



Water Economics and Financing

Water Markets in Integrated Water Management

***Integrated Perspective on Environmental
Protection of Water Use in the Middle East***

Mordechai Shechter

Zaragoza, 30 July 2008





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Water Scarcity in the Middle East Need Not "Short-circuit" Regional Economic Well-Being

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Roadmap

- Water markets – passé, or: Do we fight the previous war?
- **Why yes?**- Some examples: urban – farming trades, agriculture – agriculture trades, interstate trades, climate change;
- On “buying time” and saving scarce resources
- **Why not?** – Life-support, environmental, political & cultural institutions and impediments;
Economic efficiency vs. equity considerations

WATER IS AN ECONOMIC GOOD

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- Farmers in many parts of the world use roughly 80% of the region's water, often in low-value or subsidized crops, such as alfalfa, cotton, or rice.
- Farmers typically pay only for the pumping or conveyance costs for the water and not for its scarcity value.
- Much water use in agriculture has less value than if it were used in rapidly growing urban areas and in many environmental and recreational uses. Significant allocative gains arise if some water is moved from agriculture to other sectors

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- The value of water used in *agriculture* was **\$0.02–\$0.19** per m³ in the Rio Grande Valley. For *urban water*: **\$0.53 to \$1.70** per m³. On average, reallocating water produced *net benefits* of **\$0.81** per m³.

- In California, an acre-foot used in the semiconductor *industry* produces **\$980,000** in gross state revenue; that same acre-foot used to grow *cotton and alfalfa* generated **\$60**.

These disparities in the value of water have occasioned calls for reallocation of water *from lower value to higher value activities through water marketing*.

Such trades can benefit *both* parties: farmers receive more for their water than they could earn in agriculture and cities secure additional water *at a lower cost than available alternatives*, such as desalination.

Efficiency gains achieved through trade could be significant (studies carried out at Tel Aviv and Haifa Universities in the early 90's). Through water trade both Israel and Palestine may improve their economic well-being.

The studies show that if **trade** were allowed, water would be “exported” to the Palestinians, enabling both parties to utilize the shared resource in a more efficient way. The underlying reason: The shadow price of 1 cubic meter in Palestine is higher than in Israel.

Furthermore, the models indicate that the equilibrium “market” price would be lower than the cost of desalinized water.

Under trade, the price would be **\$ 0.25-0.30 / m³** in Israel and **0.40-0.50** in the West Bank and Gaza. This was significantly lower than the price of desalination which stood at **0.80-1.10.**

Table 2. Current uses, social benefits and shadow prices of water (no trade)

Entity	Use level ^a MCM	Social benefit ^b (\$ millions)	Shadow price ^c (\$/CM)
GS	70	123	1.03
IS	941	1183	0.21
JO	491	701	0.46
NE	559	340	—
SY	4500	2204	0.22
WB	110	143	0.70
Total	9371	<u>4744</u>	

Notes: ^aSee Table 1.

^bThese are not net benefit figures in the sense that they include production cost (pumping and average conveyance cost *within* the country).

^cThe shadow price reflects the value of the water in situ.

RIGHTS

RIGHTS???

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Water Markets – an instrument, not an objective

The concept of **Water as a tradable commodity** as an *educational tool* for policy makers and “stakeholders”

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Water Marketing as an adaptive response to the threat of climate change.

- The gradual warming of the atmosphere is certain to change the distribution and availability of water supplies, with potentially severe consequences for freshwater supplies.

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VALUE model

Optimal (farm) Land cum Water (of varying qualities) Use by 45 crops in 21 ecological regions (“natural zones”) under varying climatic scenarios

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The United Nations Intergovernmental Panel On Climate Change (IPCC) has noted that there are numerous policy options that “*would generate net social benefits regardless of whether there was a climate change.*”

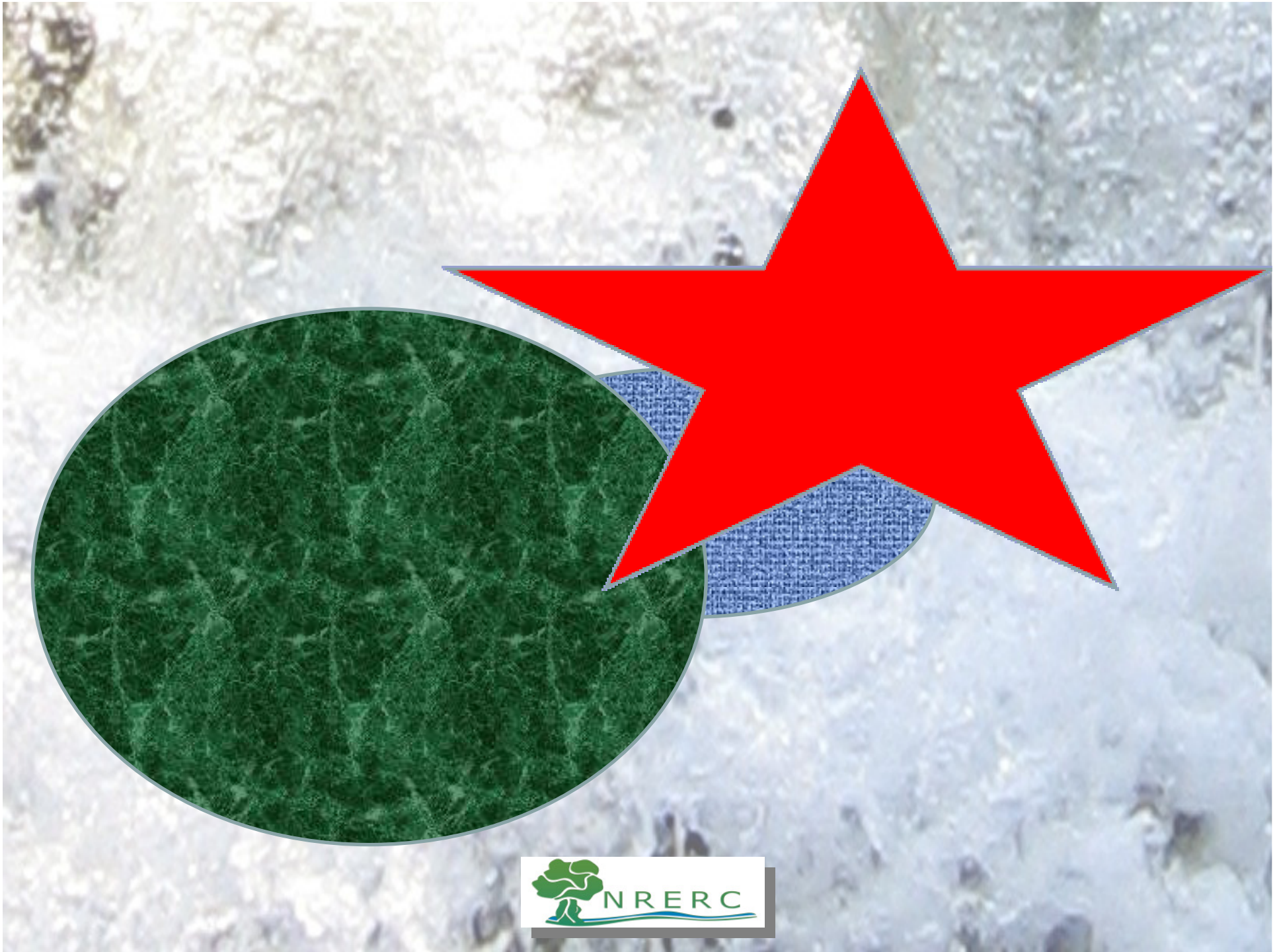
Such “no regrets” policies would include the elimination of *irrigation and development subsidies* that artificially increase water demand, the *incorporation of environmental values* into existing water institutions.

The gradual implementation of water markets is also such a “no regrets” policy.

Is it?

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Water for Nature Law

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Conclusions

1. There are definitely economic gains to be derived from trading in water – across sectors, regions, countries
2. Water is a reproducible commodity. Like many other goods and services, water use entails externalities
3. To trade in water – you need to have water (or the means to buy it or produce it) in the first place!

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Conclusions (cont.)

4. Water markets in most cases would fail to handle water's life support functions and environmental service provisions (universally true)
5. Institutional set-ups (e.g., state ownership of water resources as is the case in the ME) will render water markets superfluous

***WHISKEY IS FOR DRINKING,
WATER IS FOR FIGHTING...***

MARK TWAIN

Zaragoza, 30 July 2008

