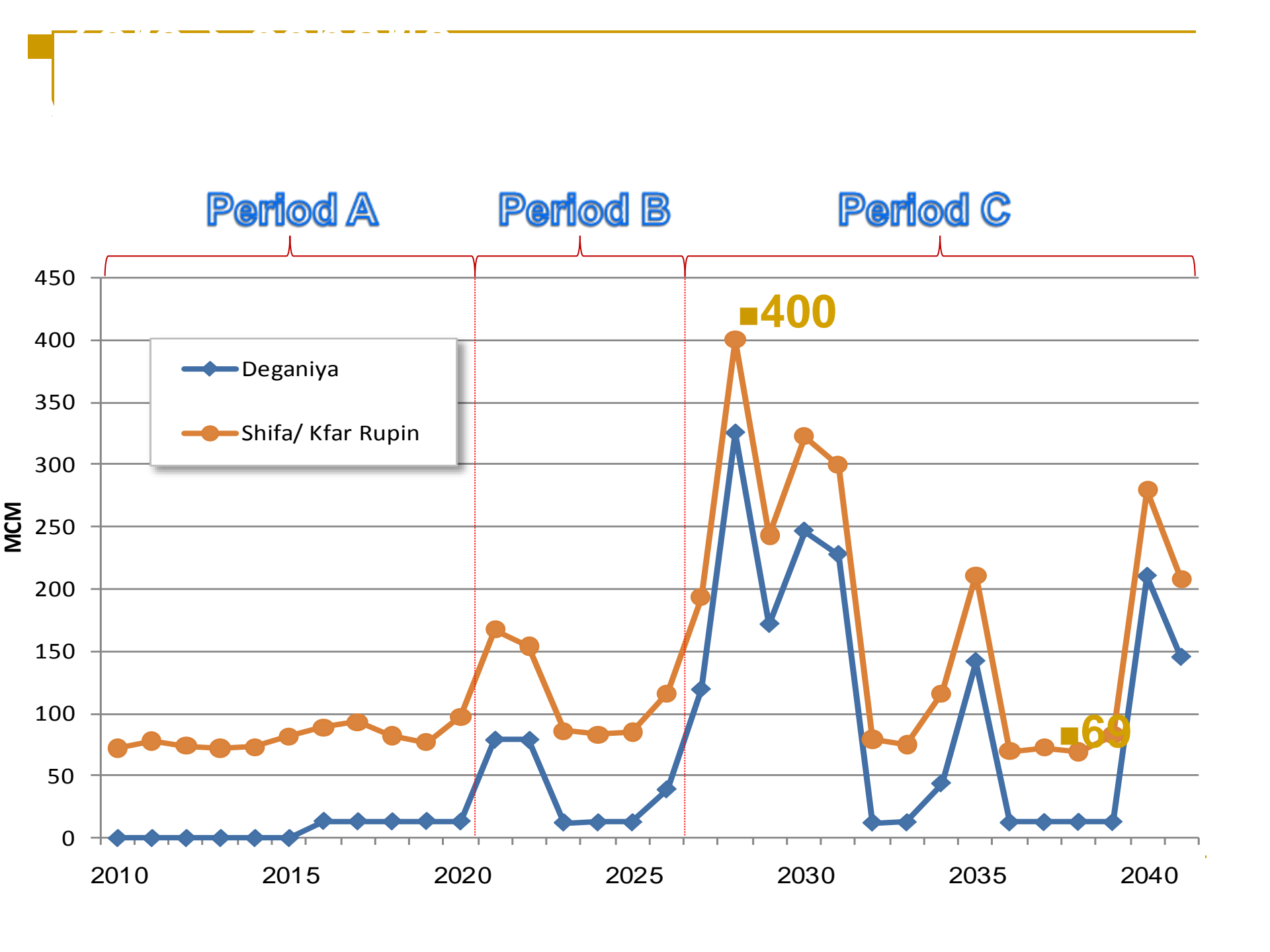
- ✓ Reaches
- ✓ Water Sources
- ✓ Water consumers
- ✓ Hydrometric Stations
- ✓ Quality Samples
- ✓ Drainage Basins
- ✓ Dams
- ✓ Fishponds
- ✓ Groundwater

■ ...



Reintroduction Scenario Measures

Measure	MCM	Salinity ton/Yr	NIS (Undiscounted)		
			Capital	Fixed	Per m ³
1 Cease pumping from lower Yarmouk to the SoG, if the later is higher than the bottom red line		2,300			-0.09
2 The brine of the SWC will be transferred to the Dead Sea	-8	47,000	130m	3.9m	
3 Transferring effluents from Kishon to AMWA and Harod	10-15	-	40m	1.2m	0.07
4 Further and faster decreasing pumping to the NWC ¹	30	++			1.55
5 Exchanging 50% of the fishponds with field crops and alfalfa ²	10	36,000			0.2
6 Diminish saline agriculture by 30% by 2020	10	+			0.7
7 Diminish fresh agriculture by 30% by 2020	9-12	+			1.6
8 Maintain present consumption level in the UJR	27	++	-	-	1.6
9 Discharge some of the effluents of the Kishon to Harod River to reduce salinity	2-3	+	-	-	-
10 Desalination of 1.5 MCM/Yr of the SWC water, on top of the current plan	-	3,000	7 m	-	1.5



Social Benefits Identified through Grassroots Action



Expand Social Action Globally: A Tradition of Pilgrimage



For many pilgrims the Jordan River features prominently along routes connected to Biblical and Islamic texts, drawing visitors to the places where miracles occurred and prophets walked.

2013: Rehabilitation of Lower Jordan River ... underway

- Sewage Being Removed: Waste Water Treatment Plants being built in Israel, Jordan and Palestine
- Israel – National Master Plan Being Developed
- Jordan/ Israel – Rehabilitation Committee Established
- Israel Releases Fresh Water – 30mcm pa
- With EU Support Regional NGO Master Plan Developed



Lessons from the Lower Jordan River Basin

- Civil society can be effective catalyst
- Need regional approach and regional vision
- Undertake sound research – environmental & socio-economic
- Identify clear targets and benchmarks
- Build local constituents – schools/activists/mayors/faith based groups across the basin.
- Attract the media local & global
- Mindful of synergy between bottom up and top down advocacy



European Union



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Will

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