

**UNITED NATIONS**

**Economic and Social Commission for Western Asia**



# Water Supply and Sanitation and the Green Economy in the ESCWA Region: Building upon the Millennium Development Goals

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**Water In the Green Economy in Practice: Towards RIO +20**  
3-5 October 2011 – Zaragoza, Spain

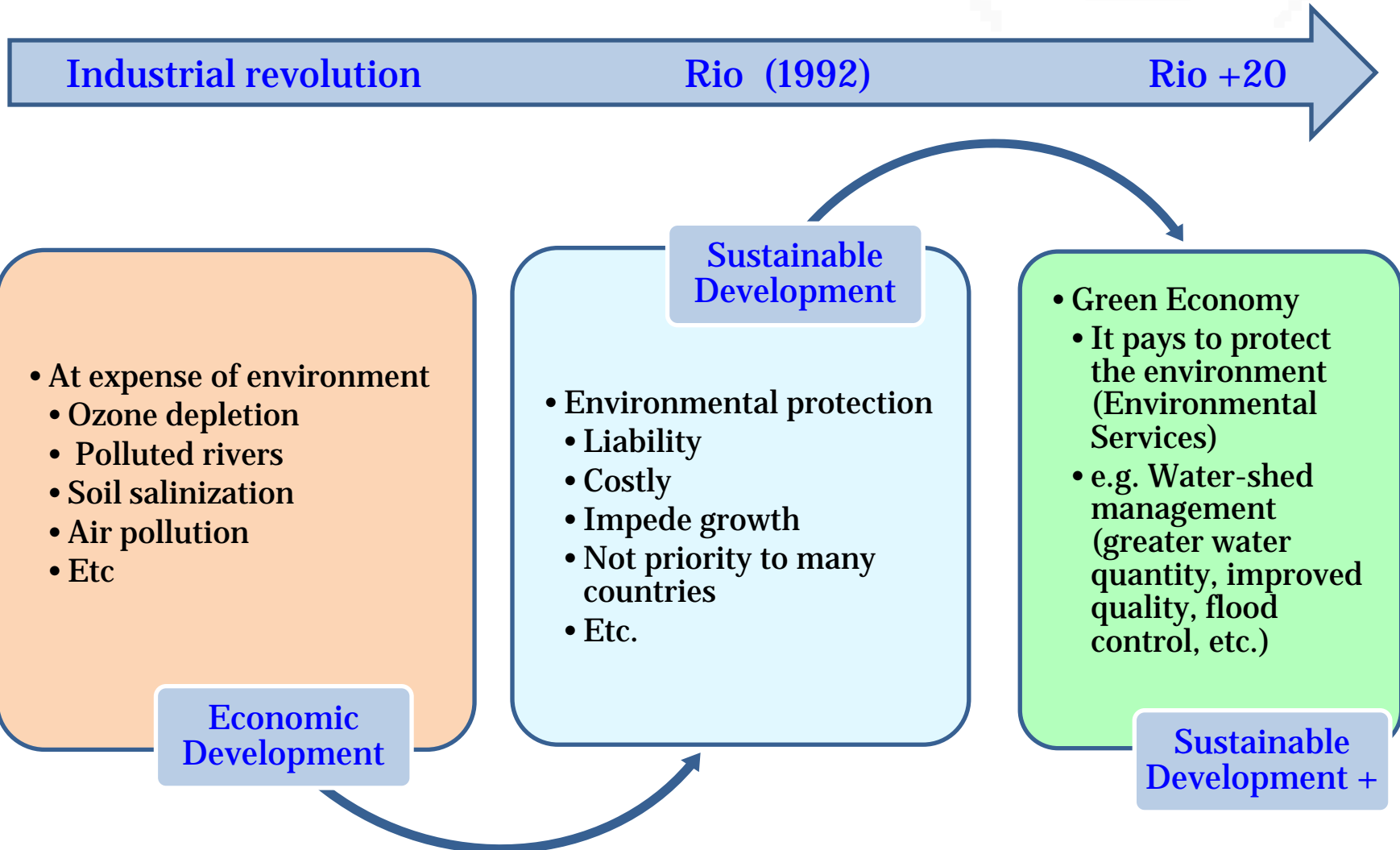


The UN Economic Commission for Europe (UNECE) and the European Environment Agency (EEA) have launched an Assessment of Assessments report in September 2011.

- “The ‘green economy’ is still an emerging concept. At its core is the idea of revitalizing economies as they emerge from the recent economic crisis while significantly reducing environmental risks and addressing ecological scarcities.”
- “Globally, greening the economy is at the heart of renewed efforts to integrate environmental and social considerations with mainstream economic decision-making.”



# Environment within development agenda



- **Maintain biodiversity**
  - Environmental water rights
  - In-stream water demands
  - Sustainability of water resources
- **Maintain ecosystem services**
  - Water resources allocation
  - Reduce, reuse and recycle
  - Polluter pays principle
  - Water use efficiency
  - Full cost pricing
  - Indicators
    - Access to water and sanitation
    - Per capita water availability
    - Water losses (domestic and irrigation)
    - Virtual water and water footprints
    - Etc.

- Water Scarcity
- Food security
- Water and energy linkages
- Institutional set up and development
- Access to water supply and sanitation

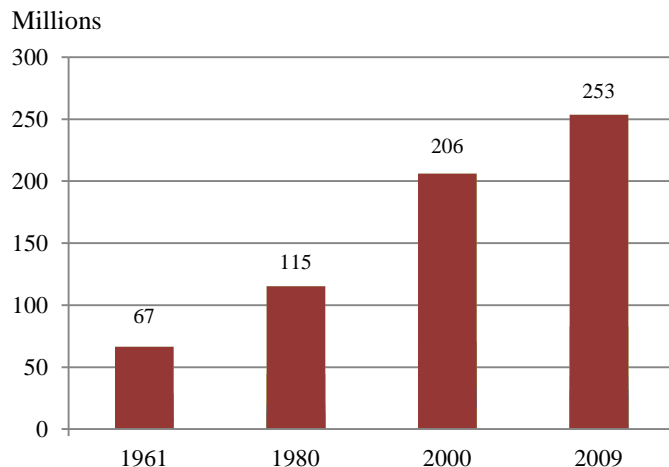




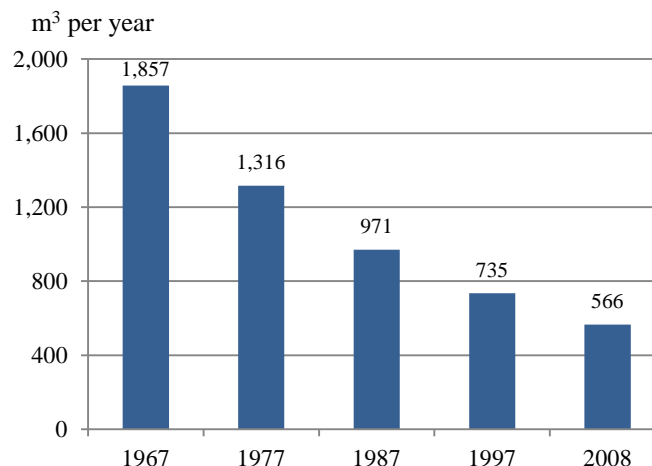
## (1) Water Scarcity

– Growing demand and declining supplies

**Total Population of the ESCWA**



**Total Per Capita Renewable Water Resources**



### Water withdrawals (as percentage of total renewable water resources)

Country	Bahrain 2007	Egypt 2002	Iraq 2002	Jordan 2007	Kuwait 2002	Qatar 2007	S. A. 2007	Syria 2007	UAE 2007	Yemen 2007
<b>Withdrawal</b>	<b>220</b>	<b>119</b>	<b>87</b>	<b>99</b>	<b>2465</b>	<b>544</b>	<b>943</b>	<b>100</b>	<b>2032</b>	<b>169</b>

Source: World bank and FAO - Aquastat



## (1) Water Scarcity (cont.)

### – Dependence on external water resources

Country	Bahrain	Egypt	Iraq	Jordan	Kuwait	Lebanon	Occ. Palest. Territories
Dependency Ratio (%)	97	97	53	27	100	0.80	3.0
Country	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
Dependency Ratio (%)	0	3.5	0	77	72	0	0

Source: FAO - Aquastat

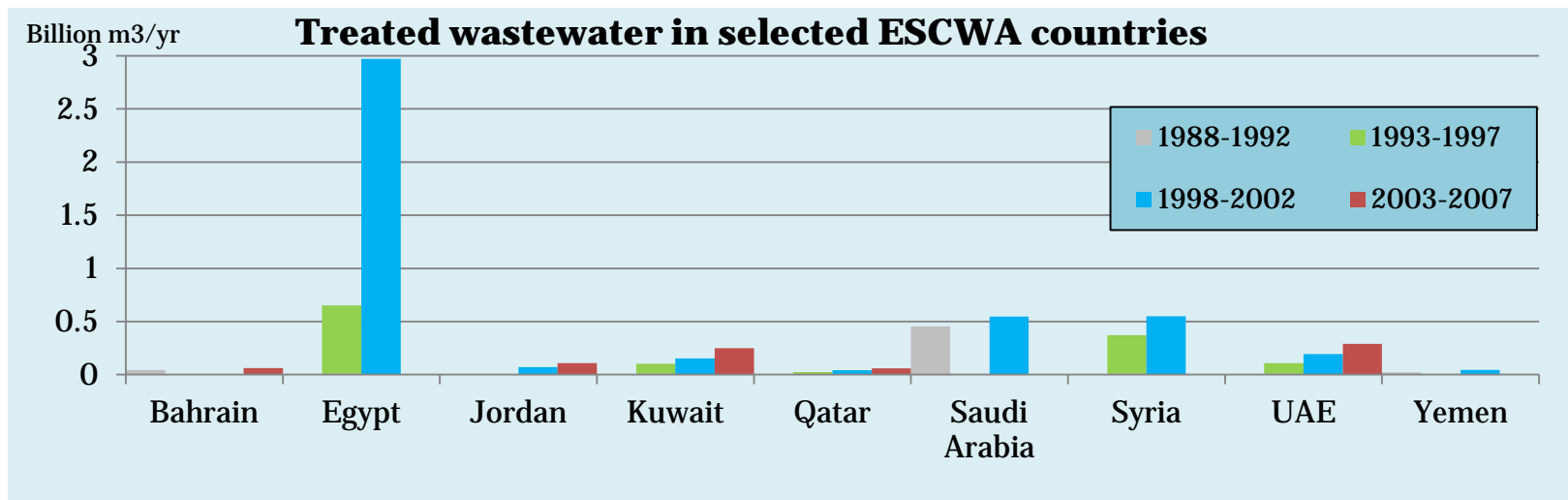
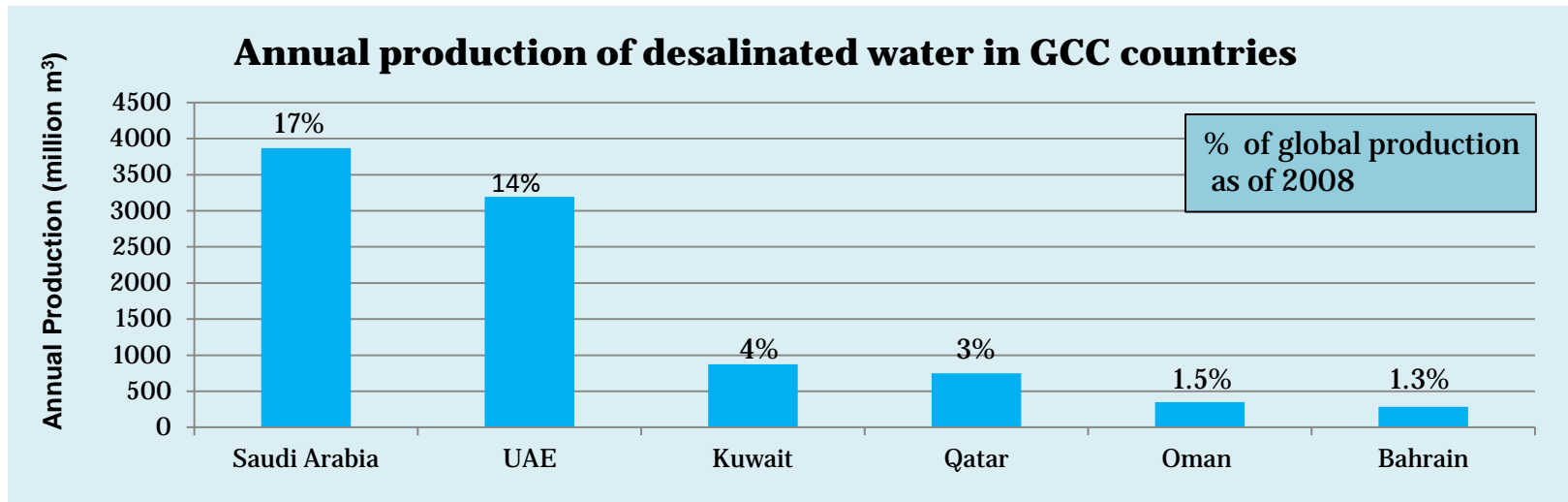
### – Climate change

- Rainfall variability
- Higher frequency of extreme weather events



## (1) Water Scarcity (cont.)

### – Non-conventional water resources



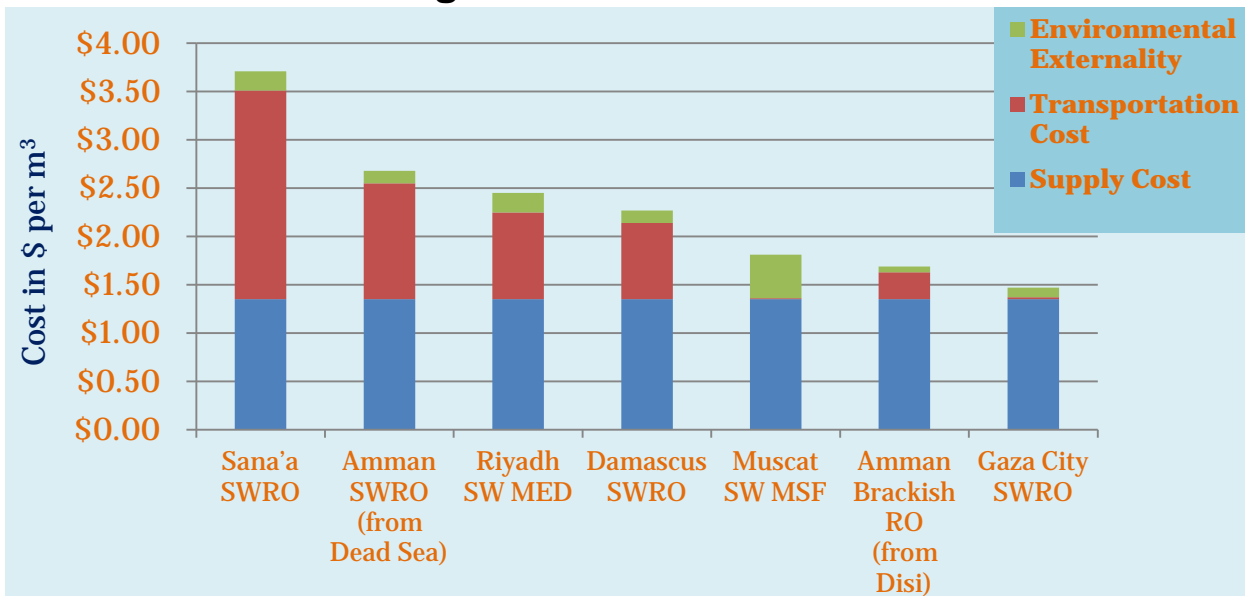


- Desalination as a industry – and promotion as green industry?
  - Desalination capacity of Saudi Arabia and the UAE accounts for over 30% of global desalinated freshwater production.
  - Desalination increasing in Egypt due to real estate and tourism expansion.
  - GCC examining desalination as an industry: R&D, O&M, training, jobs, exports
  - Not better than fossil groundwater extraction?

- **Water-Energy Linkages**

- Energy rich v/s Energy poor endowments cause difference
- Solar options being explored, but not well developed: KSA, UAE
- Transfer/transmission costs need to be considered
- Environmental externalities (CO2 emissions)

**Examining the full cost of Desalination**



Source: ESCWA Water Development Report 3 (2009)

## (1) Water Scarcity (cont.)

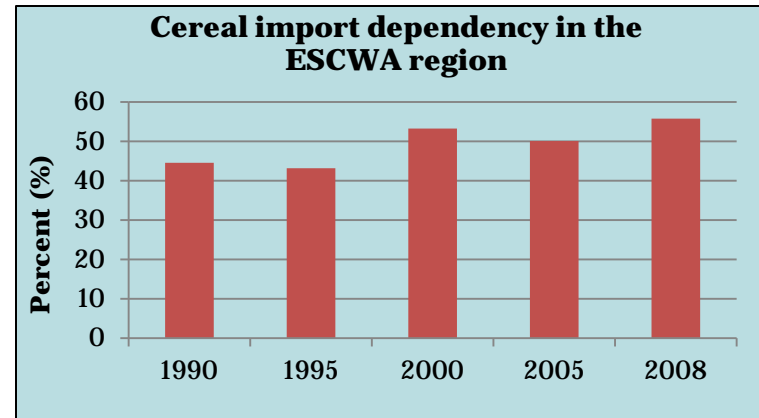
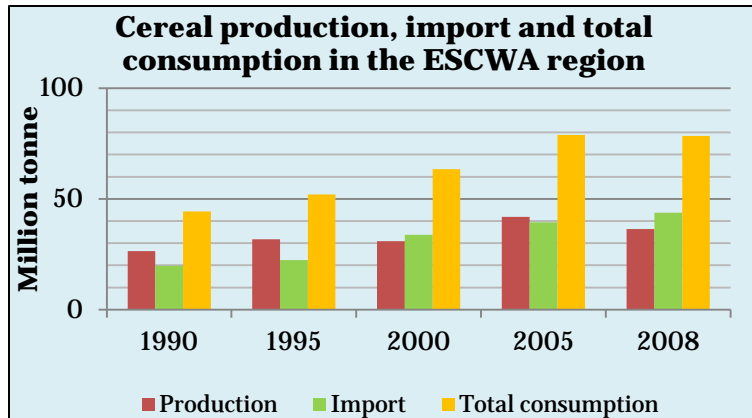
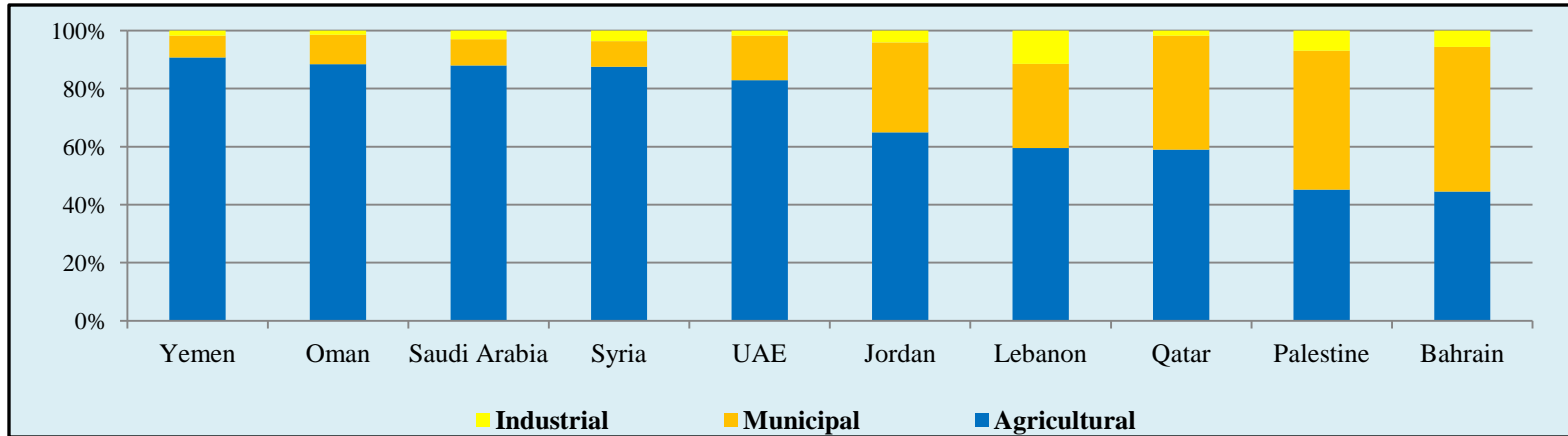
- Water quality
  - Sea water intrusion (over pumping / reduced river flow)
  - Naturally contaminated deep groundwater (salinity, heat, Fluoride, etc.).
  - Water pollution from domestic and industrial wastewater.



## (2) Food security

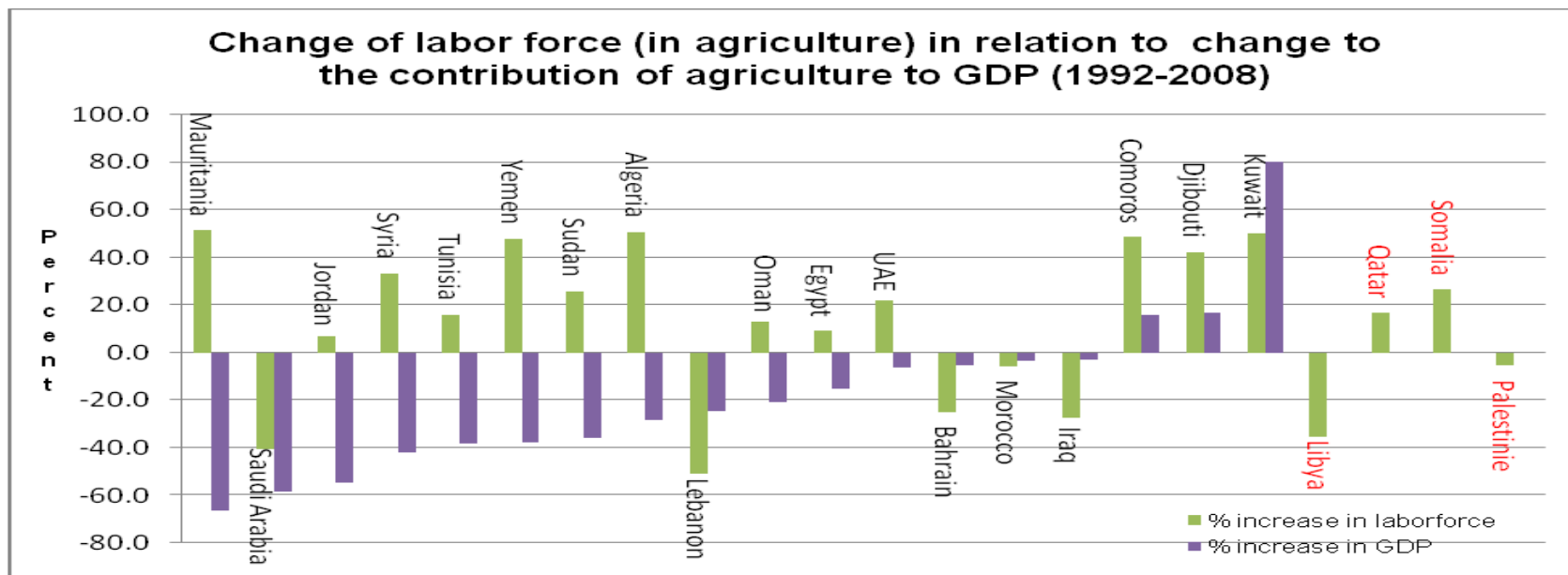
- Policy focus on internal agricultural production
  - Agriculture consumes around 80% of total water use
  - Groundwater mining

**Sectoral Water Withdrawal in Selected ESCWA Countries**

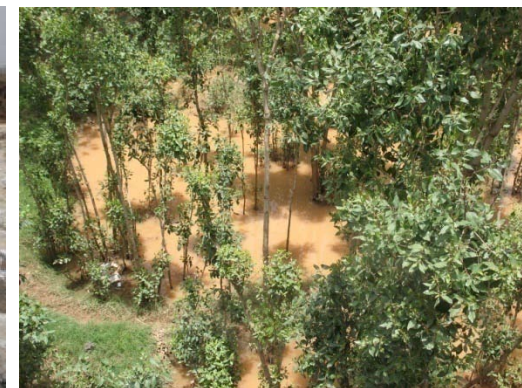


## (2) Food security (cont.)

- Employment in agriculture in relation to economic output



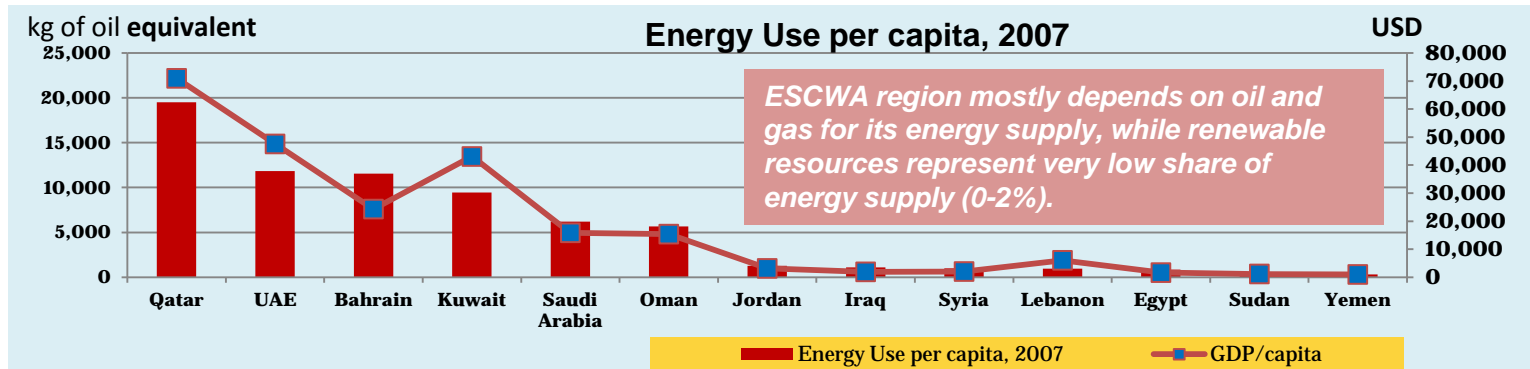
- Inefficient irrigation practices
- Land leasing in water rich countries





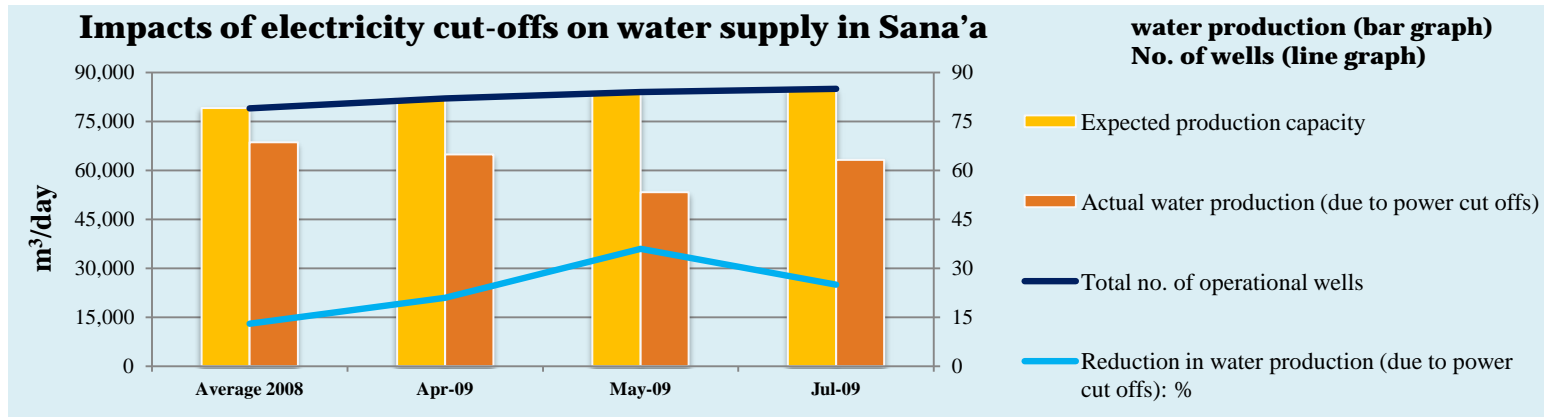
## (3) Water – Energy linkages

### – Diversity in access to and use of energy



Source: ESCWA, Sustainable Production and Consumption Patterns in the Energy and Water Sectors in the ESCWA Region (forthcoming, 2011)

- Need for energy in water supply
  - Pumping, water treatment (desalination), wastewater treatment, etc.
  - Saudi Arabia, the top desalinated water producer in the world, uses 1.5 million barrels of oil per day at its plants (Arab news).





## (3) Water – Energy linkages (cont.)

- Need for water in power production
  - Hydropower
  - Steam generation
  - Cleaning (solar panels / mirrors)
  - Etc.



## (4) Institutional setup and development

- Many countries have developed IWRM policies, strategies and plans
- Fragmentation of water resources management among various institutions.
- Ineffective stakeholders participation.
- Poor monitoring, reporting, sharing and dissemination of water quality and quantity data.
- Outdated water laws & legislation in some countries
- Ineffective inspection, implementation & enforcement of water legislation.
- Social & political constraints on water management.
- Low morale & low pay for water professionals in some countries.
- Inadequate financial allocation for investment in the water sector.
- Reform programs have taken place in many countries in the water and sanitation subsector.



## Contribution of access to safe water supply and sanitation services (goal 7-c) to the other MDGs:

- Improved public health leads to higher productivity (goal (1) on poverty alleviation, goal (4) on child mortality, and goal (6) on combating HIV, malaria and other diseases).
- Higher enrollment rates of children in schools (Goals (2) on access to primary education and goal (3) on gender equality).

### Goal 7

Ensure environmental sustainability

### Target 7-C

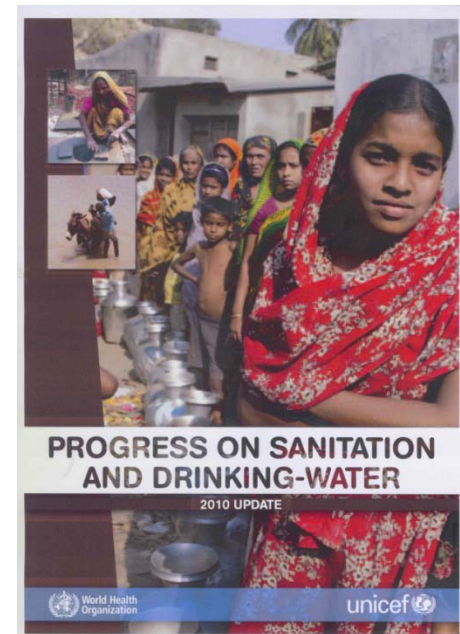
Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

**Indicator 7.8:** Proportion of population using an improved drinking water source

**Indicator 7.9:** Proportion of population using an improved sanitation facility

**Observation:** Protection of public health from water born and water related diseases is the main rationale behind the water and sanitation MDG.

- National level
  - Progress reports with assistance from UNDP
- Regional level (Arab region)
  - UN-LAS progress report
- Global level (Joint Monitoring Program – JMP)
  - Biennial reports (March 2010)
  - Country reports





- **Access to improved drinking water source**

- **Definition of improved water source**

“By the nature of their construction or through active intervention, are protected from outside contamination, particularly from faecal matter.”

## Unimproved

- Unprotected dug wells, unprotected springs tanker truck, surface water (river, dam, lake, pond, stream, canal, irrigation channel) and bottled water.

## Other Improved

- public taps or standpipes, tube wells, protected dug wells, protected springs, and rainwater collection.

## Improved

protected from outside contamination, particularly faecal matter

- Piped house connections.



- **Access to improved Sanitation facility**

- **Definition of Improved sanitation facility**

“Facilities that ensure hygienic separation of human excreta from human contact.”

## Open defecation

- Defecation in fields, forests, bushes, bodies of water, or disposal of human faeces with solid waste.

## Unimproved

- Pit latrines without slab or platform, hanging latrines and bucket latrines

## Shared (improved or unimproved)

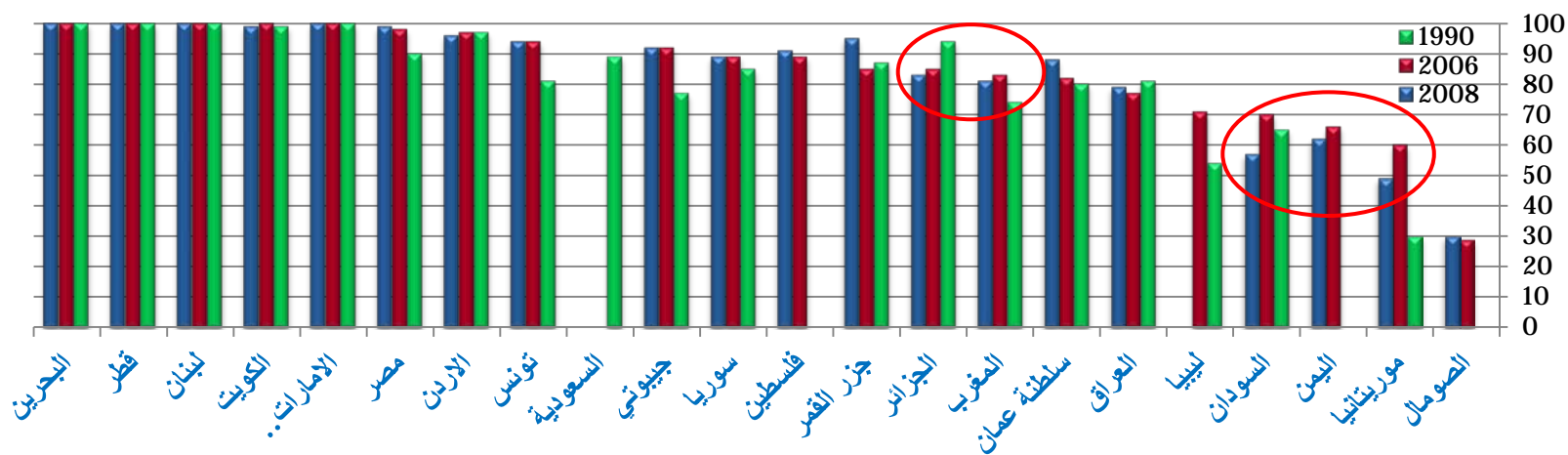
- Acceptable type, but shared between two or more households (incl. public toilets)

## Improved

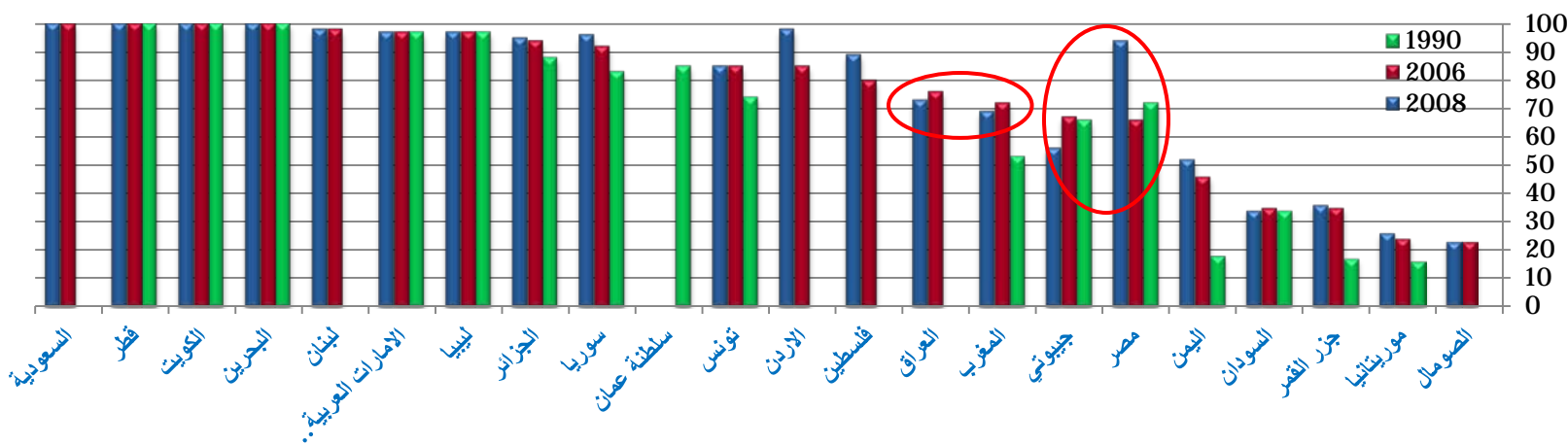
- Flush or pour flush toilet/latrine to: piped sewer system, septic tank or pit latrine
- Ventilated improved pit latrine
- Composting toilet

# Status of access to improved water and sanitation in the Arab region (1)

## Population with access to improved water supply source (%)



## Population with access to improved sanitation facilities (%)

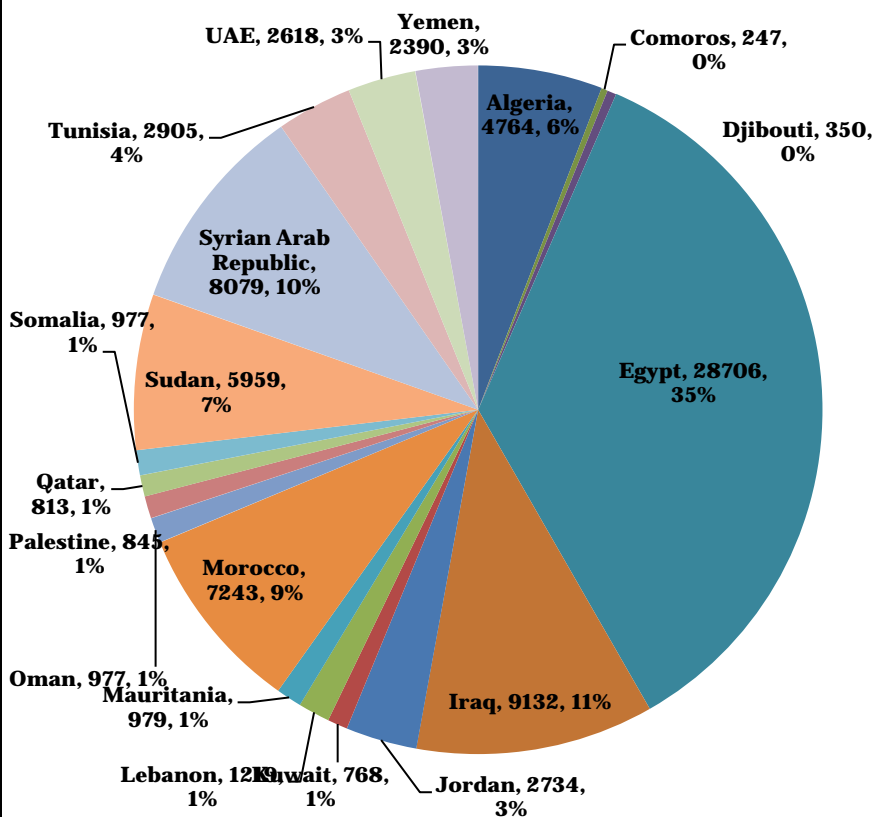


# Status of access to improved water and sanitation in the Arab region (2)



**Number of People gained access to improved Water source (1990-2008)**

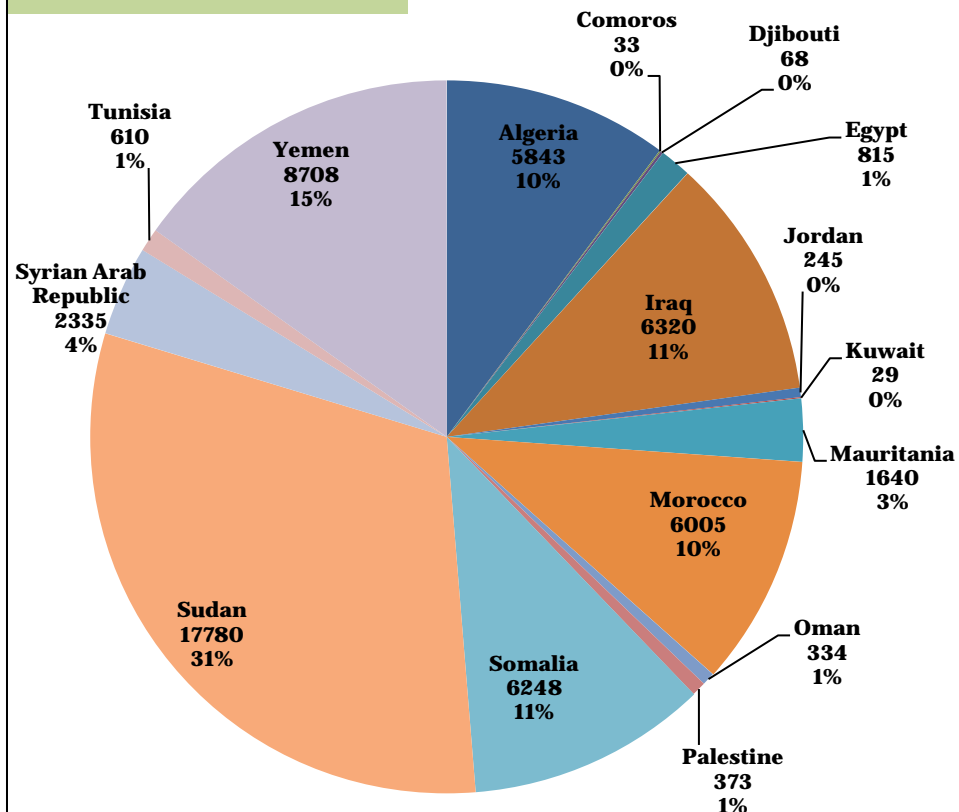
**TOTAL NUMBER 81.7 million**



Data source : 2010 JMP report  
 Figures in 000, and % are related to uncovered regional population

**Number of People without access to improved Water source (2008)**

**TOTAL NUMBER 57.4 million**

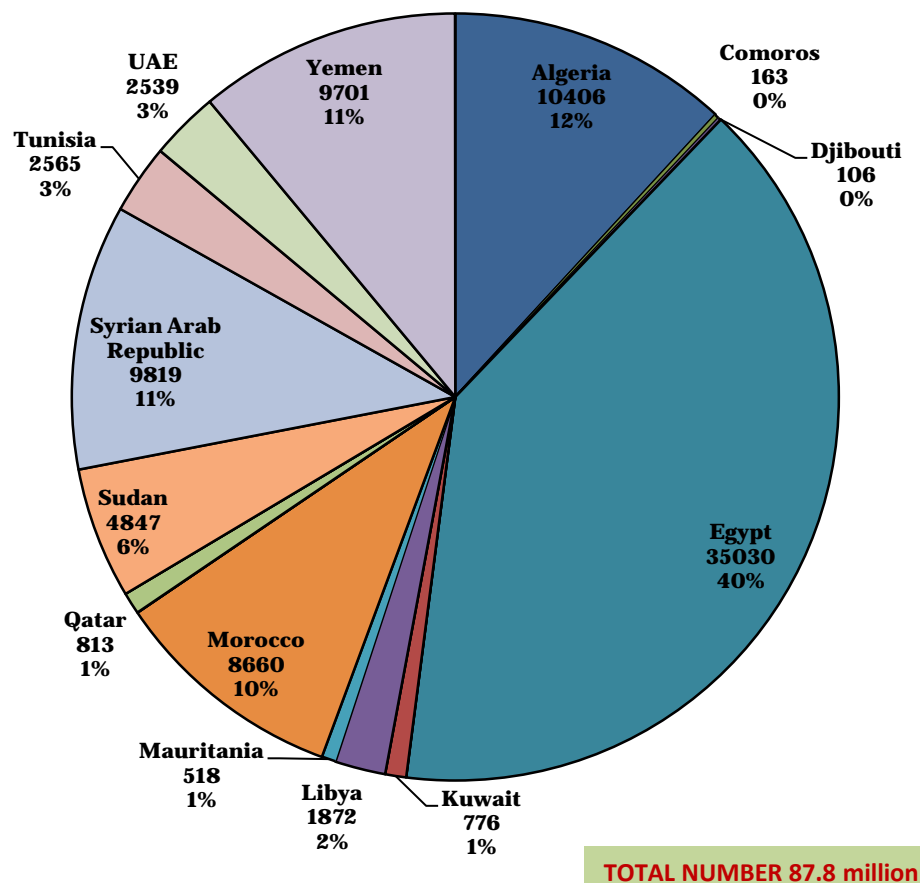


Data source : 2010 JMP report  
 Figures in 000, and % are related to uncovered regional population

# Status of access to improved water and sanitation in the Arab region (3)

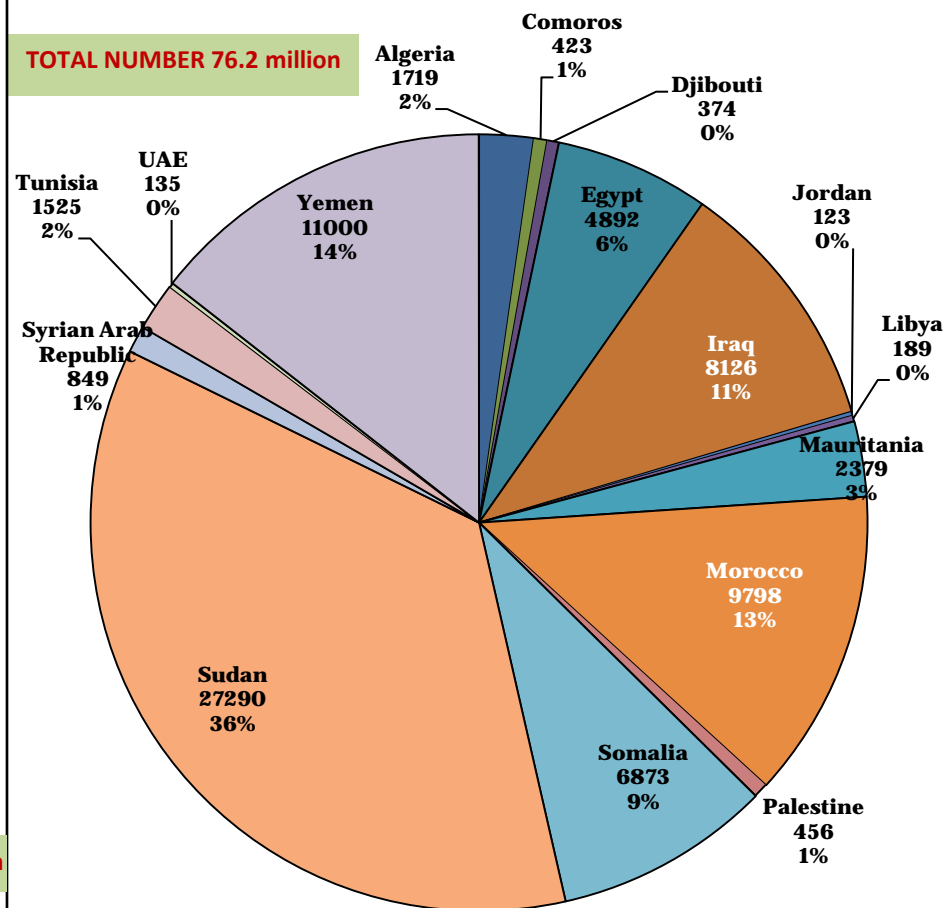


Number of People gained access to improved sanitation facilities (1990-2008)



Data source : 2010 JMP report  
 Figures in 000, and % are related to uncovered regional population

Number of People without access to improved sanitation facilities (2008)



Data source : 2010 JMP report  
 Figures in 000, and % are related to uncovered regional population

- AMWC resolutions
- Scope
  - Level and quality of services
  - Environmental protection
- Regional specificities
- Timeframe of original MDGs
- Indicators
  - Maximum additions with minimum efforts
  - Availability and measurability





## Technical

- Service coverage
- Leakages
- Water quality
- wastewater treatment
- Continuity of service
- Etc.

## Administrative

- Non-revenue water
- Number of staff per 1000 connections
- Etc.

## Financial

- Tariff structure
- Cost recovery
- Collection efficiency
- Etc.

- Usually there are long lists of indicators found within:
  - Standards (local or national level)
  - Guidelines and manuals (national & global)
  - Benchmarks and best practice (regional & global)
- These indicators are not incorporated within the global development agenda.
- Opportunity to expand (build on) the current MDGs to incorporate additional service related indicators.



## MDG+ Indicators

### Water Supply

- Water consumption
- Continuity of supply
- Water quality
- Distance to source
- Tariff structure
- Affordability

### Sanitation

- Treated quantity
- Treatment type
- Reuse utilization
- Reuse type
- Tariff structure
- Affordability

- Purpose is to consider not only accessibility to improved infrastructure, but also reliability, regularity, affordability, sustainability and quality of service provided.
- Differentiates between conventional/non-conventional sources: **Supply: rainwater harvesting; Sanitation: raw/treated reuse**
- These are particularly important issues to consider in water scarce environments and developing countries.

- **Template**
  - Two forms for basic MDG indicators (definitions and data sources)
  - Four forms for additional indicators
    - Two on water supply (urban and rural)
    - Two on sanitation (urban and rural)
  - Reference of the MDG+ initiative (template) in the Arab summit (Sharm El-Sheik, Egypt – 19 January 2011)



# MDG+ data collection template

إستمارة البيانات الخاصة بالموشرات الأساسية والإضافية لهدف الألفية المتعلقة بإمدادات المياه في المناطق الحضرية		إستمارة رقم (٢) من (٦)								
أولاً: بيانات عامة		الدولة:								
عدد السكان (1000 نسمة)		السنة:								
متوسط الدخل الشهري للفرد في الحضر (\$):		مصدر بيانات الدخل الشهري وتاريخه:								
ثانياً: بيانات عن مصادر إمداد المياه		المؤشر الأساسي								
متوسط سعر المتر المكعب	نوع التعرقة		بعد المصدر عن المنزل	نوعية المياه		استمرارية الإمداد		متوسط كمية الإستهلاك اليومي للفرد (لتر)	عدد سكان الحضر المخدومين (1000 X)	نوع المصدر
	معيار	عدد السكان (1000 X)		معيار	عدد السكان (1000 X)	معيار	عدد السكان (1000 X)			
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	ك	٣٥		ز	١٥	ب	٥			
						ج	٦			
						د	٧			
						هـ	٨			
٣٧			ح	و	١٦	أ	٩	٢		حديقة عمومية من شبكة إمداد
			ط	ز	١٧	ب	١٠			
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٣٨			ح							مياه سطحية
			ط							مياه الناقلات



# MDG+ data collection template



إستمارة البيانات الخاصة بالمؤشرات الأساسية والإضافية لهدف الألفية المتعلق بالإصحاح في المناطق الحضرية															
إستمارة رقم (٥) من (٦)															
أولاً: بيانات عامة															
الدولة:															
تاريخ تعبئة الإستمارة:															
عدد السكان (1000 X) السنة: إجمالي: حضر:															
المؤشرات الإضافية										المؤشر الأساسي		ثانياً: بيانات عن وسائل التخلص من المخلفات المنزلية			
متوسط التكلفة		نوع التعرقة		مجالات إعادة الإستخدام بدون معالجة		مياه الصرف غير المعالجة		مجالات إعادة الإستخدام بعد المعالجة		نوعية المعالجة		مياه الصرف المعالجة		عدد سكان الحضر	
شهرياً	للمتر المكعب	معيار	عدد السكان (1000 X)	معيار	عدد السكان (1000 X)	معيار	عدد السكان (1000 X)	معيار	عدد السكان (1000 X)	معيار	عدد السكان (1000 X)	معيار	عدد السكان (1000 X)	نوع المرفق/الوسيلة (1000 X)	
٩٥	٩٤	ت	٩٢	ف	٨٧	ف	٨٦	ن	٧٨	ع	٦٩	ع	٨٦	٧٧	حمامات داخل المنزل
		ث	٩٣	ص	٨٨	ص	٨٦	س	٧٩	ع	٨٦	ع	٨٦		موصولة بشبكة الصرف الصحي
				ق	٨٢	ق	٨٣								حمامات داخل المنزل
				ر	٨٠	ر	٨٤								موصولة بخزان تحليل
				ش	٩١	ش	٨٥								حمامات داخل المنزل
															موصولة بحفرة إمتصاص
															حمامات داخل المنزل
															موصولة بحفرة إمتصاص
															مرافق أخرى تؤمن الفصل بين الإنسان والمخلفات
															مرافق إصحاح مُحسنة ولكن مشتركة
															مرافق إصحاح لا تؤمن الفصل بين الإنسان والمخلفات
															التبرز في المناطق المفتوحة
															مرفق/وسيلة إصحاح
															غير مُحسن



- ‘Green Economy’ is still an emerging concept with the aim to revitalize economies while significantly reducing environmental risks and addressing ecological scarcities.
- Environmental protection is not fully integrated in socio-economic development in the ESCWA region.
- The region faces major water challenges that could impede development (water scarcity, food security, institutional capacity, finance, etc.).
- Access to safe water supply and sanitation facilities has been identified as an important requirement/element/driver of green economy.
- There is high discrepancy in access to water and sanitation among countries of the ESCWA region (GCC – LDCs).
- The Basic water and sanitation MDG indicators are health based and do not reflect the level or quality of services.
- A regional monitoring initiative has been approved by the Arab Ministerial Water Council to build upon the basic MDG indicators as to incorporate additional indicators that reflect level and quality of services as well as environmental protection.

# Thanks for your attention ...



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