

Jordan water scarcity, strategy and alternative solutions:

A politico-economic perspective

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National Centre for Competence in Research –
Trade Regulation

Jordan water scarcity: Presentation and defining the problem

- Jordan's water picture
- Coping strategy
- Politics of water
- Alternative options

MENA water scarcity

- First global region to run out of sufficient water – 1950s
- MENA hydro-system unable to meet rising water demand
- Indicator of scale of water deficit = level of food imports
- Pop growth, living standards, climate change

- But global hydro system / freshwater in surplus
 - ➔ global food trade (virtual water)
 - ✓ balances MENA water deficit
 - ✓ achieves water / food security for region
 - ✓ disguises level of crisis

Water picture: Land, resources, demography

- 90% arid; 4th most-water deprived
- Landlocked
- Less access than neighbours to surface water
- Downstream
- Huge pop growth - refugees
 - 5.87m



Water picture: Resources*

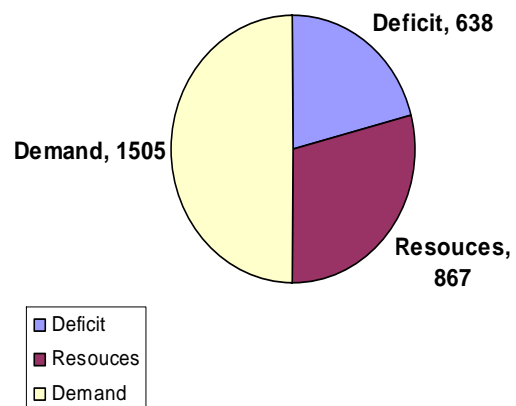
■ Developed surface water	300 MCM	34%
■ Groundwater	420 MCM	48%
■ Treated wastewater	90 MCM	10%
■ Desalinated	10 MCM	1%
■ Peace treaty	50 MCM	6%
TOTAL	<u>870MCM</u>	

* Numbers indicative

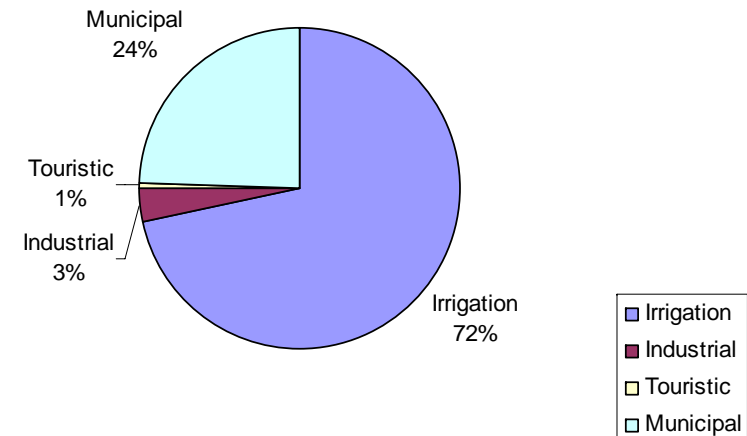
Water picture: Resources v. Demand MCM 2007

(GOJ official figures)

Resources v. demand 2007 (MCM)



Water demand by sector 2007



Water balances 2007

- Demand exceeds resources 638 MCM
- Population (2008) 5.87m
- Annual per capita availability 145 cm/y
(International poverty line 500 cm/y)

- ➔ Deficit met drawing on aquifers / rationing
- ➔ Food imports provide water security

'Water foot-print' reflects size of virtual water imports*

Jordan's Water Foot-print = total water use
✓ minus water used for commodity exports
✓ plus 'virtual' water in commodity imports

= 6.27 billion cm/yr

= 27% water self sufficiency

= 73% of water footprint imported

* Quantification method developed by Chapagain & Hoekstra, 2008

Towards water crisis

“The hard reality is that Jordan is consuming more water than it has available from secure (annually renewable) sources. A water catastrophe is imminent as groundwater resources will slowly dry up”.

Washington Embassy of the Hashemite Kingdom of Jordan

Water Strategy 2008-2022

- Context:
 - Growing water scarcity / unsustainability of system
 - Past emphasis on expanding supply / weak demand management
 - Tension: economically sound policies v. politically-based policies
 - Signs of donor fatigue over water mismanagement

- Objectives :
 - Provision of sufficient / safe drinking water (MDG)
 - To reduce water deficit / improve long term outlook
 - Deficit: 638 MCM → 503 MCM (without RSDS; 3MCM with RSDS)
 - Resources: 867 MCM → 1132 MCM
 - Demand: 1,505 MCM → 1635 MCM

Water Strategy 2008-2022

- Strategy (% of total resources)
 - Decrease reliance on underground water (32%→17%)
 - Develop surface waters (34%→22%)
 - Increase treated wastewater for agriculture (10%→13%)
 - Increase dependence on desalination (1%→31%)

- Implementation
 - Institutional reform, with PSP
 - Capping / regulation of irrigated agriculture
 - Appropriate water tariffs
 - Develop alternative sources: MEGA projects
 - Disi Aquifer (\$900m) ;
 - Red Sea Dead Sea Conveyor (\$16bn)

Jordan River Basin

Renewable Resources
900 MCM (FAO)



Jordan water politics: Political pressure to pump

- Geographic location; demography, water scarcity
- Asymmetric power
 - Israel – hegemon ; Syria – upstream; Saudi Arabia – shared Disi aquifer
- Domestic power structure/sanctioned discourse
- Strategic location and donor largesse

Alternatives: in-sector / across- sector?

Politics, risk, cost, funding?

A. RSDS: (Refill Dead Sea; plus desalination)

- Politically independent / Brine into Dead Sea

JRSP : Aqaba Desalination

- Politically independent / Where to put brine? Who will fund (No Peace dividend)

B Turkey Peace Pipeline

- Politically dependent on Turkey / Syria
- Medium term – more costly than desal; Longer term – less costly?

C. Integrated cross-sector approach; economically sound policies

- Boost adaptive capacity
- Market mechanisms – PSP; Tariff reforms, subsidy reform
- Aided by new discourse on “value of Water”

Thank you

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