

Overview of the Water and Sanitation Sector in the Mediterranean region

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Amsterdam, October 25, 2004



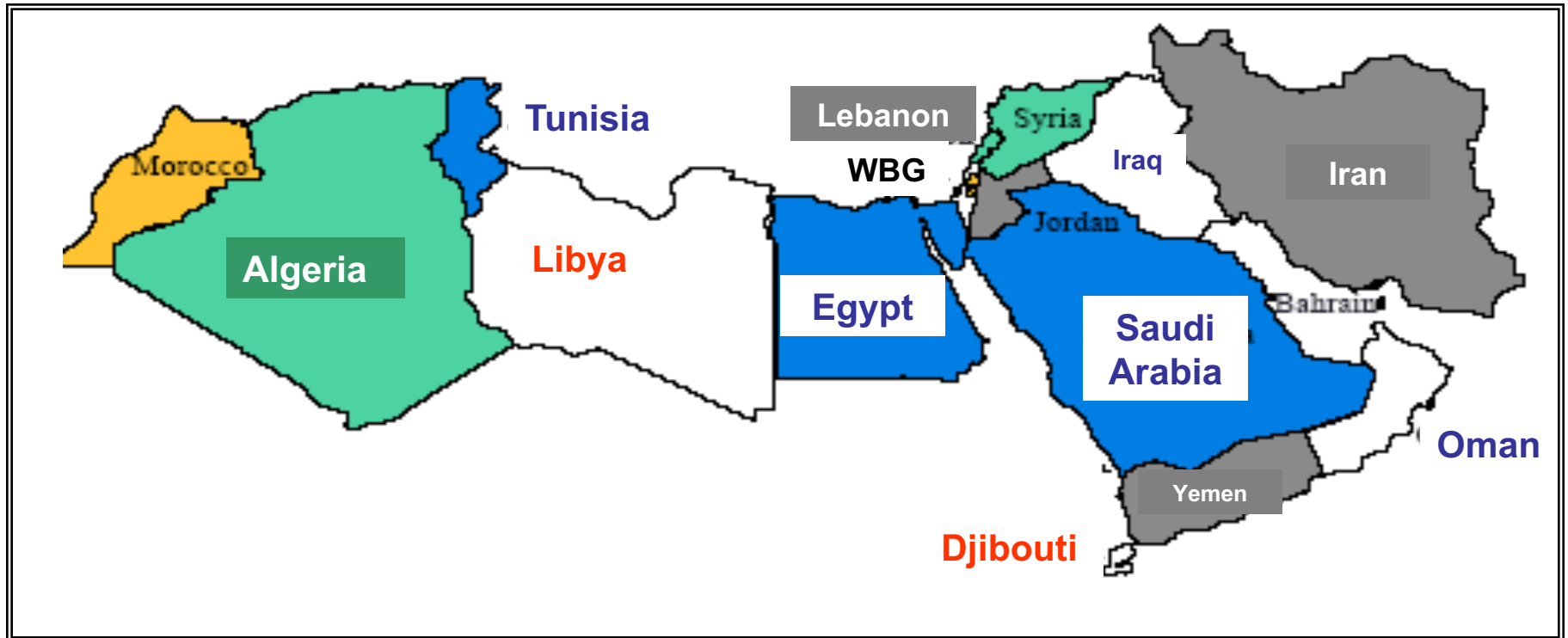
OUTLINE

- Introduction
- Regional Cross-Cutting Issues
- Summing up

“REGION”

- **World Bank**
 - **World Health Organization**
 - **EIB Water Initiative**
 - **Blue Plan**
 - **Public Services Institute
Research Unit PSIRU,
University of Greenwich,
London**
- MENA region**
- EMRO...**
- Mediterranean region**
- Mediterranean north,
east and south**
- Mediterranean region**

MIDDLE EAST AND NORTH AFRICA (MENA) REGION



MEDITERRANEAN REGION



Our “Regional” experience

- **Egypt: since 1984**
- **Morocco: water resources management project (CI), 98-02**
- **Tunis: wwt for small cities, 90s**
- **Libya: Tripoli ww master plan, ongoing**
- **Gaza: wwt, 90s**
- **Syria: just starting Beanies ww feasibility study**
- **Regional: MENA eutrophication study, ww reuse study**



REGIONAL CROSS-CUTTING ISSUES (RCCI)

(forgive what looks like conclusive generalizations !!!!)

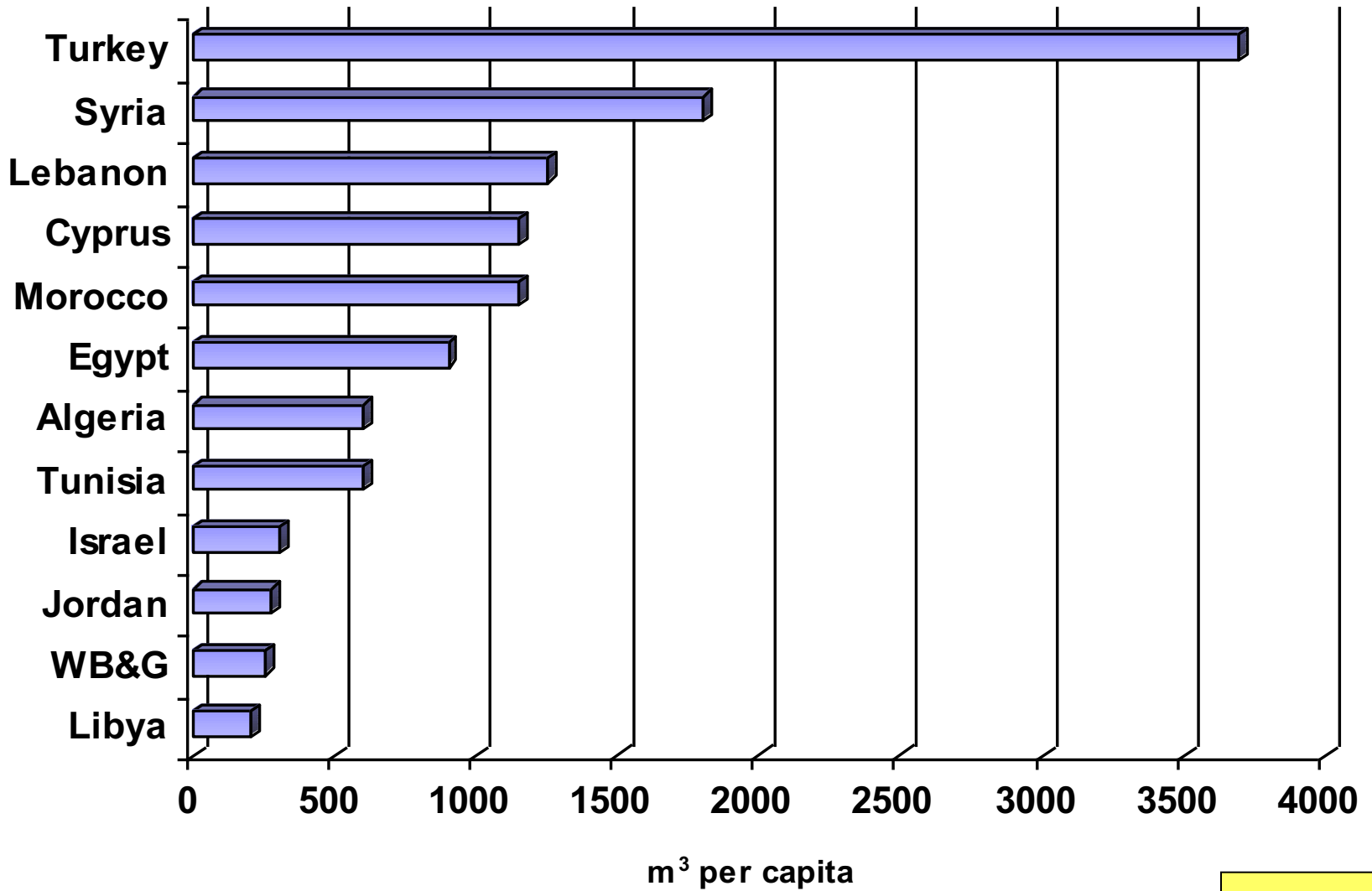
1. Water is scarce in the region
2. Water management is far from best practices
3. Water reuse is below target
4. Sanitation is much behind
5. Water quality is deteriorating
6. Sector reform is lagging
7. Privatization is limited
8. Cost recovery is low (pricing and subsidies)



RCCI #1: WATER SCARCITY

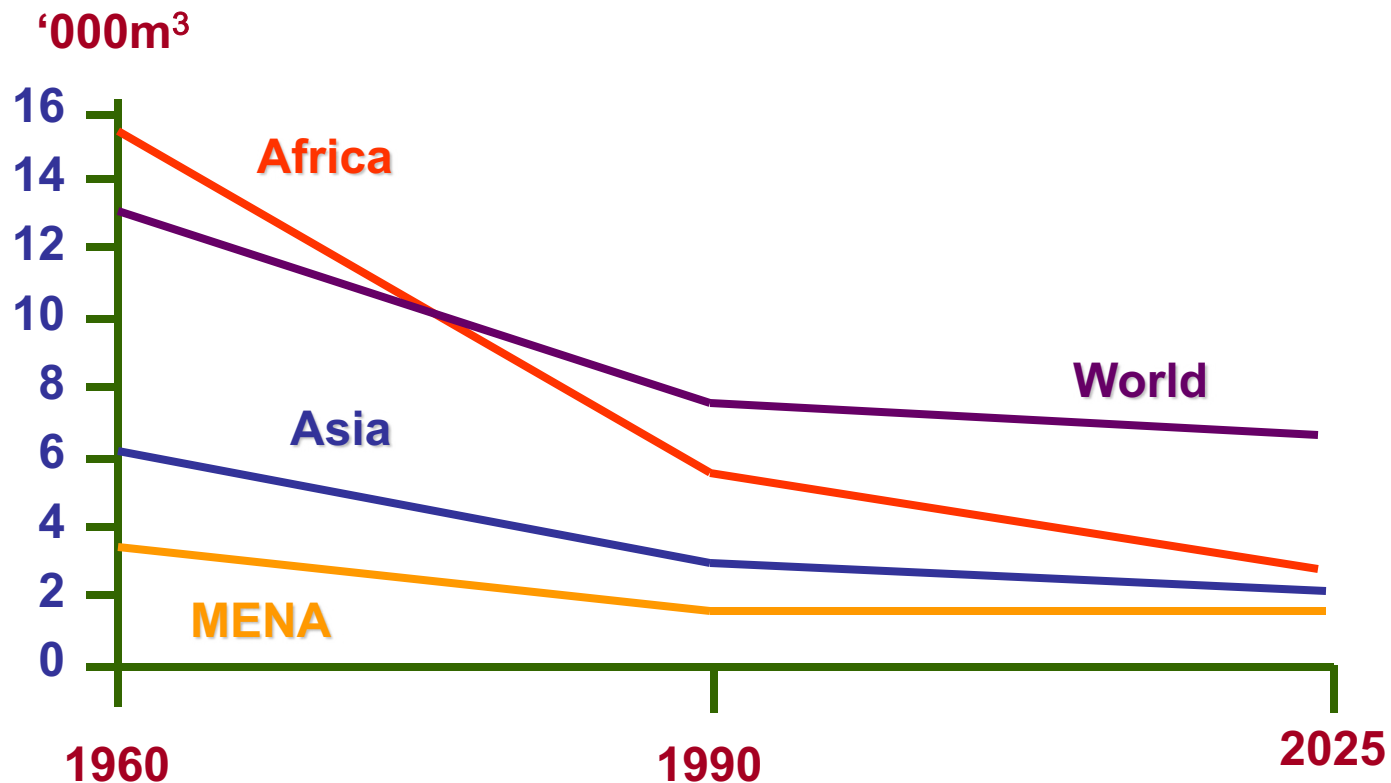
- **Situation is getting worse due to high rate of population growth, rising living standards and urbanization**
- **Annual per capita availability has fallen drastically to reach the poverty line in some countries**
- **Availability is uneven in space and time**
- **Reports about the Mediterranean water crisis (IDRC 2003, Blue Plan vision 2000: the crisis scenario)**

RENEWABLE WATER RESOURCES PER CAPITA AND YEAR (1995)



WATER SCARCITY IN MENA REGION

Regional per capita availability of water is declining



World Bank, Annual Availability of Water, 2003

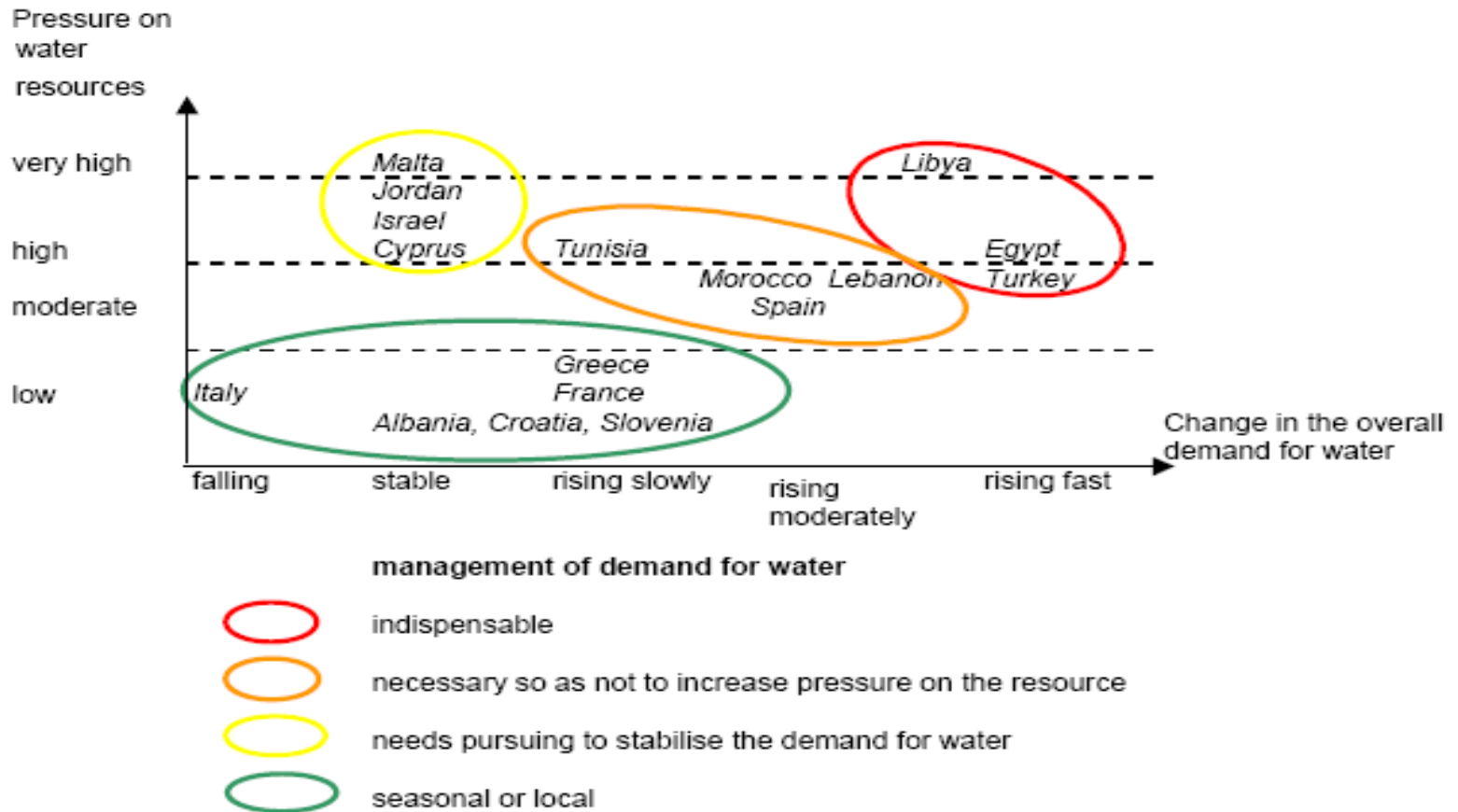
Blue plan vision 2000

water resources versus water demand

Group of countries or territories	Population change	Water resources per capita			Water demand per capita	
		Current m ³ /year	Trends	Average forecast 2025 in m ³ /year	Current m ³ /year	Trends
Group 1 France, Italy, Portugal, Greece, Slovenia, Croatia, Bosnia-Herzegovina, Albania, FR of Yugoslavia.3	Stability or decrease	> 3000 (> 20000 the Balkans)	Stability until 2025 and after	> 2000	Low to moderate 700-800 in EU 200-400 the Balkans	Slight increase or reduction
Group 2 Spain, Cyprus, Syria, Lebanon, Maroc, Turquie.	Stability in Spain growth in South and East countries	> 1000 Max: TR 3200	Stability in Spain; decline in the South and the East	ES > 3000 Southern and Eastern countries < 1000	Moderate to high 300 to > 1000	Decrease Spain, Cyprus, Morocco increase Turkey, Lebanon
Group 3 Malta, Israel, Palestinian Territories of Gaza and the West Bank, Jordan, Algeria, Tunisia, Egypt, Libya.	Moderate to high increase	500 below 100 (GZ, MT) Egypt: ~1000	More or less rapid decline	from 100 to 300 EG ~ 600 LY < 50	Low in the Levant, in Malta, in the Maghreb 100 to 400 high in Egypt and in Libya 800 to 1000	Slight to moderate increase in the Maghreb stabilisation in Israel reduction in Egypt, Libya

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Blue plan, WDM study , Oct 2002



Source : adapted from Margat and Vallée 2000; Nasser, 1990

RCCI #1 REFERENCES

- The World Bank, Annual Availability of Water, 2003
- Blue plan publications
- Recent Study on Water scarcity in the Mediterranean area: Proposals for an efficient management and a protection of water resources, Prof. Giulio Querini, Dott.ssa Marzia Tamburrino, Ilaria Dell'Aquila, Centro di eccellenza europeo Jean Monnet Orvieto, Università degli studi di Roma, April 2004

RCCI #2. Water management is far from best practices

- **Wide range of performance in terms of UFW, consistency of supply and financial criteria**
- **Problems with the “un served” and the “under served “ communities, the coverage issue versus the efficiency issue..**
- **Problems classification : organizational, operational, staffing, technical, financial....**
- **Outcome: poor performance...check performance indicators long list**

SELECTED PERFORMANCE INDICATORS OF WATER AND SANITATION UTILITIES

	Gaza	Amman	Tunis	Algeria	Casablanca	Good Practice
UFW	31%	52%	21%	51%	34%	15-25%
Water Coverage *	99%	100%	100%	100%	100%	100%
Continuous supply	No	No	Yes	No	Yes	Yes
Per capita water use (liters/day) **	70	~80	~80	~70	110	120-150
Sewerage Collection	25%	78%	77%	70%	70%	--
Employees/000 connections ***	7	5.5	10	8.6	6	4-6
O&M cost recovery	No	No	Yes	No	No	Yes

Source: World Bank Compilation

** Including coverage from standpipes*

*** Estimated amount from public network actually used by the consumer, net of physical losses.*

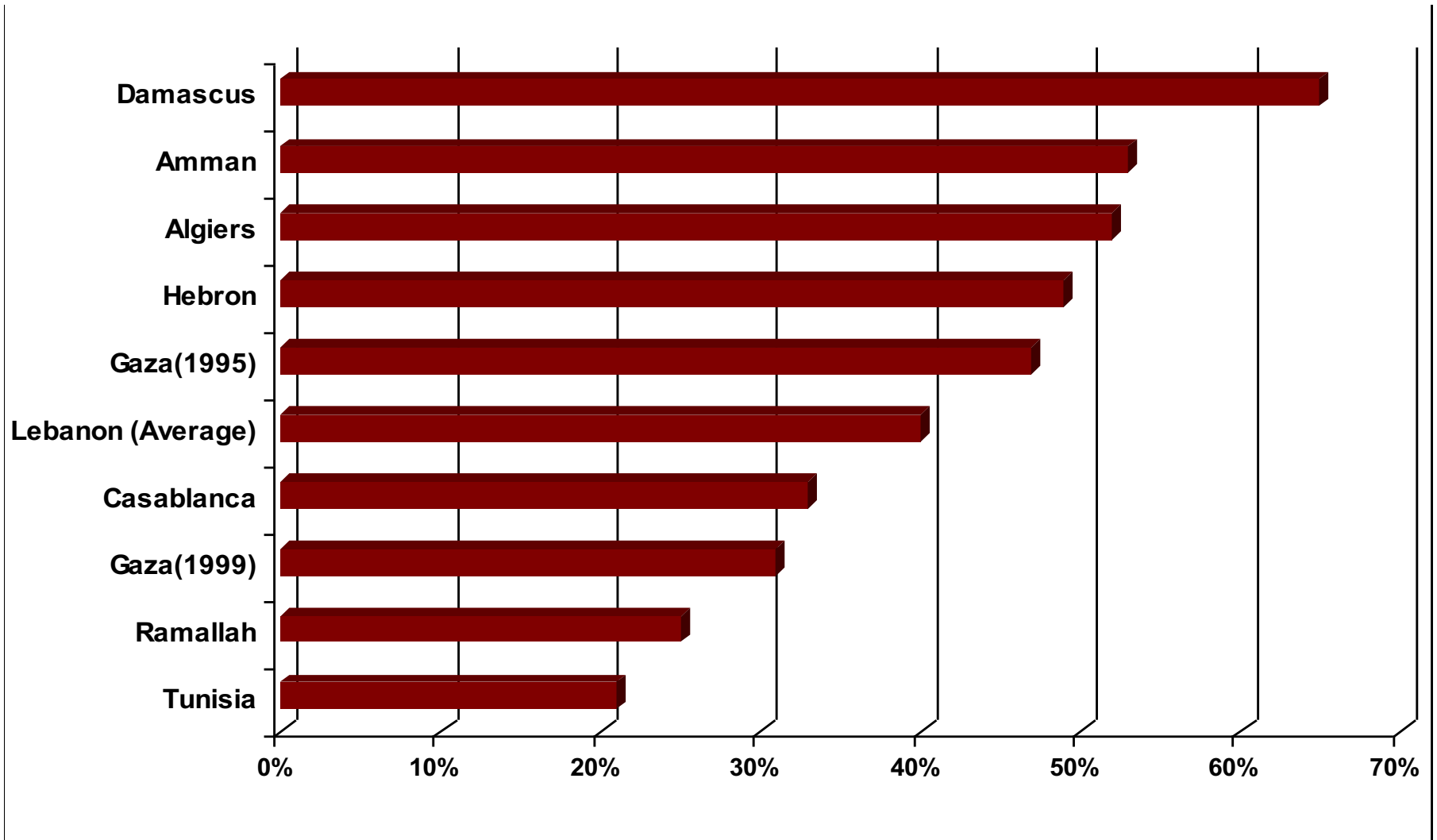
**** Comparisons have to take into account the varying degree of sewerage coverage.*



WATER LOSSES ARE HIGH

- Water losses are up to 50% in urban use (unaccounted-for), physical losses are much higher than the best practice**
- Up to 60% are considered losses in irrigation systems**

MUNICIPAL WATER SUPPLY: UNACCOUNTED FOR WATER

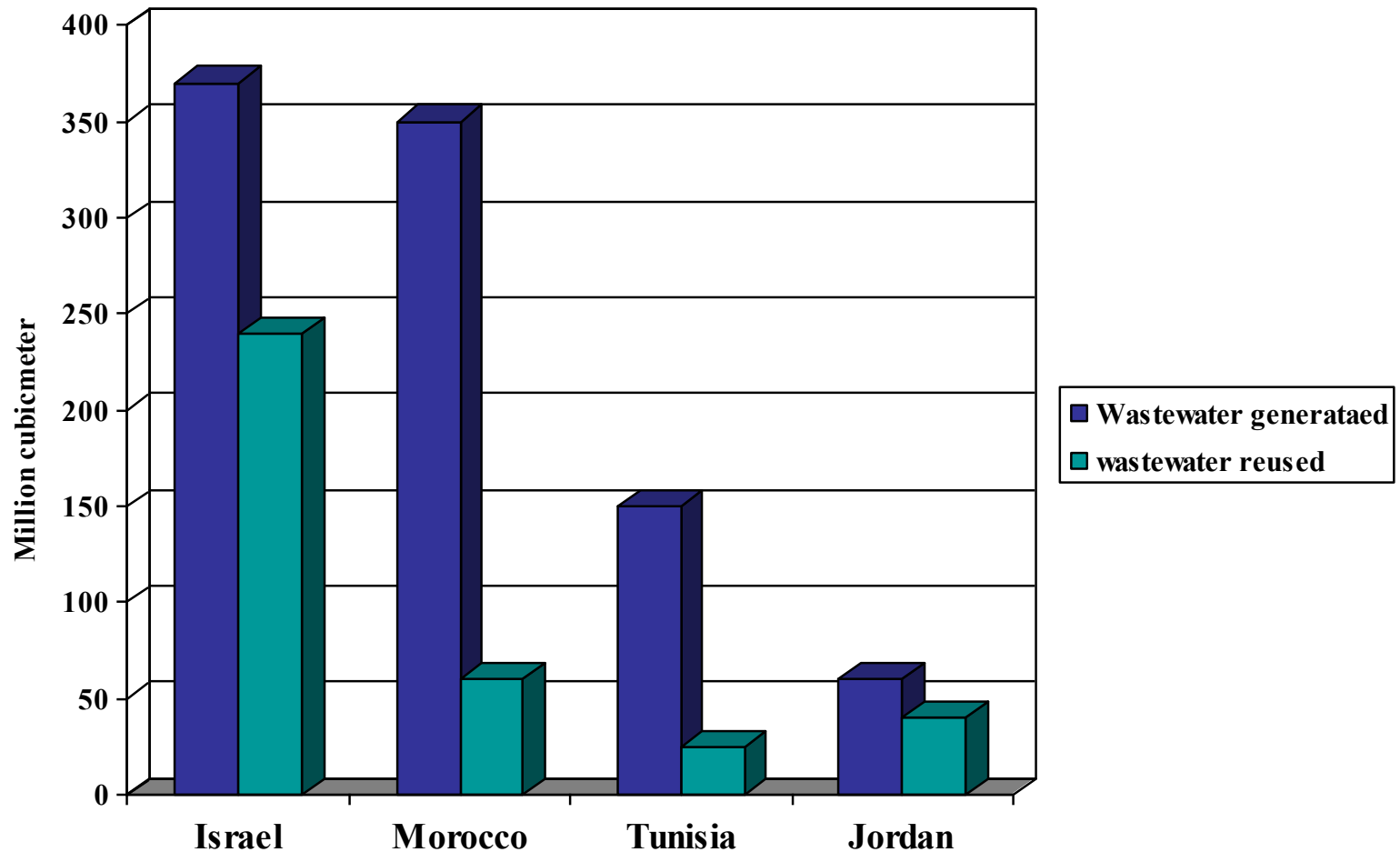




RCCI #3: LIMITED WATER REUSE

- **Codes for wastewater reuse are in different phases of development**
- **Current WW reuse practices widely vary**
- **Countries with good experience include: Tunisia, Morocco, Jordan, Israel**

WASTEWATER REUSE IN SELECTED COUNTRIES OF THE REGION

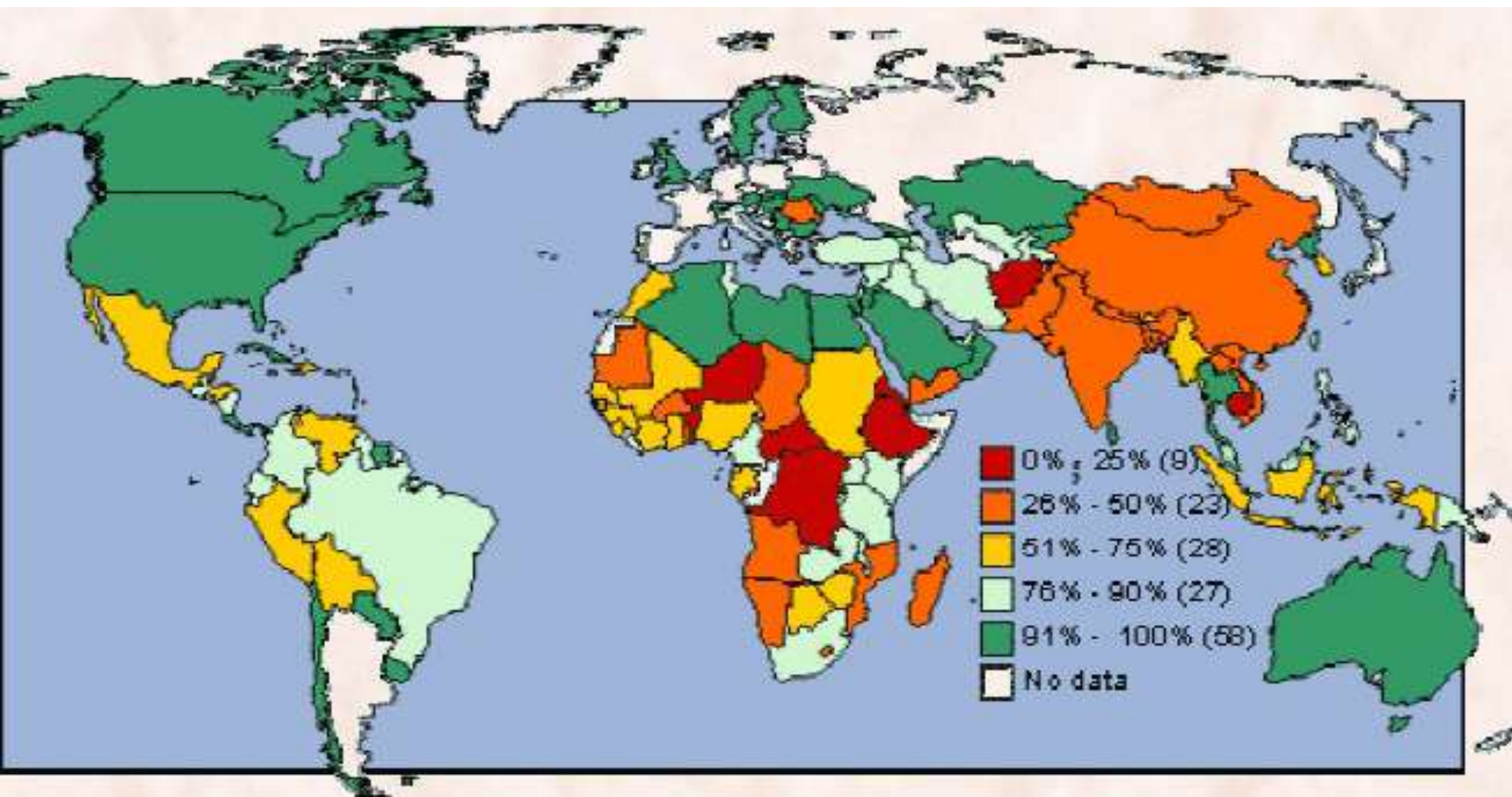




RCCI #4: SANITATION IS BEHIND

- **Coverage levels with sewerage are low in Urban and Rural communities**
- **Coverage levels with wastewater treatment is even lower**
- **Many of the existing WWTP,s are operating below standard**
- **Sanitation...as a problem of definition !!!!**

SANITATION COVERAGE, 2000



water
environment
sanitation



**WHO/UNICEF Joint Monitoring Programme for
Water Supply and Sanitation
Coverage Estimates 1980-2000**

Access to Improved Sanitation

Egypt

September, 2001

RCCI #4

ACCESS TO IMPROVED DRINKING WATER SOURCES AND IMPROVED SANITATION - EGYPT

Source	Code	Year	Drinking Water				Sanitation			
			Urban		Rural		Urban		Rural	
			Data for estimates	Other data	Data for estimates	Other Data	Data for estimates	Other Data	Data for estimates	Other Data
The International Drinking Water Supply and Sanitation Decade. Review of National Baseline Data (as at December 1980). WHO 1984	WHO80	1980		88		64		45		10
The International Drinking Water Supply and Sanitation Decade. Review of National Progress (as at December 1988). WHO 1990	WHO88	1988		96		82		100		34
1988 to January 1989, with a national coverage sample size of nearly 9,000 households	DHS89	1989	95		92		94		77	
The International Drinking Water Supply and Sanitation Decade. End of Decade Review (as at December 1990). WHO 1992	SHO90	1990		95		86		80		26
To December 1992, with a national coverage sample size of nearly 10,000 households	DHS92	1992	99		91		98		82	
Water Supply and Sanitation Sector Monitoring Report – 1996. Sector Status as of 31 December 1994. WHO/UNICEF 1996	JMP96	1993		82		50		20		5
1995 to January 1996, with a national coverage sample size of nearly 15,000 households	DHS95	1995	98		95		99		89	
The Egypt Multiple indicator Cluster Survey carried out fieldwork in May 1996, with a national coverage sample size of about 11,000 households	MICS96	1996		97		77		98		79
Global Water Supply and Sanitation Assessment 2000. Water Supply and Sanitation Sector Questionnaire – 1999 (Form 6 sent to WHO)	JMP99	1999		96		71		87		84
Egypt Demographic and Health Survey 2000	DHS00	2000	99		96		100		95	
Estimates	RCCI #4	1989	96		91		95		77	
		1990	97		92		96		79	
		1995	98		94		98		87	
		2000	99		96		100		96	

EGYPT'S CASE

- **Rural sanitation coverage levels are high by developing country standards, and a wide variety of successful technological, organizational, and financial models are available.**
- **Rural water supply and wastewater collection improvements are shifting the scale of health and environmental pollution from the household level to the level of the hydrologic basin.**
- **Waste/wastewater management planning is organizationally fractured: solid waste vs. liquid waste, agricultural water vs. M&I water, on-site vs off-site sanitation, wastewater collection vs. treatment**

SANITATION COVERAGE IN EGYPT

(in percentages of buildings)

	Sewer	On-Site	None
Urban	50%	38%	12%
Rural	9%	75%	16%

Source: CAPMAS 1996 census, updated by Ministry of Local Development, 2002.



RCCI #5. WATER QUALITY IS DETERIORATING

1. Factors contributing to the water quality problems in the region:

water scarcity

lack of sanitation

industrial wastes

solid waste dumping into water courses

agricultural drainage

2. Untreated wastewater is released to surface water, Wadi's and to the Mediterranean

3. *The hydrologic basin is not used as the planning unit in water quality management.*

WATERCOURSE POLLUTION IN EGYPT

- Fecal coliform counts exceed WHO (1989) standards for unrestricted irrigation at 5 of 35 Nile River monitoring points at “upstream locations” (Aswan-Qanatir)
- Fecal coliform counts exceed WHO standards in 6 of 7 monitoring points on the Damietta branch of the Nile.
- Several reuse irrigation drainage mixing stations have to be shut down due to unacceptable levels of drain water pollution.

SOURCES OF POLLUTION AND PROBLEMS

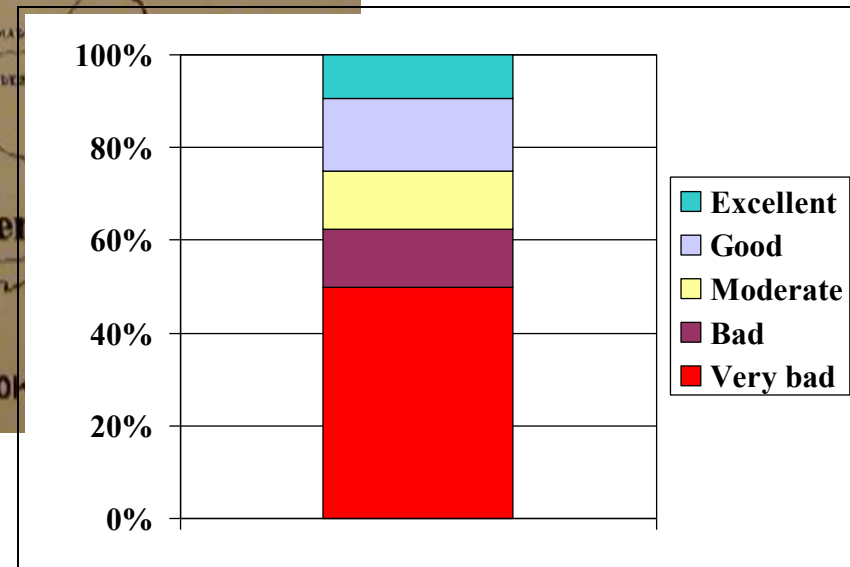
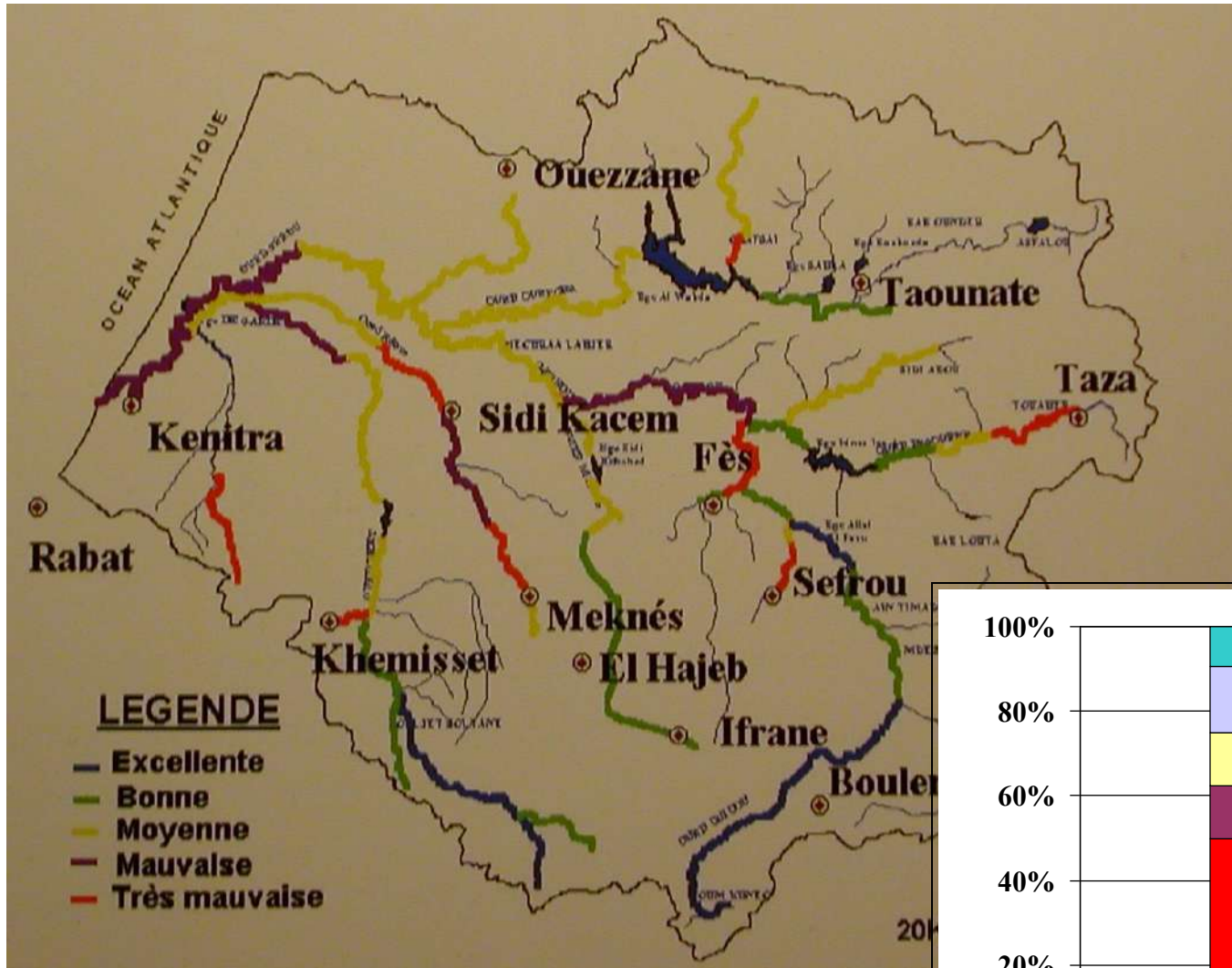


DEFICIENCIES IN WATER QUALITY MANAGEMENT AFFECTS QUALITY OF LIFE

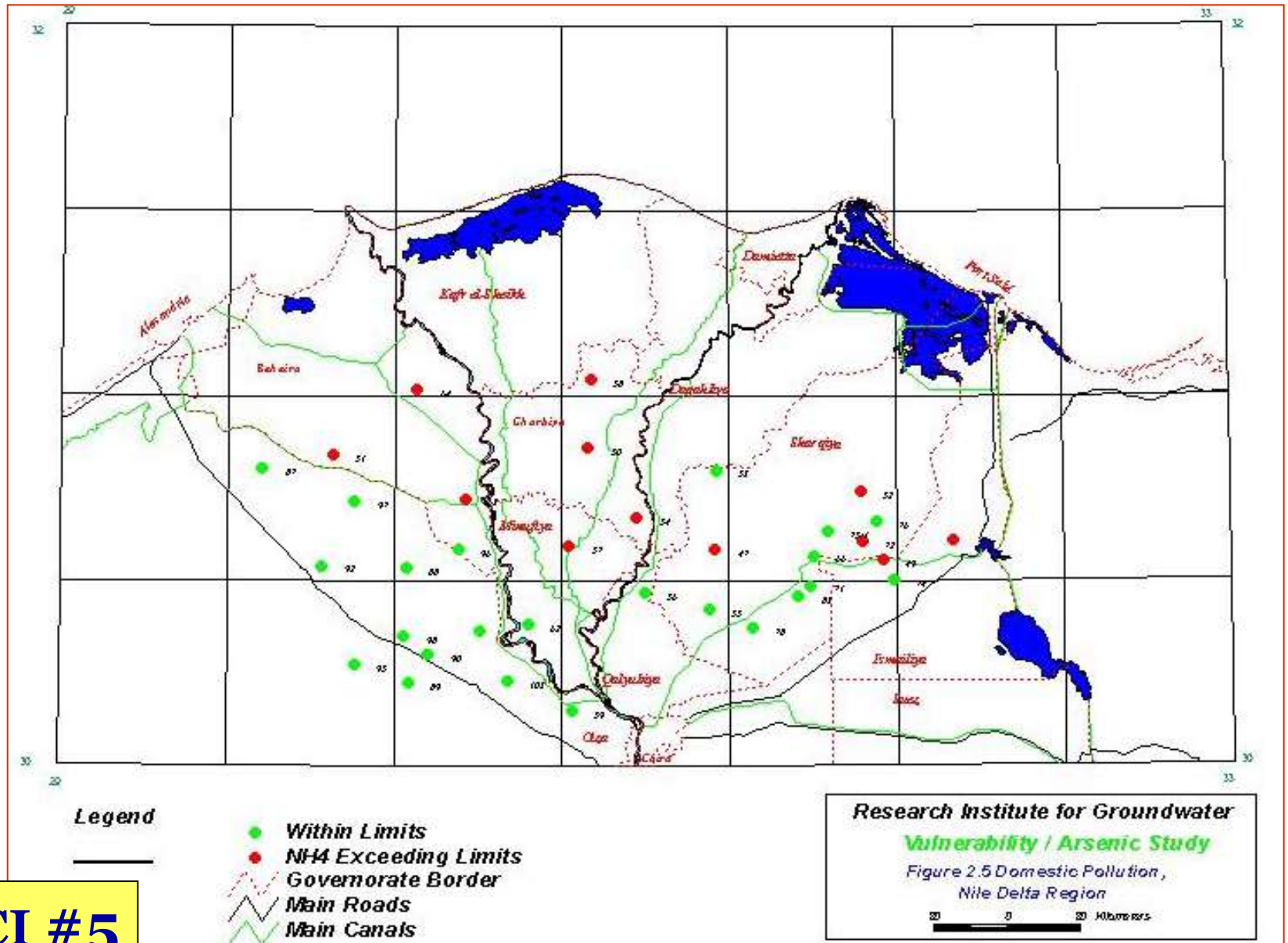


SEVERE WATER POLLUTION IN MANY PARTS OF

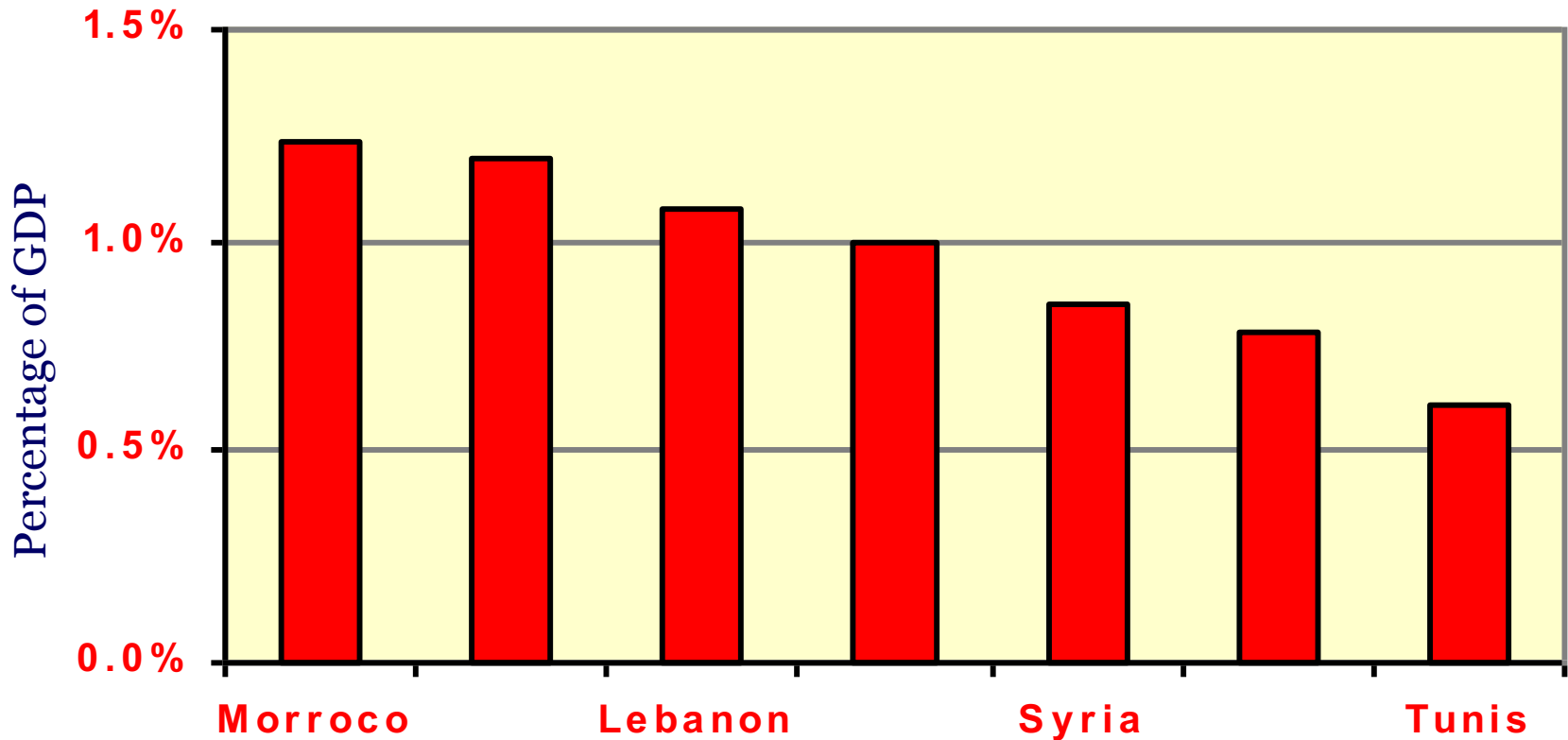
MOROCCO'S SEBOU BASIN



GROUNDWATER POLLUTION DUE TO DOMESTIC WASTE IN EGYPT



FINANCIAL BURDENS RESULTING FROM WATER POLLUTION

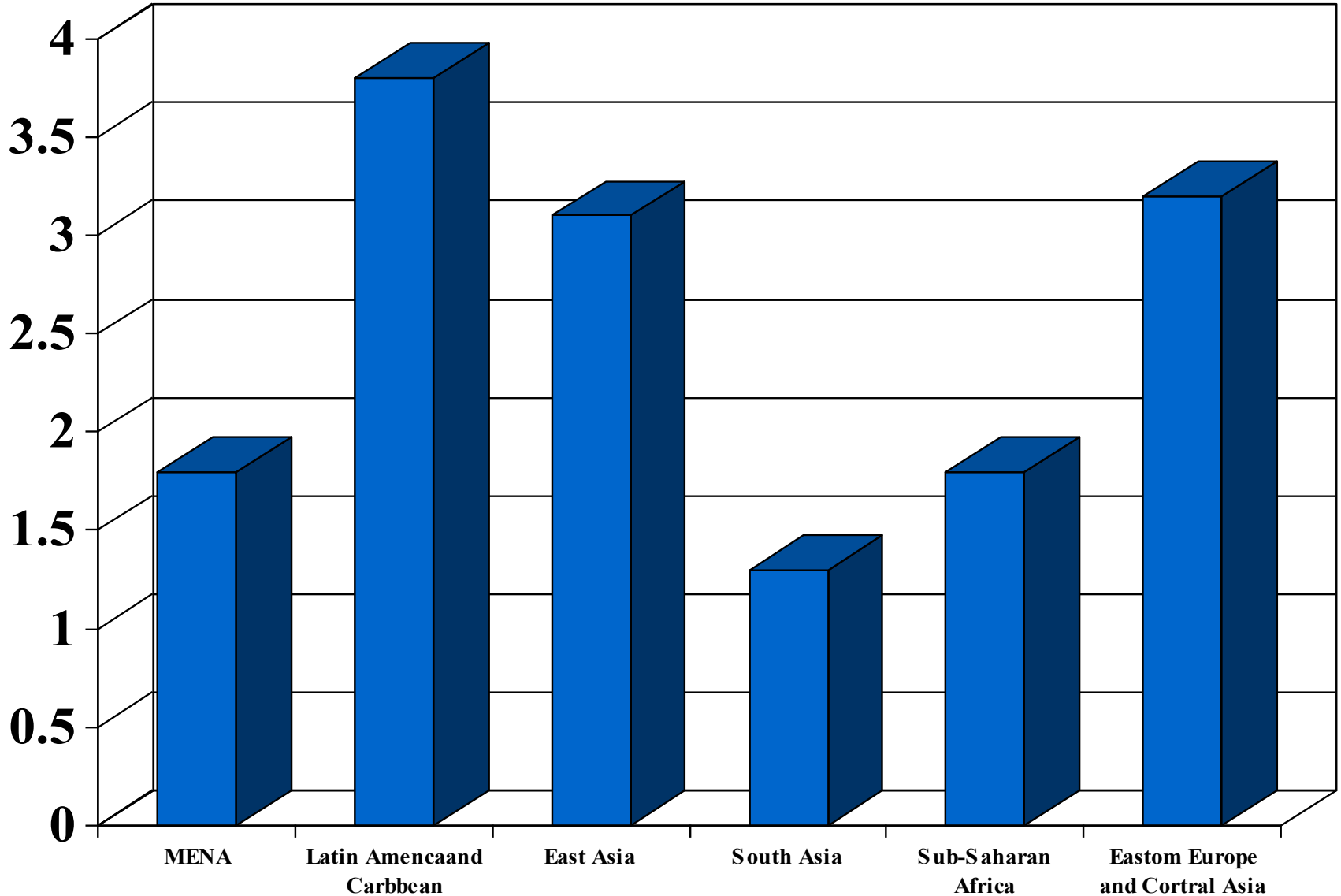




RCCI #6: SECTOR REFORM IS LAGGING

- **In Egypt, a regulatory agency was established in 2004. Water and sanitation sector is to be run by a publicly owned Holding Company.**
- **In Algeria, a separate Ministry for Water Resources was established in 2000**
- **New water laws:**
 - **Algeria 1996**
 - **Jordan 1988**
 - **Lebanon 2000 and 2001**
 - **Morocco 1995**
 - **West Bank and Gaza 2002**
 - **Tunisia 1975**

REFORM INDICATORS AS OF 2002 (MAXIMUM 7)

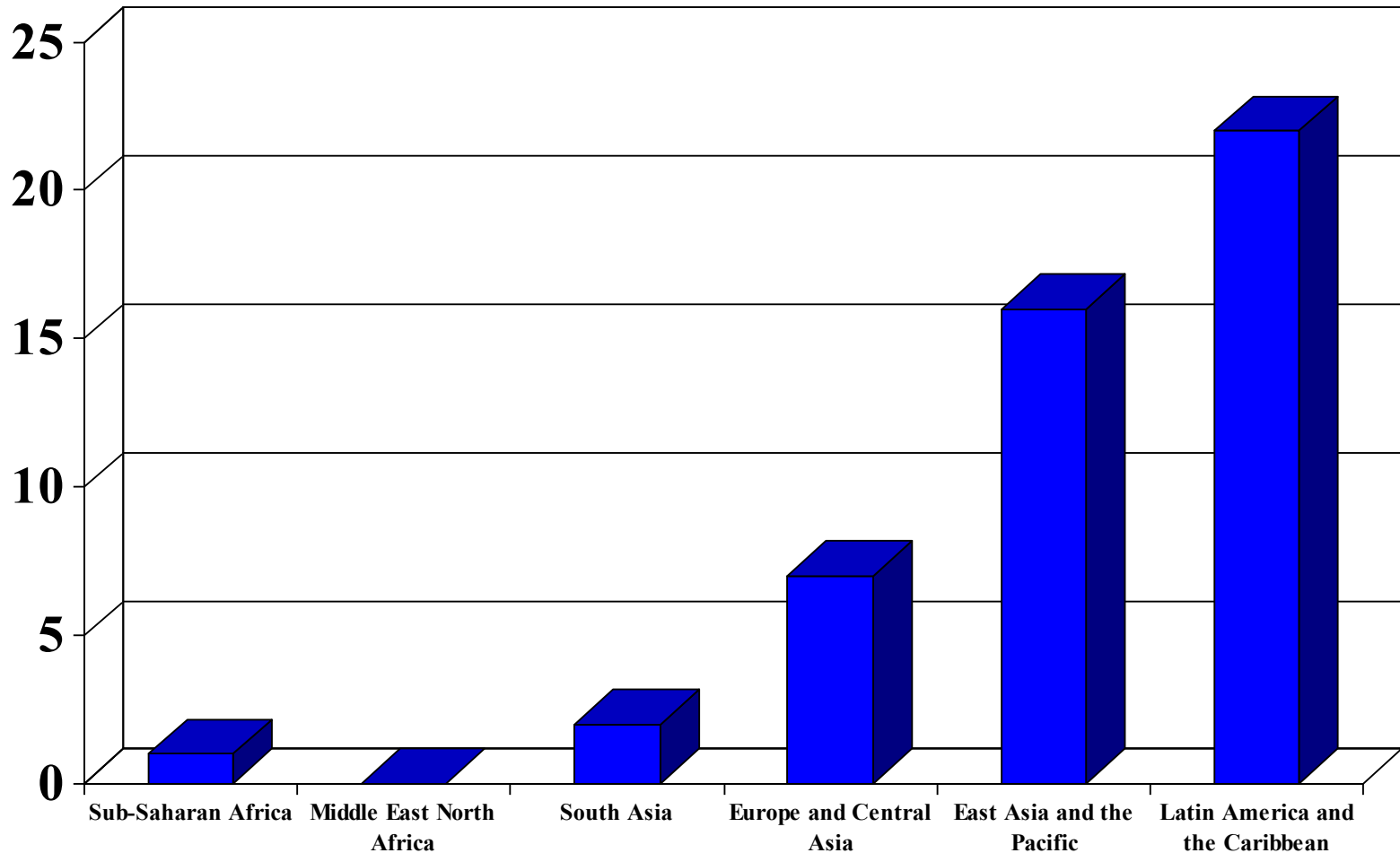




RCCI #7: PRIVATIZATION IS LIMITED

- **The overall level of private sector investment is low compared with other regions (The World Bank, MENA, 2002)**
- **Forms of PSP include:**
 - **Service contracts: Algeria, Tunisia, Egypt**
 - **Management contracts: WBG, Lebanon, Jordan**
 - **Concessions: Morocco**

REAL INVESTMENT IN PPI PROJECTS IN WATER 1990-2001 (USD BILLION)



The World Bank, 2002

TWO COMPREHENSIVE STUDIES ON THE SUBJECT

1. Hall, D. et al, *Water in Middle East and North Africa, trends in investment and privatization*, Public Services Int. Research Unit (PSIRU), University of Greenwich, London,

October 2002, www.psiru.org

2. ESCWA study, Assessment of the role of private sector in the development and management of water supply in selected ESCWA countries, 2003.

PSIRU STUDY MAIN FINDINGS

- There has been little privatisation in the region in terms of the award of concession contracts. Only Morocco has undertaken substantial privatisation with the award of three long term concessions. Elsewhere privatisation has been limited to short term management contracts (Amman, Band Hebron, Gaza) or is in the form of BOT or IWWP contracts or just turnkey construction projects.
- Some municipalities have successfully provided water under public ownership (for example, Jerusalem, Tunisia) and some have resisted privatisation (Egypt). Privatisation has proved difficult and the examples below of the attempts at finalising BOT contracts in Egypt and Oman which failed after lengthy negotiations, show that privatisation in practice can be difficult to achieve due to the need to reconcile conflicting interests..



**AND.... A ROUNDTABLE ON OPPORTUNITIES AND CHALLENGES
IN THE WATER, SANITATION AND POWER SECTORS IN
THE MIDDLE EAST AND NORTH AFRICA REGION**

LEBANON, MAY 2003

The Roundtable participants identified a number of reasons that can explain the lack of private sector funding in the region, such as:

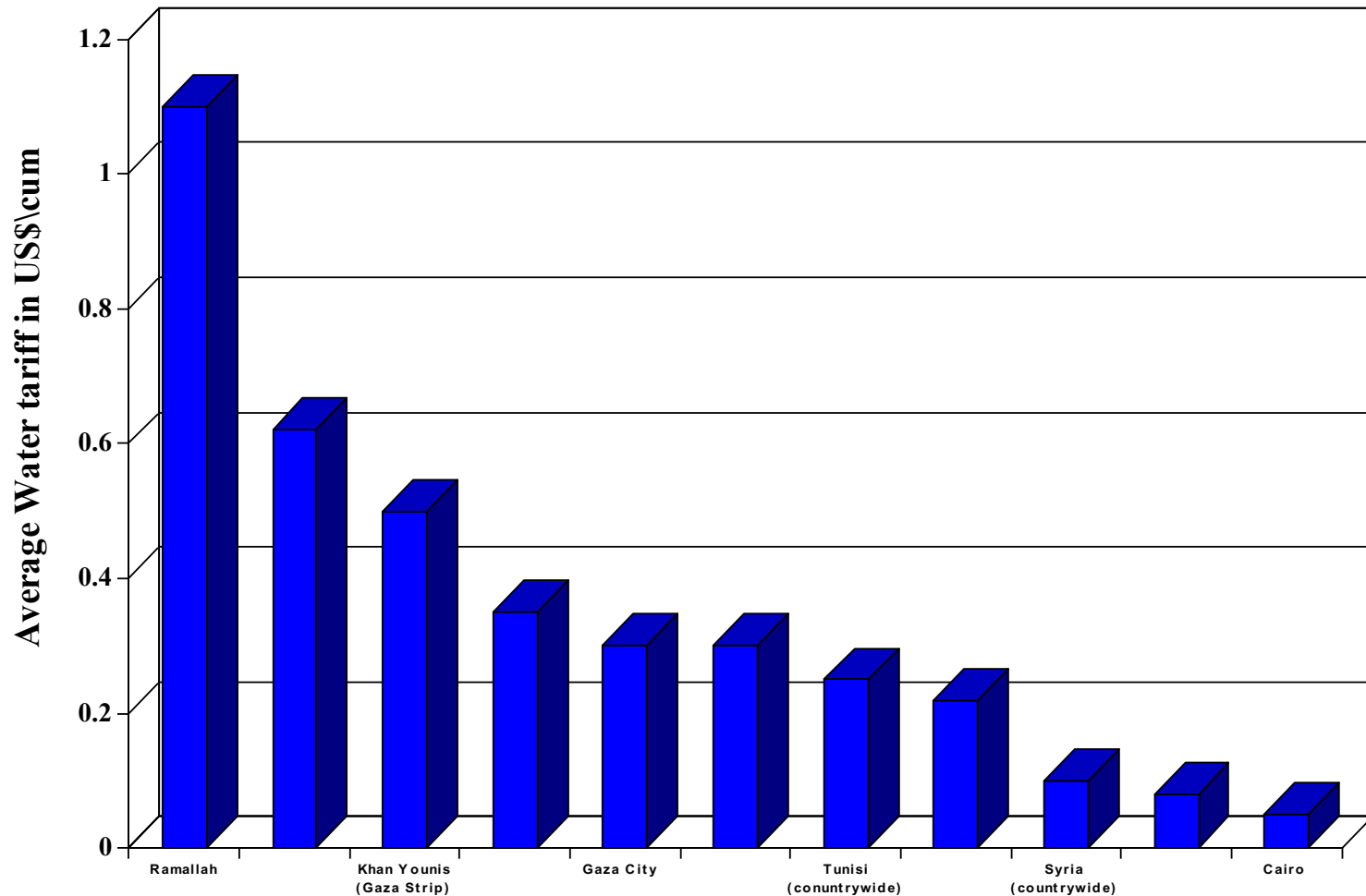
- **Lack of government commitment**
- **Lack of cooperation on regional integration of power and water markets**
- **Unclear regulatory frameworks**
- **Low public awareness on the benefits of reform and private sector participation**
- **Decline in private sector interest**



RCCI #8: COST RECOVERY IS LOW

- In all countries in the region, tariffs for urban water supply and sanitation are subsidized
- In some countries cost recovery is below the O&M cost : Egypt, Jordan, Gaza, Syria, Lybia
- Cyprus system allows full recovery of O&M plus capital cost

THE STATUS OF WATER PRICING IN MUNICIPAL SECTOR



Source: The World Bank compilation. For increasing-block tariffs, where more accurate data were not available, the average tariff has been calculated based on family of eight and water use of 80 liter per capita and day.

plan bleu study



**FORUM ON “PROGRESS IN WATER
DEMAND MANAGEMENT IN THE
MEDITERRANEAN”
FIUGGI, 3-5 OCT, 2002**

[fiuggi_cemagref_eng.pdf /www.planbleu.org/pdf](#)

STUDY FINDINGS:

DRINKING WATER AND SANITATION

- 1. Strong disparities in the price of drinking water**
- 2. Changes in price and prospects**
 - 2.1. Greater or lesser increases in the price of the water: France, Egypt, Morocco**
 - 2.2. Alteration to the pricing structure: towards greater incentive to save water**
- 3. Taking account of the scarcity of the resource, and the environment**
 - 3.1. Payment for sanitation that is far from routine**
 - 3.2. Variable pricing which partially covers costs**
- 4. Price-sensitivity of the demand for drinking water**
 - 4.1. Experience of lowered demand for water**
 - 4.2. Lessons from studies into the price elasticity of demand for water**

STUDY FINDINGS:

METHOD OF COMPARISON OF PRICING SYSTEMS

The comparison of pricing systems combines two criteria: initial price level and progressiveness of prices. The initial price considered here is the average price of the first 30m³ consumed and the progressiveness is determined by taking the price ratio between two amounts consumed (the same in each country): 30m³ and 100 m³ per quarter.

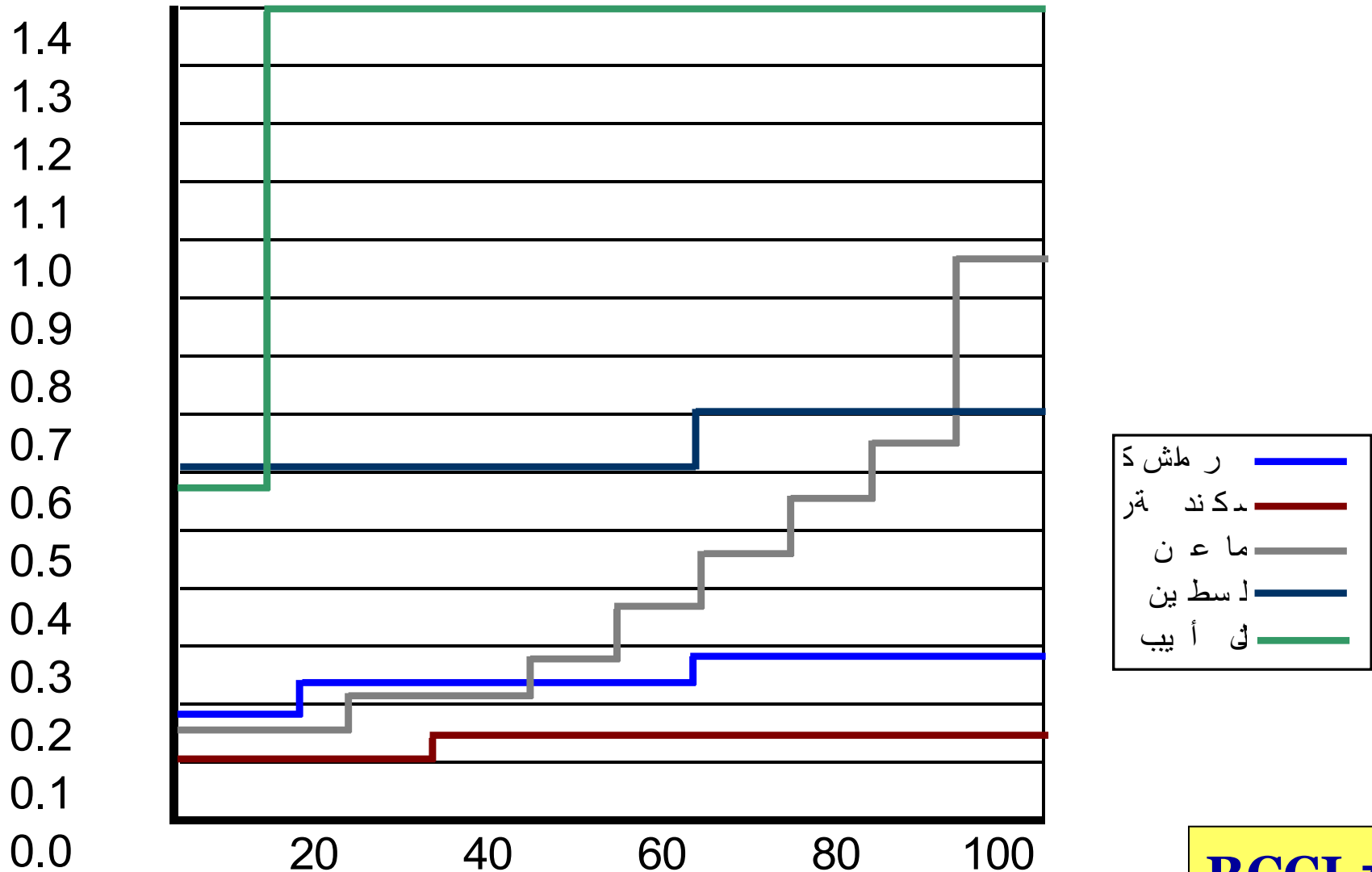
Criterion	Rating
<u>Price</u>	
Low (<0.4 US\$/m ³)	1
Medium (<1 US\$/m ³)	2
High (>1US\$/m ³)	3
<u>Progressiveness</u> (Price ratio 100m ³ /30m ³)	
None (ratio=1)	0
Moderate (1 to 2)	1
High (2 to 3)	2
Very high (>3)	3

A rating is allocated for each criterion. Then, an overall rating is calculated by giving 4 times as much weight to the criterion “price level” compared with the criterion of progressiveness. This is because it is price level which mainly determines the amount which the average consumer actually pays.

PRICING SYSTEM FOR DRINKING WATER, INCENTIVE TO SAVE WATER

Country location	Pricing Structure	Price US\$/m ³	Additional measures	Incentive to save water
Israel (Tel Aviv)	Banding	1.3		Very strong
Turkey (Izmir)	Banding	0.5		Very strong
Palestine	Banding	0.7		Strong
Malta	Banding	0.3		Strong
Morocco	Dual banding	0.3		
Jordan (Amman)	Banding (lump sum for 20m ³) Dual Banding	0.2		Weak
Egypt (Alexandria)	Banding	0.1		
Turkey (Diyarbakir)	Banding	0.1		
Tunisia		0.1	Levels depend on the band of consumption	
Lebanon	Lump-sum	0.2		

PRICING SYSTEM FOR DRINKING WATER WITH PRICES AND INCENTIVE TO SAVE WATER



Summing up

Hoping that you might tolerate the simplifications introduced due to generalization, let us summarize:

- **Pre requisites for w/ww sector development in the region**
- **The infrastructure gap in the w/ww sector in the region**
- **The fundamental need**

Summing up 1: Pre requisites for w/ww sector development in the region

- **Sector reform / regulatory framework, redefine the role of governments**
- **Institutional development / corporatization of utilities**
- **Performance improvement programs**
- **Capacity building / professionalism**
- **Strategic planning (national/regional)**
- **Master planning (city level)**
- **Asset management**

Summing up 2: The infrastructure gap in w/ww sector in the region

- **New projects, urban (the un serverd-coverage issue), meeting the needs of the poorest segments**
- **New projects, rural, rebalance water and sanitation**
- **Rehabilitation of existing systems**
- **Wastewater Re use related projects**
- **Technology transfer related projects (local manufacturing, water loss reduction....)**

Summing up 3: the fundamental need

finance